

# RAC AGENDA – MAY 2015



- |    |   |                      |
|----|---|----------------------|
| 1. | Welcome, RAC Introductions and RAC Procedure<br>- RAC Chair   |                      |
| 2. | Approval of Agenda and Minutes<br>- RAC Chair   |                      |
| 3. | Wildlife Board Meeting Update<br>- RAC Chair  | <b>INFORMATIONAL</b> |
| 4. | Regional Update<br>- DWR Regional Supervisor  | <b>INFORMATIONAL</b> |
| 5. | Waterfowl Recommendations<br>- Blair Stringham, Waterfowl Coordinator   | <b>ACTION</b>        |
| 6. | Urban Deer Control – R657- 65 Rule Amendments<br>- Scott McFarlane, Private Lands/Public Wildlife Coordinator | <b>ACTION</b>        |
| 7. | Election of RAC Chairman and Vice Chairman<br>- Regional Supervisor   | <b>ACTION</b>        |

**Region Specific Items – to be presented in the specified region only.**

- |      |   |                      |
|------|---|----------------------|
| CR - | North Sanpete Habitat Management Plan<br>- Mark Farmer, CR Aquatics Manager | <b>INFORMATIONAL</b> |
| SR - | Deer Management Plans<br>-Teresa Griffin, SR Wildlife Manager               | <b>ACTION</b>        |
| NR - | WMA Habitat Management Plans<br>-Pam Kramer, NR Habitat Manager             | <b>INFORMATIONAL</b> |

**NR RAC –** May 5th 6:00 PM  
Brigham City Community Center  
24 N. 300 W. , Brigham City

**SER RAC –** May 13th 6:30 PM  
City Council Chambers  
460 E Main St., Green River

**CR RAC –** May 6th 6:30 PM  
Springville Public Library  
45 S. Main Street, Springville

**NER RAC –** May 14th 6:30 PM  
Wildlife Resources NER Office  
318 North Vernal Ave, Vernal

**SR RAC –** May 12th 7:00 PM Location Change  
Hurricane High School  
345 W. 100 S., Hurricane

**Board Meeting –** June 4th 9:00 AM  
DNR, Boardroom  
1594 W. North Temple, SLC



**GARY R. HERBERT**  
Governor

**SPENCER COX**  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

**MICHAEL R. STYLER**  
Executive Director

### Division of Wildlife Resources

**GREGORY SHEEHAN**  
Division Director

April 15, 2015

**TO:** Utah Wildlife Board / Regional Advisory Council Members  
**FROM:** Blair Stringham  
Migratory Game Bird Program Coordinator  
**SUBJECT:** 2015-16 Migratory Game Bird Season Recommendations

The North American Duck Breeding Pair Survey and May Pond Survey results have not been released yet, so specific season dates and bag limits will not be finalized until that information is available. These recommendations represent what the anticipated season dates will be for 2015-16. Any significant deviations from what is presented will be brought to the attention of the RACs/Wildlife Board before finalizing recommendations.

General season duck harvest frameworks are driven by the status of mallard breeding populations. In 2008, a Western Mallard Harvest Strategy was implemented to determine harvest regulations in the Pacific Flyway. Additionally, scaup, pintail and canvasback have separate harvest frameworks that are based on species-specific harvest strategies. The Division will select the most liberal season and bag packages offered by the USFWS.

The Division is recommending adjusting light geese hunting dates to better coincide with dates light geese move through the state. We recommend extending the first portion of the light goose season to Feb 7 for the urban and general goose zones.

The interior population of band-tailed pigeons has shown a stable to declining trend for the last 40 years. The results of the 2014 Breeding Bird Survey and Hunter Harvest Report show a similar trend in declining population and reduced harvest. In 2015, the Pacific Flyway Council recommended reducing the season length to 14 days; therefore, the Division is recommending a 14-day season in 2015.

The DWR is recommending the following rule changes:

- 1- Changing the name Common Snipe to Wilson's Snipe.
- 2- Redefining closed areas.
- 3- Redefining blinds on WMAs.

Specific season and bag recommendations for the 2015-2016 Utah waterfowl season and band-tailed pigeon are as follows:

Band-tailed Pigeon (2 bag/6 possession)  
Season: 9/1/2015 – 9/14/2015



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April 20, 2015  
Subject: 2015-16 Migratory Game Bird Recommendations

Youth Day: 9/19/2015

Duck/Coot/Merganser (7 bag/21 possession; 2 female mallards, 2 redheads, 2 wood ducks)  
Season: 10/3/2015 – 1/16/2016  
Scaup/Pintail/Canvasback: Maximum Allowed Bag and Season Dates

Dark Goose (4 bag/12 possession)  
Northern Zone: 10/3/2015 – 1/16/2016  
Rest of the State: 10/3/2015 – 10/15/2015; 10/24/2015 – 1/24/2016  
Urban Zone: 10/3/2015 – 10/15/2015; 11/7/2015 – 2/7/2016

Light Goose (20 bag/60 possession)  
Northern Zone: 10/24/2015 – 1/16/2016; 2/18/2016 – 3/10/2016  
Rest of the State and Urban Zone: 11/3/2015 – 2/7/2016; 3/1/2016 – 3/10/2016

Snipe (8 bag/24 possession)  
Season: 10/3/2015 – 1/16/2016

Falconry (3 bag/9 possession)  
Season: 10/3/2015 – 1/16/2016

Swan (1 with permit; 2000 total permits)  
Season: 10/3/2015 – 12/13/2015

**R657. Natural Resources, Wildlife Resources.**

**R657-9. Taking Waterfowl, CommonWilson's Snipe and Coot.**

**R657-9-1. Purpose and Authority.**

(1) Under authority of Sections 23-14-18 and 23-14-19, and in accordance with 50 CFR 20, 50 CFR 32.64 and 50 CFR 27.21, 2004 edition, which is incorporated by reference, the Wildlife Board has established this rule for taking waterfowl, CommonWilson's snipe, and coot.

(2) Specific dates, areas, limits, requirements and other administrative details which may change annually are published in the guidebook of the Wildlife Board for taking waterfowl, CommonWilson's snipe and coot.

**R657-9-2. Definitions.**

(1) Terms used in this rule are defined in Section 23-13-2.

(2) In addition:

(a) "Bait" means shelled, shucked or unshucked corn, wheat or other grain, salt or other feed that lures, attracts or entices birds.

(b) "Baiting" means the direct or indirect placing, exposing, depositing, distributing, or scattering of salt, grain, or other feed that could serve as a lure or attraction for migratory game birds to, on, or over any areas where hunters are attempting to take them.

(c) "CFR" means the Code of Federal Regulations.

(d) "Daily Bag Limit" means the maximum number of migratory game birds of a single species or combination (aggregate) of species permitted to be taken by one person in any one day during the open season in any one specified geographic area for which a daily bag limit is prescribed.

(e) "Dark geese" means the following species: cackling, Canada, white-fronted and brant.

(f) "Light geese" means the following species: snow, blue and Ross'.

(g) "Live decoys" means tame or captive ducks, geese or other live birds.

(h) "Off-highway vehicle" means any motor vehicle designed for or capable of travel over unimproved terrain.

(i) "Permanent waterfowl blind" means any waterfowl blind that is left unattended overnight and that is not a portable structure capable of immediate relocation.

(j) "Possession limit" the maximum number of migratory game birds of a single species or a combination of species permitted to be possessed by any one person when lawfully taken in the United States in any one specified geographic area for which a possession limit is prescribed.

(k) "Sinkbox" means any type of low floating device, having a depression, affording the hunter a means of concealment beneath the surface of the water.

(l) "Transport" means to ship, export, import or receive or deliver for shipment.

(m) "Waterfowl" means ducks, mergansers, geese, brant and swans.

(n) "Waterfowl blind" means any manufactured place of concealment, including boats, rafts, tents, excavated pits, or similar structures, which have been designed to partially or completely conceal a person while hunting waterfowl.

**R657-9-3. Stamp Requirements.**

(1) Any person 16 years of age or older may not hunt waterfowl without first

obtaining a federal migratory bird hunting and conservation stamp, and having the stamp in possession.

(2) The stamp must be validated by the hunter's signature in ink across the face of the stamp.

(3) A federal migratory bird hunting and conservation stamp is not required for any person under the age of 16.

#### **R657-9-4. Permit Applications for Swan.**

(1) Swan permits will be issued pursuant to R657-62-22

#### **R657-9-5. Tagging Swans.**

(1) The carcass of a swan must be tagged before the carcass is moved from or the hunter leaves the site of kill as provided in Section 23-20-30.

(2) A person may not hunt or pursue a swan after the notches have been removed from the tag or the tag has been detached from the permit.

#### **R657-9-6. Return of Swan Harvest and Hunt Information.**

(1) Swan permit holders who do not hunt or are unsuccessful in taking a swan must respond to the swan questionnaire through the division's Internet address, or by telephone, within 30 calendar days of the conclusion of the prescribed swan hunting season.

(2) Within three days of harvest, swan permit holders successful in taking a swan must personally present the swan or its head for measurement to the division or the Bear River Migratory Bird Refuge and further provide all harvest information requested by the division or Refuge.

(3) Hunters who fail to comply with the requirements of Subsections (1) or (2) shall be ineligible to:

(a) obtain a swan permit the following season; and

(b) obtain a swan permit after the first season of ineligibility until the swan orientation course is retaken.

(4) late swan questionnaires may be accepted pursuant to Rule R657-42-9(3). Swan permit holders are still required to present the swan or its head for measurement to a division office.

#### **R657-9-7. Authorized Weapons.**

(1) Migratory game birds may be taken with a shotgun, crossbow or archery tackle, including a draw lock.

(2) Migratory game birds may not be taken with a trap, snare, net, rifle, pistol, swivel gun, shotgun larger than 10 gauge, punt gun, battery gun, machine gun, fish hook, poison, drug, explosive or stupefying substance.

(3) Migratory game birds may not be taken with a shotgun of any description capable of holding more than three shells, unless it is plugged with a one-piece filler, incapable of removal without disassembling the gun, so its total capacity does not exceed three shells, except as authorized by the Wildlife Board and specified in the guidebook of the Wildlife Board for taking Waterfowl, ~~Common~~Wilson's snipe and Coot.

#### **R657-9-8. Nontoxic Shot.**

(1) Only nontoxic shot may be in possession or used while hunting waterfowl and coot.

(2) A person may not possess or use lead shot:

(a) while hunting waterfowl or coot in any area of the state;

(b) on federal refuges;

(c) on the following waterfowl management areas: Bicknell Bottoms, Blue Lake, Brown's Park, Clear Lake, Desert Lake, Farmington Bay, Harold S. Crane, Howard Slough, Locomotive Springs, Manti Meadow, Mills Meadows, Ogden Bay, Powell Slough, Public Shooting Grounds, Salt Creek, ~~Stewart~~Stewart's Lake, Timpie Springs; or

(d) on the Scott M. Matheson wetland preserve.

#### **R657-9-9. Use of Weapons on State Waterfowl Management Areas.**

(1) A person may not possess a firearm, crossbow, or archery tackle on the following waterfowl management areas any time of the year except during the specified waterfowl hunting seasons or as authorized by the division: Bicknell Bottoms, Blue Lake, Brown's Park, Clear Lake, Desert Lake, Farmington Bay, Harold S. Crane, Howard Slough, Locomotive Springs, Mills Meadows, Ogden Bay, Powell Slough, Public Shooting Grounds, Salt Creek, ~~Stewart~~Stewart's Lake, Timpie Springs and Topaz.

(2) During the waterfowl hunting seasons, a shotgun is the only firearm that may be in possession, except as provided in Rule R657-12.

(3) The firearm restrictions set forth in this section do not apply to a person licensed to carry a concealed weapon in accordance with Title 53, Chapter 5, Part 7 of the Utah Code, provided the person is not utilizing the concealed firearm to hunt or take wildlife.

#### **R657-9-10. Airborne, Terrestrial, and Aquatic Vehicles.**

Migratory game birds may not be taken:

(1) from or by means of any motorboat or other craft having a motor attached, or sailboat unless the motor has been completely shut off or sails furled and its progress has ceased: provided, that a craft under power may be used to retrieve dead or crippled birds; however, crippled birds may not be shot from such craft under power; or

(2) by means or aid of any motor driven land, water or air conveyance, or any sailboat used for the purpose of or resulting in the concentrating, driving, rallying or stirring up of any migratory bird.

#### **R657-9-11. Airboats.**

(1) Air-thrust or air-propelled boats and personal watercraft are not allowed in designated parts of the following waterfowl management or federal refuge areas:

(a) Box Elder County: Box Elder Lake, Bear River, that part of Harold S. Crane within one-half mile of all dikes and levees, Locomotive Springs, Public Shooting Grounds and Salt Creek, that part of Bear River Migratory Bird Refuge north of "D" line dike, and outside Units 1, 3, 4 and 5 as posted.

(b) Daggett County: Brown's Park

(c) Davis County: Howard Slough, Ogden Bay and Farmington Bay within diked units or as posted

(d) Emery County: Desert Lake

(e) Millard County: Clear Lake, Topaz Slough

- (f) Tooele County: Timpie Springs
  - (g) Uintah County: ~~Stewart~~Stewart's Lake
  - (h) Utah County: Powell Slough
  - (i) Wayne County: Bicknell Bottoms
  - (j) Weber County: Ogden Bay within diked units or as posted and the portion of Harold S. Crane Waterfowl Management Area that falls within the county line.
- (2) "Personal watercraft" means a motorboat that is:
- (a) less than 16 feet in length;
  - (b) propelled by a water jet pump; and
  - (c) designed to be operated by a person sitting, standing or kneeling on the vessel, rather than sitting or standing inside the vessel.

**R657-9-12. Motorized Vehicle Access.**

- (1) Motorized vehicle travel is restricted to county roads, improved roads and parking areas.
- (2) Off-highway vehicles are not permitted on state waterfowl management areas, except as marked and posted open.
- (3) Off-highway vehicles are not permitted on Bear River Migratory Bird Refuge.
- (4) Motorized boat use is restricted on waterfowl management areas as specified in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot.

**R657-9-13. Sinkbox.**

A person may not take migratory game birds from or by means, aid, or use of any type of low floating device, having a depression affording the hunter a means of concealment beneath the surface of the water.

**R657-9-14. Live Decoys.**

A person may not take migratory game birds with the use of live birds as decoys or from an area where tame or captive live ducks or geese are present unless such birds are and have been, for a period of ten consecutive days prior to such taking, confined within an enclosure which substantially reduces the audibility of their calls and totally conceals such birds from the sight of wild migratory waterfowl.

**R657-9-15. Amplified Bird Calls.**

A person may not use recorded or electrically amplified bird calls or sounds or recorded or electronically amplified imitations of bird calls or sounds except as authorized by the Wildlife Board and specified in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot.

**R657-9-16. Baiting.**

- (1) A person may not take migratory game birds by the aid of baiting, or on or over any baited area where a person knows or reasonably should know that the area is or has been baited. This section does not prohibit:
  - (a) the taking of any migratory game bird on or over the following lands or areas that are not otherwise baited areas:

(i) standing crops or flooded standing crops (including aquatics), standing, flooded or manipulated natural vegetation, flooded harvested croplands, or lands or areas where seeds or grains have been scattered solely as the result of a normal agricultural planting, harvesting, post-harvest manipulation or normal soil stabilization practice;

(ii) from a blind or other place of concealment camouflaged with natural vegetation;

(iii) from a blind or other place of concealment camouflaged with vegetation from agricultural crops, as long as such camouflaging does not result in the exposing, depositing, distributing or scattering of grain or other feed; or

(iv) standing or flooded standing agricultural crops where grain is inadvertently scattered solely as a result of a hunter entering or exiting a hunting area, placing decoys or retrieving downed birds.

(b) The taking of any migratory game bird, except waterfowl, coots and cranes, is legal on or over lands or areas that are not otherwise baited areas, and where grain or other feed has been distributed or scattered solely as the result of manipulation of an agricultural crop or other feed on the land where grown or solely as the result of a normal agricultural operation.

**R657-9-17. Possession During Closed Season.**

No person shall possess any freshly killed migratory game birds during the closed season.

**R657-9-18. Live Birds.**

(1) Every migratory game bird wounded by hunting and reduced to possession by the hunter shall be immediately killed and become part of the daily bag limit.

(2) No person shall at any time, or by any means possess or transport live migratory game birds.

**R657-9-19. Waste of Migratory Game Birds.**

(1) A person may not waste or permit to be wasted or spoiled any protected wildlife or any part of them.

(2) No person shall kill or cripple any migratory game bird pursuant to this rule without making a reasonable effort to immediately retrieve the bird and include it in that person's daily bag limit.

**R657-9-20. Termination of Possession.**

Subject to all other requirements of this part, the possession of birds taken by any hunter shall be deemed to have ceased when the birds have been delivered by the hunter to another person as a gift; to a post office, a common carrier, or a migratory bird preservation facility and consigned for transport by the Postal Service or common carrier to some person other than the hunter.

**R657-9-21. Tagging Requirement.**

(1) No person shall put or leave any migratory game bird at any place other than at that person's personal abode, or in the custody of another person for picking, cleaning, processing, shipping, transporting or storing, including temporary storage, or for the purpose of having taxidermy services performed unless there is attached to the birds a

disposal receipt, donation receipt or transportation slip signed by the hunter stating the hunter's address, the total number and species of birds, the date such birds were killed and the Utah hunting license number under which they were taken.

(2) Migratory game birds being transported in any vehicle as the personal baggage of the possessor shall not be considered as being in storage or temporary storage.

**R657-9-22. Donation or Gift.**

No person may receive, possess or give to another, any freshly killed migratory game birds as a gift, except at the personal abodes of the donor or donee, unless such birds have a tag attached, signed by the hunter who took the birds, stating such hunter's address, the total number and species of birds taken, the date such birds were taken and the Utah hunting license number under which taken.

**R657-9-23. Custody of Birds of Another.**

No person may receive or have in custody any migratory game birds belonging to another person unless such birds are tagged as required by Section R657-9-21.

**R657-9-24. Species Identification Requirement.**

No person shall transport within the United States any migratory game birds unless the head or one fully feathered wing remains attached to each bird while being transported from the place where taken until they have arrived at the personal abode of the possessor or a migratory bird preservation facility.

**R657-9-25. Marking Package or Container.**

(1) No person shall transport by the Postal Service or a common carrier migratory game birds unless the package or container in which such birds are transported has the name and address of the shipper and the consignee and an accurate statement of the numbers and kinds of species of birds contained therein clearly and conspicuously marked on the outside thereof.

(2) A Utah shipping permit obtained from the division must accompany each package shipped within or from Utah.

**R657-9-26. Migratory Bird Preservation Facilities.**

(1) Migratory bird preservation facility means:

(i) Any person who, at their residence or place of business and for hire or other consideration; or

(ii) Any taxidermist, cold-storage facility or locker plant which, for hire or other consideration; or

(iii) Any hunting club which, in the normal course of operations; receives, possesses, or has in custody any migratory game birds belonging to another person for purposes of picking, cleaning, freezing, processing, storage or shipment.

(2) No migratory bird preservation facility shall:

(a) receive or have in custody any migratory game bird unless accurate records are maintained that can identify each bird received by, or in the custody of, the facility by the name of the person from whom the bird was obtained, and show:

(i) the number of each species;

- (ii) the location where taken;
- (iii) the date such birds were received;
- (iv) the name and address of the person from whom such birds were received;
- (v) the date such birds were disposed of; and
- (vi) the name and address of the person to whom such birds were delivered; or

(b) destroy any records required to be maintained under this section for a period of one year following the last entry on record.

(3) Record keeping as required by this section will not be necessary at hunting clubs that do not fully process migratory birds by removal of the head and wings.

(4) No migratory bird preservation facility shall prevent any person authorized to enforce this part from entering such facilities at all reasonable hours and inspecting the records and the premises where such operations are being carried out.

#### **R657-9-27. Importation.**

A person may not:

- (1) import migratory game birds belonging to another person; or
- (2) import migratory game birds in excess of the following importation limits:
  - (a) From any country except Canada and Mexico, during any one calendar week beginning on Sunday, not to exceed 10 ducks, singly or in the aggregate of all species, and five geese including brant, singly or in the aggregate of all species;
  - (b) From Canada, not to exceed the maximum number to be exported by Canadian authorities;
  - (c) From Mexico, not to exceed the maximum number permitted by Mexican authorities in any one day: provided that if the importer has his Mexican hunting permit date-stamped by appropriate Mexican wildlife authorities on the first day he hunts in Mexico, he may import the applicable Mexican possession limit corresponding to the days actually hunted during that particular trip.

#### **R657-9-28. Use of Dogs.**

(1) An individual may not use or permit a dog to harass, pursue, or take protected wildlife unless otherwise allowed for in the Wildlife Code, administrative rules issued under Wildlife Code, or a guidebook of the Wildlife Board.

(2) Dogs may be used to locate and retrieve turkey during open turkey hunting seasons.

(3) Dogs are generally allowed on state wildlife management and waterfowl management areas, subject to the following conditions.

(a) Dogs are not allowed on the following state wildlife management areas and waterfowl management areas between March 10 and August 31 annually or as posted by the Division:

- (i) Annabella;
- (ii) Bear River Trenton Property Parcel;
- (iii) Bicknell Bottoms;
- (iv) Blue Lake;
- (v) Browns Park;
- (vi) Bud Phelps;
- (vii) Clear Lake;

- (viii) Desert Lake;
- (ix) Farmington Bay;
- (x) Harold S. Crane;
- (xi) Hatt's Ranch
- (xii) Howard Slough;
- (xiii) Huntington;
- (xiv) James Walter Fitzgerald;
- (xv) Kevin Conway;
- (xvi) Locomotive Springs;
- (xvii) Manti Meadows;
- (xviii) Mills Meadows;
- (xix) Montes Creek;
- (xx) Nephi;
- (xxi) Ogden Bay;
- (xxii) Pahvant;
- (xxiv) Public Shooting Grounds;
- (xxv) Redmond Marsh;
- (xxvi) Richfield;
- (xxvii) Roosevelt;
- (xxviii) Salt Creek;
- (xxix) Scott M. Matheson Wetland Preserve;
- (xxx) Steward Lake;
- (xxxi) Timpie Springs;
- (xxxii) Topaz Slough;
- (xxxiii) Vernal; and
- (xxxiv) Willard Bay.

(b) The Division may establish special restrictions for Division-managed properties, such as on-leash requirements and temporary or locational closures for dogs, and post them at specific Division properties and at Regional offices;

(c) Organized events or group gatherings of twenty-five (25) or more individuals that involve the use of dogs, such as dog training or trials, that occur on Division properties may require a special use permit as described in R657-28; and

(d) Dog training may be allowed in designated areas on Lee Kay Center and Willard Bay WMA by the Division without a special use permit.

#### **R657-9-29. Season Dates and Bag and Possession Limits.**

(1) Season dates and bag and possession limits are specified in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot.

(2) A youth duck hunting day may be allowed for any person 15 years of age or younger as provided in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot.

#### **R657-9-30. Rest Areas and No Shooting Areas.**

(1) A person may only access and use state waterfowl management areas in accordance with state and federal law, state administrative code, and proclamations of the Wildlife Board.

(2)(a) The division may establish portions of state waterfowl management areas as "rest areas" for wildlife that are closed to the public and trespass of any kind is prohibited.

(b) In addition to any areas identified in the proclamation of the Wildlife Board for taking waterfowl, Wilson's snipe, and coot, the following areas are designated as rest areas:

(i) That portion of Clear Lake Waterfowl Management Area known as Spring Lake;

(ii) That portion of Desert Lake Waterfowl Management Area known as Desert Lake;

(iii) That portion of Public Shooting Grounds Waterfowl Management Area that lies above and adjacent to the Hull Lake Diversion Dike known as "Duck Lake";

(iv) That portion of Salt Creek Waterfowl Management Area known as "Rest Lake";  
and

(v) That portion of Farmington Bay Waterfowl Management Area that lies in the northwest quarter of unit one.

(d) Maps of all rest areas will be available at division offices, on the division's website, and to the extent necessary, marked with signage at each rest area.

(3)(a) The division may establish portions of state waterfowl management areas as "No Shooting Areas" where the discharge of weapons for the purposes of hunting is prohibited.

(b) No Shooting Areas remain open to the public for other lawful activities.

(c) In addition to any areas identified in the proclamation of the Wildlife Board for taking waterfowl, Wilson's snipe, and coot, the following areas are No Shooting Areas:

(i) Within 600 feet of the north and south side of the center line of Antelope Island causeway;

(ii) Within 600 feet of all structures found at Brown's Park Waterfowl Management Area;

(iii) The following portions of Farmington Bay Waterfowl Management Area:

(A) within 600 feet of the Headquarters and Learning Center area; and

(B) within 600 feet of dikes and roads accessible by motorized vehicles;

(iv) Within 600 feet of the headquarters area of Ogden Bay Waterfowl Management

Area;

(v) Within the boundaries of all State Parks except those designated open by appropriate signage as provided in Rule R651-614-4;

(vi) Within 1/3 of a mile of the Great Salt Lake Marina;

(xi) Within 600 feet of Gunnison Bend Reservoir and its inflow upstream to the Southerland Bridge, Millard County;

(xii) All property within the boundary of the Salt Lake International Airport; and

(xii) All property within the boundaries of federal migratory bird refuges, unless hunting waterfowl specifically authorized by the federal government.

(4) The division reserves the right to manage division lands and regulate their use consistent with Utah Code § 23-21-7 and Utah Administrative Code R657-28.

#### **R657-9-30. Closed Areas.**

(1)(a) A person may only access state waterfowl management areas during open hunting seasons authorized by the Wildlife Board and specified in the guidebook for taking Waterfowl, Common snipe, and Coot, or with prior permission of the division.

(b) All portions of state waterfowl management areas designated as "waterfowl rest areas" are considered closed to the public and trespass of any kind is prohibited.

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~~(c) The division may prohibit specific activities on state waterfowl management areas by posting information at the entrances of affected properties and at division offices, or by incorporating such restrictions in a management plan.~~

~~(d) Areas of state waterfowl management areas that are closed to hunting but otherwise open to the public may be accessed for lawful activities, including retrieval of waterfowl taken in areas open to hunting, so long as:~~

~~(i) they do not hunt in the closed area; and~~

~~(ii) the activity has not been prohibited as described in Subsection (c) of this part.~~

~~(2)(a) In addition to the restrictions provided for in this rule and any restrictions listed in the proclamation of the Wildlife Board for taking waterfowl, common snipe, and coot, the following areas are considered rest areas, and a person may not enter these areas for any purpose:~~

~~(i) That portion of Clear Lake Wildlife Management Area known as Spring Lake;~~

~~(ii) That portion of Desert Lake Waterfowl Management Area known as Desert Lake;~~

~~(iii) That portion of Public Shooting Grounds Waterfowl Management Area that lies above and adjacent to the Hull Lake Diversion Dike known as "Duck Lake";~~

~~(iv) That portion of Salt Creek Waterfowl Management Area known as "Rest Lake";~~

~~and~~

~~(v) That portion of Farmington Bay Waterfowl Management Area that lies in the northwest quarter of unit one.~~

~~(b) In addition to the restrictions provided for in this rule and any restrictions listed in the proclamation of the Wildlife Board for taking waterfowl, common snipe, and coot, the following areas are considered closed to hunting, and a person may not take, hunt, shoot at, or rally any waterfowl, snipe, or coot in the following specified areas:~~

~~(i) Within 600 feet of the north and south side of the Antelope Island causeway;~~

~~(ii) Within 600 feet of all structures found at Brown's Park Wildlife Management Area;~~

~~(iii) The following portions of Farmington Bay Waterfowl Management Area:~~

~~(A) within 600 feet of the Headquarters and Learning center area; and~~

~~(B) within 600 feet of dikes and roads accessible by motorized vehicles;~~

~~(iv) Within 600 feet of the headquarters area of Ogden Bay Waterfowl Management Area;~~

~~(v) Within the boundaries of all State Parks except those designated open by appropriate signage as provided in Rule R651-614-4;~~

~~(vi) within 1/3 of a mile of the Great Salt Lake Marina;~~

~~(xi) Within 600 feet of Gunnison Bend Reservoir and the inflow upstream to the Southerland Bridge, Millard County;~~

~~(xii) within 600 feet of the Salt Lake International Airport;~~

~~(xii) All property within the boundaries of federal migratory bird refuges, unless specifically authorized.~~

### **R657-9-31. Shooting Hours.**

(1) A person may not hunt, pursue, or take wildlife, or discharge any firearm or archery tackle on state-owned lands adjacent to the Great Salt Lake, on division-controlled waterfowl management areas, or on federal refuges between official sunset and one-half hour before official sunrise.

(2) Legal shooting hours for taking or attempting to take waterfowl,

~~Common~~Wilson's snipe, and coot are provided in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot.

#### **R657-9-32. Falconry.**

(1) Falconers must obtain a valid hunting or combination license, a federal migratory bird stamp and a falconry certificate of registration to hunt waterfowl.

(2) Areas open and bag and possession limits for falconry are specified in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot.

#### **R657-9-33. Migratory Game Bird Harvest Information Program (HIP).**

(1) A person must obtain an annual Migratory Game Bird Harvest Information Program (HIP) registration number to hunt migratory game birds.

(2)(a) A person must call the telephone number published in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot, or register online at the address published in the guidebook of the Wildlife Board for taking waterfowl, ~~Common~~Wilson's snipe and coot to obtain their HIP registration number.

(b) A person must write their HIP registration number on their current year's hunting license.

(3) Any person obtaining a HIP registration number will be required to provide their:

(a) hunting license number;

(b) hunting license type;

(c) name;

(d) address;

(e) phone number;

(f) birth date; and

(g) information about the previous year's migratory bird hunts.

(4) Lifetime license holders will receive a sticker every three years from the division to write their HIP number on and place on their lifetime license card.

(5) Any person hunting migratory birds will be required, while in the field, to prove that they have registered and provided information for the HIP program.

#### **R657-9-34. Waterfowl Blinds on Waterfowl Management Areas**

(1) Waterfowl blinds on division waterfowl management areas may be constructed or used as provided in Subsection (a) through Subsection (e).

(a) Waterfowl blinds may not be left unattended overnight, except for blinds constructed entirely of non-woody, vegetative materials that naturally occur where the blind is located.

(b) Trees and shrubs on waterfowl management areas that are live or dead standing may not be cut or damaged except as expressly authorized in writing by the division.

(c) Excavating soil or rock on waterfowl management areas above or below water surface is strictly prohibited, except as expressly authorized in writing by the division.

(d) Rock and soil material may not be transported to waterfowl management areas for purposes of constructing a blind.

(e) Waterfowl blinds may not be constructed or used in any area or manner, which obstructs vehicular or pedestrian travel on dikes.

(2) The restrictions set forth in Subsection (1)(a) through Subsection (1)(c) do not apply to the following waterfowl management areas:

(a) Farmington Bay Waterfowl Management Area - West and North of Unit 1, Turpin Unit, ~~and Doug Miller Unit, and Crystal Unit.~~

(b) Howard Slough Waterfowl Management Area - West and South of the exterior dike separating the waterfowl management area's fresh water impoundments from the Great Salt Lake.

(c) Ogden Bay Waterfowl Management Area - West of Unit 1, Unit 2, and Unit 3.

(d) Harold Crane Waterfowl Management Area - one half mile North and West of the exterior dike separating the waterfowl management area's fresh water impoundments from Willard Spur.

(3) Waterfowl blinds constructed or maintained on waterfowl management areas in violation of this section may be removed or destroyed by the division without notice.

(4) Any unoccupied, permanent waterfowl blind located on state land open to public access for hunting may be used by any person without priority to the person that constructed the blind. It being the intent of this rule to make such blinds available to any person on a first-come, first-serve basis.

(5) Waterfowl blinds or decoys cannot be left unattended overnight on state land open to public access for hunting in an effort to reserve the particular location where the blinds or decoys are placed.

**KEY:** wildlife, birds, migratory birds, waterfowl

**Date of Enactment or Last Substantive Amendment:** August 11, 2014

**Notice of Continuation** August 16, 2011

**Authorizing, and Implemented or Interpreted Law:** 23-14-19; 23-14-18; 50 CFR part 20



GARY R. HERBERT  
Governor

SPENCER J. COX  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Wildlife Resources

GREGORY SHEEHAN  
Division Director

## MEMORANDUM

Date: April 20, 2015

To: Wildlife Board and Regional Advisory Council Members

From: Scott McFarlane, Private Lands – Public Wildlife Coordinator

**Subject: 2015 URBAN DEER CONTROL RULE R657-65 CHANGES**

The current Urban Deer Control Rule R657-65, was a two-year pilot program with Bountiful and Highland Cities designed to test the feasibility of controlling urban deer populations on a large scale basis. It was also implemented to test the cost of various deer control techniques in an urban setting. The cities were allowed to create plans specific to their needs and considering public input, to remove urban deer from areas within city limits. Highland City chose a lethal removal option using certified volunteer archers, where Bountiful chose a non-lethal trap and remove program in cooperation with the Division. Both programs were successful in removing significant numbers of deer from within city limits. The current rule sunsets on August 31, 2015.

The following is a summary of proposed changes to the current Urban Deer Control Rule R657-65:

1. Remove the sunset date of August 31, 2015, and make the provisions of the rule available to all qualifying cities statewide.
2. Qualifying cities would have a population of 1,000 or more
3. Cities would submit with their application, the estimated number of resident deer and the final target population sought through removal.
4. The division will specify for each year, the seasonal time period for removal, total number of deer that may be removed, and the number by gender that may be removed.
5. Cities must submit an annual report on lethal removal activities.
6. Cities must petition the Division for any capture and relocation components to be included in a plan.
7. The Division shall have sole discretion to authorize or prohibit capture and relocation as part of the plan.



8. The Division and the City have the right to terminate an urban deer control plan upon 7 days advance written notice to the other.
9. Plans are valid three years and must follow the public review process for renewal.

The Division seeks your consideration for the approval of these changes to the Urban Deer Control Rule.

Thank you

## R657. Natural Resources, Wildlife Resources.

### R657-65. Urban Deer Control

#### R657-65-1. Authority and Purpose.

(1) This rule is promulgated under authority of Sections 23-14-3, 23-14-18, and 23-14-19.

(2) The purpose of this rule is to ~~establish and evaluate a two-year pilot program with Bountiful City, Utah and Highland City, Utah that~~ enables each a city to design and administer a control plan for the lethal ~~and or~~ non-lethal removal of resident deer damaging private property or threatening public safety within the municipality city.

#### R657-65-2. Definitions.

(1) Terms used in this rule are defined in Section 23-13-2. (2) In addition:

(a) "Deer" means wild ~~mule~~ deer (*Odocoileus hemionus* ~~or~~ *Odocoileus virginianus*) living in nature and does not include privately owned, captive deer.

(b) "Division" means the Utah Division of Wildlife Resources.

(c) "~~Municipality~~" "City" means ~~Bountiful City in Davis County, Utah and Highland City in Utah County, Utah~~ an incorporated municipality with greater than 1,000 residents.

(d) "Resident deer" means a deer that lives within city boundaries year-around.

~~(d)(e)~~ (e) "Urban deer control plan" means a document designed, created, and administered by an ~~authorized municipality city~~ that establishes the protocols and methodologies it will pursue to control and mitigate private property damage or public safety threats caused by ~~mule~~ deer within its incorporated boundaries.

#### R657-65-3. Authorization to Create and Administer an Urban Deer Control Plan.

(1) A municipality city with a resident ~~mule~~ deer population that is significantly damaging private property or threatening public safety within its boundaries may request the Division for a certificate of registration ("COR") to design, create, and administer an urban deer control plan.

(2) The Division may issue an urban deer control plan COR to a municipality city, provided:

(a) the application is filed by a municipality city;

(b) resident ~~mule~~ deer are collectively causing significant damage to private property or threatening public safety within the municipality's city's incorporated boundaries;

(c) it has enacted an ordinance prohibiting the feeding of deer, elk, and moose;

(d) it has general liability insurance in the amount of \$1,000,000.00 or more that covers liability claims that may arise from designing, creating, and administering an urban deer control plan; ~~and~~

(e) it agrees, without waiving immunity or any other limitation or provision in the Utah Governmental Immunity Act, Utah Code §§ 63G-7-101 through 63G-7-904, to hold harmless and indemnify the Division against any claims or damages arising from its deer removal activities undertaken pursuant to the urban deer control plan COR, except for any allocated share of fault and damages attributable to the Division's actual involvement in deer removal activities on the ground-; and

(f) it submits with its application the estimated population of resident deer in the city and the final target population number it seeks to achieve through deer removal.

#### **R657-65-4. COR Authorities and Limitations.**

(1) An urban deer control plan COR issued to a municipality city will:  
(a) specify for each year of the COR term:  
(i) the seasonal time period when deer may be removed;  
(ii) the total number of deer that may be removed; and  
(iii) the number of deer by gender that may be removed; and  
(b) authorizes it to design, create, and administer an urban deer control plan consistent with the season and number limitations imposed in the COR and the following authorities and limitations.

(2) The COR authorizes the municipality city to:  
(a) prescribe and employ lethal ~~and non-lethal~~ methods of take to control deer, provided the methods are otherwise in compliance with state and federal law;  
(b) utilize baiting to facilitate safe and effective deer removal activities;  
(c) select and supervise individuals to perform specified deer removal activities, provided the municipality city:  
(i) issues to each individual authorized to remove deer a written authorization and tag that:  
(A) is on a form prescribed by the Division;  
(B) is signed by the city manager and recipient;  
(C) identifies the recipient's name, address, date of birth, gender, height, weight, and eye color;  
(D) describes the locations, time periods, methods of take, and related activities authorized by the municipality city; and  
(E) includes a detachable tag consistent with the requirements in Section 23-20-30;  
(d) allow a single individual to take more than one deer; ~~and~~  
(e) permit spotlighting to facilitate non-lethal deer removal or carcass recovery efforts; and  
(f) remove deer consistent with the annual buck and doe take prescriptions and season limitations set forth in the COR.

(3) The municipality city will:  
(a) require individuals authorized to lethally remove deer to:  
(i) tag the carcass consistent with Section 23-20-30; and  
(ii) comply ~~will with~~ all federal, state, and local laws pertaining to the possession, use, and discharge of a dangerous weapon; and  
(b) take measures to ensure that:  
(i) deer carcasses are salvaged consistent with Section 23-20-8 (Waste of Wildlife) and disposed of as provided by law;  
(ii) viscera is removed from the kill site and disposed of as provided by law; ~~and~~  
(iii) antlers of lethally removed deer are promptly surrendered to the Division and not retained by the municipality city or the person that takes the animal; ~~and~~  
(iv) submit an annual report to the Division by March 1 on lethal removal activities, including the following information for each permit issued:

- (A) name of shooter/permit holder;
- (B) sex of the animal;
- (C) date of harvest; and
- (D) disposition of carcass, ie, retained by hunter, donated, etc.

(4) The municipality city will not:  
(a) (i) capture a deer for release outside municipal boundaries without a written

capture and relocation plan prepared in coordination with and approved by the Division;  
(ii) capture or relocate a deer in violation of the approved capture and relocation plan; or

(iii) allow an employee, officer, agent, licensee, or contractor who has not been certified and approved according to the written capture and relocation plan to capture or release a deer.

(b) sell or barter a deer carcass or otherwise use it for pecuniary gain without prior written approval from the Division;

(c) collect a fee or compensation from a person or entity it authorizes to remove deer from its incorporated boundaries, unless the fee or compensation is:

(i) \$50 or less;

(ii) used exclusively to recoup the actual costs incurred by the municipality city in:

(A) selecting and qualifying the person; or

(B) butchering and processing lethally removed deer for donation; and

(iii) approved by the Division in writing;

(d) undertake or authorize deer removal activities outside:

(i) incorporated municipal city boundaries or any unincorporated areas approved by the Division and the county; or

(ii) the ~~general time frame imposed by the Division~~ the season time frame prescribed in the COR;

(e) remove more deer, collectively or by gender, than authorized ~~by Division~~ in the COR; or

(f) authorize the discharge of firearms or archery equipment for deer removal:

(i) between one half hour after official sunset and one half hour before official sunrise; or

(ii) in violation of federal, state, or local laws.

#### **R657-65-5. Urban Deer Control Plan.**

(1) Upon receipt of an urban deer control plan COR, the municipality city must prepare an urban deer control plan consistent with this Subsection and the COR prior to undertaking any deer removal activities.

(2) The urban deer control plan will address and prescribe, at a minimum, the:

(a) lethal ~~and non-lethal~~ methods of take that may be used to remove deer and the conditions under which each may be employed;

(b) conditions and restrictions under which baiting and spotlighting may be used to facilitate deer removal;

(c) persons eligible to perform deer removal activities and the requirements imposed on them;

(d) locations and time periods where specified types of deer removal activities may be employed or authorized;

(e) requirements for tagging deer carcasses;

(f) protocols for carcass removal and disposal;

(g) procedures for promptly returning to the Division all antlers of lethally removed deer; ~~and~~

(h) procedures for obtaining Division input and approval on live capture and relocation projects; and

(i) the estimated population of resident deer in the city and the final target population number the city seeks to achieve through deer removal.

(3) All aspects of the plan must be consistent with the authorizations and limitations imposed in this rule and the COR.

(4) If the city desires to capture and relocate resident deer, it must petition the

Division to include a capture and relocation component in its urban deer control plan.

(a) The Division shall have sole discretion to authorize or prohibit capture and relocation as part of an urban deer control plan.

~~(4)(5)~~(a) The municipality city will solicit and consider input in the formulation and development of the urban deer control plan from:

- (i) the Division;
- (ii) the public;
- (iii) interested businesses and organizations; and
- (iv) local, state, and federal governments.

(b) The Division may provide technical assistance to the municipality city in preparing the urban deer control plan.

(c) After formulating a draft plan, the municipality city will hold a public meeting to take and consider input on the draft before finalizing or implementing it.

~~(5)(6)~~ The municipality city will assume full responsibility for:

(a) all costs associated with designing, establishing, implementing, and operating the urban deer control plan and all its associated activities; and

(b) for the acts and omissions of its officers, employees, agents, contractors, and licensees in designing, preparing, and implementing its urban deer control plan and undertaking the activities authorized thereunder.

#### **R657-65-6. COR Term, and Termination, Renewal, and Amendment.**

(1) An urban deer control plan COR issued under this rule will remain valid for ~~two~~three years from the date of issuance ~~or until August 31, 2015, whichever is less.~~

(2)(a) ~~A municipality may~~ The Division and the city shall each have the right to unilaterally ~~withdraw terminate~~ an urban deer control plan ~~and terminate the~~ COR with or without cause upon ~~30~~7 days advance written notice to the ~~Division other.~~

(b) Upon termination or expiration of the COR, the municipality city and its officers, employees, agents, contractors, and licensees must cease all deer removal activities formally authorized by the COR.

(3) Upon application by a city, the Division may renew an urban deer control plan COR for an additional three year term, provided:

(a) the city complies with the conditions in R657-65-3(2); and

(b) the application for renewal is presented at a public meeting for comment and approved by the city council.

(4) A urban deer control plan may be amended upon mutual written agreement of the city and Division, provided the amendment is consistent with the authorizations and limitations in this rule.

#### **R657-65-7. Violations.**

Pursuant to Section 23-19-9, the ~~d~~Division may suspend, restrict, or deny an urban deer control plan COR for any intentional, knowing, or reckless violation of the Wildlife Code, this rule, or the terms of the COR.

#### **~~R657-65-8. Sunset.~~**

~~— This rule sunsets on August 31, 2015 and all COR's and other authorizations issued hereunder will terminate by operation of law and cease having further legal effect.~~

# **Habitat Management Plan for Wildlife Management Areas In North Sanpete County**



## **Habitat Management Plan for Wildlife Management Areas (WMAs) in North Sanpete County - Summary**

This habitat management plan (HMP) contains the following sections:

- **Background information** (purpose of Division ownership, public recreation opportunities, etc.),
- **Property information** (property descriptions, encumbrances, etc.),
- **Property inventory** (capital improvements, existing habitats, etc.), management goals and objectives,
- **Strategies for property management**
- **Strategies for habitat management**
- **Appendices** contain location maps of individual WMAs, and the access plan which explains public access opportunities.

**Primary purpose of WMA:** To preserve and protect big game winter range and wintering animals, and reduce deer and elk depredation on surrounding private property.

**Wildlife species:** Mule deer, elk, mountain lion, bobcat, chukar, mourning dove, cottontail, bald eagle, coyote, neotropical migratory birds and small mammals.

**Habitat conditions/problems:** Unauthorized motorized vehicle use has resulted in the creation of roads and trails. Efforts will be made to close and rehabilitate all unauthorized roads and trails. When needed, seasonal closures (December 1 – April 30) will be implemented to protect wintering big game and critical habitats from all motorized travel and mountain bikes.

Grazing may be used as a management tool on WMAs to reduce fire danger and release browse species for wintering big game. The grazing system typically used is a high intensity, short duration rest rotation system during spring and early summer.

**Access plan:** Seasonal closures will be implemented as needed to protect big game wintering values. If used, seasonal closures will occur from December 1 – April 30 and will restrict the use of all motorized vehicles and mountain bikes on WMAs. Motorized vehicle traffic and mountain bikes will be confined to existing roads and trails at all other times of the year. Roads will be maintained as needed to maintain public access. Unauthorized user created roads and trails will be closed and rehabilitated.

**Maintenance activities:** The following maintenance related activities will occur annually or as needed, fence inspection and repair/replacement; gates and locks inspected and repaired; road grading as needed; road closures; signing on boundaries and at entrance points; trespass points inventoried and closed; and boundary surveys as needed.

**Habitat improvement:** Noxious weeds occurring on WMAs will be monitored and sprayed annually. Pinyon-juniper chaining areas will be preserved. When necessary, trees will be removed by hand cutting, chaining, or prescribed fire, to maintain critical winter range for mule deer and elk. Shrub transplanting and/or seeding will take place if necessary to enhance available browse forage. Perimeter and interior fences will be maintained and improved to accomplish the

grazing management plan. Water developments and/or troughs will be maintained to provide water for wildlife and permitted livestock.

## **Habitat Management Plan for Wildlife Management Areas (WMAs) in North Sanpete County**

### **I. Background Information**

#### **Purpose of Division Ownership**

The WMAs covered under this HMP were acquired primarily to protect, preserve, and enhance critical big game winter range, and to reduce deer and elk depredation on surrounding private property. These WMAs also provide habitat for a variety of other wildlife species and recreational and access opportunities for the public including hunting, hiking, camping, and OHV use.

#### **Historic Uses**

Prior to Division ownership, these WMAs were primarily used for livestock grazing and some limited farming operations. Initially, sheep operations were the dominant activity with cattle grazing being of secondary importance.

#### **Public Recreation Opportunities**

All activities occurring on Division lands are managed under the direction of the Division's land use rule. This rule, R657-28, discusses approved uses, prohibited activities, and the process for applying and receiving the various permits required to use Division lands. The Division will work with WMA visitors to ensure that all activities are in compliance with this rule.

The WMAs under this HMP are popular for big game and upland game hunting as well as hunting and trapping for mountain lions and furbearer species. Non-consumptive uses include hiking, horseback riding, and wildlife viewing. Camping is permitted on all WMAs, and unless posted otherwise, is limited to 14 days as noted in Rule R657-28-4(1)l. The Division reserves the right to change the length of camping stays if this action is needed to reach the goals and objectives of the habitat management plan. If the Division determines this is needed, changes in camping regulations will be posted on the WMA(s) where the change is implemented.

Open fires will be allowed, but this activity is subject to state and federal policies and guidelines including closures during high-risk fire seasons. The Division reserves the right to ban open fires on any or all WMAs if needed to protect valuable wildlife habitat on the WMA and adjacent private and municipal lands. The Division may also restrict open fires to designated areas if the use of open fires becomes a management problem.

OHV use is permitted, but is restricted to authorized roads and trails (see Appendix B, access management plan. Unauthorized roads and trails will be closed and signed by regional personnel in order to protect wildlife habitat on these WMAs.

As needed, seasonal road closures are implemented that prohibit motorized vehicle access from December 1 – April 30. Seasonal closures are used to protect wildlife from disturbance during critical winter months and to preserve habitats from being negatively impacted during wet winter and early spring periods. Areas that are not subject to seasonal vehicle closures include county roads and other public routes where rights-of-way have been established for various reasons including access to private lands within the WMAs. Additional information on public access and motorized vehicle use on the WMAs can be found in the access management plan which is included as Appendix B.

## **Key Wildlife Species**

As previously described, the WMAs contained in this HMP were originally purchased for big game habitat values. As a result, mule deer and elk are the primary beneficiaries, especially during winter months when they come down from high elevation summer ranges to winter in the Sanpete Valley. The WMAs are also home to several predatory species, primarily mountain lion and bobcat, which follow migrating big game herds off high elevation summer ranges to the valley bottom in winter months.

A variety of upland game species also inhabit the WMAs including chukar, cottontail rabbit, and mourning dove. Neotropical migratory birds can also be found in sagebrush and mountain brush habitats during their breeding and nesting seasons in spring and early summer months.

## **Grazing**

Grazing is used as a management tool to enhance wildlife habitat, primarily big game winter range. Grazing can help the Division achieve wildlife habitat goals by reducing fire danger and releasing browse species to provide winter forage for big game. The ‘Livestock Grazing Plan’ is included on page 16 of this HMP and outlines specific grazing activities and a complete grazing schedule for all WMAs.

## **II. Property Information**

### **Property Descriptions**

This habitat management plan (HMP) contains 4 wildlife management areas (WMAs) totaling approximately 4,002 acres. The WMAs include the following: Big Hollow, Christensen Springs, Apple Tree Springs, and Fountain Green. Also contained within this plan are 6 conservation easements totaling 2,062 acres which the Division has acquired to protect critical wildlife habitats in northern Sanpete County. These include Moroni, Fountain Green, Hilltop, and 3 easements near Fairview that were acquired to protect Spotted frog habitat. Division lands within this area that are not included in this HMP include the Fountain Green Fish Hatchery which lies west of the town of Fountain Green. All of the WMAs and conservation easements presented here lie at the north end of the Sanpete Valley at the base of the Wasatch Range.

The WMAs contained in this HMP are fee title lands owned by the Utah Division of Wildlife

Resources (UDWR) acquired in cooperation with the US. Fish and Wildlife Service, Federal Aid Division. Conservation easements were acquired through a variety of means including federal aid grants and mitigation donations. Copies of deeds for WMAs and conservation easements can be found in either UDWR's Salt Lake Office, 1594 West North Temple, Salt Lake City, UT, 84114, or in the Central Region Office at 1115 North Main Street, Springville, UT, 84663.

### Big Hollow WMA

This WMA consists of 825 acres in the Big Hollow drainage about 3 miles northeast of Fountain Green. It lies within Township 13S, Range 3E, sections 27-29 and 34. It was acquired from one private landowner and one corporation in 1961 and 1989, respectively. There is no mention of water rights in the warranty deeds for this property.

### Christensen Springs WMA

This WMA consists of 1,557 acres and is found 5 miles east of Fountain Green. It lies within Township 13S, Range 3E, section 36; Township 13S, Range 4E, section 31; Township 14S, Range 3E, section 1; and Township 14S, Range 4E, section 6. It was acquired from one landowner in 1978. There is no mention of water rights in the warranty deed for this property.

### Apple Tree Springs WMA

This WMA is located approximately 5 miles north of Moroni, and 4 miles east of Fountain Green. It consists of 1,214 acres found in Township 14S, Range 3E, sections 10-15, 23, and 24. This unit was acquired from several corporations and two private landowners from 1978-1989. Water rights appurtenant to the property were mentioned in one transaction, but no water right was mentioned. In another transaction, water right certificate #4155 for 0.006 cfs from Danish Spring was acquired by UDWR.

### Fountain Green WMA

This WMA is located immediately east of Fountain Green. It lies within Township 14S, Range 3E, sections 5, 8, and 9. It consists of 411 acres, 25 acres of which is irrigated crops and the remainder is upland wildlife habitat. The Great Basin Research Center (GBRC) also manages a 20 acre parcel within this WMA for native plant materials research and production. This WMA was acquired from one landowner (in four transactions) and one corporation, from 1985-1989. Certificate #2096 in the Fountain Green Irrigation Company for 85 water shares was also acquired.

### Moroni Conservation Easement

This easement was acquired in three separate transactions from Morris and Betty Cook of Moroni, Utah. The transactions are dated on July 29, 1997; January 30, 1998; and February 3, 1998. The easement makes up about 1,194 acres and was acquired to preserve and protect crucial big game winter range. It lies within Township 14S, Range 3E, sections 23, 26-27; Township 14S, Range 3E, sections 21-22; and Township 14S, Range 3E, sections 28 and 34. A complete

description of the easement including property location and description, historic and current uses, and easement stipulations can be found in the deed of conservation easement and baseline inventory filed in the Salt Lake and Central Region offices of UDWR.

#### Fountain Green Conservation Easement

This easement was acquired in conjunction with the Hilltop easement (see below). This easement was acquired in conjunction with the Hilltop conservation easement as part of the same transaction. It consists of 580 acres in several parcels immediately west of Fountain Green. The primary reasons for acquiring this easement were to provide a buffer around the Fountain Green Fish Hatchery, and to preserve big game habitat in the area. This easement lies within Township 13S, Range 2E, sections 26, and 35-36; Township 14S, Range 2E, sections 1-2. A complete description of the easement including property location and description, historic and current uses, and easement stipulations can be found in the deed of conservation easement and baseline inventory filed in the Salt Lake and Central Region offices of UDWR.

#### Hilltop Conservation Easement

This easement was acquired in conjunction with the Fountain Green easement (see above) in May 2002 from Dean F. and Annette J. Hansen, and Robert D. and Yvonne S. Hansen of Fountain Green, Utah. The easement was acquired to protect and enhance the natural wildlife habitat, agricultural productivity, open space, and scenic qualities of the property. Prior to being placed in a conservation easement, the Hilltop easement was fee title lands owned by UDWR. UDWR relinquished ownership of the Hilltop property as part of the agreement to place a conservation easement on the Fountain Green property owned by the Hansen's. It consists of 1,054 acres found 2 miles north of Fairview in Township 13S, Range 4E, sections 14-15, 22-23, and 26-27. A complete description of the easement including property location and description, historic and current uses, and easement stipulations can be found in the deed of conservation easement and baseline inventory filed in the Salt Lake and Central Region offices of UDWR.

#### Fairview Spotted Frog Conservation Easements

UDWR acquired easements from private land owners and Fairview City to protect critical habitat for the Columbia spotted frog. The easements are located along the San Pitch River north and south of the town of Fairview and total 288 acres combined. A complete description of the easement including property location and description, historic and current uses and easement stipulations can be found in the deed of conservation easement and baseline inventory filed in the Salt Lake and Central Region offices of UDWR.

#### **Land Acquisition History**

The WMAs contained in this HMP were primarily acquired through federal aid programs with the U.S. Fish and Wildlife Service. These federal aid programs are a result of the Federal Aid in Wildlife Restoration Act of 1937, often referred to as the Pittman-Robertson or P-R Act, which authorizes federal participation in cooperative wildlife restoration projects with state wildlife agencies. Two wildlife restoration act grants were developed for acquisition and preservation of

wildlife habitat within the WMAs described above. These include the following:

- Project W-101-L: Fountain Green Game Management Area
- Project W-118-L: North Nebo Big Game Winter Range

Because federal funds were used in the acquisition of these properties, the Division is required to comply with National Environmental Policy Act (NEPA) guidelines when considering actions that could affect the environment. The USFWS is the responsible party for issuing the record of decision with regards to proposed actions on these WMAs.

## **Encumbrances**

UDWR generally obtained only the surface rights to the lands they acquired. The oil, gas, mineral, (sometimes coal) and geothermal rights appurtenant to the lands were generally retained by the sellers or grantors of those respective lands, including the State Institutional Trust Lands Administration (SITLA). The sellers or grantors generally also retain the right to lease the rights of egress and ingress for the exploration, development and removal of those minerals. However, the seller or lessee shall compensate UDWR for interference with or damages to UDWR's surface lands that have resulted from activities related to mineral exploration or removal. Without going to the Sanpete County Recorder's Office and searching each parcel number that comprises the UDWR lands, there is no easy way of determining whether oil and gas leases have been issued by the private sector. The following is a list of encumbrances for each of the four WMAs included in this HMP.

### Big Hollow WMA:

- The previous owners reserved all mineral, geothermal, oil and gas rights on the property and the ingress/egress for using those rights.

### Christensen Springs WMA:

- The previous owners reserved all mineral, geothermal, oil and gas rights on the property and the ingress/egress for using those rights.
- Easement from Fairview Land Co. to Brady Ditch Irrigation Company and Board of Water Resources (1968).

### Apple Tree Springs WMA:

- One of the previous owners reserved all mineral, geothermal, oil and gas rights (excluding sand and gravel) on the property and the ingress/egress for using those rights. Some sellers did not mention anything about these rights.
- A previous owner had an agreement for grazing the property for 3 years, which terminated in 1991.

### Fountain Green WMA:

- The previous owners reserved all mineral, geothermal, oil and gas rights (excluding sand and gravel) on the property and the ingress/egress for using those rights. Some sellers did not mention anything about these rights.
- One previous owner reserved a life estate to a cabin located on the property, and the right for ingress and egress. The cabin no longer exists.

- A previous owner had an agreement for grazing the property for 10 years, which expired in 1997.
- Utah Power and Light was given a quitclaim easement for 1,502' x 10 wide corridor for 4 poles and 3 guy wires. UDWR may not, without the grantee's permission, erect structures or leave trailers, or allow flames higher than 6' within the easement.

### **Conservation Partners Involved in Acquisition**

The U.S. Fish and Wildlife Service, through its federal aid program, has been a major partner in acquiring the WMAs described in this plan. The Bureau of Land Management (BLM) has granted land to the Division for big game management on some of the WMAs as well. Sportsmen's organizations and the Habitat Council have played a key role in providing funds to acquire conservation easements on adjacent private lands and deeding these easements to the Division to manage in conjunction with adjacent WMAs.

### **III. Property Inventory**

#### **Existing Capital Improvements**

Most of the existing improvements on these WMAs are roads and fences. Roads and fences are maintained on an annual basis or as needed. The Great Basin Research Center (GBRC) maintains a 20 acre parcel on the south west corner of the Fountain green WMA. They have built an 8 foot deer fence around the perimeter of the parcel. Pressurized irrigation systems are used on the GBRC property. There are two storage buildings on the property to store agriculture equipment. North of the GBRC parcel, the Division cooperatively grows about 25 acres of alfalfa in cooperation with an adjacent land owner. A pressurized irrigation system with hand irrigation lines is used to water this alfalfa. There is a 3-way exclosure located on the Big Hollow WMA. This exclosure was build after a pinyon-juniper chaining treatment which took place in the early 1970's.

#### **Cultural Resources**

Numerous historic and pre-historic sites have been identified in the area. Caution should be used before any ground disturbing activities are planned or approved within any of the WMAs to ensure that cultural resources are adequately identified and avoidance measures are taken.

#### **Sensitive Species**

A search of the Division's Natural Heritage database resulted in the following sensitive species information.

The Bald Eagle (*Haliaeetus leucocephalus*), a federally threatened species, has been observed at locations in or in close proximity to some WMAs in this HMP. Bald eagles are present in the Sanpete Valley and likely use the WMAs during winter months. There are 2 historic Greater sage grouse (*Centrocercus urophasianus*) leks in the general area: one northwest of the town of Fountain Green and one west of the town of Fairview. These areas are classified as occupied

sage grouse habitat but no sage grouse have been counted on these leks for the past 25 years or so. Other sensitive species found along the Sanpetch River and within some of the Conservation easements around the town of Fairview include: Columbia spotted frog (*Rana luteiventris*), Northern Leopard frog (*Rana pipiens*), Western toad (*Bufo boreas*) and Southern leatherside chub (*Lepidomeda aliciae*).

## **Important Fish and Wildlife Habitats**

All 4 of the WMAs covered in this plan are classified as crucial winter range for mule deer and elk. The upper elevations also provide important transition habitat for big game traveling to and from winter ranges. Mammalian carnivores, primarily mountain lion, also frequent the WMAs in winter months as they follow annual winter migrations of big game herds to the benches above the Sanpete Valley. The vegetation zones occupied by sagebrush and mountain browse provide important breeding and nesting habitats for neotropical migratory birds.

Many lands adjacent to the WMAs are private agriculture tracts, and as a result, big game depredation issues with private landowners are common. It is extremely important that the WMAs are maintained and protected to assist the Division in minimizing big game depredation on private lands.

## **General Condition of Habitats**

### Habitat Types

Most of the WMAs in this plan are located primarily within historic sagebrush-steppe and pinyon-juniper zones. Portions of the Big Hollow WMA and the Hilltop CE have been mechanically treated due to the expansion of pinyon-juniper woodlands into the sagebrush type. During the late 1970's 2-way anchor chaining followed by seeding was employed by the Division to enhance and restore habitat for wildlife species.

On the upper portions of the Christensen spring and Apple tree springs WMAs, the mountain brush and oak zones are prominent. These areas provide important transitional ranges for big game including deer fawning areas.

### Range and Watershed Conditions

Portions of the Big Hollow WMA were burned by the Salt creek fire in 2007. Aerial seeding followed by a one-way anchor chaining treatment was done to rehabilitate those burned areas. In 2012, the Wood Hollow fire burned portions of the Apple Tree spring, Big Hollow and most of the Christensen spring WMA. Lower elevation burned areas were aerielly seeded and one-way anchor chained. The fire destroyed much of the winter range in the area and it will take several years before adequate amounts of sagebrush and bitterbrush re-grow on the burned areas to support wintering big game.

The Division's "Utah Big Game Range Trend Studies" program monitors habitat conditions statewide by sampling permanently placed vegetation transects that have been established in key

areas. Transects are read on a 5-year rotational schedule based upon the Division's five administrative regions. One of these transects is found within the Big Hollow WMA and one is located within the Hilltop CE. In addition, one additional study sites was established on the Fountain Green WMA in 2007, to monitor habitat treatments. The monitoring data and narrative are contained in this HMP. The following list contains each study by name and number as well as the WMA where it is found:

- Big Hollow - #16A-14, Big Hollow WMA
- Fountain Green Plateau - #16A-23, Fountain Green WMA
- Hilltop - #16B-11, Hilltop CE

These studies sample a pinyon-juniper chaining, and two big sagebrush habitat types. These studies were established in 1989, and re-read in 1997, 2002, 2007 and 2012. They are scheduled to be re-sampled every five years. Statewide range trend data and digital photographs for specific sites can be found at the following web address: <http://wildlife.utah.gov/range/>.

In general terms, range trend data show upward trends for grasses and forbs but declining conditions for shrubs, primarily due to the effects of fire. Strategies to address these issues are discussed in the habitat improvement section of this HMP.

The WMAs described in this HMP fall within the boundaries of the San Pitch River watershed. Personnel from the Division's Central Region office participate in the watershed planning process with their involvement on the San Pitch Watershed Stewardship Group.

#### Habitat Limitations

The lack of browse forage on some of the WMAs is the major habitat limitation. Adequate winter browse forage for big game herds, especially mule deer, is needed in order for the WMAs to achieve management goals. Browse species were seeded as part of the Wood Hollow fire rehabilitation project, it will take several years before these shrubs establish and mature.

Most of the water rights were retained by the grantors when the Division acquired these lands. Acquiring shares or rights to water will be difficult in the future. In some cases, lack of water does limit the ability of the Division to adequately graze livestock on these WMAs. However, because the primary purpose of the WMA is to provide big game winter range, water is not as limiting to wildlife as in some other areas, especially at higher elevations.

A more detailed discussion of these limitations and their associated solutions can be found in the habitat improvement section of this HMP.

## **Human Use-Related Problems**

Unauthorized activities do occur on the WMAs, and often create conflicts between users, and place a heavy maintenance burden on the Division. While public recreation is encouraged, use of these lands by the public must be conducive to the purpose for which these parcels were acquired. Recreation activities should not become barriers to the Division being able to reach the management goals and strategies presented in this HMP.

The WMAs in this plan receive significant motorized vehicle use, especially from OHVs . While this is an approved activity, OHV and motorcycle use of the WMA needs to be more closely managed. Unmanaged motorized vehicle traffic, especially during winter and spring months, can and has resulted in degradation of access roads and critical habitats, and fragmentation of crucial big game winter ranges. The Division will work with Sanpete County, local municipalities, law enforcement agencies, private landowners, OHV groups, and other state and federal land management agencies to manage OHV activity in a responsible manner that maintains public access to the WMAs, while helping the Division to achieve its management objectives.

The majority of the fences are in poor to fair condition. Most of the boundary fences on the Christensen springs and Big Hollow WMAs were impacted by the Wood Hollow fire in 2012 and need to be replaced. The result is poor boundary lines, and trespass from humans and livestock.

## **Adjacent Land Uses and Potential Impacts**

Most of the lands adjacent to the WMAs being discussed are privately held agricultural and rangelands, or lands administered by the Bureau of Land Management. Big game depredation on adjacent private agricultural lands is an on-going problem faced by the Division. Livestock grazing occurs on many of the adjacent private lands often resulting in trespass onto Division lands. The Division will pursue acquisitions, exchanges, and conservation easements with private landowners and State and federal agencies that block up land, improve public access, and preserve critical wildlife habitats adjacent to or within the WMAs.

## **Zoning and Land Use Ordinances**

Sanpete County has the following zoning classifications:

- PF: Public Facilities
- BC: Business/Commercial
- A: Agricultural; 5-acre minimum lot size per single dwelling
- RA-1: Residential Agricultural (1/2 mile beyond corporate limits); ½-acre minimum lot size per single dwelling
- RA-2: Residential Agricultural (1 mile beyond corporate limits); 1-acre minimum lot size per single dwelling
- SL: Sensitive Lands; 40-acre minimum lot size per single dwelling

The majority of the WMAs are zoned as sensitive lands as are all of the BLM lands that border

the WMAs. The proposed management of these WMAs does not conflict with the zoning ordinances established by Sanpete County. However, because the WMA provides a large portion of the critical big game winter range available within Sanpete County, some conflict does arise as deer and elk move into private agricultural fields, haystacks, and municipal boundaries during winter months.

#### **IV. Management Goals and Objectives**

The management of these WMAs will take into account the goals, objectives, and strategies of other Division planning efforts. These other plans are briefly discussed below.

##### UDWR Strategic Plan

The management of UDWR lands as outlined in this HMP has relevance to the following goals and objectives outlined in the Division's most current strategic plan:

Resource Goal: Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat.

- Objective R1: Protect existing wildlife habitat and improve 500,000 acres of critical habitats and watersheds throughout the state.
- Objective R2: Increase fish and game populations to meet management plan objectives and expand quality fishing and hunting opportunities.
- Objective R3: Conserve sensitive species to prevent them from being listed as threatened or endangered.

Constituency Goal: Achieve broad-based support for Division programs and budgets by demonstrating the value of wildlife to all citizens of Utah.

- Objective C2: Improve coordination with organizations, public officials, private landowners, industry, and government agencies to obtain support for Division programs.

These goals and objectives will be achieved through a variety of measures specified in the property and habitat management sections of this plan and include development and maintenance activities, habitat improvements, access management, fire management, and livestock grazing. Current and future partnerships and cooperative efforts will also aid the Division in addressing and reaching these goals and objectives. Examples of these are the Sanpitch Coordinated Weed Management Area (CWMA) and the Sanpitch Watershed Stewardship Group.

##### Wildlife Action Plan

The most recent Wildlife Action Plan (WAP), also known as the Comprehensive Wildlife Conservation Strategy (CWCS), was submitted to the U.S. Fish and Wildlife Service and approved in 2005. This plan is effective until 2015 and will be revised as needed. The WAP provides a framework for the planning, cooperation, coordination, and implementation of conservation activities throughout the state. The WAP is composed of the following major elements:

- Approach for including the public, partners, and stakeholders; addresses the mission and authority of partners
- Outlines the effort to coordinate the WAP with other plans
- Identifies species in greatest need of conservation and provides information about the abundance, distribution, and threats to these species
- Identifies priority habitats and discusses the problems, threats, and conservation needs for these habitats
- Discusses plans for monitoring and determining conservation success.

### Wildlife Species Management Plans

The WMAs covered under this plan, lie within the boundaries of wildlife management unit 16, Central Mountains. Mule deer and elk management plans were completed for this unit in 2006 and 2008 respectively. The management of the WMAs will address the limiting factors and habitat needs identified in those plans and seek to implement habitat management strategies that are needed to reach population objectives. Revisions to these plans are typically done every 5 years, and will be incorporated into the management of the WMAs as needed.

## **V. Strategies for Property Management**

### **Development Activities**

The Division will maintain existing capital improvements on all WMAs. Most of the WMAs have established boundaries and fences, and are maintained regularly. Surveys will be completed where boundary disputes occur, and fences will be constructed to establish legal boundaries. Where fences are in disrepair, replacement fences will be constructed.

All of the WMAs contained in this plan are in need of better signing. In 2008, the Division constructed new boundary signs to be placed on all WMAs throughout the state. UDWR personnel have begun to place the new signs on lands within Sanpete County and will continue this effort until completion. Additional signage identifying seasonal road closures, rehabilitation areas, etc. will be placed as needed.

Perennial water sources are limited. Water development projects that encourage year round use of these WMAs by big game should be discouraged as these could negatively impact critical winter ranges. Water development projects that would improve the Division's capacity to adequately administer a grazing program on the WMAs should be pursued. Unauthorized roads and trails will be closed and rehabilitated. Authorized roads will be signed and maintained to ensure access and safety to the public.

### **Annual Maintenance Activities**

Assessments by Division personnel will be made annually, and a maintenance budget will be requested for the following types of activities:

- Boundary and interior fences - will be maintained annually or as needed to ensure property boundaries and grazing pastures are maintained. Division personnel, livestock

permittees, and dedicated hunters will be the primary means of maintaining fences.

- Access roads - will be monitored annually and maintenance will be conducted as needed to keep them passable and in safe condition for the public. Roads and other rights-of-way that are administered by other parties (e.g. county, private, municipalities) will be maintained by those parties. Coordinate with local entities to resolve access issues.
- Signage - existing signs will be inspected and replaced as needed. New signs will be placed as needed.
- Noxious weeds - a seasonal weed crew will be hired to inventory and spray noxious weeds. The Division will continue to participate on the San Pitch Coordinated Weed Management Area (CWMA) to plan and coordinate noxious weed activities on the WMAs and surrounding lands.
- Trespass - monitor for motorized vehicle and livestock trespass, make recommendations, and secure funding to solve trespass problems. Coordinate with local entities, including law enforcement, to resolve trespass issues.

## **VI. Strategies for Habitat Management**

### **Unit Management Plans for Wildlife Species**

Strategies for habitat management will be consistent with those outlined in the mule deer and elk management plans previously mentioned which include:

- Continue to improve and restore critical habitats according to the statewide Watershed Initiative being coordinated through the Utah Partner's for Conservation and Development (UPCD). Cooperate with federal land management agencies and private landowners in carrying out habitat improvements such as reseedings, controlled burns, water developments, etc. on public and private lands.
- Pursue land trades and conservation easements that block up land, improve public access, and preserve critical wildlife habitats adjacent to the WMAs.
- Work cooperatively with the Forest Service, BLM and local governments to prepare access management plans that enhance wildlife habitats, range conditions and escape opportunities for elk. Such plans may emphasize a mix of permanent and seasonal road closures and vehicle type restrictions.
- Continue to monitor the permanent range condition and trend studies located on the WMAs.

### **Habitat Improvement Plan**

Specific, detailed habitat improvement plans are beyond the scope of this HMP. However, when needed, and as determined by Division personnel, habitat improvement plans will be submitted to the Habitat Council and other potential partners for funding. Habitat improvement project plans will include specific recommendations including treatment methods, seed mixes, and a total acreage targeted for treatment.

In order for these Division lands to reach their potential as critical big game winter range, browse communities need to be enhanced and improved on most WMAs. The Division will employ a

variety of methods to achieve this including prescribed grazing, reseeding and seedling transplants, and mechanical treatments. Priority areas will include sagebrush-steppe and mountain browse communities.

Grazing will be utilized as a habitat management tool. High intensity, short duration grazing systems during spring and early summer months will be used to improve browse communities for wintering big game.

Water developments should only be pursued if they help reach the management objectives of the WMAs. Water developments that would result in big game becoming year round residents on these crucial winter ranges should be discouraged. Water development projects that would assist in meeting the goals and objectives of the grazing management plan should be pursued. .

### **Access Management Plan**

The access management plan is included as Appendix B.

### **Fire Management Plan**

All activities dealing with wild and prescribed fire will be coordinated with the Division of Forestry, Fire and State Lands (DFFSL) according to guidelines established in the Memorandum of Understanding (2005) between DWR and DFFSL. Fire management provisions include:

- When prescribed fire is needed as a habitat management tool, DWR will provide all applicable information to DFFSL to ensure burn plans are complete and submitted by deadlines.
- Wildfires will be aggressively battled due to the close proximity of numerous municipalities, and to protect the browse communities on crucial winter ranges.
- As needed, green strips will be seeded to reduce the threat and spread of wildfire.
- Open fires are allowed, but cannot be unattended, and adequate provisions must be taken to prevent the spread of fire (R657-28). State, federal, or local fire restrictions will apply to all WMAs when deemed necessary by fire officials and UDWR.
- The use of fireworks and explosives are prohibited on WMAs (R657-28).

### **Wood Products**

Wood products are managed according to Administrative Rule R657-28, Use of Division Lands. Timber resources are limited on these WMAs as pinyon and juniper are the most abundant woody species. Christmas trees, fence posts, and firewood are the main wood products these WMAs provide. All of these activities require a permit from the Division.

### **Livestock Grazing Plan**

Livestock grazing is managed according to Administrative Rule R657-28, Use of Division Lands. Livestock grazing is used as a management tool to reduce fire danger and release browse species for wintering big game. WMAs will be evaluated by regional personnel and grazed when

habitat conditions indicate the need for herbaceous fuel reduction and/or when shrubs show suppression by perennial grasses. WMAs are typically grazed annually for 4 or 5 years followed by a rest year. Stocking rates and season of use will be adjusted as needed to obtain desired habitat conditions. Grazing will typically be administered through a high intensity/short duration strategy with a grazing season from mid-May through June. Regional personnel will evaluate each WMA annually to determine which, if any, will benefit from grazing and where grazing will be employed the following year. The table below contains historic stocking rates and season of use.

*WMA Grazing Summary*

<u>Area</u>	<u>AUM's</u>	<u>Grazing Period</u>
Big Hollow	50	5/15 to 6/30, potential grass-bank
Fountain Green	50	5/01 to 6/15
Apple Tree spring	0	not typically grazed
Christensen spring	0	not typically grazed, potential grass-bank

Division personnel reserve the right to make changes to stocking rates, season of use, and the grazing schedule as needed. The Division also reserves the right to prescribe graze any WMA if needed to reach habitat objectives. Prescribed grazing may result in permits being issued to a grazer outside of the competitive bid process in order to find willing parties that are able to follow a prescribed grazing plan.

Livestock Trespass

At times, trespass livestock are found on WMA's due to poor boundary fences and/or gates being left open by WMA visitors. Occurrences of trespass livestock will be handled by Division personnel according to the guidelines outlined in the Division's Land Use, R657-28-10.

**VII. Summary Statement of Proposed Uses**

The primary goals and objectives of the WMAs presented in this HMP are to preserve, enhance and protect big game winter range and wintering wildlife, and reduce deer and elk depredation on surrounding private lands. The Division will allow for and provide wildlife-related recreational activities that are consistent with the goals and purposes for which these WMAs were acquired.

**VIII. Monitoring and Evaluation**

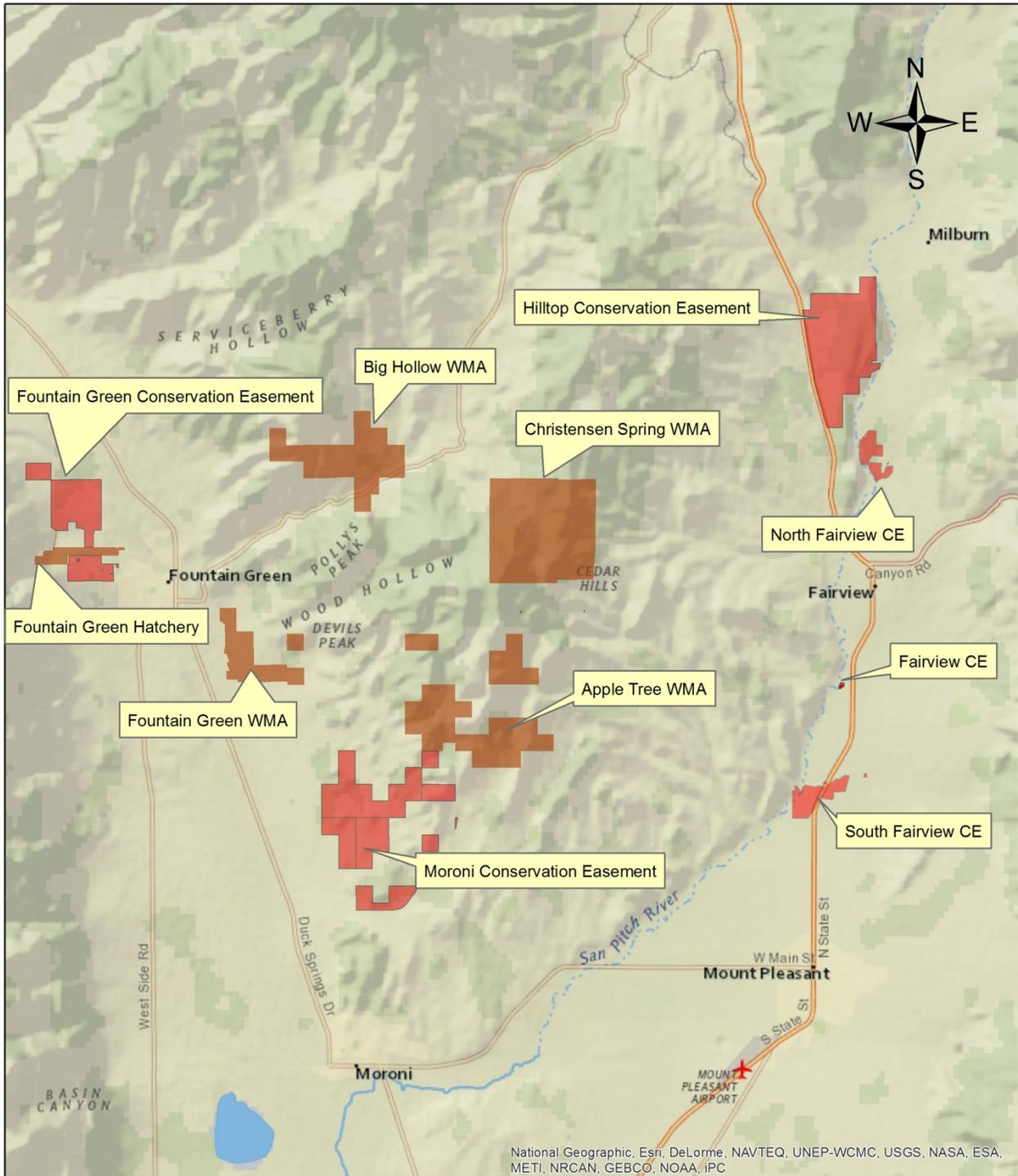
Regional habitat section personnel, the area wildlife biologist and the district conservation officer will be responsible for monitoring overall effectiveness of the program. Appropriate sections will provide expertise as required. The Lead and Assistant Habitat Maintenance Specialists will monitor the needs and effectiveness of physical facilities and improvements. Range Trend program personnel will continue to read the existing trend study's on a 5-year rotation, and will add additional monitoring sites as needed. The regional habitat section will amend this habitat management plan as needed.

## VIII. Appendices

- Appendix A - Maps
  - A1 – General Location.
  - A2 – Land Ownership.
  - A3 – Big Hollow WMA.
  - A4 – Christensen Springs WMA.
  - A5 – Apple Tree Springs WMA.
  - A6 – Fountain Green WMA.
  - A7 – Moroni Conservation Easement.
  - A8 – Fountain Green Conservation Easement.
  - A9 – Hilltop Conservation Easement.
  - A10 – Fairview Conservation Easements
- Appendix B - Access Management Plan and Access Maps by WMA
  - B1 – Big Hollow WMA Access Map.
  - B2 – Christensen Springs WMA Access Map.
  - B3 – Apple Tree Springs WMA Access Map.
  - B4 – Fountain Green WMA Access Map.

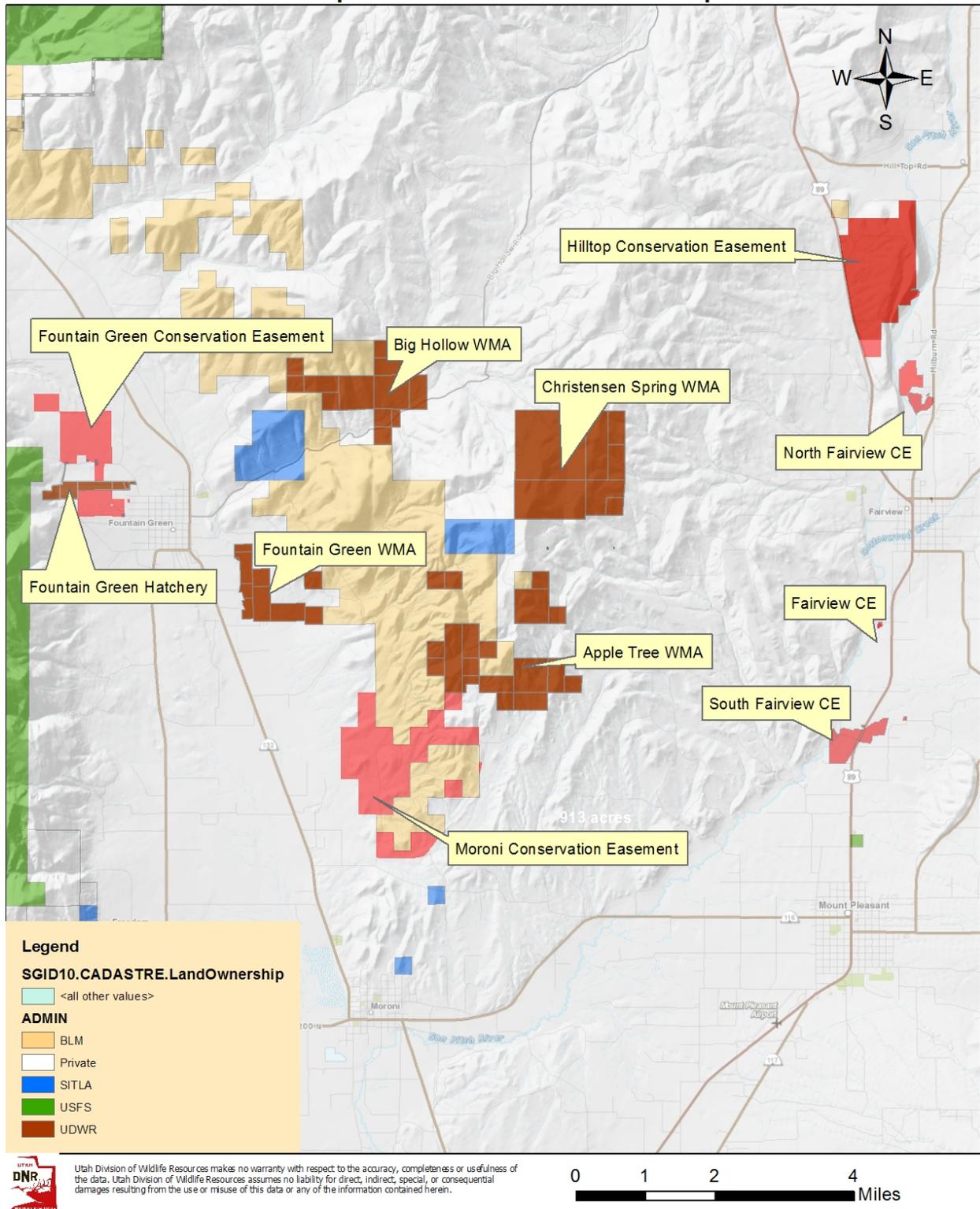
## Appendix A – Maps

# Map A1 - General Location

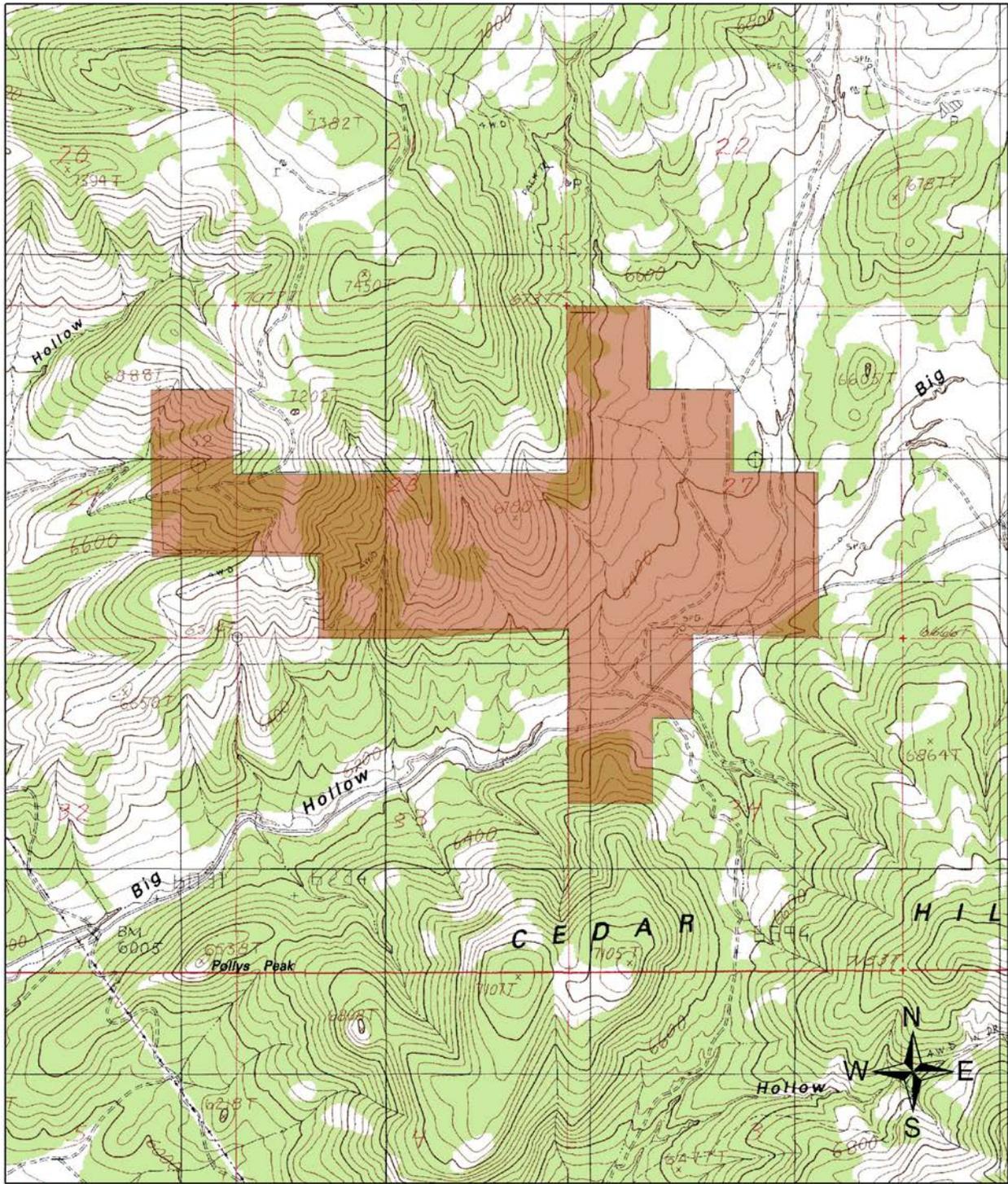


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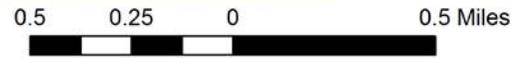
# Map A2 - Land Ownership



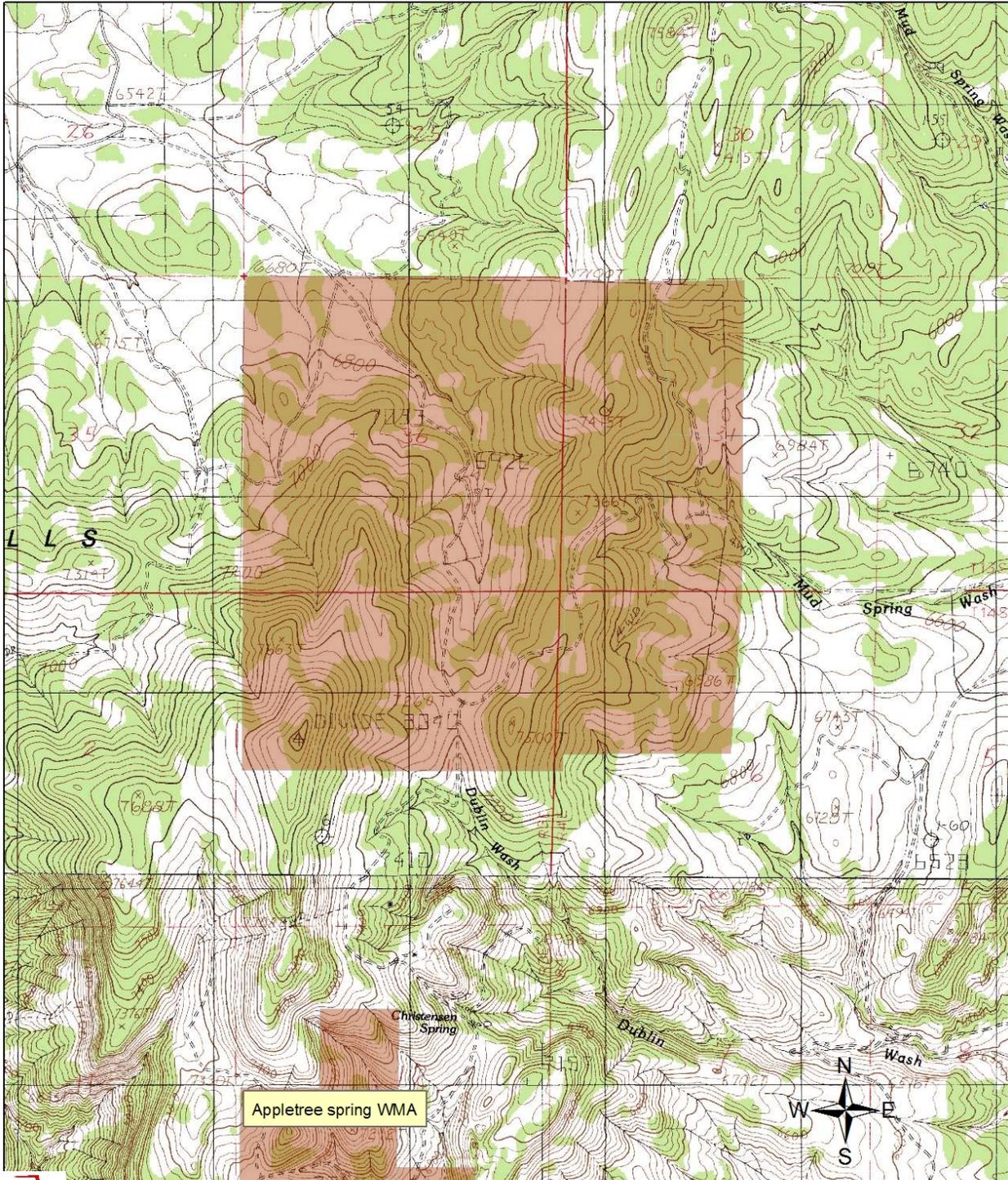
# A3 - Big Hollow WMA



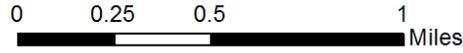
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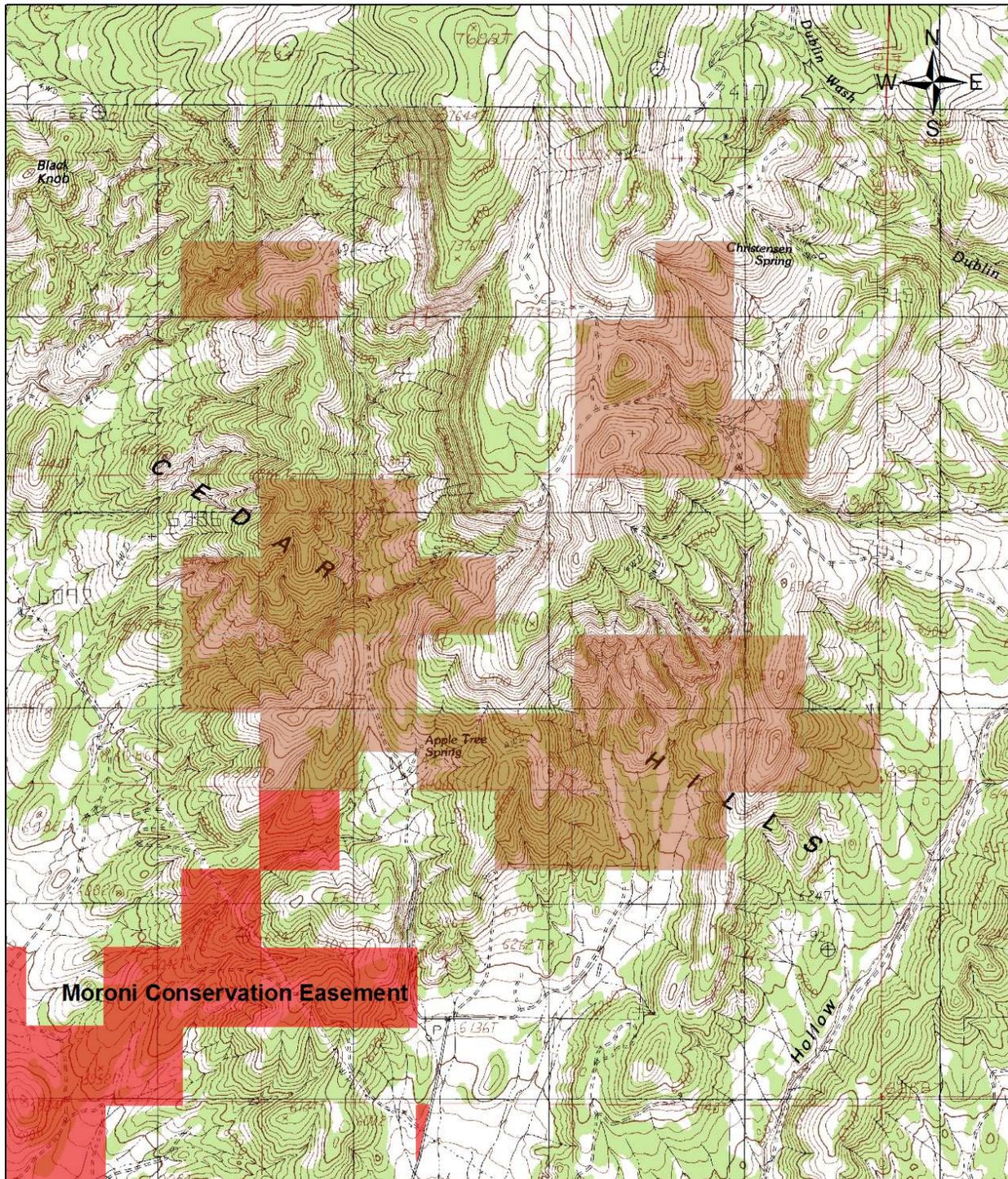
# A4 - Christensen Spring WMA



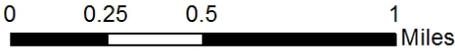
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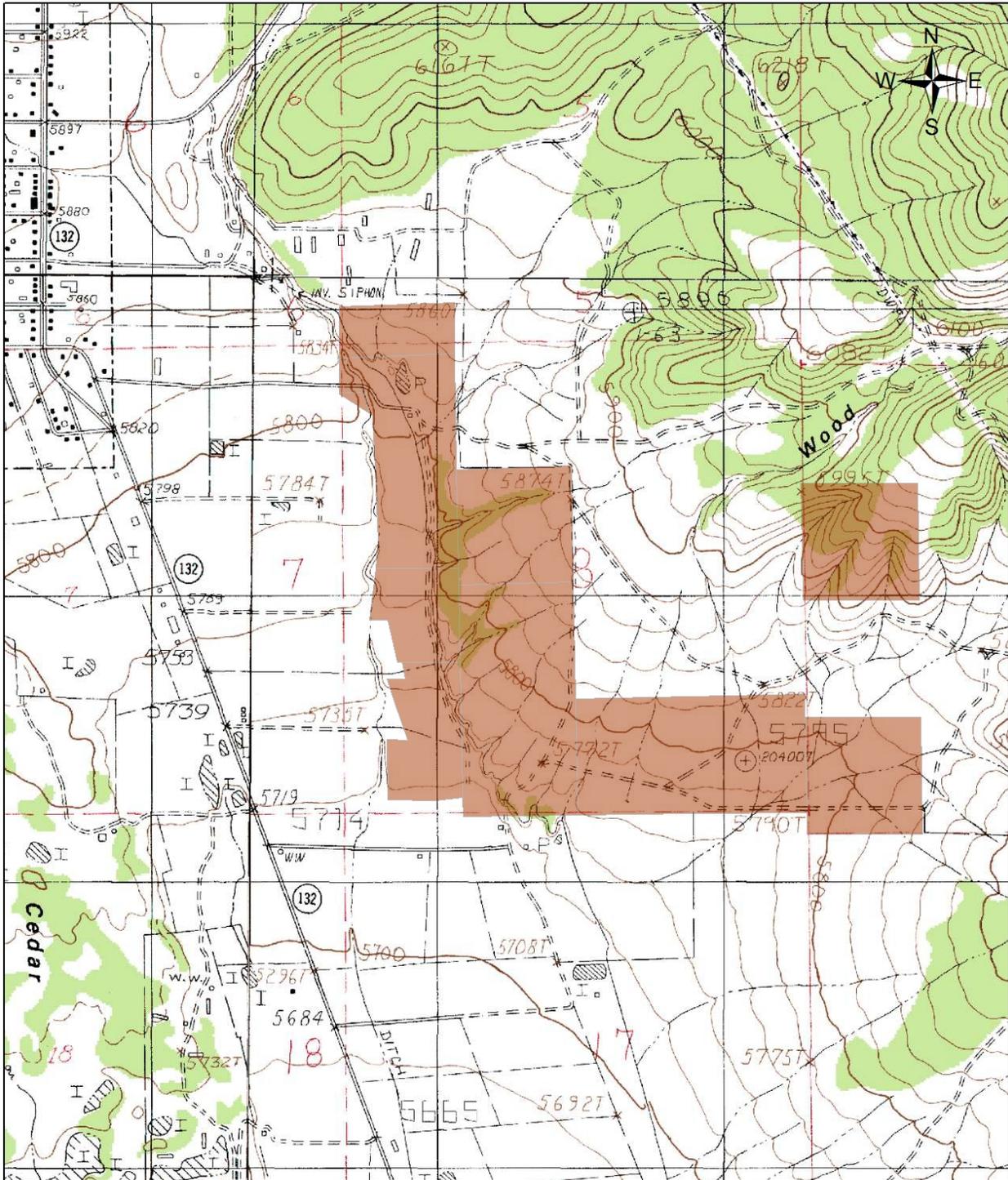
# A5 - Apple Tree Springs WMA



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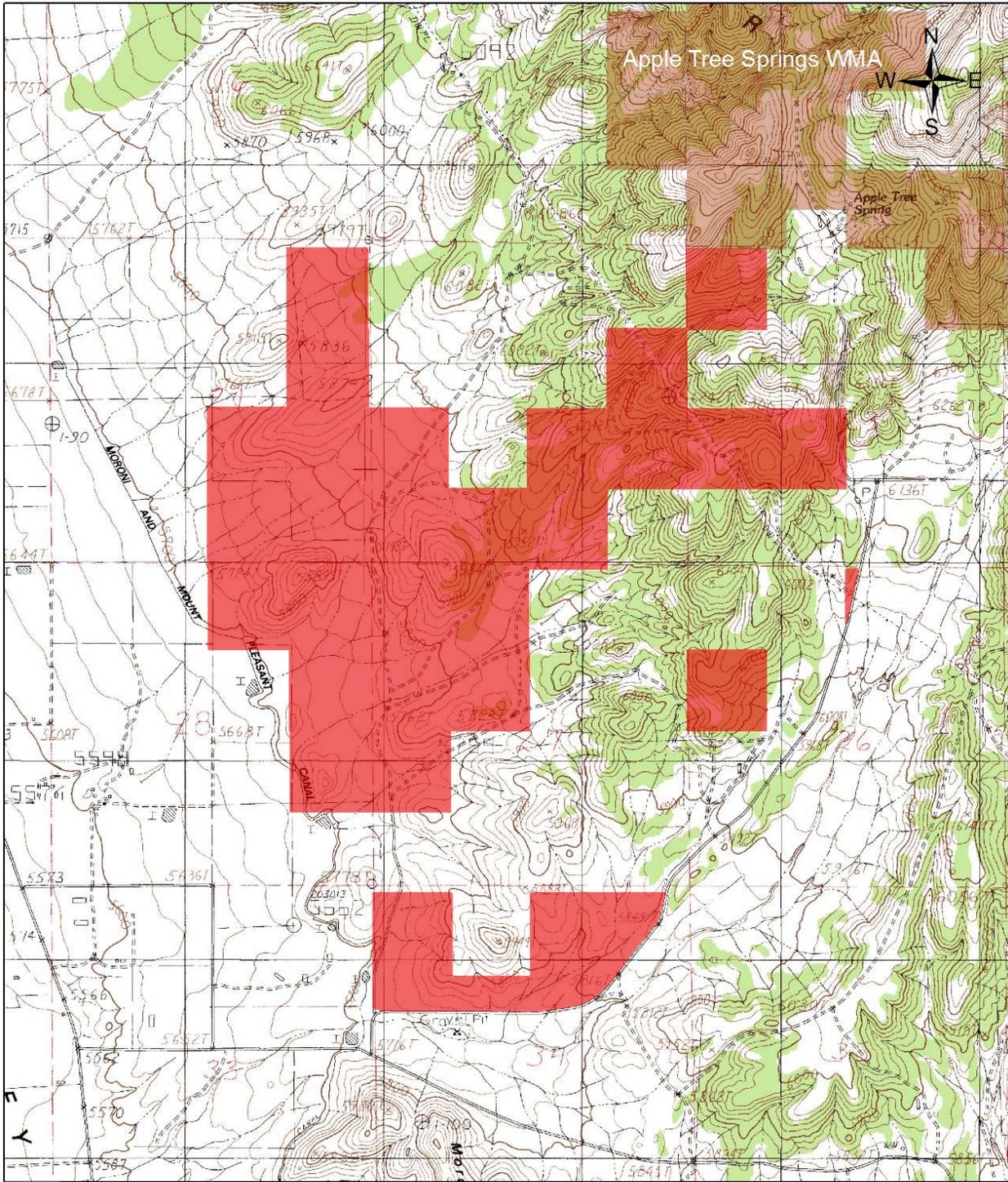
# A6 - Fountain Green WMA



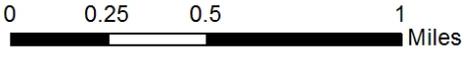
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0 0.15 0.3 0.6 Miles

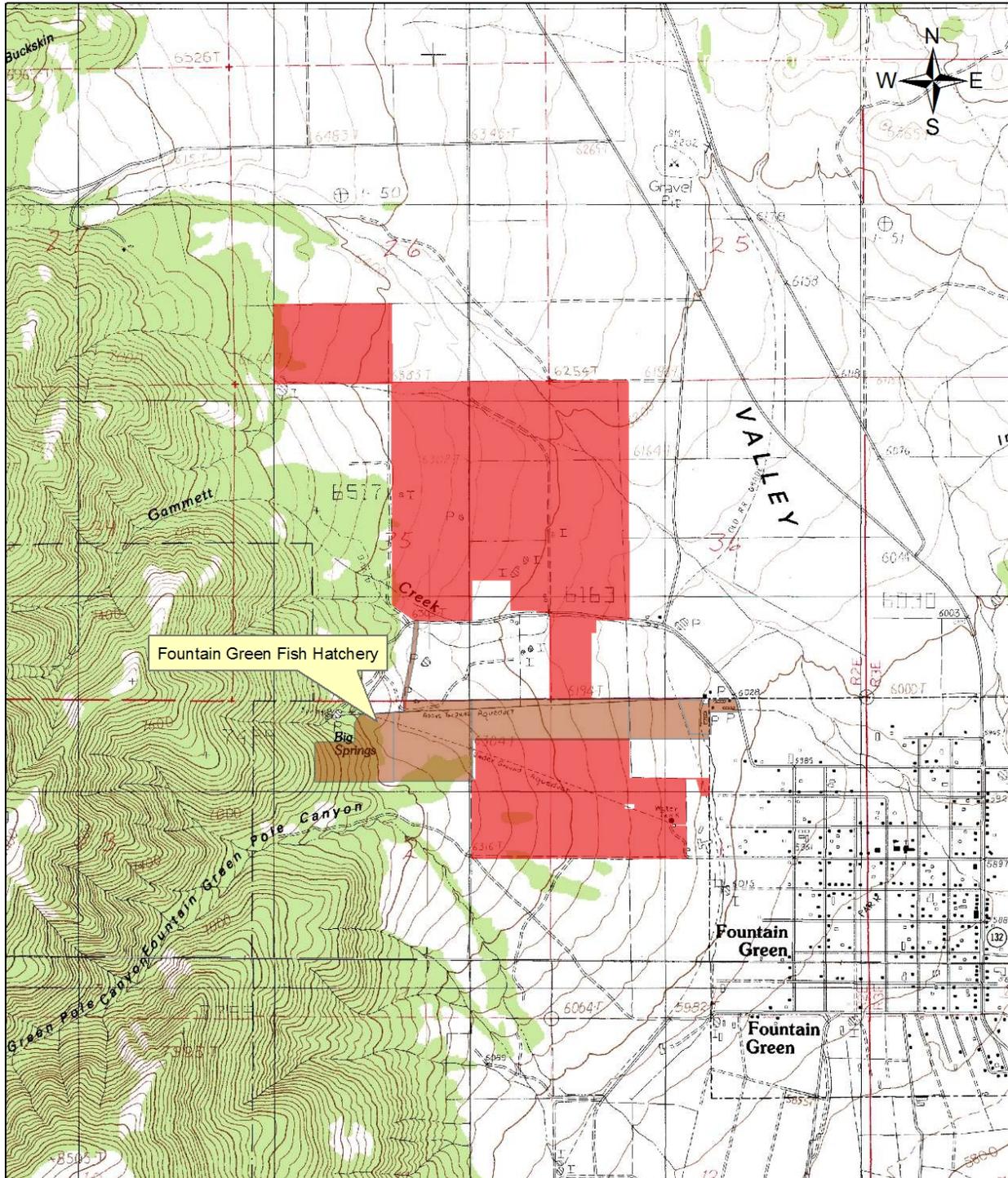
# A7 - Moroni Conservation Easement



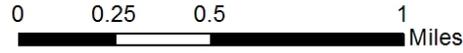
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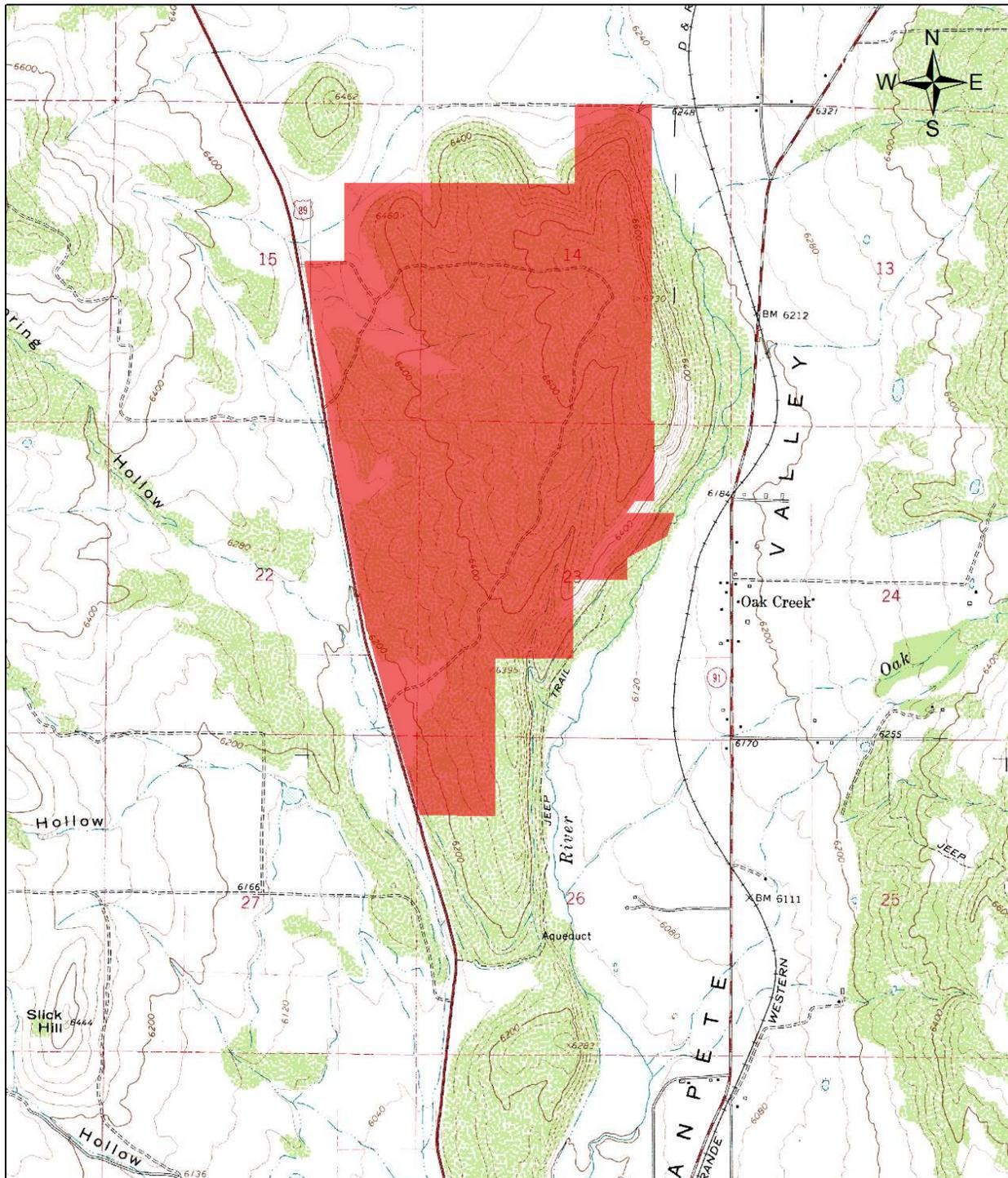
# A8 - Fountain Green Conservation Easement



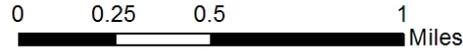
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# A9 - Hilltop Conservation Easement



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## Appendix B – Access Management Plan

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## **Access Management Plan for - North Sanpete County WMAs**

### **Purpose**

The WMAs contained in this plan were acquired to preserve and protect big game winter range and wintering animals. These lands provide some of the most crucial winter habitat for big game in Sanpete County. The access management plan will ensure that public access and use of these WMAs is done in a manner that assists the Division in achieving the goals and objectives outlined in the habitat management plan.

### **Background**

In addition to providing crucial habitat for wintering big game, the Division recognizes the importance of these lands as popular hunting, trapping, and outdoor recreation areas for local residents in Sanpete County as well as sportsmen statewide. As such, the Division organized a public meeting in March of 2012, for the purpose of including key stakeholder and constituent interests in determining how access should be managed on the WMAs. Maps of the WMAs showing proposed authorized routes were presented and comments taken and included in the final access maps for each property.

The Division will monitor the impact of motorized vehicle use on WMAs, and if the Division determines that wildlife and/or habitats are being adversely affected, it reserves the right to close routes and restrict access during the winter months.

### **Road Designation**

Roads are categorized as: Open year round and authorized roads. Authorized roads may be seasonally closed. Roads occurring on the WMAs that are not authorized will be permanently closed.

#### Open year round roads

These are roads that are open year round due to agreements and/or established rights-of-ways with counties, other agencies, and private landowners with in-holdings to a Division property. Roads that do not occur within crucial habitat and/or do not result in habitat damage may also be left open year round.

#### Seasonally Closed Roads

These are roads that are closed for a portion of the year and are not on established rights-of-way or under an agreement with another entity to be left open year round. Roads that fall within this category are closed to motorized vehicles generally during the winter and early spring (Dec 1st to April 30th). The purpose of seasonally closed roads is to limit disturbance to wintering wildlife, protect sensitive and crucial habitats, and to prevent excessive road damage during wet winter and spring months.

## Permanently Closed Roads

These are roads that serve no useful purpose for management or recreational use, and that fragment and damage crucial habitats. User created roads and trails not authorized by the Division also fit into this category. These roads will be closed using signs, berms, fencing, or other means. Where needed, roads may be ripped and seeded. Others will be closed and allowed to return to their natural state.

As needed, seasonal and/or permanent road and trail closures are done under the authority of Administrative Rule R657-28, Use of Division Lands.

## **Access to the WMAs**

### General Access Provisions

Motorized access is restricted to existing roads and trails as authorized by the Division. All authorized roads and trails, including their designation, are shown on the WMA access maps at the end of this plan. Roads and trails not shown on WMA access maps are considered unauthorized. The Division reserves the right to close all unauthorized roads and trails. Authorized travel routes will be signed as open making them easy to distinguish.

Motorized vehicles, including OHV's, are restricted to existing and designated roads (Utah Code Section 41-22-10.1) and this policy will be enforced. Harassment of wildlife or damage to the environment, including abuse of lands, watershed, or impairment of plant or animal life while operating an OHV is illegal (Utah Code Section 41-22-13), and this policy will be enforced. The creation of new roads or trails by unauthorized motorized and non-motorized traffic is prohibited.

The Division cautions against motorized travel on all WMAs during extended periods of wet weather. Under these conditions, roads become slick and difficult to navigate, and are also easily degraded resulting in permanent damage.

### Specific WMA Access Provisions

Big Hollow WMA: Access to this WMA is via the county Big Hollow road. This road is open year round but may be impassable during the winter months. Roads on the WMA going south of the Big Hollow road access private lands adjacent to the property. Roads leading north are closed seasonally from December 1st to the April 30th to protect wintering big game animals. (See Map B1).

Christensen Spring WMA: Access to this property requires turning off of the Big Hollow road and crossing nearly 1 mile of private land (See Map B2). An agreement has been made with this land owner to allow access to the property. There is no official seasonal closure on the WMA but motorized vehicle traffic is discouraged between December 1 to April 30 annually to protect wintering wildlife.

Apple Tree Spring WMA: Access to this WMA are on unimproved dirt roads. You can either

travel south from Christensen Spring WMA or north from the Blue Hills county road across private lands to Apple tree spring (See Map B3). There is no agreement in place to access the WMA from the south across private lands. There is no official seasonal closure on the WMA but motorized vehicle traffic is discouraged between December 1 to April 30 annually to protect wintering wildlife.

Fountain Green WMA: Access to this WMA is via county roads on the north and south ends of the property. Due to the small size and close proximity of the WMA to the town of Fountain green, most of the roads on the property are open only for administrative uses. The road on the south boundary is a dedicated access to BLM lands to the east.

### **Enforcement of Access Management Plan**

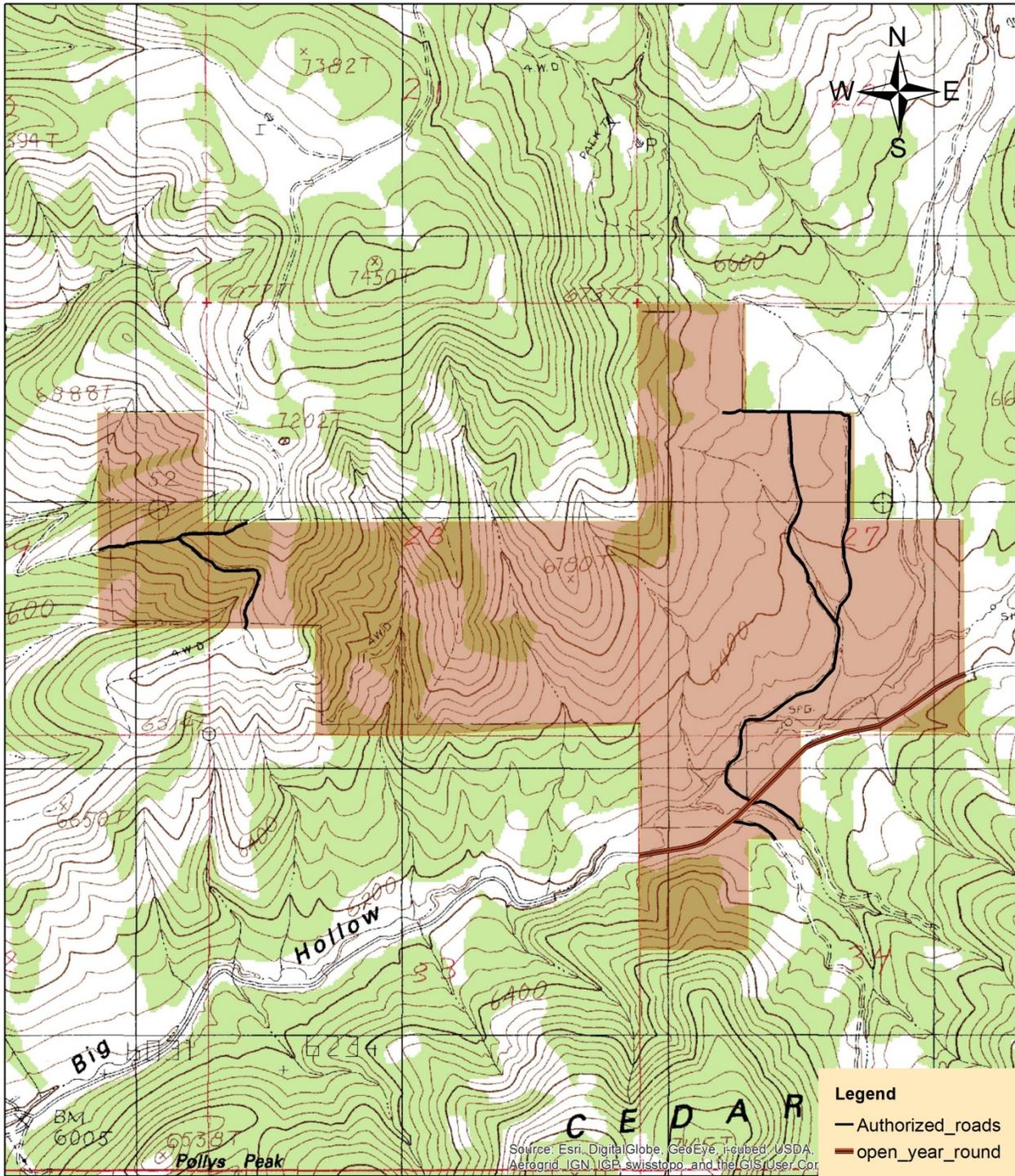
Enforcement of the access management plan will be carried out by Division personnel. However, due to the high amount of public use on these WMAs, the Division will work closely with the county Sheriff's Office and other local law enforcement agencies to keep motorized vehicle travel on authorized travel routes.

### **Informing the Public**

Division personnel will inform the public of the access plan by adequately signing access points, roads and trails, parking areas, and fence lines. In addition, media coverage may be used to disseminate information regarding the access plan and how it relates to the overall goals and objectives of the WMAs contained in this plan. Seasonal closures or other issues relating to access will also be included in hunting proclamations that are published annually by the Division.

The Division will work with local municipalities, the county, and other state and Federal agencies to coordinate access and travel plans that are consistent with other planning efforts. As previously stated, if the Division feels that changes to the access management plan are necessary, the access working group will be reconvened to assist with this effort.

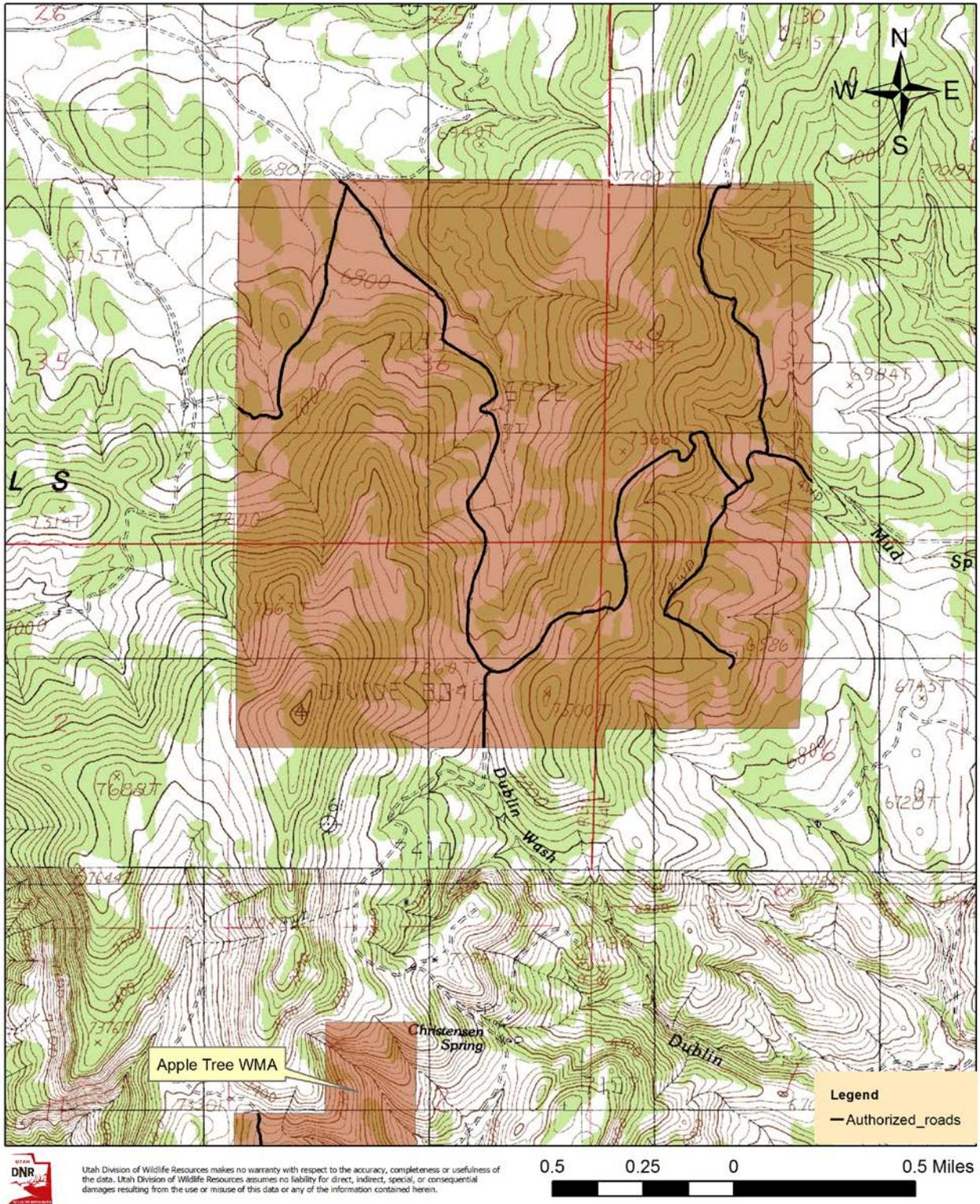
# B1 - Big Hollow WMA Access Map



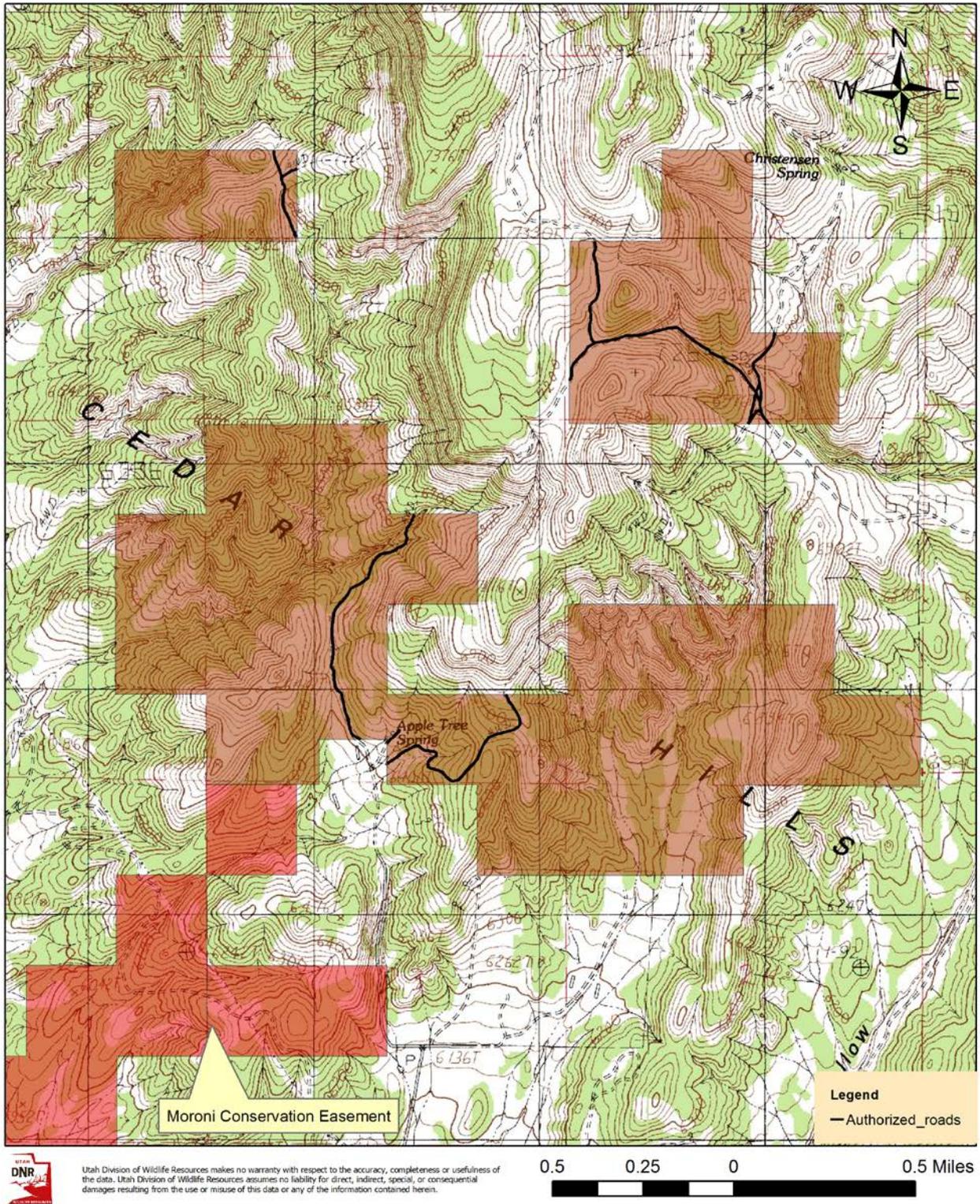
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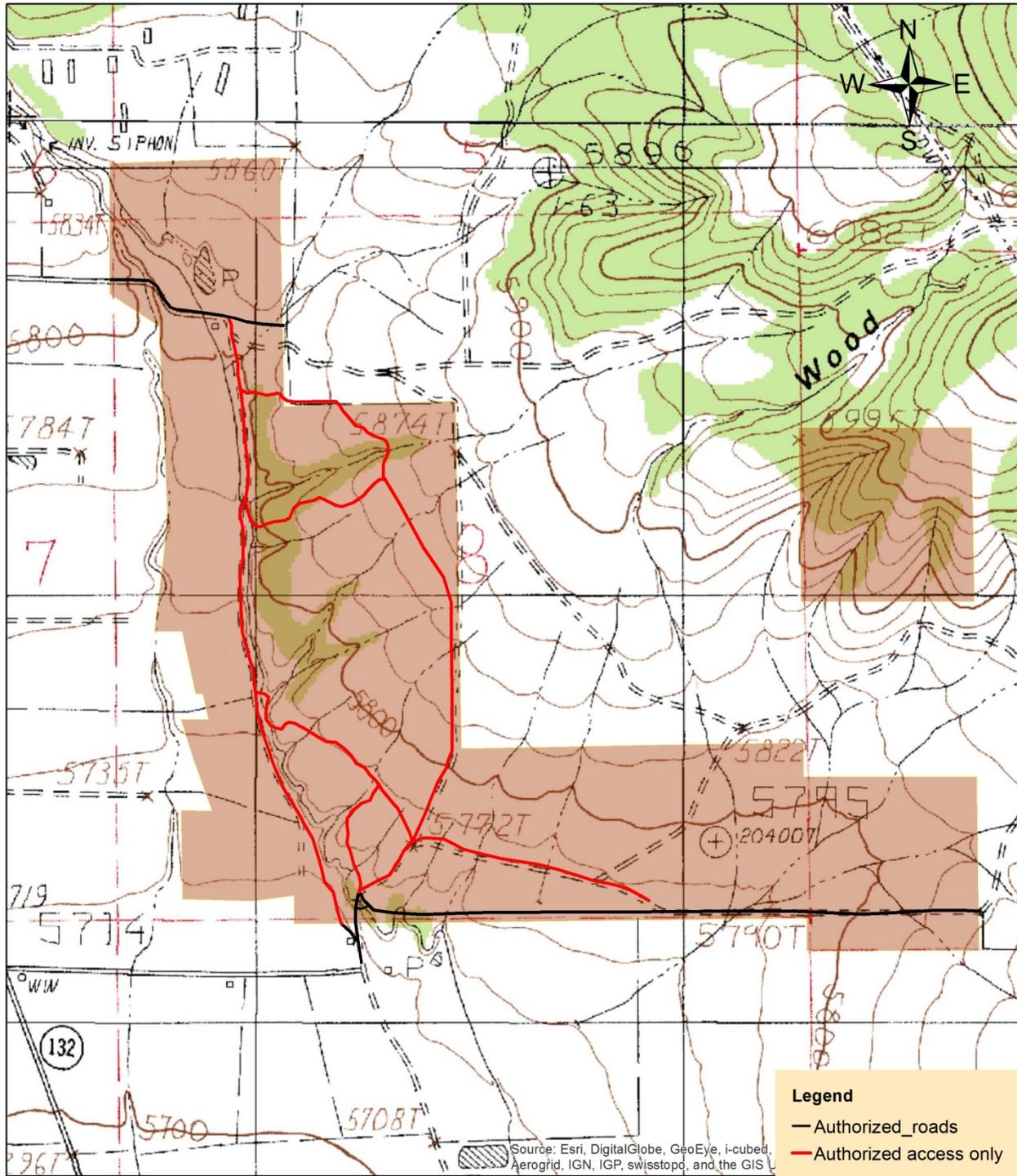
# B2 - Christensen Spring WMA Access Map



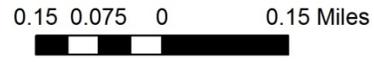
# B3 - Apple Tree Spring WMA Access Map



# B4 - Fountain Green WMA Access Map



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**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 20**  
**(Southwest Desert)**  
**February 2015**

**BOUNDARY DESCRIPTION**

**Beaver, Iron, and Millard counties** - Boundary begins at US-50&6 and the Utah-Nevada state line; east on US-50&6 to SR-257; south on SR-257 to SR-21; south on SR-21 to SR-130; south on SR-130 to I-15; south on I-15 to SR-56; west on SR-56 to the Lund Highway; northwest on the Lund Highway to the Union Pacific railroad tracks at Lund; southwest on the Union Pacific railroad tracks to the Utah-Nevada state line; north on this state line to US-50&6.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	Year-long range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0%	0	0%	0	0%
Bureau of Land Management	132752	95%	711554	84%	167425	85%
Utah State Institutional Trust Lands	6650	5%	92989	11%	16492	8%
Native American Trust Lands	0	0%	0	0%	0	0%
Private	645	<1%	36326	4%	9788	5%
Department of Defense	0	0%	0	0%	0	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	0	0%	0	0%
Utah State Parks	0	0%	0	0%	0	0%
Utah Division of Wildlife Resources	0	1%	6775	1%	3487	2%
<b>TOTAL</b>	<b>140047</b>	<b>100%</b>	<b>847644</b>	<b>100%</b>	<b>197192</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size – Manage for a 5-year target population of 4,000 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels. Change to the population objective is based on this population's performance, improved range conditions, the amount of available habitat and the lack of range damage from deer. The population objective is being restored after instituting a temporary in 2002 because of poor range conditions.

### Unit 20 Population Objective History

1994-2001 Objective: 4,000

2002-2014 Objective: 3,200

2015-2020 Objective: 4,000

Change from last plan +800

- Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan. This unit typically exceeds the 20 bucks per 100 doe threshold post season. It is a difficult unit to obtain a large enough sample size for this analysis. Caution will be use when adjusting permits and trends will be considered.
- Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

### POPULATION MANAGEMENT STRATEGIES

#### Monitoring

- Population Size - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 3,000 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	155	43.6	29.9	1700	3,200	53.1%
2013	201	47.9	29.2	2100	3,200	65.6%
2014	175	46.1	24.5	3000	3,200	90.6%
3 Year Avg	177	45.8	27.9			

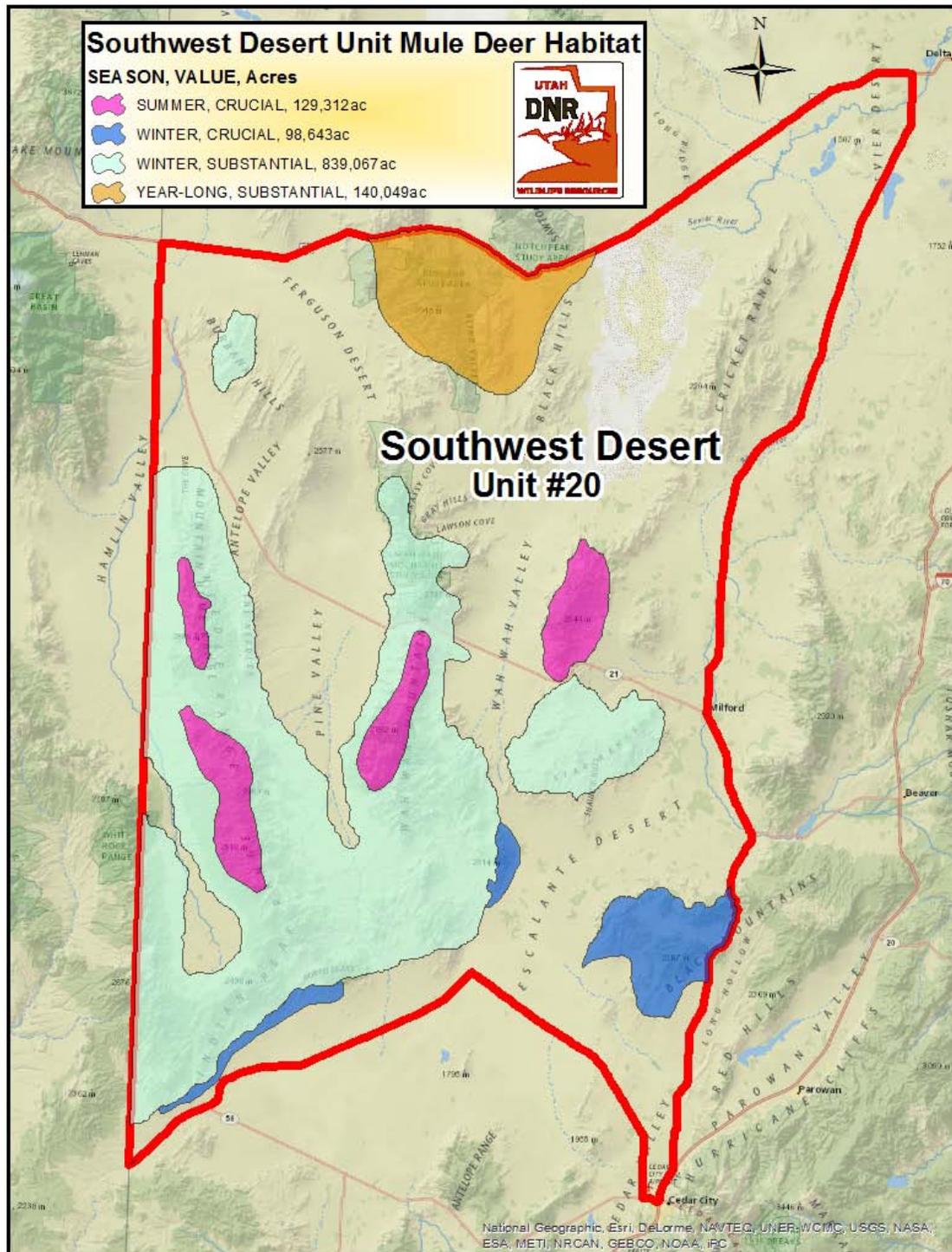
#### Limiting Factors (May prevent achieving management objectives)

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- Habitat – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal. The Southwest Desert is a summer range limited unit. Winter range is abundant. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population
- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
  - This unit is currently under a Predator Management plan and coyotes are being targeted by

contractors.

- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Currently, highway mortality is not a limiting factor on this unit.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

## **MULE DEER HABITAT MAP**



### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the

WRI process

## **HABITAT MANAGEMENT STRATEGIES**

### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.
- Continue existing monitoring studies, and coordinate with BLM on additional riparian monitoring.

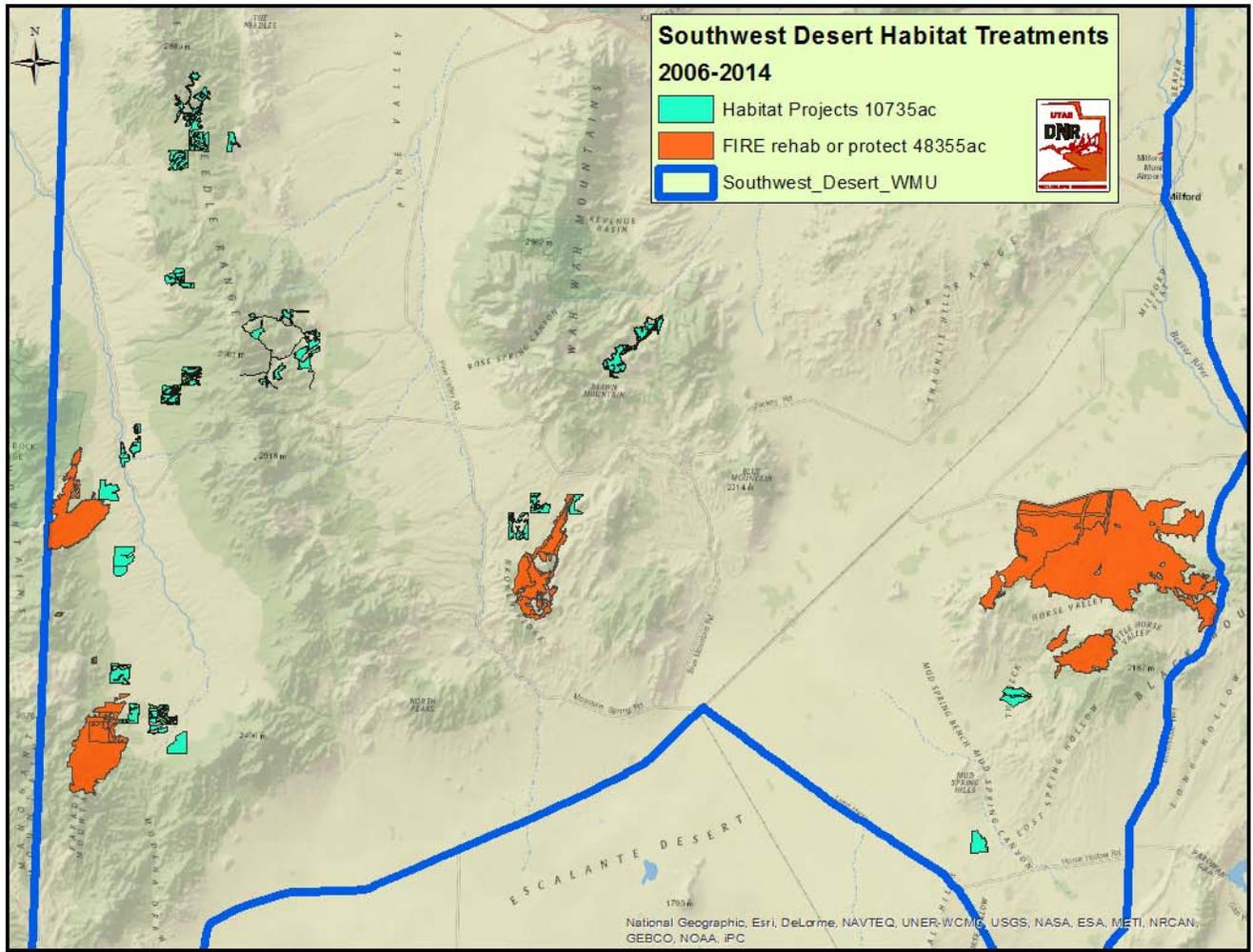
### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Manage riparian areas in critical fawning habitat to provide water, cover and succulent forage from mid- to late summer.
- Work with BLM to support wild horse removals where there are conflicts with Mule Deer.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and reseed areas dominated by cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Seek opportunities to increase browse in burned areas of critical winter range.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Seek out opportunities to improve the limited summer range across the unit. Develop summer range habitat improvement projects that remove encroaching trees, improves succulent vegetation and wet meadows, increases aspen recruitment, enhances and/or protects riparian areas, and use prescribed fire to promote early succession habitats where appropriate.

- Future habitat work should be concentrated on the following areas.
  - Hamlin Valley and the surrounding areas covered by the BLM's 2014 Habitat Improvement Environmental Assessment
  - Retreatment of older treatments (>10years) to protect investment through maintenance.
  - Habitat improvements in the Indian Peak, Wah Wah, and Mountain Home crucial summer habitats.
  - Look for opportunities to implement habitat improvements for deer in the northern half of the unit.

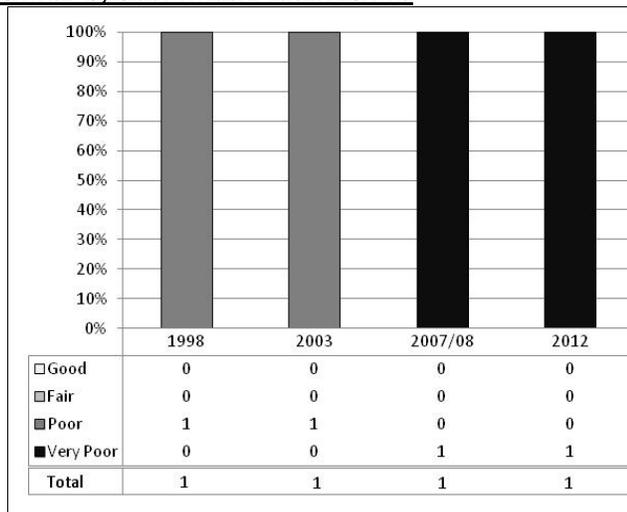
**Habitat Project Summary**

<b>Projects Southwest Desert Unit : 2006-2014</b>	<b># Projects</b>	<b>Acres</b>
<b>Habitat Enhancements, Shrub steppe rehab, PJ removals, etc</b>	<b>18</b>	<b>10,735</b>
<b>Fire Rehab and Protection Projects</b>	<b>29</b>	<b>48,355</b>
<b>Totals</b>	<b>47</b>	<b>59,090</b>

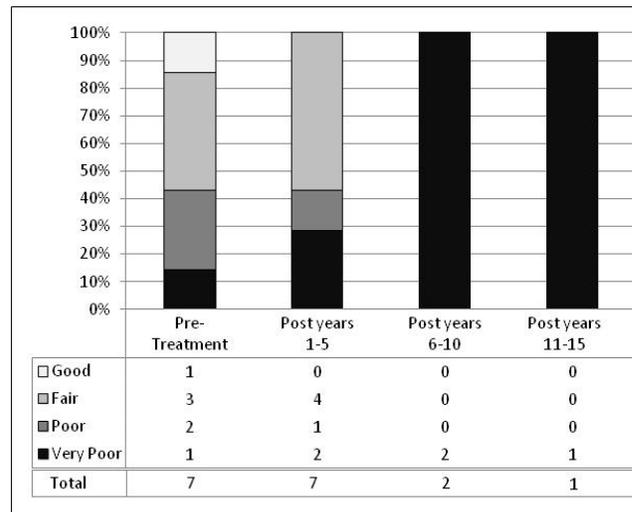


**PERMANENT RANGE TREND SUMMARIES**

**Units 20, Southwest Desert Units**



**Figure 1: Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 20, Southwest Desert.**



**Figure 2: Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 20, Southwest Desert.**

**DWR Winter Range Trend Assessment**

There were seven range trend study sites sampled in 2012 of which four were on winter range. The remaining three sites were on sensitive summer range areas. Of the four winter range sites, three have had a major disturbance or treatment in the last 30 years. One study site was chained, burned, and harrowed; one study site was burned; and one study site was lopped and scattered. Four additional study sites have been established to monitor habitat treatment projects.

The condition of deer winter range within the Southwest Desert management unit has remained poor on study sites sampled since 2003. The one undisturbed range trend site has remained in poor condition since 1998 due to low cover of preferred browse and perennial grass species (Figure 1). The condition of disturbed and treated study sites, initially following treatment, have remained similar (Figure 2). The study sites that ranked as being in poor or very poor condition 6-15 years after disturbance are those burned by fire. For the majority of the sites in poor condition, the lack of preferred browse species is driving this trend. The main winter browse species on these study sites is mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and black sagebrush (*Artemisia nova*). Cover of sagebrush has remained relatively stable on the majority of these sites, though cover has remained relatively low. Since 2003, sagebrush cover has increased on the Mountain Home Seeding and South Spring study sites, but cover remains moderately low. The annual grass species cheat grass (*Bromus tectorum*) is prevalent on the Lower Indian Peak and South Spring study sites.

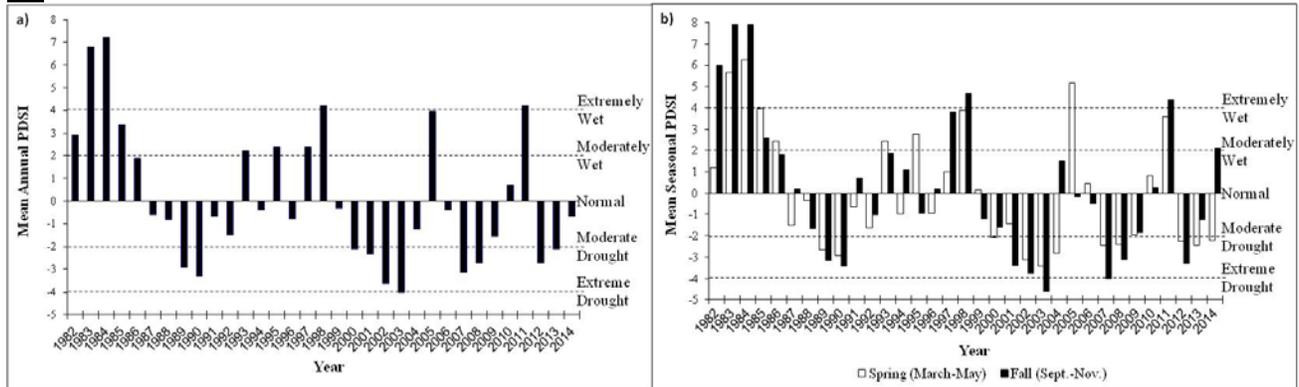
The summer range study sites appear to be in good condition. The summer range sites cumulative median browse trend for the unit has fluctuated, but has generally decreased since 2003, though cover remains good on these sites. Use of mountain browse species has been moderate to heavy on these study sites.

The summer and winter range within this unit appears suitable to support planned deer population objectives. Though the winter range study sites are in poor condition, this unit is summer range limited and winter range is not the limiting factor. The abundance of cheat grass on the lower potential sites is a concern because of increased fuel loads and increased chance of a catastrophic fire event. Encroachment of pinion and juniper trees into shrub winter and summer ranges is a concern in some areas across the unit. Encroachment of pinion and juniper can reduce desirable shrub and herbaceous cover.

## Precipitation 20

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation and Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the Western division (Division 1). The Western division had a historic annual mean precipitation of 9.79 inches from 1895 to 2014. The mean annual PDSI of the South Central division displays a pattern of drought years with a few periods of wet years over the course of study years (Figure 3a and Figure 3b) (Time Series Data 2015).

20.



**Figure 3: The 1982-2014 Palmer Drought Severity Index (PDSI) for the Western division (Division 1). The PDSI is based on climate data gathered from 1895 to 2014. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2015).**

## Works Cited

Time Series Data. (2015). *National Oceanic and Atmospheric Administration Earth System Research Laboratory Physical Science Division*. Retrieved January 2015, from <http://www.esrl.noaa.gov/psd/data/timeseries/>

**DEER HERD UNIT MANAGEMENT PLAN**  
**Herd Unit #21**  
**(Fillmore)**  
**May 2015**

**BOUNDARY DESCRIPTION**

**Millard, Sevier, Sanpete, and Juab counties:** Boundary begins at I-70 and I-15; north on I-15 to the Black Rock road; west on the Black Rock road to SR-257; north on SR-257 to US-50 and 6; east on US-50 and 6 to US-6; north on US-6 to SR-132; east on SR-132 to SR-28; south on SR-28 to US-89; south on US-89 to I-70; west on I-70 to I-15.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

OWNERSHIP	Year-Long Range		Summer Range		Winter Range	
	AREA (acres)	%	AREA (acres)	%	AREA (acres)	%
Forest Service	0	0%	325,288	85%	140,100	24%
Bureau of Land Management	2,995	1%	15,470	4%	188,601	32%
Utah State Institutional Trust Lands	17	82%	2,367	1%	34,616	6%
Native American Trust Lands	0	0%	0	0%	1,357	0%
Private	662	18%	40,623	11%	202,590	35%
Department of Defense	0	0%	0	0%	0	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	0	0%	0	0%
Utah State Parks	0	0%	0	0%	0	0%
Utah Division of Wildlife Resources	0	0%	119	0%	14977	3%
<b>TOTALS</b>	<b>3,674</b>	<b>100%</b>	<b>383,867</b>	<b>100%</b>	<b>582,241</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

- Combine subunits 21a and 21b to become one hunting unit, Fillmore Pahvant.
- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.
- Continue to review habitat boundaries and look for ways to improve boundaries that provide for better social and biological needs on the unit.

## **POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size – Manage for a 5-year target population of 12,000 (10,00 east of I-15 and 2,000 west of I-15) wintering deer (modeled number) during the five-year planning period; unless range conditions become unsuitable as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels.

Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan

Harvest – Combine general season hunt formats / regulations for subunits 21A (outside of the Forest Service boundary) and 21B, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 10,049 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

### **Limiting Factors** (May prevent achieving management objectives)

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- Habitat – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal.
- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
  - This unit is currently under a Predator Management plan and coyotes are being targeted by contractors.

- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Currently, highway mortality is not a limiting factor on this unit.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

## **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process

## **HABITAT MANAGEMENT STRATEGIES**

### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.

- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Future habitat work should be concentrated on the following areas.
  - 21a
    - Seek opportunities to increase browse in burned areas of critical winter range.
  - 21b
    - WMA's.
    - Winter range along east side of unit.
    - Quaking Aspen forests unit wide.

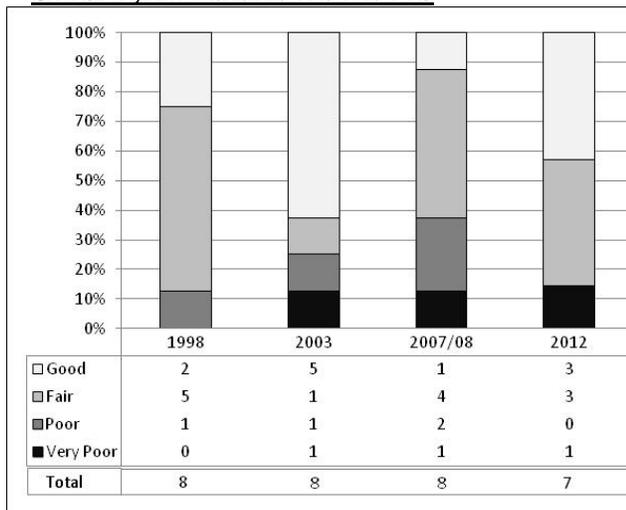
**Habitat Project Summary**

Projects Fillmore, Oak Creek 2006-2014	# Projects	Acres
Pinyon-Juniper Projects	5	6755
Fire Rehab Projects*	9	124,356
*Clay Springs Fire Projects account for 26,008 acres		
*Milford Flat Fire Projects account for 95,202 acres		
Total	14	131,111

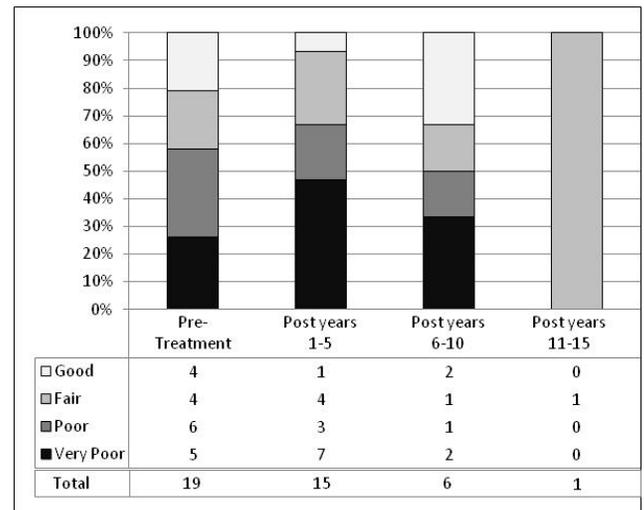
Projects Fillmore, Pahvant 2006-2014	# Projects	Acres
Pinyon-Juniper Projects	27	16,028
Fire Rehab Projects	2	7311
Drill Seeding	3	1141
Harrow	2	334
Plateau	3	2453
Total	37	27,267

## PERMANENT RANGE TREND SUMMARIES

### Units 21, Fillmore Pahvant units



**Figure 1:** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 21ab, Fillmore Oak Creek and Fillmore Pahvant subunits.



**Figure 2:** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 21ab, Fillmore Oak Creek and Fillmore Pahvant subunits.

### DWR Winter Range Trend Assessment

The condition of deer winter range within the Fillmore Oak Creek and Fillmore Pahvant management units has remained similar on the study sites sampled since 1998. The majority of the undisturbed sites sampled within the unit are considered to be in good to fair condition with the exception of the Meadow Creek study site which has remained in very poor condition since 2003 (Figure 1). Cover of preferred browse species on the Meadow Creek study site has decreased with the site becoming dominated by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). The condition of disturbed and treated study sites typically improved with increased time after disturbance on this unit with the exception of study sites that burned in wildfires. The study sites that ranked as being in poor or very poor condition 6-10 years after disturbance or treatment are those burned by wildfire (Figure 2). Those sites are still lacking in available browse species, and typically have increased amounts of cheatgrass.

The abundance of weedy annual species cheatgrass (*Bromus tectorum*) and bulbous bluegrass (*Poa bulbosa*) is a particular concern on these sites. These weedy species can form dense mats of cover that compete with other more desirable herbaceous species and with seedlings and young shrubs which limits establishment of new plants into the population. Annual grass species can also increase fuel loads and increase the chance of a catastrophic fire event.

## **Fillmore Pahvant**

There were 15 range trend sites sampled in 2012 of which 12 were on winter range. The remaining three sites were on sensitive summer range areas. Of the 11 winter range sites, five have had a major disturbance or treatment in the last 30 years. Three of the study sites were burned, one was bullhogged, and one was harrowed. Eleven additional study sites have been established to monitor habitat treatment projects.

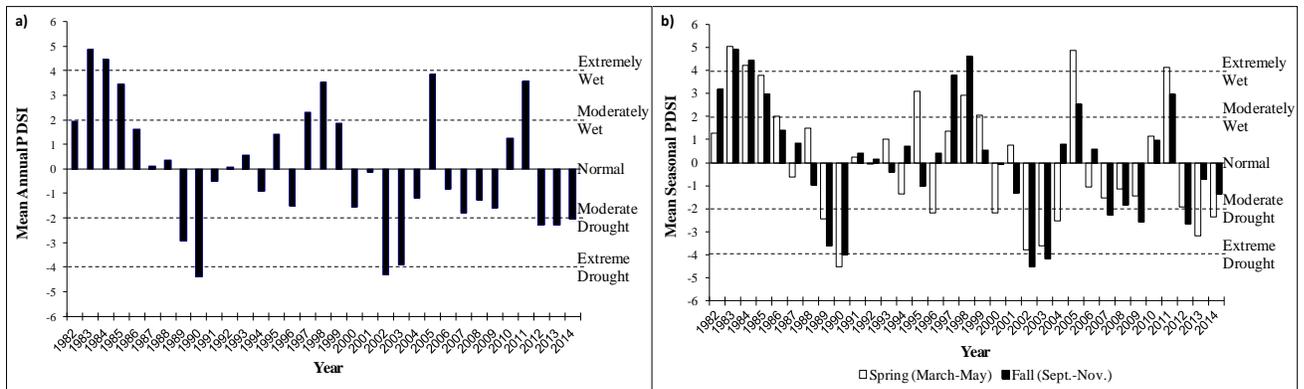
The majority of the winter browse on this subunit is provided by cliffrose (*Cowania mexicana* ssp. *stansburiana*), bitterbrush (*Purshia tridentata*), and big sagebrush (*Artemisia tridentata*). Cover of sagebrush has remained relatively stable on the majority of the sites. Two studies have had substantial decreases in sagebrush cover that can be attributed to a fire in the Dameron Canyon and the harrow treatment in the Fillmore Cemetery East study. The Meadow Creek study has steadily decreased in sagebrush cover since the outset of the study due to the encroachment of pinyon and juniper. Occurrence of bitterbrush and cliffrose are relatively stable, but availability and cover are decreasing and lacking due to a large majority of the plants being in older successional classes with low recruitment of young plants.

Apart from the areas impacted by wildfire, the winter range within the subunit appears suitable to support planned deer population objectives. The abundance of cheatgrass and bulbous bluegrass on the subunit is a concern because cheatgrass can increase fuel loads and increases the chance of a catastrophic fire event and bulbous bluegrass can compete with species that are more desirable. Encroachment of pinyon and juniper trees into shrub winter ranges is also a concern in some areas across the subunit. Encroachment of pinyon and juniper can reduce desirable shrub and herbaceous cover.

The west side of the unit has been heavily impacted by fire and much of the winter range has seen a conversion of the browse component to annual and perennial grasses. With the large expanse of area affected by wildfires within this subunit, winter range is in poor condition across much of the unit and may have an effect on winter survival of mule deer.

## **Precipitation**

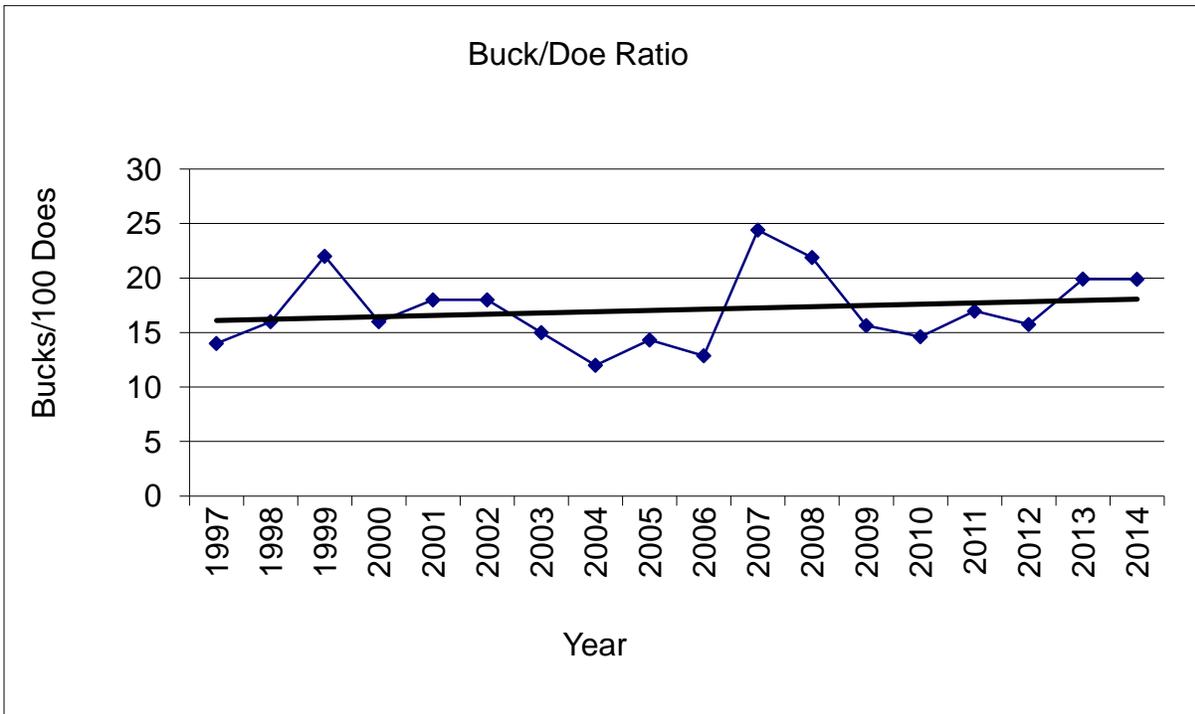
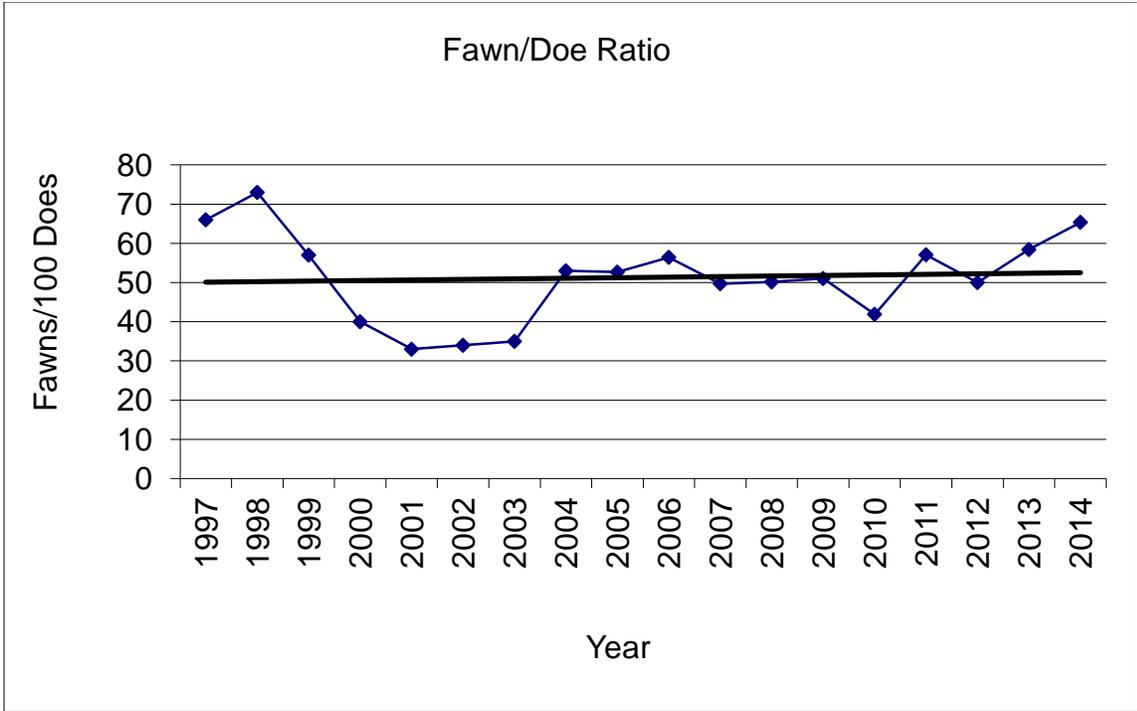
Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation and Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The South Central division had a historic annual mean precipitation of 15.7 inches from 1895 to 2014. The mean annual PDSI of the South Central division displays a pattern of drought years with a few periods of wet years over the course of study years (Figure 3a and Figure 3b) (Time Series Data 2015).



**Figure 3:** The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2014. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2015).

## Works Cited

Time Series Data. (2015). *National Oceanic and Atmospheric Administration Earth System Research Laboratory Physical Science Division*. Retrieved January 2015, from <http://www.esrl.noaa.gov/psd/data/timeseries/>





**MULE DEER HERD UNIT MANAGEMENT PLAN**  
**Herd Unit #21A**  
**(Oak Creek, Limited Entry Unit)**  
**May 2015**

**BOUNDARY DESCRIPTION**

**Millard, Sevier, and Juab counties:** Boundary begins at Highway 50 and I-15 at the north Holden interchange; north on I-15 to the Mills road ; west on the Mills road to the railroad tracks; north west on the railroad tracks to SR-132; east on SR-132 to SR-125 or 300 east; west on SR-125 or 300 east to McCormick Road; South on McCormick road to Whiskey Creek Road; East on Whiskey Creek Road to SR-50; East on SR-50 to SR-50 and Main street; North on SR-50 and Main Street to I-15.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

OWNERSHIP	Year-Long Range		Summer Range		Winter Range	
	AREA (acres)	%	AREA (acres)	%	AREA (acres)	%
Forest Service	0	0%	111,072	86%	0	0%
Bureau of Land Management	3,106	50%	7,283	11%	10,931	25%
Utah State Institutional Trust Lands	42	1%	242	2%	10,839	25%
Native American Trust Lands	0	0%	0	0%	0	0%
Private	2,487	49%	867	2%	29,382	50%
Department of Defense	0	0%	0	0%	0	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	0	0%	0	0%
Utah State Parks	0	0%	0	0%	0	0%
Utah Division of Wildlife Resources	0	0%	0	0%	0	0%
<b>TOTALS</b>	<b>5,635</b>	<b>100%</b>	<b>119,462</b>	<b>100%</b>	<b>51,152</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

## **POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size – Manage for a 5-year target population of 2,500 wintering deer (modeled number) during the five-year planning period; unless range conditions become unsuitable as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels.

Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 25-35 according to the statewide plan.

Harvest – Limited Entry Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

LOA: Set up a land owner Association upon extending the boundary to allow for hunting opportunity for the landowners whose land will be incorporated.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason classification and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 3,000 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of, mandatory reporting requirements, checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

### **Limiting Factors** (May prevent achieving management objectives)

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- Habitat – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal.
- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Currently, highway mortality is not a limiting factor on this unit.

- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be developed in cooperation with the Law Enforcement Section.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

#### **Habitat Protection, Improvement and Maintenance**

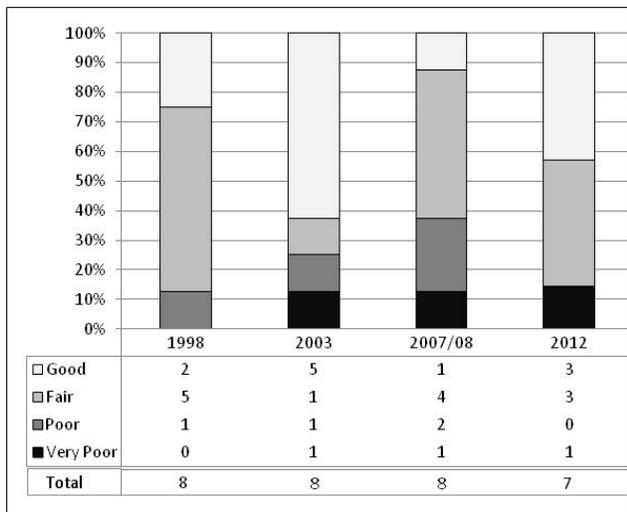
- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- [Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.](#)
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Future habitat work should be concentrated on the following areas.
  - 21a
    - Seek opportunities to increase browse in burned areas of critical winter range.

Projects Fillmore, Oak Creek 2006-2014	# Projects	Acres
Pinyon-Juniper Projects	5	6755
Fire Rehab Projects*	9	124,356
*Clay Springs Fire Projects account for 26,008 acres		
*Milford Flat Fire Projects account for 95,202 acres		
<b>Total</b>	<b>14</b>	<b>131,111</b>

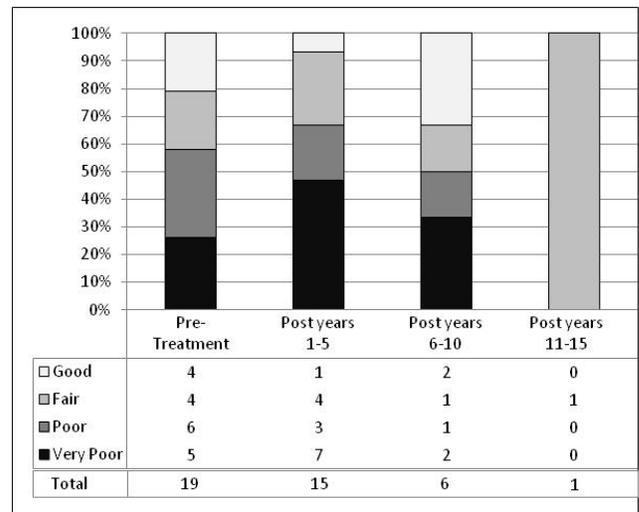
Projects Fillmore, Pahvant 2006-2014	# Projects	Acres
Pinyon-Juniper Projects	27	16,028
Fire Rehab Projects	2	7311
Drill Seeding	3	1141
Harrow	2	334
Plateau	3	2453
<b>Total</b>	<b>37</b>	<b>27,267</b>

## PERMANENT RANGE TREND SUMMARIES

### Units 21ab, Fillmore Oak Creek and Fillmore Pahvant Subunits



**Figure 1:** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 21ab, Fillmore Oak Creek and Fillmore Pahvant subunits.



**Figure 2:** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 21ab, Fillmore Oak Creek and Fillmore Pahvant subunits.

### DWR Winter Range Trend Assessment

The condition of deer winter range within the Fillmore Oak Creek and Fillmore Pahvant management subunits has remained similar on the study sites sampled since 1998. The majority of the undisturbed sites sampled within the unit are considered to be in good to fair condition with the exception of the Meadow Creek study site which has remained in very poor condition since 2003 (Figure 1). Cover of preferred browse species on the Meadow Creek study site has decreased with the site becoming dominated by pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*). The condition of disturbed and treated study sites typically improved with increased time after disturbance on this unit with the exception of study sites that burned in wildfires. The study sites that ranked as being in poor or very poor condition 6-10 years after disturbance or treatment are

those burned by wildfire (Figure 2). Those sites are still lacking in available browse species, and typically have increased amounts of cheatgrass.

The abundance of weedy annual species cheatgrass (*Bromus tectorum*) and bulbous bluegrass (*Poa bulbosa*) is a particular concern on these sites. These weedy species can form dense mats of cover that compete with other more desirable herbaceous species and with seedlings and young shrubs which limits establishment of new plants into the population. Annual grass species can also increase fuel loads and increase the chance of a catastrophic fire event.

### Oak Creek subunit

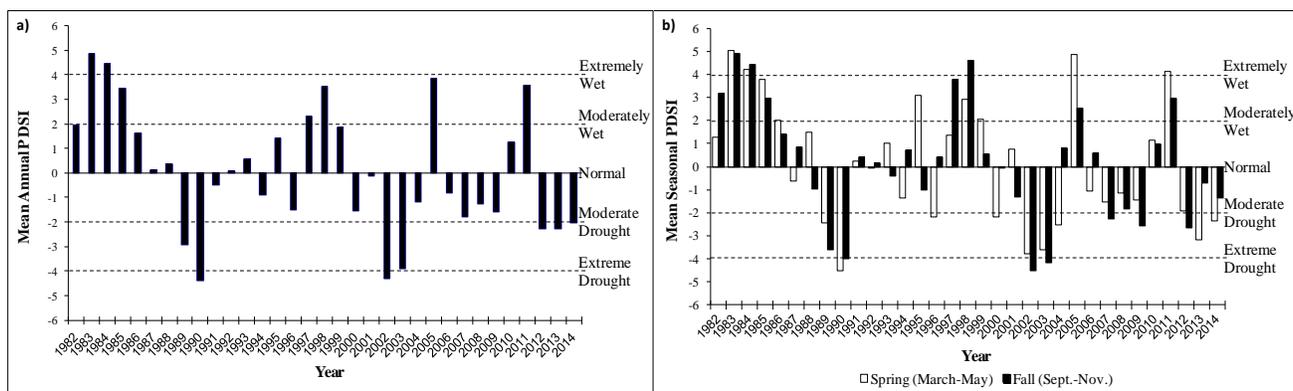
Only one of the range trend sites was read in 2012, which occurred on winter range. Three of the range trend sites were not read due to being burned by the Clay Springs fire in 2012. Two additional study sites have been established to monitor habitat treatment projects within this subunit.

The subunit has been heavily impacted by fire and much of the winter range has seen a conversion of the browse component to annual and perennial grasses. With the large expanse of area affected by wildfires within this subunit, winter range is in poor condition across much of the unit and may have an effect on winter survival of mule deer.

### Precipitation 21ab

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation and Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The South Central division had a historic annual mean precipitation of 15.7 inches from 1895 to 2014. The mean annual PDSI of the South Central division displays a pattern of drought years with a few periods of wet years over the course of study years (Figure 3a and Figure 3b) (Time Series Data 2015).

### 21ab.



**Figure 3:** The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2014. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2015).

### Works Cited

Time Series Data. (2015). *National Oceanic and Atmospheric Administration Earth System Research Laboratory Physical Science Division*. Retrieved January 2015, from <http://www.esrl.noaa.gov/psd/data/timeseries/>

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 22**  
**(Beaver Mountains)**  
**May 2015**

**BOUNDARY DESCRIPTION**

Iron, Garfield, Piute, Beaver and Millard Counties: Boundary begins at SR-130 and I-15; north on SR-130 to SR-21; north on SR-21 to SR-257; north on SR-257 to the Black Rock road; east of the Black Rock road to I-15; south of I-15 to I-70; east on I-70 to US-89; south on US-89 to SR- 20; west on SR-20 to I-15; south on I-15 to SR-130.

**LAND OWNERSHIP**

Ownership	Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%
Forest Service	213,318	70%	83,337	14%
Bureau of Land Management	65,991	22%	396,598	68%
Utah State Institutional Trust Lands	7,386	2%	44,367	8%
Native American Trust Lands	0	0%	205	<1%
Private	18,436	6%	53,769	9%
Department of Defense	0	0%	0	0%
USFWS Refuge	0	0%	0	0%
National Parks	0	0%	0	0%
Utah State Parks	0	0%	0	0%
Utah Division of Wildlife Resources	0	0%	2,288	2%
<b>Total</b>	<b>305,201</b>	<b>100%</b>	<b>580,564</b>	<b>100%</b>

**RANGE AREA AND APPROXIMATE OWNERSHIP**

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size – Manage for a 5-year target population of 13,000 wintering deer (modeled number) during the five-year planning period; unless range conditions become unsuitable as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels.

Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan.

Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal

will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason classification and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 3,000 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

### **Limiting Factors** (May prevent achieving management objectives)

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- Habitat – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal. The Southwest Desert is a summer range limited unit. Winter range is abundant. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population
- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
  - This unit is currently under a Predator Management plan and coyotes are being targeted by contractors.
- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

## **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer

range throughout the unit to achieve population management objectives.

- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process

## **HABITAT MANAGEMENT STRATEGIES**

### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

### **Habitat Protection, Improvement and Maintenance**

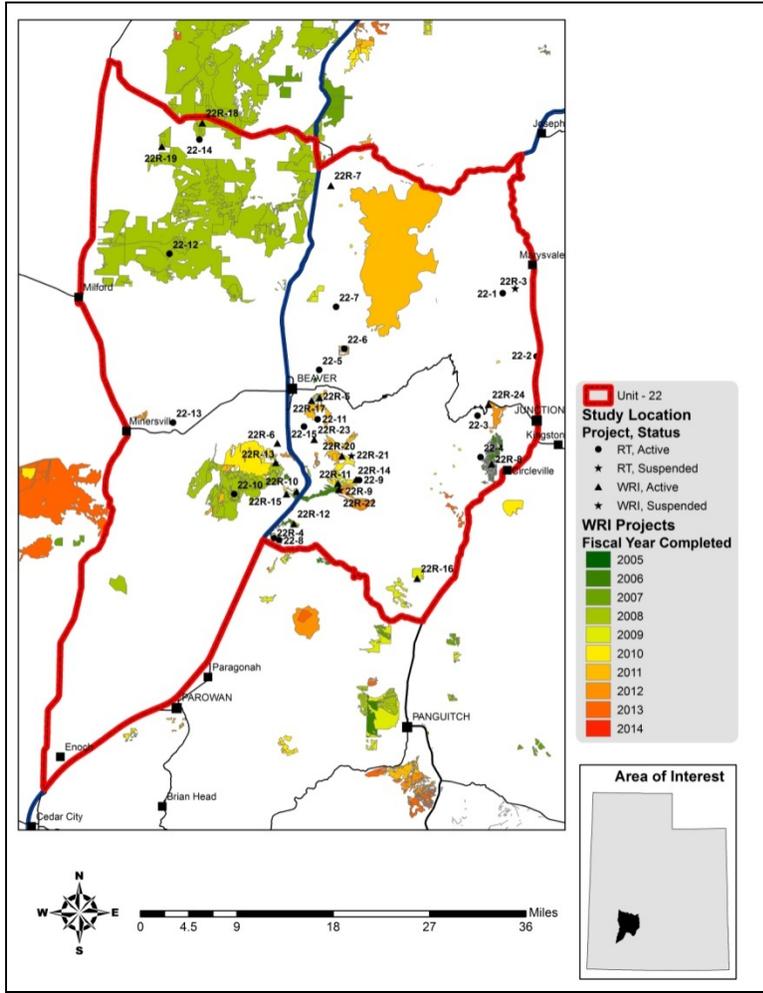
- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Manage riparian areas in critical fawning habitat to provide water, cover and succulent forage from mid-to late summer.
- Work with BLM to support wild horse removals where there are conflicts with Mule Deer.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and reseed areas dominated by cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Seek opportunities to increase browse in burned areas of critical winter range.

- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Seek out opportunities to improve the limited summer range across the unit. Develop summer range habitat improvement projects that remove encroaching trees, improves succulent vegetation and wet meadows, increases aspen recruitment, enhances and/or protects riparian areas, and use prescribed fire to promote early succession habitats where appropriate.
- Future habitat work should be concentrated on the following areas.
  - Seek opportunities to increase browse in burned areas of critical winter range.
  - Continue to reduce Pinyon and Juniper encroaching into shrubland in critical winter range. Specifically moving north from Beaver toward I-70 and along the east side of the Tushar slopes in critical winter range.
  - West of I-15 seek opportunities to improve riparian vegetation in fawning habitat to furnish water, cover, and late to mid summer succulent forage.
  - Quaking Aspen forests unit wide.

### **Treatments and Restoration Work**

- There has been an active effort to address many of the limitations on this unit through the Watershed

Restoration Initiative (WRI). A total of 174,186 acres of land have been treated within the Beaver unit since the WRI was implemented in 2004. The majority of treatment acreage, especially seeding and chaining, was done in conjunction with restoration efforts of wildfires within the unit. Treatments to reduce pinyon-juniper woodlands such as bullhog, chaining, brush saw, and lop-and-scatter are the next most common management practices. Other common management treatments are those to rejuvenate sagebrush stands such as chaining and harrow treatments are also common.



Treatment Action	Acres
Seeding	177,845
Chaining	34,369
Prescribed Fire	6,342
Bullhog	6,292
Lop and Scatter	5,319
Harrow	3,989
Brush Saw	1,080
Planting/Transplanting	1,057
Herbicide	1,035
Road Decommissioning	491
Disc	158
PJ Push	36
<b>Total Land Area Treated</b>	<b>174,186</b>
<b>Total Treatment Acres</b>	<b>238,013</b>

## PERMANENT RANGE TREND SUMMARIES

### Unit 22 Beaver

The condition of deer winter range within the Beaver management unit has generally improved on the study sites sampled since 1998. The majority of sites sampled within the unit are considered to be in fair to good condition based on the most current sample data, and the proportion of sites classified as being in poor or very poor condition has consistently decreased since 1998.

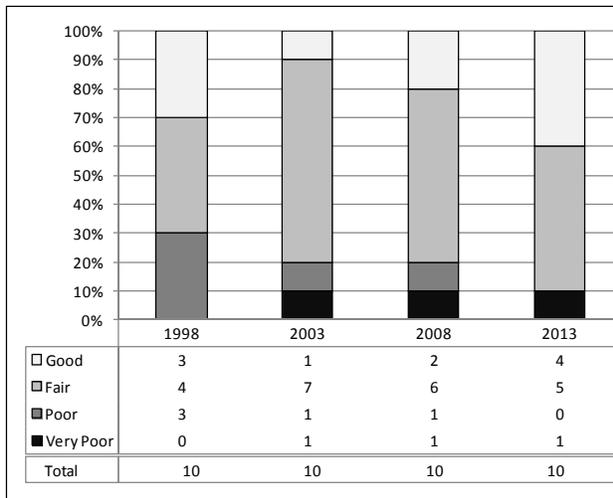


Figure Error! No text of specified style in document..1: Deer winter range Desirable Components Index (DCI) summary by year of study

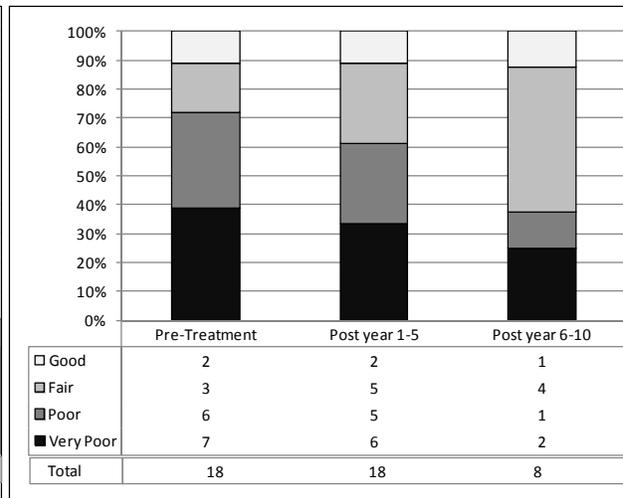


Figure Error! No text of specified style in document..37: Deer winter range Desirable Components Index (DCI) summary by year after disturbance

Of the 10 undisturbed sites 4 were considered to be in good condition and 5 were categorized as being fair. The only undisturbed study that is currently considered to be in poor condition is the Above Fremont Wash study, which has a depleted browse component and is dominated by cheatgrass.

The condition of disturbed and treated sites typically improves with increased time after disturbance on this unit with the exception of sites, which burned in wildfire. The majority of disturbed or treated study sites that ranked as being in poor or very poor condition 6-10 years after disturbance are those burned by wildfire. These study sites generally are still lacking in available browse species, and typically have increased amounts of cheatgrass. The only other treated study site considered to be in poor condition is the Sheep Rock study which has limited browse and is dominated by the introduced perennial grass crested wheatgrass.

The higher elevation upland and mountain sites, which support mountain big sagebrush communities, are generally considered to be in good condition for deer winter range habitat on the Beaver management unit.

The mid elevation upland Wyoming big sagebrush communities are generally considered to be in fair condition for deer winter range habitat on the unit.

The lower elevation semidesert Wyoming big sagebrush communities that have not been disturbed are generally considered to be in fair condition for deer winter range habitat on the unit.

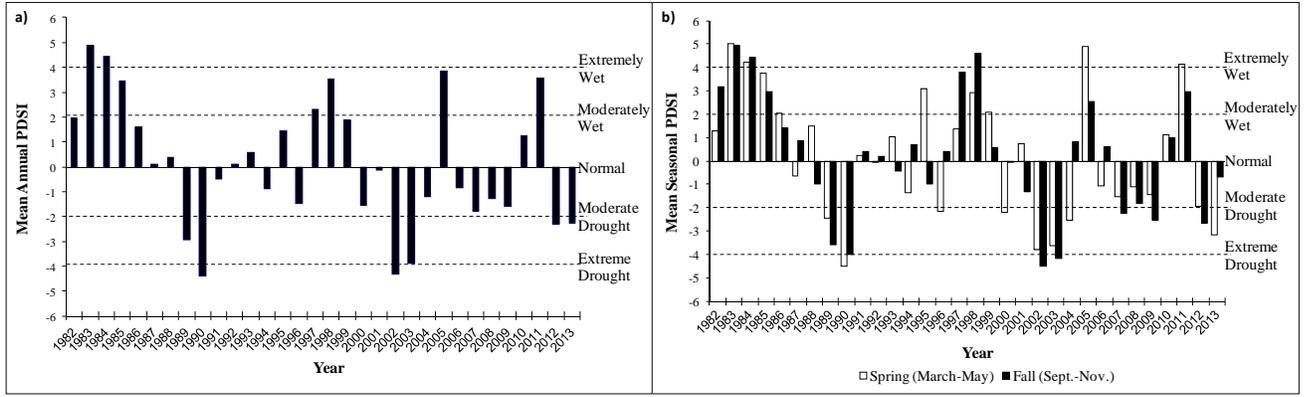
The semidesert and upland communities are prone to fire and those sites that have experienced fire are typically in poor or very poor condition. If wildfire occurs within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow.

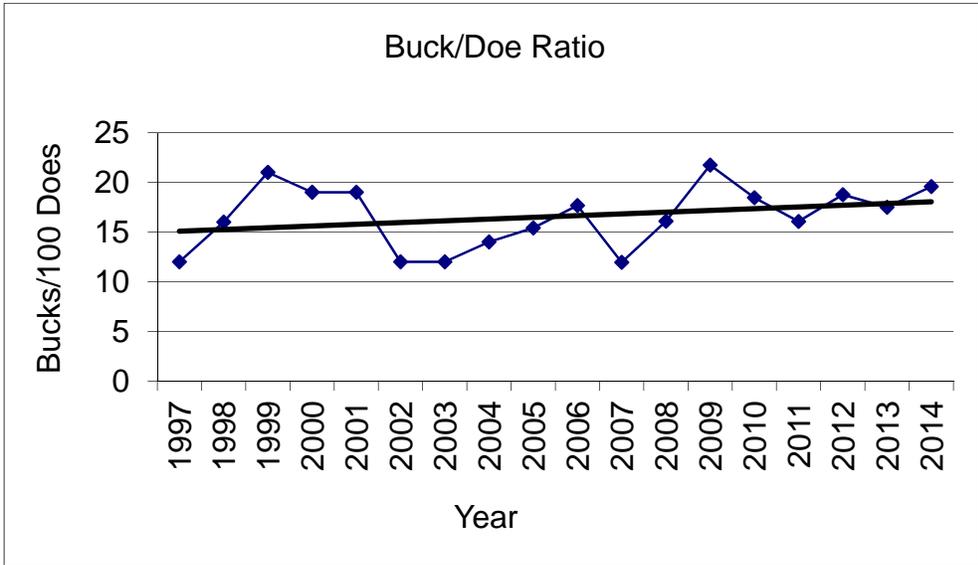
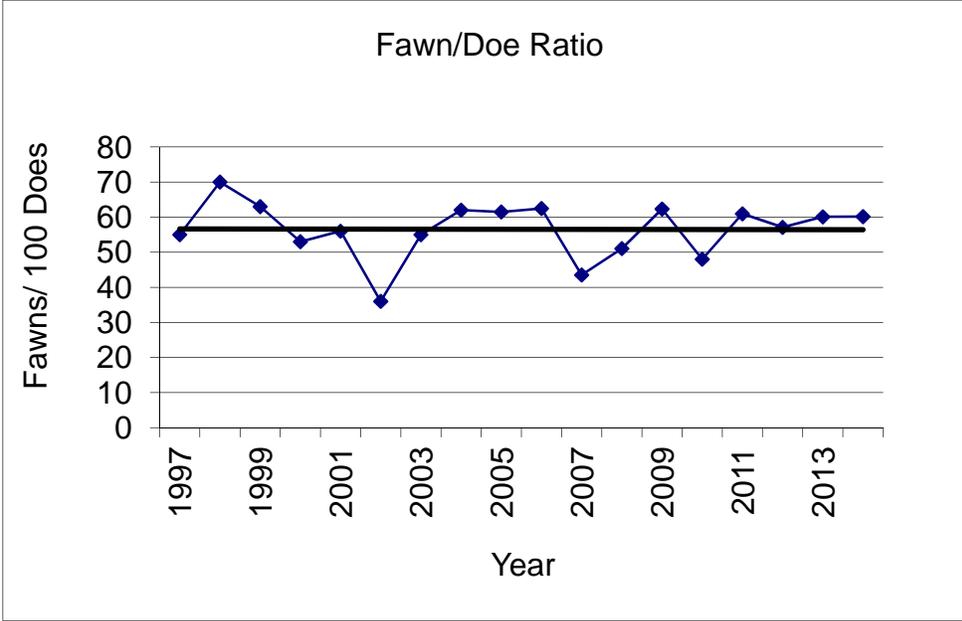
The upland and mountain communities are also prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed.

## Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (**Error! Reference source not found.a**). The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-

Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011 (**Error! Reference source not found.**) (Time Series Data, 2014).





**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit #23**  
**(Monroe)**  
**May 2015**

**BOUNDARY DESCRIPTION**

**Piute and Sevier counties** - Boundary begins at I-70 and US-89 north of Sigurd; south on US-89 to SR-24; south on SR-24 to SR-62; south and west on SR-62 to US-89; north on US-89 to I-70 near Sevier; north on I-70 to US-89 north of Sigurd.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	Year-long range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	??	112284	75%	43465	24%
Bureau of Land Management	0	??	8724	6%	99873	56%
Utah State Institutional Trust Lands	0	??	9942	7%	15034	9%
Native American Trust Lands	0	??	0	0%	640	0%
Private	0	??	18382	12%	15283	9%
Department of Defense	0	??	0	0%	0	0%
USFWS Refuge	0	??	0	0%	0	0%
National Parks	0	??	0	0%	0	0%
Utah State Parks	0	??	0	0%	0	0%
Utah Division of Wildlife Resources	0	??	0	0%	3753	2%
<b>TOTAL</b>	<b>0</b>	<b>??</b>	<b>149332</b>	<b>100%</b>	<b>178048</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size – Manage for a 5-year target population of 7,500 wintering deer (modeled number) during the five-year planning period; unless range conditions become unsuitable as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition.

If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels.

Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 15-17 according to the statewide plan.

Harvest – General Buck Deer hunt regulations, using archery, rifle, and muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives. Due to a history of crowding complaints by hunters, we will explore the possibility of altering the percentage of permits allocated to the different weapon types as described in the statewide management plan.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	519	68.9	18.3	*6,500	7,500	86.7%
2013	630	69.7	23.3	*6,800	7,500	90.7%
2014	711	65.6	22.2	*7,300	7,500	97.3%
3 Year Avg	620	68.1	21.3	*6,500		

\*Population estimates based on new modeled population in 2014.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size Utilizing harvest data, postseason classification, unit specific adult and fawn survival estimates\*, mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 7,300 deer with an increasing trend.  
\*Adult and fawn survival estimates derived on the Monroe unit are used in population models for surrounding units
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

### **Limiting Factors (May prevent achieving management objectives)**

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy. Closely monitor Sevier Valley and Grass Valley Agricultural areas. Work with Landowners to increase tolerance for deer. Where necessary antlerless deer removal may be used to control damage to agricultural crops.
- Habitat – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal Monitor and protect the Poverty Flat area (reseeded November 1997) to restore critical winter range.

- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
  - Support current predator research being done on the unit.
  
- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Specifically, explore ways to reduce deer/vehicle collisions on Highway 24, north of Koosharem reservoir.
  
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be developed in cooperation with the Law Enforcement Section.
  
- Interspecific competition - No limitation generated by elk/deer interactions has been documented.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
  
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
  
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the
  
- Provide improved habitat security and escapement opportunities for deer, keeping habitat restoration projects a priority for wildlife.

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
  
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

**Habitat Protection, Improvements and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and reseed areas dominated by cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Seek opportunities to increase browse in burned areas of critical winter range.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Seek out opportunities to improve the limited summer range across the unit. Develop summer range habitat improvement projects that remove encroaching trees, improves succulent vegetation and wet meadows, increases aspen recruitment, enhances and/or protects riparian areas, and use prescribed fire to promote early succession habitats where appropriate.
- Future habitat work should be concentrated to increase the following management priorities:
  - Increase browse species within critical winter range, and burned areas.
  - Improve and enhance WMA winter carrying capacity for mule deer.
  - Increase critical winter range throughout the unit.
  - Continue to monitor and collect data from browse transects and permanent range trend studies located throughout the seasonal ranges within the unit.
  - Support enhancement and restoration efforts in Quaking Aspen forests unit wide.
  - Maintain summer fawning areas by increasing beneficial habitat work in summer and transitional habitat areas.
  - Continue to use the Watershed Restoration Initiative (WRI) to identify, implement, and fund critical habitat projects throughout the unit, while partnering with federal, state, and private landowners to achieve these goals.
  - When selecting and implementing habitat restoration projects, design and develop with important wildlife benefits for mule deer.

Completed Habitat Projects 2006-2014	# Projects Completed	Acres
Dixie Harrow, Seed	7	16,382
Anchor Chain, Seed	2	3,684
Burn, Seed	2	2,607
Herbicide	2	557
Seed	2	352
Bullhog, Seed	1	1,545
Drill Seed	1	170
<b>TOTAL</b>	<b>17</b>	<b>25,297</b>

- Spreadsheet only accounts for completed projects within the WRI Database, current projects are being implemented, along with recommended proposals for future restoration projects within the unit.

### Community Types

Deer winter range within a unit is summarized into three categories based on ecological potentials which include **low potential**, **mid-level potential** and **high potential**. Low potential sites include desert shrub, Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) and cliffrose (*Cowania mexicana* ssp. *stansburiana*) communities. Mid-level potential sites include mountain big sagebrush (*A. tridentata* ssp. *vaseyana*) communities. High potential sites include mountain brush communities. Low sagebrush (*A. arbuscula*), black sagebrush (*A. nova*), and basin big sagebrush (*A. tridentata* ssp. *tridentata*) communities are placed within the low potential or mid-level potential scales based on precipitation and elevation. Deer **summer range** is summarized separately from winter range as a fourth category and typically includes aspen (*Populus tremuloides*) and high elevation mountain brush communities. Ten interagency range trend studies were sampled in Unit 23 during the summer of 2012.

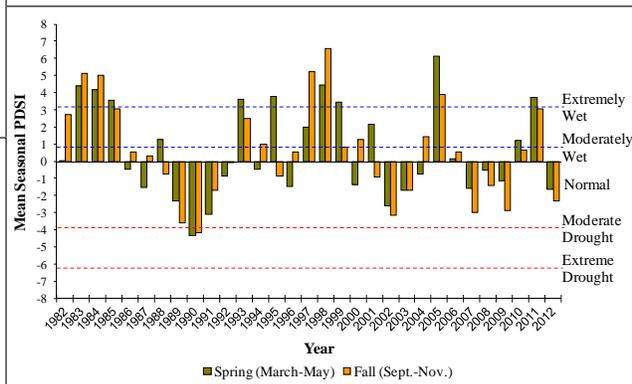
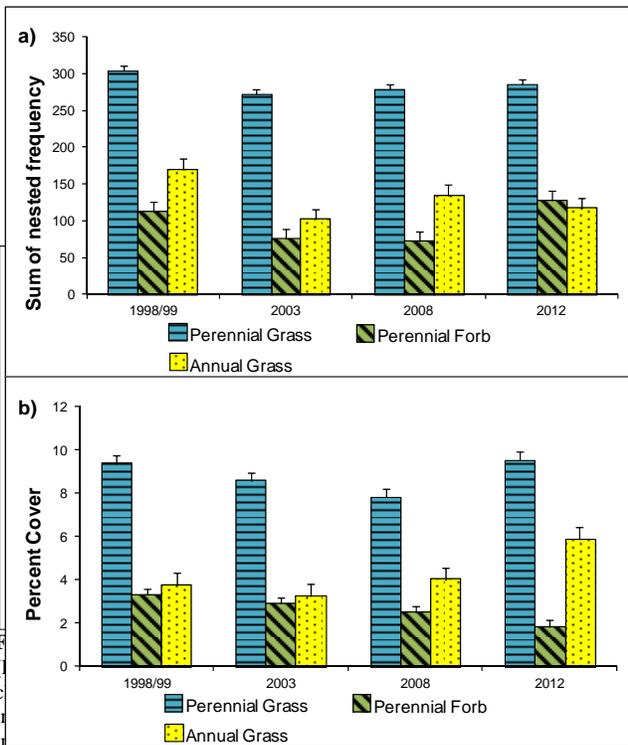
Six studies [Bear Ridge (23-1), Thompson Basin (23-3), Smith Canyon (23-5), Koosharem Canyon (23-6), Plateau Harrow (23R-3), and Plateau Native (23R-4)] are categorized as mid-level potential sites for deer winter range, and sample mountain big sagebrush communities. The Bear Ridge, Thompson Basin, Smith Canyon, and Koosharem Canyon studies are also considered to be elk winter range. Four studies [Saul Meadow (23-2), Poverty Flat (23-4), Greenwich Disking (23R-1), and Greenwich Native (23R-2)] are categorized as low potential sites for deer winter range, and sample Wyoming big sagebrush communities. The Saul Meadow study is also considered to be elk winter range.

**Precipitation**

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Precipitation and Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The South Central division had a historic annual mean precipitation of 12.52 inches from 1895 to 2012. The mean annual PDSI of the South Central division displays a cycle of several wet years followed by several drought years over the course of study years (Figure 1 and Figure 2) (Time Series Data 2013). The 1961-1990 mean annual precipitation was 8-10in on the Greenwich Disking study; 10-12 in. on the Saul Meadow, Greenwich Native, Plateau Harrow, and Plateau Native studies; 12-14 in. on the Bear Ridge, Thompson Basin, Poverty Flat, and Koosharem Canyon studies; and 18-20 in on the Smith Canyon study

**Mid-Level Potential Deer Range**

Browse: The mid-level potential site cumulative median browse trend has decreased slightly in 2001, and again in 2008 before increasing slightly in 2012 (Figure 8b). Mountain big sagebrush is a dominant browse species on all of the mid-level potential studies. The mean density of mountain big sagebrush was similar from 1998/99 to 2008, but increased significantly in 2012 (Figure 4a). The large increase in density was primarily due to a substantial increase in the recruitment of young plants on the Smith's Canyon study. The mean cover of mountain big sagebrush was significantly lower in 2008 than the other sample years (Figure 4b). The mean decadence of mountain big sagebrush had been steadily increasing from 1998/99 to 2008, but decreased significantly in 2012 (Figure 4c).



**Figure 3.** a) Mid-level potential sites in the perennial grass, perennial forb, and annual grass were of period frequency by year for 5 VMI 23. Moore b) Mid-level potential sites in the perennial grass, perennial forb, and annual grass were of percent cover by year for 5 VMI 23. Moore c) Mid-level potential sites in the perennial grass, perennial forb, and annual grass were of percent cover by year for 5 VMI 23. Moore

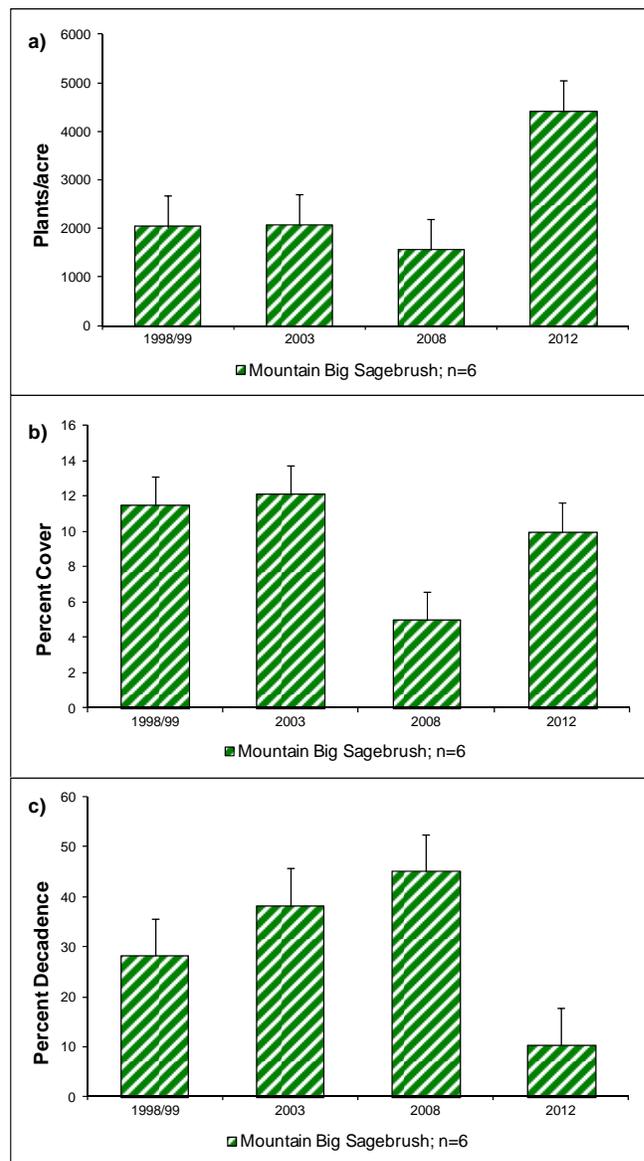
**Figure 2.** The 31 year mean spring (March-May) and fall (Sept.-Nov.) Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2012. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2013).

**Herbaceous Understory:** The mid-level potential median cumulative grass trend increased slightly in 1991, steadily decreased through 2003, and then remained stable throughout the subsequent sample years (Figure 8b). Perennial grass species are typically abundant and diverse on the studies, and the mean sum of nested frequency has remained high throughout the study years (Figure 3a). The mean cover of perennial grass species steadily decreased from 1998/99 to 2008, but increased significantly in 2012 returning to 1998/99 levels (Figure 3b). Annual grass species, primarily cheatgrass (*Bromus tectorum*), is rare on most studies, but is the dominant grass on the Smith's Canyon study. Trends for annual grasses are almost entirely driven by changes on the Smith's Canyon study. The mean sum of nested frequency of annual grasses has fluctuated since 1998/99, but the mean cover of annual grasses increased significantly in 2012 (Figure 3a and Figure 3b).

The mid-level potential median cumulative forb trend increased in 1991, decreased steadily through 2003, remained similar in 2008, and then increased in 2012 (Figure 8b). Perennial forb species are rare on most of the studies. The mean sum of nested frequency of perennial forb species decreased significantly in 2003, but increased significantly in 2012. The mean sum of nested frequency of perennial forb species was significantly higher in 2012 than in any prior sample year (Figure 3a). Despite the increases in the mean sum of nested frequency the mean cover of perennial forb species has steadily decreased over the course of the sample years, and was significantly lower in 2012 than the prior sample years (Figure 3b).

**Occupancy:** Pellet group transect data indicates that deer predominantly occupy these mid-level potential study areas. The mean abundance of deer pellet groups was high on most studies from 1998 to 2008, but was substantially lower in 2012. The decrease in pellet abundance is likely due to the mild winter of 2011-2012 which allowed animals to remain on higher elevation range. The mean abundance of elk and livestock sign has been generally low since 1998 (Figure 9b).

**Deer Desirable Components Index (DCI):** The mid-level potential



**Figure 4.** a) Mid-level potential sites mean density of mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) by year for WMU 23, Monroe. b) Mid-level potential sites mean cover of mountain big sagebrush by year for WMU 23. c) Mid-level potential mean decadence of mountain big sagebrush by year for WMU 23.

Draft 4/16/2012

deer DCI decreased from poor to very poor in 2008, but increased to a poor rating again in 2012. Most of the decrease in score is due to decreases in preferred browse cover and increased decadence on the sites (Table 1 and Figure 7).

Discussion: Treatments on the Bear Ridge and Plateau Harrow studies, and a wildfire on the Smith's Canyon study reduced the browse component, but mountain big sagebrush appears to be reestablishing well in the area. The treatments have helped to improve the health of the sagebrush stand and the herbaceous understory on both the Bear Ridge and Plateau Harrow sites. Cheatgrass remains a concern on the Smith's Canyon study, and could contribute to an increase in the fire return interval in this area.

Year	Preferr ed Browse Cover	Preferr ed Browse Decaden ce	Preferr ed Browse Young	Perenni al Grass Cover (-POBU)	Annu al Gras s Cove r	Perenni al Forb Cover	Noxio us Weeds	Tot al Sco re	Ranking
98/99	17.0	5.5	2.6	18.8	-2.8	5.0	0.0	46.0	Poor
03	18.3	4.6	1.1	14.9	-2.4	4.5	0.0	40.9	Poor
08	9.5	1.5	1.8	15.1	-3.0	4.9	0.0	29.9	Very Poor
12	15.1	8.2	7.2	16.9	-3.9	3.7	0.0	47.3	Poor

**Table 1.** Mid-level potential scale mean deer DCI scores and rankings (n=6) by year for WMU 23, Monroe. The deer DCI rankings are divided into three categories based on ecological potentials which include low, mid-level and high.

### Low Potential Deer Range

Browse: The low potential site cumulative median browse trend steadily decreased from 1991 to 2003, but steadily increased from 2003 to 2012 (Figure 8c). Wyoming big sagebrush is a dominant browse species on all of the low potential studies. The mean density of Wyoming big sagebrush has steadily increased from 1997/98 to 2012, and was significantly higher in 2012 than in the prior sample years (Figure 5a). The mean cover of Wyoming big sagebrush was significantly lower in 2008, but was similar in the other sample years (Figure 5b). The mean decadence of Wyoming big sagebrush was high in 1991 and 1997/98, but decreased significantly in 2008 and remained lower in 2012 (Figure 5c).

Herbaceous Understory: The low potential median cumulative grass trend has fluctuated, but has generally increased over the course of the sample years (Figure 8c). Perennial grass species are fairly diverse and abundant on most of the low potential studies. The mean sum of nested frequency and cover of perennial grasses decreased significantly in 2003, but increased significantly in 2008 and remained at elevated levels in 2012 (Figure 6a and Figure 6b). These trends are almost entirely driven by the treatments that occurred on the Greenwich Disking study. Annual grass species, primarily cheatgrass (*Bromus tectorum*), dominate the grass component on the Saul Meadow and Poverty Flat study. The mean sum of nested frequency of annual grasses increased significantly in 2003 and remained at elevated levels in subsequent sample years (Figure 6a). The mean

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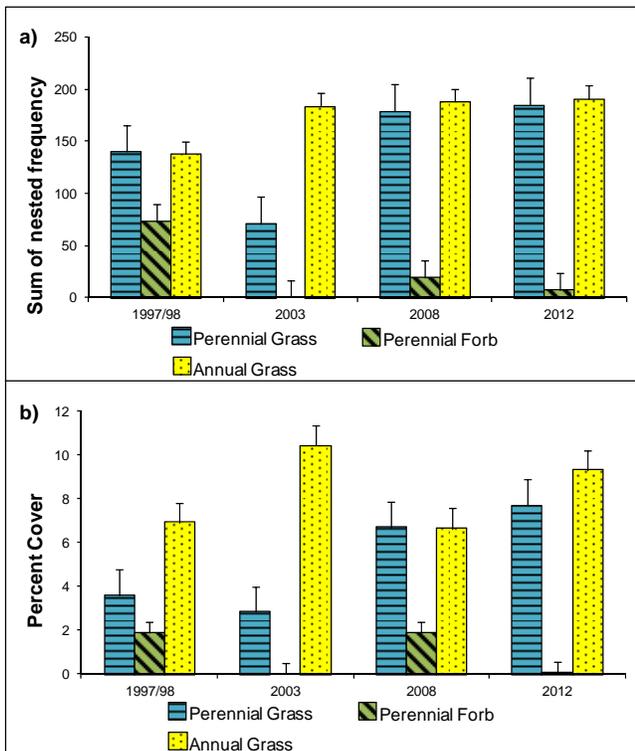
cover of annual grasses has fluctuated, but was significantly higher in 2003 and 2012 (Figure 6b).

The low potential median cumulative forb trend has remained stable since the outset of the study (Figure 8c). Perennial forb species are rare on most of the studies. The mean sum of nested frequency and cover of perennial forb species has remained low since 1997/98 (Figure 6a and Figure 6b).

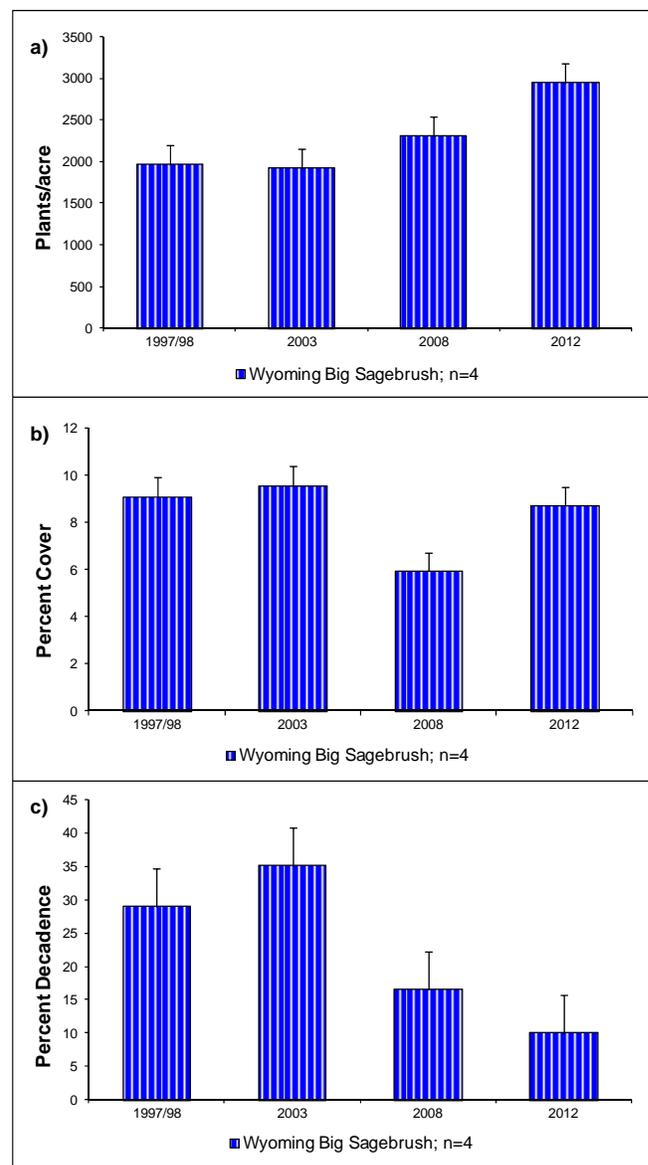
Occupancy: Pellet group transect data indicates that deer predominantly occupy these low potential study areas. The mean abundance of deer pellet groups was high on most studies in 1991, but decreased to moderate levels in 1997/98 and to low levels in 2012. The mean abundance of elk and livestock sign has been very low since 1997/98 (Figure 9c).

Deer Desirable Components Index (DCI): The low potential deer DCI increased from poor to fair in 2008. Most of the increase was due to an increase in the perennial grass score (Table 2 and Figure 7).

Discussion: Sagebrush treatments on the Greenwich Disking and Greenwich Native studies have helped to improve the sagebrush and herbaceous components in that area. Cheatgrass remains a



**Figure 6.** a) Low potential sites mean perennial grass, perennial forb, and annual grass sum of nested frequency by year for WMU 23, Monroe. b) Low potential sites mean perennial grass, perennial forb, and annual grass cover by year for WMU 23.



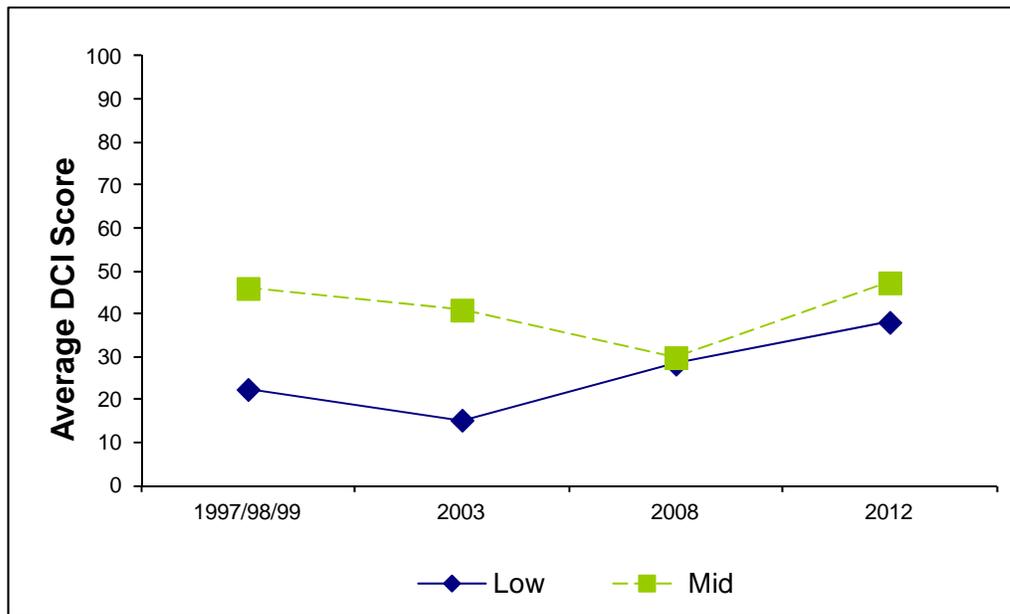
**Figure 5.** a) Low potential sites mean density of Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*) by year for WMU 23, Monroe. b) Low potential sites mean cover of Wyoming big sagebrush by year for WMU 23. c) Low potential sites mean decadence of Wyoming big sagebrush by year for WMU 23.

Draft 4/16/2012

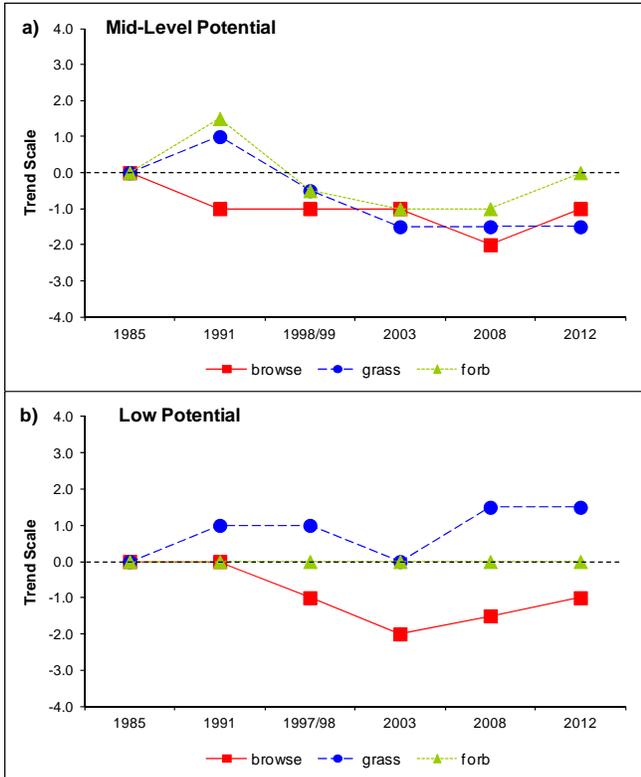
concern on the Saul Meadow and Poverty Flat studies. This weedy species can form dense mats of cover that compete with other more desirable herbaceous species and with seedlings and young sagebrush which limits establishment of new plants into the population. Annual grass species can also increase fuel loads and increase the chance of a catastrophic fire event.

Year	Preferr ed Browse Cover	Preferr ed Browse Decaden ce	Preferr ed Browse Young	Perenni al Grass Cover (-POBU)	Annu al Gras s Cove r	Perenni al Forb Cover	Noxio us Weeds	Tota l Score	Ranki ng
97/98	11.4	2.9	1.8	7.2	-3.9	3.1	0.0	<b>22.4</b>	11.4
03	12.0	-0.8	4.3	5.7	-5.9	0.0	0.0	<b>15.3</b>	12.0
08	8.1	2.0	4.9	13.4	-3.7	3.7	0.0	<b>28.3</b>	8.1
12	12.3	8.3	7.3	15.4	-5.2	0.1	0.0	<b>38.1</b>	12.3

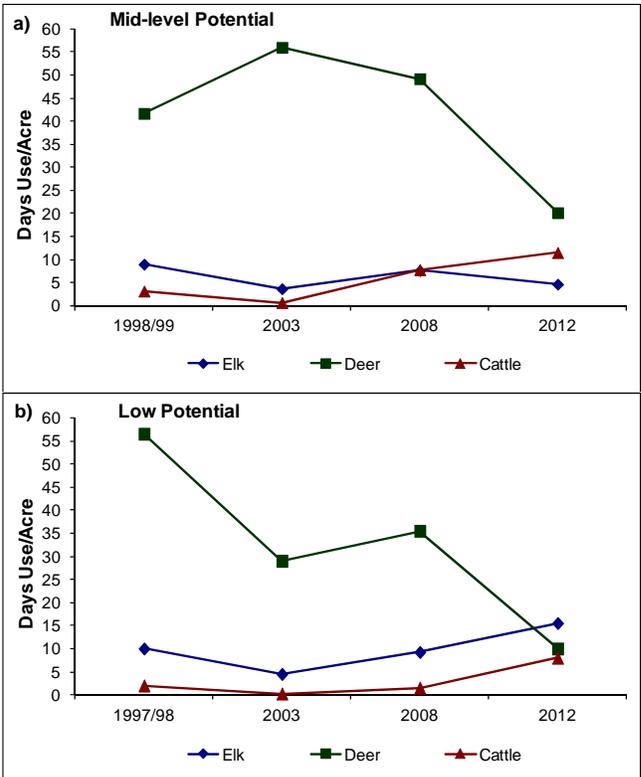
**Table 2.** Low potential scale mean deer DCI scores and rankings (n=4) by year for WMU 23, Monroe. The deer DCI rankings are divided into three categories based on ecological potentials which include low, mid-level and high.



**Figure 7.** Mean mid-level (n=6) and low (n=4) potential scale deer DCI scores by year for WMU 23, Monroe. The deer DCI rankings are divided into three categories based on ecological potentials which include low, mid-level and high.



**Figure 8.** a) Mid-level potential sites cumulative median browse, grass, and forb trends by year for WMU 23, Monroe. c) Low potential sites cumulative median browse, grass, and forb trends by year for WMU 23.



**Figure 9.** a) Mid-level potential sites mean animal days use/acre (n=6) by year for WMU 23, Monroe. c) Low potential sites mean animal days use/acre (n=4) by year for WMU 23.

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 24**  
**(Mt. Dutton)**  
**February 2015**

**BOUNDARY DESCRIPTION**

**Garfield and Piute counties** - Boundary begins at US-89 and SR-62; south on US-89 to SR-12; east on SR-12 to the Widtsoe-Antimony road; north on the Widtsoe-Antimony road to SR-22; north on SR-22 to SR-62; west on SR-62 to US-89.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service	8,374	34%	131,391	100%	106,357	42%	246,122
Bureau of Land Management	1,166	5%	0	0%	76,366	30%	77,532
Utah State Institutional Trust Lands	623	2%	20	1%	35,768	14%	36,411
Native American Trust Lands	0	0%	0	0%	0	0%	0
Private	14,450	59%	30	0%	28,772	11%	43,252
Bankhead Jones	0	0%	0	0%	7,225	3%	7225
USFWS Refuge	0	0%	0	0%	0	0%	0
National Parks	0	0%	0	0%	0	0%	0
Utah State Parks	0	0%	0	0%	0	0%	0
Utah Division of Wildlife Resources	0	0%	0	0%	244	0%	244
<b>TOTAL</b>	<b>24,663</b>	<b>100%</b>	<b>131,440</b>	<b>100%</b>	<b>254,733</b>	<b>100%</b>	<b>410,786</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

- Target Winter Herd Size - Achieve a long-term combined target population size of 2,700 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat,

measures will be taken to reduce the population to sustainable levels. Change to the population objective is based on this population's performance, improved range conditions, the amount of available habitat and the lack of range damage from deer.

- Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan.
- Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 2,900 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	224	66	13.7	2250	2700	83.3%
2013	246	67	22.2	2600	2700	96.3%
2014	275	56	22.7	2900	2700	107.4%
3 Year Avg	248	62.9	19.5			

### **Limiting Factors** (May prevent achieving management objectives)

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- Habitat – The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal.
- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
  - This unit is currently under a Predator Management plan and coyotes are being targeted by contractors.
- Highway Mortality - DWR will Cooperate with the Utah Dept. Of Transportation to construct

highway fences, passage structures and warning signs etc if needed. Highway mortality occurs on U.S. 89 and SR 62, but is not a serious problem and is concentrated in only a few locations on this unit. Concentrated highway mortality occurs on US 89 south of Circleville. Illuminated warning signs are installed in this area.

- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be developed in cooperation with the Law Enforcement Section.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Seek cooperative projects to improve the quality and quantity of deer habitat.
- Provide improved habitat security and escapement opportunities for deer.

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

#### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality.
- Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands.
- Work with land management agencies to evaluate and develop motorized travel plans to reduce disturbance during times of high stress, such as winter and fawning.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and reseed areas dominated by cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Seek opportunities to increase browse in burned areas of critical winter range.
- Cooperate with federal land management agencies and local governments in developing and

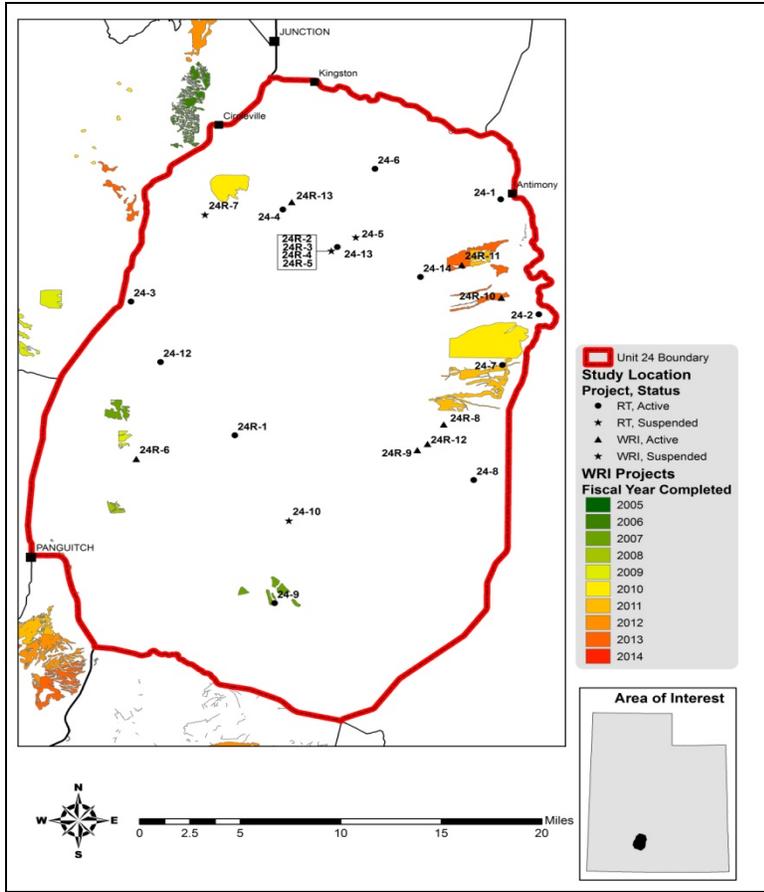
administering access management plans for the purposes of habitat protection and to provide refuges.

- Seek out opportunities to improve the limited summer range across the unit. Develop summer range habitat improvement projects that remove encroaching trees, improves succulent vegetation and wet meadows, increases aspen recruitment, enhances and/or protects riparian areas, and use prescribed fire to promote early succession habitats where appropriate.
- 
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and escape or security areas.
- Future habitat work should be concentrated on the following areas:
  - Continue to reduce Pinyon and Juniper encroaching into shrubland, specifically in John's Valley, Pole Canyon north into Kingston Canyon, and south of Circeville into Horse Valley and other areas in critical winter range.
  - Seek opportunities on Panguitch East bench to reduce Sagebrush age class homomogenization and increase species diversity.
  - Seek opportunities to increase browse and perennial forbs in areas of critical winter range through mechanical treatment and reseeding

**Habitat Project Summary**

- There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 10,875 acres have been treated within the Mt. Dutton unit since the WRI was implemented in 2004 (**Error! Reference source not found.**). Other treatments have occurred outside of the WRI through independent agencies and landowners, but the WRI comprises the majority of work done on deer winter ranges throughout the state of Utah. The majority of treatment acreage, especially bullhog, chaining, lop and-scatter and seeding, was done to reduce pinyon and juniper woodlands. Other common management treatments are those to rejuvenate sagebrush stands such as chaining, mowing and harrow treatments. Herbicide treatments within the unit are primarily used to control cheatgrass and restore other more desirable species.

<b>Treatment Action</b>	<b>Acres</b>
Seeding	7,292
Bullhog	1,032
Harrow	1,424
Herbicide application	28
Mower	37
Lop-and-scatter	2,385
<b>*Total Acres Treated</b>	<b>14,171</b>
<b>Total Treatment Acres</b>	<b>10,875</b>



## PERMANENT RANGE TREND SUMMARIES

### Unit 24 Mount Dutton

The condition of deer winter range within the Mt. Dutton management unit has generally improved on the study sites sampled since 1997. The majority of sites sampled within the unit are considered to be in fair to good condition based on the most current sample data, and the proportion of sites classified, as being in very poor condition has remained consistent, except in 2003, when two-thirds of the sites were classified as being very poor

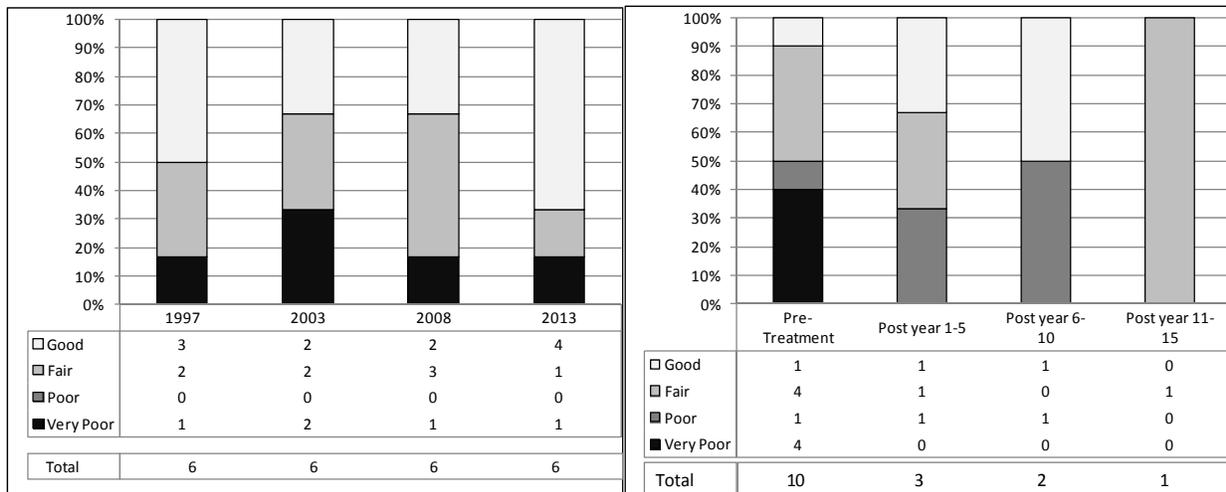


Figure Error! No text of specified style in document..1: Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 24, Mt. Dutton.

Figure 2.29: Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 24, Mt. Dutton.

The only undisturbed study during the report period that has consistently remained in very poor condition is the Marshall Basin study, which has maintained a depleted browse component, and an herbaceous understory lacking in perennial forbs

The condition of disturbed and treated sites typically improves with increased time after disturbance on this unit. Mud Spring Chaining, Panguitch East Bench Harrow, and Cow Creek are the three studies that fit within this generalization. Mud Spring Chaining did not show immediate improvement in condition following treatment, and only reaching fair condition 11-15 years following treatment. Panguitch East Bench Harrow attained good condition 6-5 years following treatment, and Cow Creek's condition improved to good 1-5 years following treatment. All other remaining studies within the unit are within the pre-treatment sampling status. These study sites generally are still lacking in available browse and perennial forb species

The higher elevation upland and mountain sites that support Wyoming big sagebrush and mountain big sagebrush communities are generally considered to be in poor condition for deer winter range habitat on the Mt. Dutton management unit. These communities should have the potential to support robust shrub populations that provide valuable browse in mild and moderate winters; however, drought conditions have limited browse suitability as valuable winter range.

The low elevation semidesert black sagebrush communities are generally considered to be in good condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters.

The lower elevation semidesert Wyoming big sagebrush communities that have not been disturbed are generally considered to be in good condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire. Similarly to semidesert black sagebrush communities, the Wyoming big sagebrush communities respond slowly to wildfire, pinyon-juniper encroachment, and cheatgrass invasion and this should be taken into consideration when performing habitat rehabilitation projects.

### Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4).

The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (**Error! Reference source not found.a**). The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011 (**Error! Reference source not found.b**) (Time Series Data, 2014).

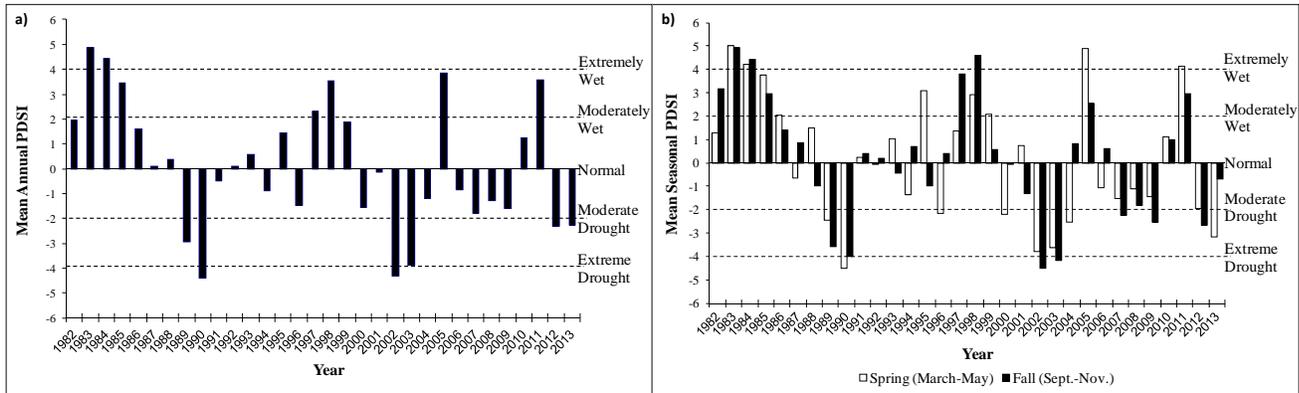


Figure Error! No text of specified style in document..2: The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) PDSI (Time Series Data, 2014).

**Duration of Plan**

This unit management plan was approved by the Wildlife Board on \_\_\_\_\_ and will be in effect for five years from that date, or until amended.

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit #25**  
**(Plateau, Fishlake #25A**  
**Plateau, Thousand Lakes #25B**  
**Plateau, Boulder #25C/Kaiparowits #26)**  
**April 2015**

**BOUNDARY DESCRIPTION**

**Sevier, Garfield, Piute, Kane and Wayne counties** - Boundary begins at SR-24 and US-89 at Sigurd; south on SR-24 to SR-62; south on SR-62 to SR-22; south on SR-22 to the Widtsoe-Antimony road; south on the Widtsoe-Antimony road to SR-12; east on SR-12 to the Paria River; south on the Paria River to the Utah-Arizona state line; east along the state line to Lake Powell; along the shore of Lake Powell to the Burr trail road; north on the Burr Trail to the Notom Road; north on the Notom Road to SR-24; east on SR-24 to the Caineville Wash road; north on the Caineville Wash road to I-70; west on I-70 to US-89; south on US-89 to SR-24.

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

- < Target Winter Herd Size - Achieve a target population size of 25,000 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels.
- < Sub-unit #25A - 10,000
- < Sub-unit #25B - 3,000
- < Sub-unit #25C -12,000
- < Sub-unit #26 – 1,000
- Herd Composition – All units within this plan are General Season units and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan. Plateau, Boulder/Kaiparowits (25C/26) was previously managed to maintain a three year average postseason buck to doe ratio of 15-17.  
  
Plateau, Thousand Lakes (25B) was changed to a General Season unit in 2012. At some point in the future this unit may need to be joined to the Plateau, Fishlake deer unit. The Plateau, Thousand Lakes unit is very small geographically and it has a transient deer population. In order to facilitate deer and hunter management this change may need to be made at some point.
- Harvest – General Buck Deer hunt regulations, using archery, rifle, and muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and

Wildlife Board process to achieve management objectives. Due to a history of crowding or concern about increasing permits, we will explore the possibility of altering the percentage of permits allocated to the different weapon types as described in the statewide management plan.

	Objective from past plan (2010)	Long-term Objective	2006-2014 Objective	Change
Plateau, Fishlake # 25A	10,000	10,000	10,000	0
Plateau, Fishlake Thousand Lakes #25B	3,000	3,000	3,000	0
Plateau, Boulder #25C/Kaiparowits #26	12,000	12,000	12,000	0
<b>UNIT TOTAL</b>	25,000	25,000	25,000	0

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 17,400 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

### **Limiting Factors (May prevent achieving management objectives)**

- Crop Depredation - The Division of Wildlife Resources will maintain aggressive programs to eliminate or lessen the burden of deer depredation on private cultivated and stored agricultural crops. Crop depredation problems will be addressed as provided for in applicable laws, rules and policies, and procedures of Utah's Landowner Assistance Program for big game. When necessary, control hunts will be implemented through the RAC process. When a problem needs immediate attention, local biologists may call depredation hunts and issue mitigation permits to keep deer away from cultivated and stored agricultural crops. These control hunts will be specified in areas where only offending animals will be harvested. Applicable laws, policies, and procedures will also be followed to lessen the burden of big game on private rangelands.
- Habitat - The amount and condition of summer habitat on public lands, landowner acceptance and winter forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal.

- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Currently, highway mortality is not a limiting factor on this unit.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

## **PLATEAU UNIT HABITAT MANAGEMENT OBJECTIVES**

### **Deer Herd Unit # 25A (Plateau Fishlake)**

#### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts.
- Encourage vegetation manipulation projects and seeding to increase the availability, abundance and nutritional content of browse, grass, and forb species.
- Seek cooperative projects and programs to encourage and improve the quality and quantity of deer habitat, with public and private land managers to maintain a stable or upward trend in vegetative composition.
- Provide improved habitat security and escapement opportunities for mule deer keeping habitat restoration projects a priority for wildlife.

#### **HABITAT MANAGEMENT STRATEGIES**

##### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range Desirable Component Index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. The relationship between DCI and the changes in deer carrying capacity is difficult to quantify and is not known.

**Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands.
- Continue to cooperate with Utah Department of Transportation (UDOT) and or Sportsman’s groups to identify areas to mitigate and prevent deer-vehicle collisions to the extent possible.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and vegetated green strips.
- Reseed mechanical treatment areas with selected seed species that will out compete areas dominated by Cheatgrass with desirable perennial vegetation focusing on seeding native grass species.
- Reduce expansion of Pinyon-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinyon-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog and chaining projects.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and escape or security areas.
- Future habitat work should be concentrated on the following management priorities:
  - Increase browse species in critical winter range, and burned areas.
  - Improve the need for future carrying capacity of mule deer within the unit.
  - Increase critical winter range opportunities for mule deer.
  - Maintain summer fawning areas by increasing beneficial habitat work in summer and transitional habitat areas.
  - Continue to monitor and collect data from browse transects and permanent range trend studies located throughout the seasonal ranges within the unit.
  - Continue to reduce threats to catastrophic wildfires, by reducing fuel loads and creating firebreaks.
  - When selecting and implementing habitat restoration projects, design and develop with wildlife benefit, including grass, forbs and shrubs for mule deer within the seed mixes.
  - Support enhancement and restoration efforts in Quaking Aspen forests unit wide by reducing encroachment of Spruce-Fir forests.
  - Continue to use the Watershed Restoration Initiative (WRI) to identify, implement, and fund critical habitat projects throughout the unit, while partnering with federal, state, and private landowners to achieve these goals.

Completed Habitat Projects	# Projects Completed	Acres
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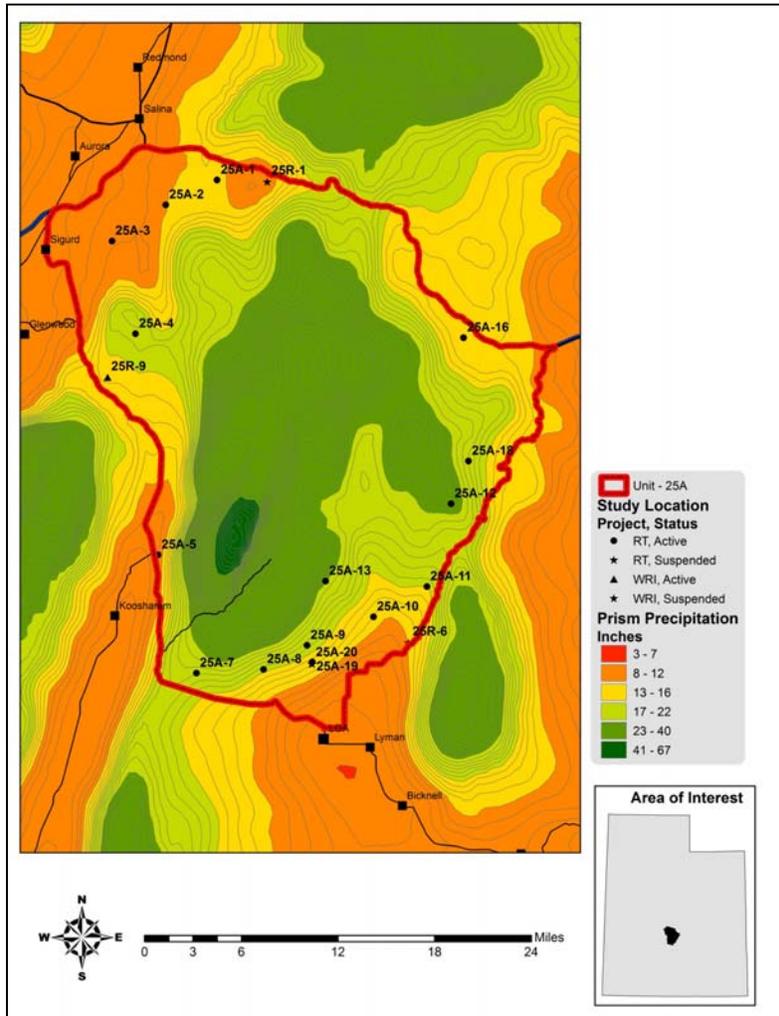
<b>2006-2014</b>		
Dixie Harrow, Seed	3	7,110
Anchor Chain, Seed	3	2,319
PJ Removal, Seed	2	5,246
PJ Removal, L/S	1	2,275
<b>TOTAL</b>	<b>9</b>	<b>16,950</b>

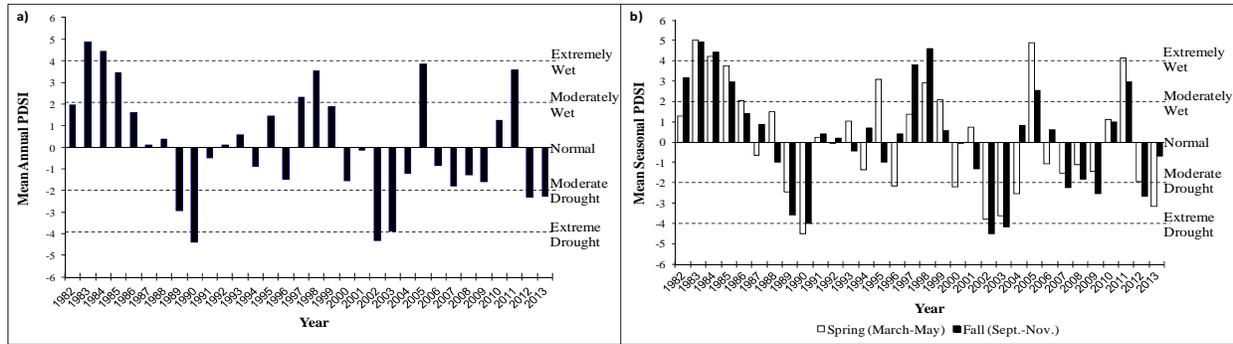
- Spreadsheet only accounts for completed projects within the WRI Database, current projects are being implemented, along with recommended proposals for future restoration projects within the unit.

### *Community Types*

The 30-year (1981-2010) annual precipitation PRISM model shows precipitation ranges on the unit from 8 inches on the south and northwest of the unit to 41 inches on the high elevation peak of the Fish Lake Hightop Plateau. All of the Range Trend and WRI monitoring studies on the unit occur within 11-23 inches of precipitation.

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011. The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011.





**Figure.1:** The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2014).

### Big Game Habitat

Total mule deer range in the wildlife management unit is estimated at 430,833 acres with 241,169 classified as summer range and 189,664 acres classified as winter range. Most of the big game winter range in this unit is located on Forest Service, BLM, and private holdings. Minor portions of the winter range in the unit occur on Utah State School Trust Lands, Division of Wildlife Resources management areas, and Tribal Lands.

According to LANDFIRE Existing Vegetation Coverage models, important shrublands comprise almost 30% of the deer winter range on the unit. The majority of deer winter range is comprised of pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) woodlands. While these woodlands provide valuable escape and thermal cover for wildlife, encroachment and invasion into historic shrublands reduces available browse and decreases the carrying capacity of the unit. Annual grasslands, primarily cheatgrass (*Bromus tectorum*), comprise a small proportion of the deer winter range and pose a minimal threat for wildfire. Other coverage types comprise a minimal proportion of the deer winter range.

The northern two-thirds of the unit include the high elevation Fish Lake Mountains and constitute summer range for deer. Winter range is primarily confined to the lower elevations of the southern third of the unit and the sagebrush benches on the west side above Highway 24. Antelope are present and are normally found in the more open areas of the deer winter range. Excessive accumulations of snow during severe winters confine deer below the 8,600-foot contour. Pinyon-juniper on both normal and severe wintering areas provides extremely important protective cover for deer, while the closely associated sagebrush type produces the bulk of the required forage.

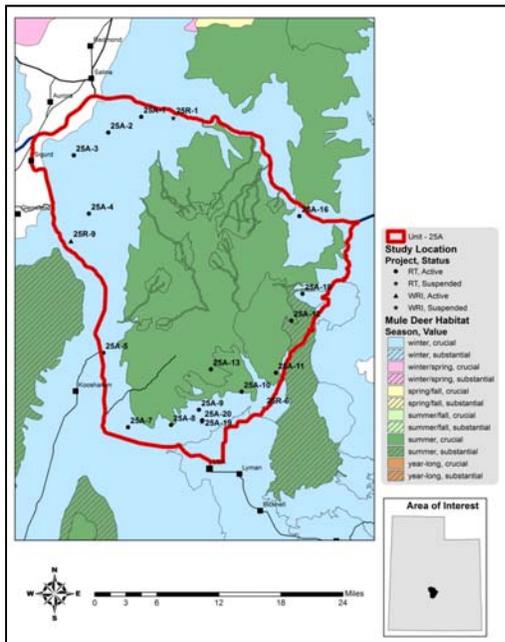
### Limiting Factors to Big Game Habitat

A history of heavy overgrazing by sheep and cattle is largely responsible for the present composition of most of the vegetative communities. Although overgrazing may still occur in some areas, grazing restrictions and management plans have been implemented on both Forest Service and BLM lands. Range conditions appear to be improving in most areas. Browse species increased as the competition from grasses and forbs was reduced by the heavy grazing. The result was large areas of deer winter range with abundant browse forage. However, good spring-fall deer range or transition range is lacking. During these seasons, deer seek succulent green grasses and forbs. Because the herbaceous component is inadequate, depredation occurs on private croplands, especially alfalfa fields. The UDWR is working with the other agencies to improve spring-fall ranges with chaining, spraying, harrowing, and/or seeding projects. Additionally gas and oil exploration and road building are current land management concerns. There is presently a moderately high density of roads in the area. Although off-road use of vehicles is prohibited, OHV's and four-wheel drive vehicles have access throughout the unit.

Wildfire has had minimal impact on the deer winter range in the unit. The majority of the fires in this unit have occurred on or near Moroni Peak. The 2003 Moroni Peak fire was the largest wildfire in the unit at 2,545 acres. It

burned in three separate parts with the largest portion being on Moroni Peak. There have been two other fires on the unit greater than 1,000 acres. The Johnson fire burned 1,845 acres in 2002 on Mt. Marvine and a second Moroni Peak fire burned 1,526 acres in 2004. The majority of the other fires in this unit burned 300-600 acres at a time, having a negligible impact on deer winter range.

Encroachment by pinyon-juniper woodland communities also poses a substantial threat to important sagebrush rangelands. Pinyon-juniper woodlands dominate the vegetation coverage within the deer winter range on WMU 25A. Encroachment and invasion of these woodlands into sagebrush communities has been shown to decrease the sagebrush and herbaceous components, and therefore decreases available forage for wildlife (Miller, Svejcar, & Rose, 2000)



**Map1:** Estimated mule deer habitat by season and value for WMU 25A, Fishlake



**Map2:** Land ownership for WMU 25A, Fishlake

	Summer Range		Winter Range	
	Area (acres)	%	Area (Acres)	%
Mule Deer	241,169	56%	189,664	44%
Elk	187,480	44%	238,265	56%

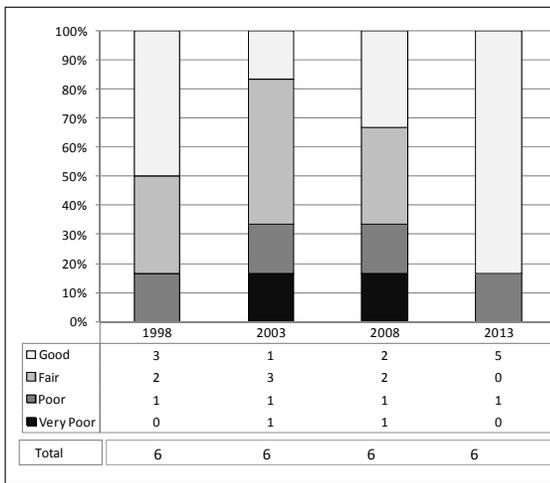
**Table.1:** Estimated mule deer and elk habitat acreage by season for WMU 25A, Fishlake.

Ownership	Summer Range		Winter Range	
	Area (acres)	%	Area (Acres)	%
USFS	199,169	83%	88,754	47%
BLM	5,507	2%	53,156	28%
SITLA	279	<1%	14,950	8%
Tribal Land	0	0%	51	<1%
Private	36,297	15%	32,657	17%
UDOT	0	0%	43	<1%
UDWR	0	0%	52	<1%
<b>Total</b>	<b>241,169</b>	<b>100%</b>	<b>189,664</b>	<b>100%</b>

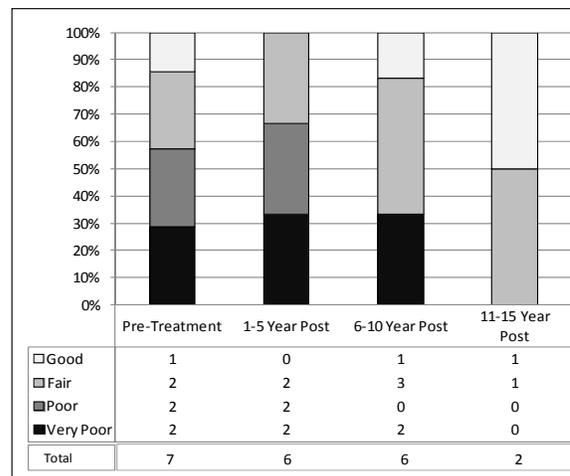
**Table.2:** Estimated mule deer habitat acreage by season and ownership for WMU 25A, Fishlake.

### Deer Winter Range Condition Assessment

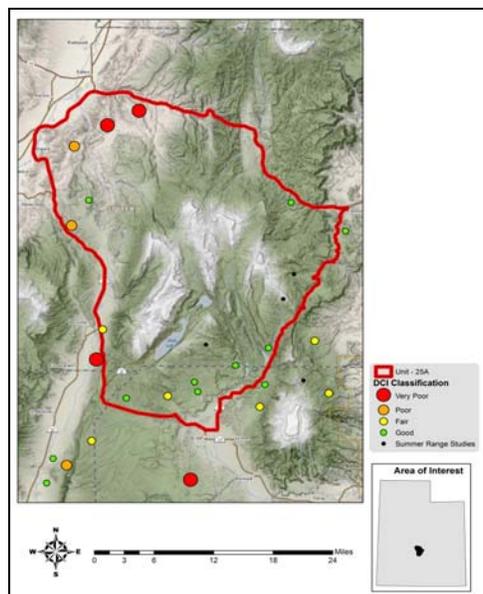
The condition of deer winter range within the Fishlake management unit has generally improved on the study sites sampled since 1998. As of 2013, the majority of the undisturbed sites sampled within the unit are considered to be in good condition with the exception of the Sage Flat site, which has remained in very poor to poor condition on all sample years. This is due to the high amount of annual grass present on this site. The treated study sites are more variable with most sites being fair to good. There are two studies, Triangle Mountain and Black Mountain, which were in very poor condition pre-treatment and have remained that way as time since treatment has increased. Poor deer winter range conditions on these sites are likely due to very low browse cover. Because of a reduction in browse cover, Praetor Slope went from being good at pre-treatment to fair at post treatment. Evans Reservoir, Lower Dog Flat, and Row of Pines Exclosure have improved since treatment.



**Figure.2:** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 25A Fishlake.



**Figure.3:** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 25A, Fishlake.



**Map.3:** Deer winter range Desirable Components Index (DCI) ranking distribution by study site of most current sample date as of 2013 for WMU 25A, Fishlake.

## **Deer Herd Unit # 25B (Plateau Thousand Lake)**

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts such as oil, gas, and coal mining that occurs within the unit.
- Encourage vegetation manipulation projects in PJ communities, with reseeding opportunities to increase the availability, abundance and nutritional content of browse, grass, and forb species.
- Seek cooperative projects and programs to encourage and improve the quality and quantity of deer habitat, with public and private land managers to maintain a stable or upward trend in vegetative composition.
- Provide improved habitat security and escapement opportunities for mule deer keeping habitat restoration projects a priority for wildlife, improvement of sagebrush communities is important on this unit.

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range Desirable Component Index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. The relationship between DCI and the changes in deer carrying capacity is difficult to quantify and is not known.

#### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies along with private landowners in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands.

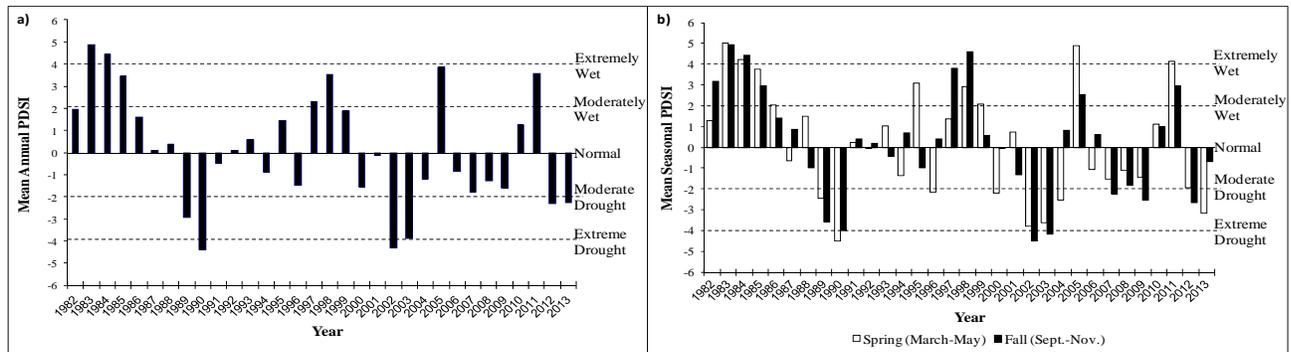
- Manage vehicle access to limit human disturbance during times of high stress, such as winter and fawning, also work in conjunction with other land management agencies to help limit travel of off road vehicles during these critical times.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reducing fuel loads, reseeding burned areas, creating fuel breaks and vegetated green strips.
- Reseed mechanical treatment areas with selected seed species with desirable perennial vegetation focusing on seeding native grass species. Unit is lacking in understory of herbaceous understory specifically forbs.
- Reduce expansion of Pinyon-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinyon-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog treatments and chaining projects.
- Cooperate with federal land management agencies and local governments in developing and administering quality habitat restoration projects tied to management plans for the purposes of habitat protection, and livestock grazing.
- Future habitat work should be concentrated on the following management priorities:
  - Increase browse species in critical winter range areas, continue to seed a quality of grasses, forbs and shrubs in critical burned areas.
  - Improve the need for future carrying capacity of mule deer within the unit.
  - Increase critical winter range opportunities for mule deer by reducing PJ encroachment in mountain and upland communities.
  - Maintain summer fawning areas by increasing beneficial habitat work in summer and transitional habitat areas.
  - Continue to monitor and collect data from browse transects and permanent range trend studies located throughout the seasonal ranges within the unit.
  - Continue to reduce threats to catastrophic wildfires, by reducing fuel loads and creating firebreaks.
  - When selecting and implementing habitat restoration projects, design and develop with wildlife benefit, including grass, forbs and shrubs for mule deer within the seed mixes.
  - Support enhancement and restoration efforts in Quaking Aspen forests within the unit by reducing encroachment of Spruce-Fir forests.
  - Continue to use the Watershed Restoration Initiative (WRI) to identify, implement, and fund critical habitat projects throughout the unit, while partnering with federal, state, and private landowners to achieve these goals.

<b>Completed Habitat Projects 2006-2014</b>	<b># Projects Completed</b>	<b>Acres</b>
Anchor Chain, Seed	1	782
PJ Removal, Seed	1	3,569
Seeding	1	2,345
<b>TOTAL</b>	<b>3</b>	<b>6,696</b>

- Spreadsheet only accounts for completed projects within the WRI Database, current projects are being implemented, along with recommended proposals for future restoration projects within the unit.



**Map 4:** The 1981-2010 PRISM Precipitation Model for WMU 25B, Thousand Lake (PRISM Climate Group, Oregon State University, 2013)



**Figure 4:** The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2014).

### Big Game Habitat

Total mule deer range in the wildlife management unit is estimated at 314,652 acres with 39,301 acres classified as summer range and 275,351 acres classified as winter range. Total elk range is estimated at 172,845 acres with 28,629 acres of this being classified as summer range and 144,217 as winter range. There is a substantial amount of winter range for deer and elk, however, summer range is limiting for both species. Most of the big game winter range in this unit is located on Forest Service or BLM managed lands. Minor portions of the winter range in the unit occur on private holdings, Utah State School Trust Lands, and National Park Service lands.

According to LANDFIRE Existing Vegetation Coverage models, important shrublands comprise around 32% of the deer winter range on the unit. Another 32% of deer winter range is conifer of which, 24% is comprised of pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) woodlands. While these woodlands provide valuable escape and thermal cover for wildlife, encroachment and invasion into historic shrublands reduces available browse and decreases the carrying capacity of the unit. Annual grasslands, primarily cheatgrass (*Bromus tectorum*), comprise a very small proportion of the deer winter range and pose a minimal threat for wildfire. Other coverage types comprise an equal proportion of the deer winter range.

The unit has good winter range with ample protective cover, large basins, draws, and open ridges. The upper limits of the normal winter range vary from 8,400 feet at the northern boundary to 9,000 feet on the south end of the Thousand Lake Mountain. The lower normal winter range limit is between 6,000 and 7,400 feet in elevation. At present, the winter range appears ample to support the deer and elk from the Thousand Lakes unit and many wintering deer from the adjacent Fish Lake unit. Solomon Basin, Sage Flat, Horse Valley, Sand Flat, Paradise Flat, and Lyman Slopes are all winter concentration areas.

The condition of the spring and summer range is a current management concern. As the snow begins to recede in the spring, deer seek green grasses and forbs, which are very scarce on the overgrazed spring ranges. At this time, the early green-up in the alfalfa and grain fields on private land near Loa, Fremont, Lyman and Torrey are very attractive to wildlife and depredation becomes a problem.

### Limiting Factors to Big Game Habitat

Grazing, uranium exploration, and logging are the three uses that have had the most impact on the Thousand Lakes unit. Grazing of cattle, horses, and sheep commenced with the settlement of the region in the 1860's. The range was open to anyone and was used from the time the snow melted enough in the spring to get livestock on the mountain, until the snow drove them off in the fall. Much of the east side, especially the Solomon Basin area, was used year-round by cattle. Because of the plentiful, well-dispersed water sources, the relatively flat mountaintop was also

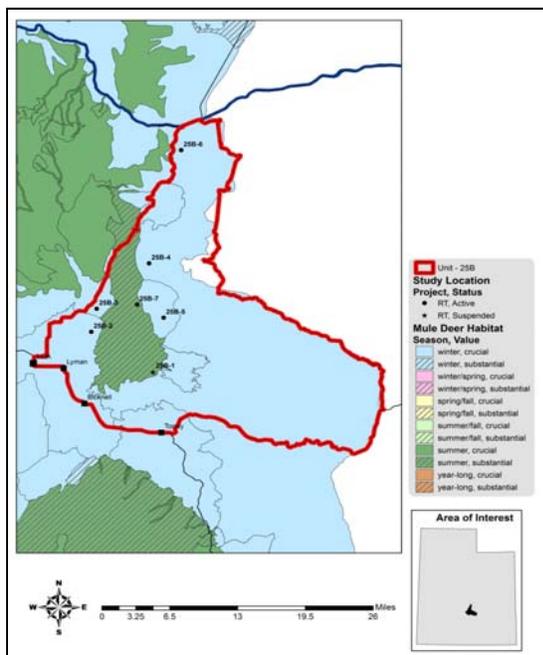
heavily grazed each summer. This overgrazing resulted in soil compaction and loss at water sources, erosion problems, decreased water quality, and a decrease of the herbaceous component of the vegetative community, until a nearly monotypic shrub type remained. The Forest Service has gradually increased grazing restrictions in order to allow the range to recover. Currently many areas are beginning to show improvements, but it will take a long time for the land to recover naturally.

Uranium prospectors have left their mark on the land. Four-wheel drive vehicles and heavy equipment tracks are present on the unit and are still visible. Gas and oil exploration is an ongoing activity and coal deposits in the Last Chance area have drawn proposals for both underground and strip mining. SR-72, which forms the western boundary of the unit, is maintained for year-round use. This will tend to encourage more recreation and tourism through the area and may increase highway collisions with wildlife.

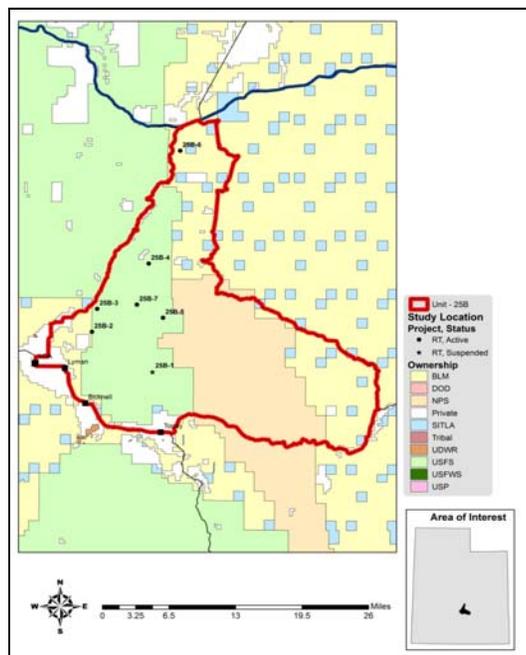
Stands of ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), and Engelmann spruce (*Picea engelmannii*) are found on the mountain with many areas having been logged in the past. Fire suppression has contributed to the accelerated succession of the high mountain aspen-meadows to climax stands of Engelmann spruce. Canopy closure in these spruce forests nearly eliminates all understory species, resulting in a significant loss of forage production.

Wildfire has had a minimal impact on the deer winter range in the unit. The Solomon Basin fire of 2009 was the only wildfire in the unit at 1,619 acres. It burned an area north of Flat Top peak near Solomon Basin. There have been no other recent fires on deer winter range.

Encroachment by pinyon-juniper woodland communities also poses a threat to important sagebrush rangelands. Pinyon-juniper woodlands constitute a fair amount of the vegetation coverage within the deer winter range on WMU 25B. Encroachment and invasion of these woodlands into sagebrush communities has been shown to decrease the sagebrush and herbaceous components, and therefore decreases available forage for wildlife (Miller, Svejcar, & Rose, 2000).



**Map5:** Estimated mule deer habitat by season and value for WMU 25B, Thousand Lake.



**Map6:** Land ownership for WMU 25B, Thousand Lake.

	Summer Range		Winter Range	
	Area (acres)	%	Area (Acres)	%
Mule Deer	39,301	12%	275,351	88%
Elk	28,629	17%	144,217	83%

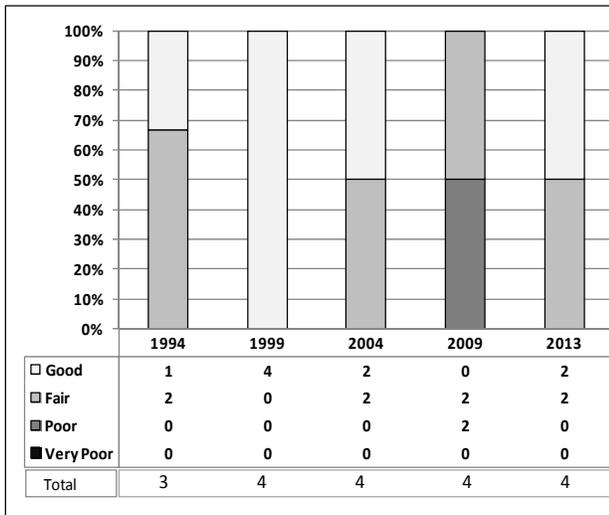
**Table.3:** Estimated mule deer and elk habitat acreage by season for WMU 25B, Thousand Lake.

Ownership	Summer Range		Winter Range	
	Area (acres)	%	Area (Acres)	%
USFS	38,955	99%	65,673	24%
BLM	0	0%	82,550	30%
SITLA	0	0%	9,557	4%
Private	45	<1%	14,963	5%
NPS	301	<1%	102,609	37%
<b>Total</b>	<b>39,301</b>	<b>100%</b>	<b>275,351</b>	<b>100%</b>

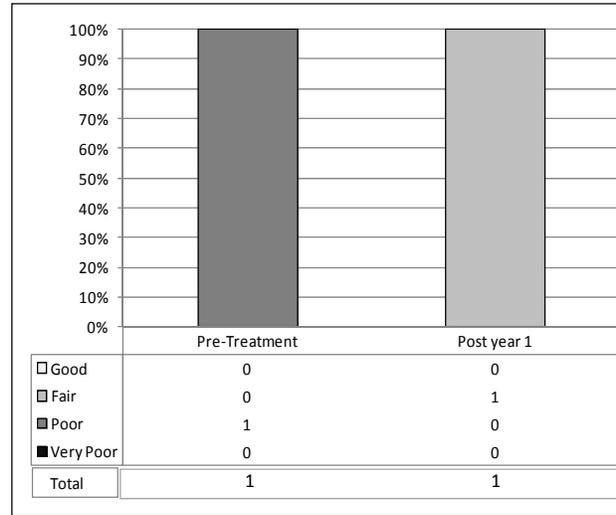
**Table.4:** Estimated mule deer habitat acreage by season and ownership for WMU 25B, Thousand Lake.

### Deer Winter Range Condition Assessment

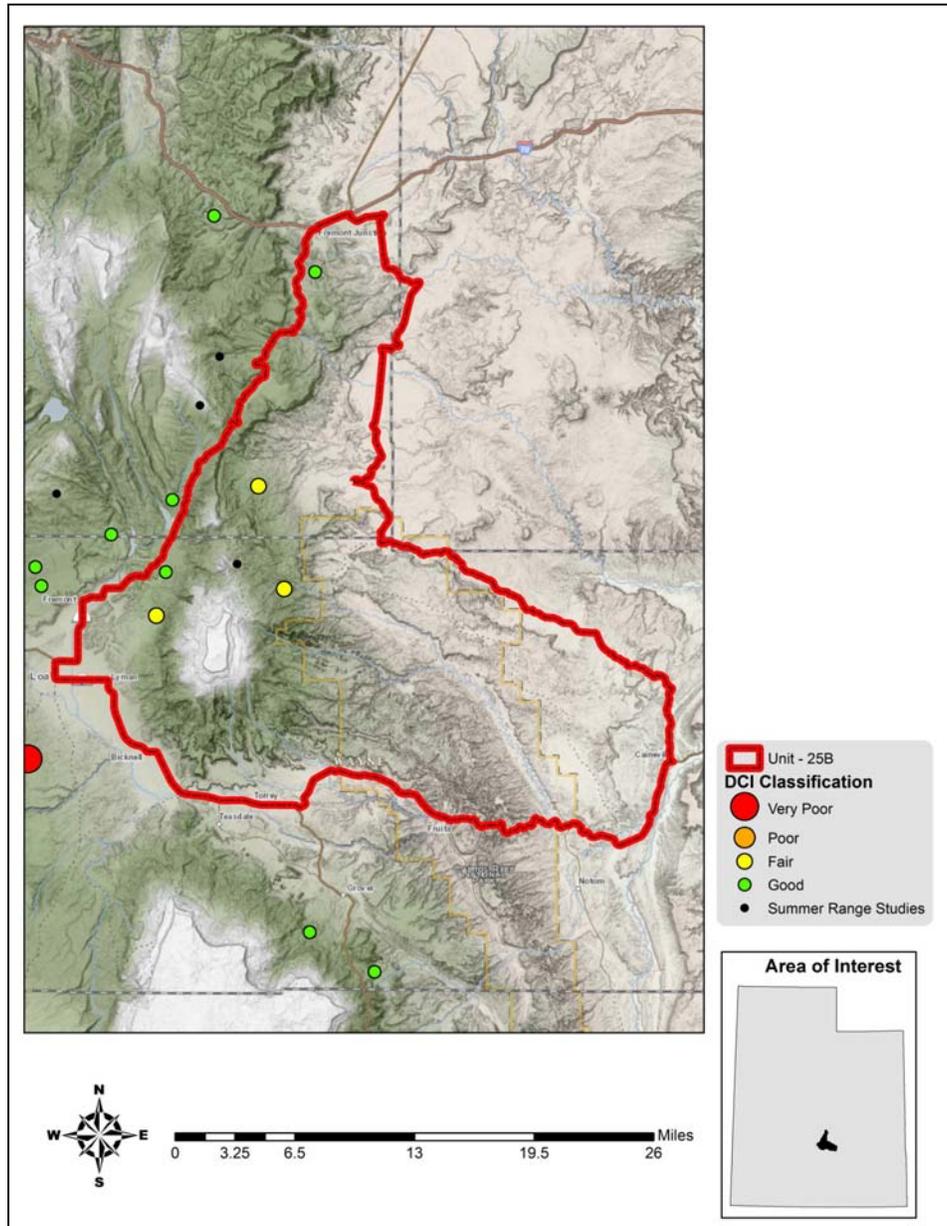
The condition of deer winter range within the Thousand Lake management unit has generally improved on the study sites sampled since 1994. The majority of the undisturbed sites sampled within the unit are considered to be in good to fair condition, with the exception of 2009 when sites were considered fair to poor. The mid potential sites Solomon Basin and Polk Creek are the sites that are in fair to poor condition. The treated study site transitioned from poor pre-treatment to fair post treatment. At the last reading there were no study sites that were in poor or very poor condition.



**Figure 5:** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 25B Thousand Lake.



**Figure 6:** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 25B, Thousand Lake.



**Map.7:** Deer winter range Desirable Components Index (DCI) ranking distribution by study site of most current sample date as of 2013 for WMU 25B, Thousand Lake.

**Deer Herd Unit # 25C/26  
(Plateau Boulder/Kaiparowits)**

**HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts.
- Encourage vegetation manipulation projects and seeding to increase the availability,

abundance and nutritional content of browse, grass, and forb species.

- Seek cooperative projects and programs to encourage and improve the quality and quantity of deer habitat, with public and private land managers to maintain a stable or upward trend in vegetative composition.
- Provide improved habitat security and escapement opportunities for mule deer keeping habitat restoration projects a priority for wildlife.

## **HABITAT MANAGEMENT STRATEGIES**

### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments; pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range Desirable Component Index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. The relationship between DCI and the changes in deer carrying capacity is difficult to quantify and is not known.

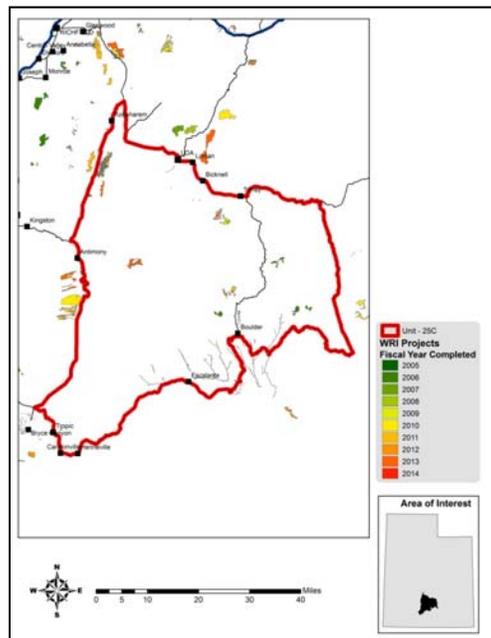
### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands.
- Continue to cooperate with Utah Department of Transportation (UDOT) and or Sportsman's groups to identify areas to mitigate and prevent deer-vehicle collisions to the extent possible.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and vegetated green strips.
- Reseed mechanical treatment areas with selected seed species that will out compete areas dominated by cheatgrass with desirable perennial vegetation focusing on seeding native grass species.
- Reduce expansion of Pinyon-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinyon-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog and chaining projects.
- Cooperate with federal land management agencies and local governments in developing and

administering access management plans for the purposes of habitat protection and escape or security areas.

- Future habitat work should be concentrated on the following management priorities:
  - Increase browse species in critical winter range, and burned areas.
  - Increase critical winter range opportunities for mule deer.
  - Maintain summer fawning areas by increasing beneficial habitat work in summer and transitional habitat areas.
  - Continue to monitor and collect data from browse transects and permanent range trend studies located throughout the seasonal ranges within the unit.
  - Continue to reduce threats to catastrophic wildfires, by reducing fuel loads and creating firebreaks.
  - When selecting and implementing habitat restoration projects, design and develop with wildlife benefit, including grass, forbs and shrubs for mule deer within the seed mixes.
  - Support enhancement and restoration efforts in Quaking Aspen forests unit wide by reducing encroachment of Spruce-Fir forests.
  - Continue to use the Watershed Restoration Initiative (WRI) to identify, implement, and fund critical habitat projects throughout the unit, while partnering with federal, state, and private landowners to achieve these goals.

**Treatments/Restoration Work**



**Map 1:** WRI treatments by Fiscal Year

<b>Treatment Action</b>	<b>Acres</b>
Brush beater (mower)	16
Bullhog	237
Harrow	4,753
Mower	804
Prescribed fire	1,900
Seeding (primary)	6,404
Lop and scatter	2,374
<b>*Total Acres Treated</b>	<b>16,488</b>
<b>Total Treatment Acres</b>	<b>12,503</b>

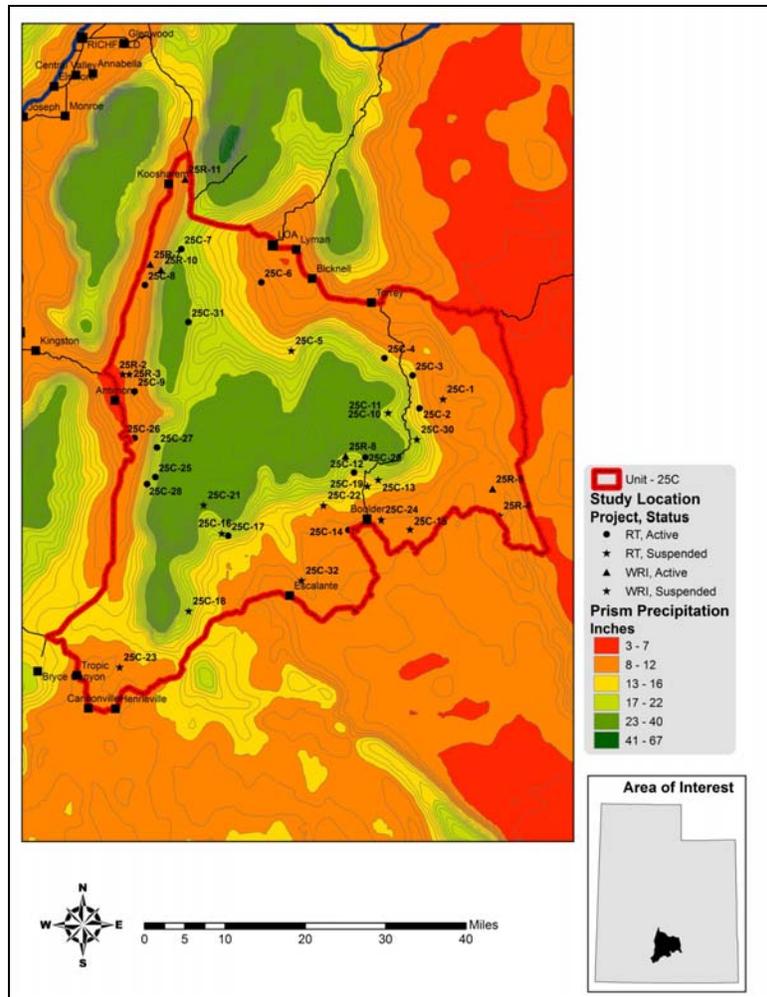
**Table 1:** WRI treatment size (acres).  
 \*Majority of seeding was done in conjunction with wildfire restoration efforts.  
 \*\*Does not include overlapping treatments

**Climate Data**

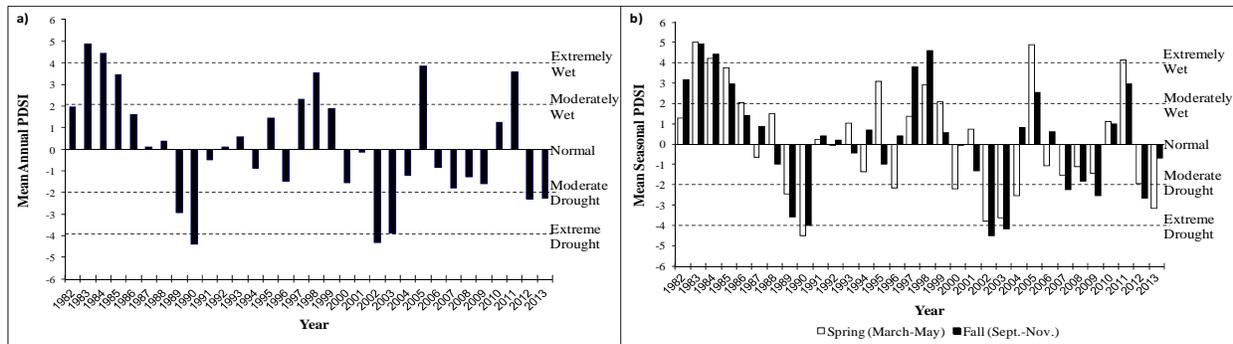
The 30-year (1981-2010) annual precipitation PRISM model shows precipitation ranges between 5 to 7 inches at Capitol Reef, 10 to 12 inches at Boulder and Escalante on the southern border, and 25 to 30 inches on Boulder Mountain. All of the Range Trend and WRI monitoring studies on the unit occur between 7-24 inch precipitations zones (Map) (PRISM Climate Group, Oregon State University, 2013).

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought

Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011. The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011. (Time Series Data, 2014).



**Map 2:** The 1981-2010 PRISM Precipitation Model for WMU 25C, Boulder (PRISM Climate Group, Oregon State University, 2013)



**Figure 7:** The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2014).

## **Big Game Habitat**

Total mule deer range in the wildlife management unit is estimated at 2,109,053 acres with 42,311 being classified as year-long range, 1,432,127 acres classified as winter range, and 634,615 acres classified as summer range. Most of the big game winter range in this unit is located on Forest Service or BLM managed lands. Minor portions of the winter range in the unit occur on private holdings, Utah State School Trust Lands, and Division of Wildlife Resources management areas.

According to LANDFIRE Existing Vegetation Coverage models, important shrublands comprise less than 30% of the deer winter range on the unit. The majority of deer winter range is comprised of pinyon pine (*Pinus edulis*) and Utah juniper (*Juniperus osteosperma*) woodlands. While these woodlands provide valuable escape and thermal cover for wildlife, encroachment and invasion into historic shrublands reduces available browse and decreases the carrying capacity of the unit. Annual grasslands, primarily cheatgrass (*Bromus tectorum*), is not a major land type contributor within deer winter range and poses little threat for wildfire. Other cover types comprise a minimal proportion of the deer winter range.

The winter range is large enough to support all of the deer summering on the unit. With a few localized exceptions, it is in mostly good condition. Huff & Coles (1966) drew the upper limits of the winter range between 8,000 and 8,400 feet and the lower limits between 6,500 and 7,000 feet. The pinyon-juniper and sagebrush types with various combinations of the two, dominate the winter range. South of Boulder Mountain, there is abundant winter range. However, much of the country is slickrock canyons and mesas that support few deer. Most wintering takes place on the lower slopes and at the base of the mountain. The upper limits of the normal winter range are uniform at 8,000 feet across the south slopes of the Boulder Mountain. Seven thousand feet is the usual upper limit during severe winter conditions. The lower limit for most wintering deer on the south side of the unit is Highway 12. On the west, side of the Aquarius Plateau between Antimony and Widtsoe winter range is more restricted. The mountain drops off steeply from Griffin Top to the river valley. Deer can typically utilize vegetation up to 9,000 feet during normal winters, but are limited to an upper limit of around 8,000 feet during severe winters. The lower boundary for severe winters is the bottom of the valley on the Sevier River, which is approximately 6,500 feet.

Summer range is limited to specific areas on Parker Mountain and Boulder Mountain. Boulder Mountain contains approximately 50,000 acres above 10,500 feet (Christensen & Bogedahl, 1983). This high summer range is unsuitable for fawning and receives only light deer use in late summer. Most fawning and summer use is concentrated underneath the lava rock rim where stands of aspen, fir, and spruce are interspersed with sage flats and meadows. Because of fire suppression, the trend is toward a more dense spruce climax community. Logging and/or prescribed burns may help maintain this important habitat in a seral stage, which is more productive and more favorable to big game. Lower down the

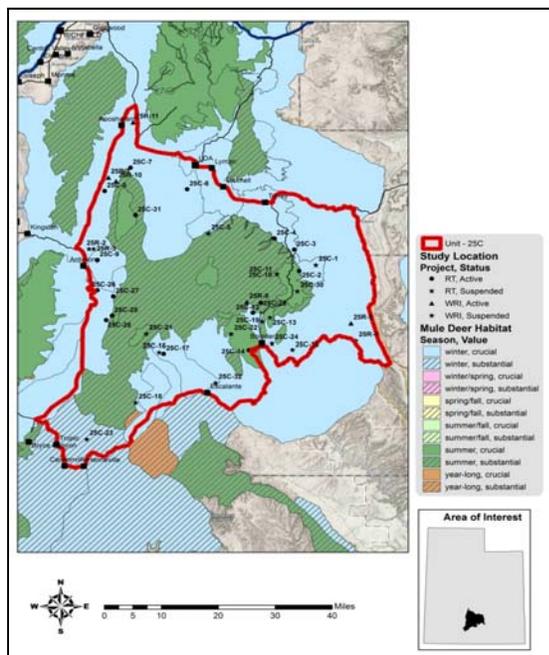
slopes, ponderosa pine with its associated mountain brush understory receives limited summer use. Summer range on Parker Mountain is more limited to the higher southern end, where aspen stands in association with big sagebrush and antelope bitterbrush provide excellent fawning areas.

**Limiting Factors to Big Game Habitat**

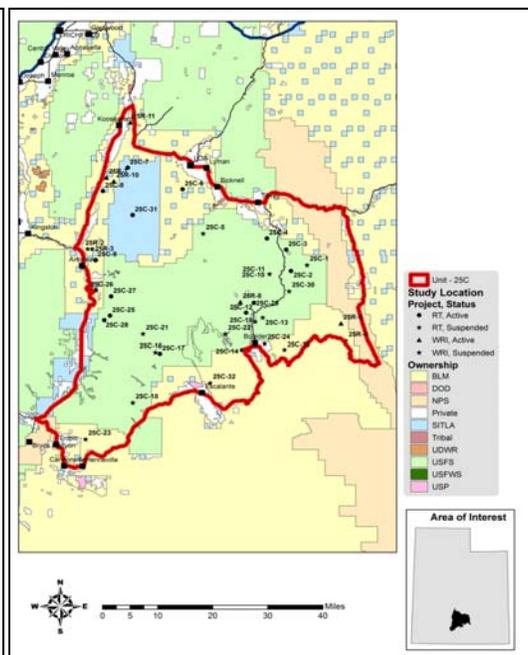
The Boulder Plateau and the surrounding winter range have a wide variety of multiple uses that stem from a diverse range of landownership and land management principles. Private land practices mainly include ranching and alfalfa production, while state and federal land uses include livestock grazing, mineral and resource exploration and extraction, road building, OHV riding, camping, and wilderness designations. Many of the land uses within the unit can be harmonious with the management of big game habitat while other land practices may negatively affect its management within the unit. There is ample range for deer in normal winters. Only in severe winters when the usable range may become limited. Additionally, the potential to increase forage for wintering deer and elk is substantial and can be gained by the removal of encroached pinyon and juniper trees that are very pronounced along benches and flats of the Boulder Plateau.

Wildfire has not made a substantial impact on the deer winter range in the unit. Additionally, few of the range trend studies have captured wildfire events, which means any response by rehabilitation efforts or recovery of sagebrush communities within the fire perimeters since the year 2000 have not been evaluated.

Encroachment by pinyon-juniper woodland communities also poses a substantial threat to important sagebrush rangelands. Pinyon-juniper woodlands dominate the vegetation coverage within the deer winter range on WMU 25C. Encroachment and invasion of these woodlands into sagebrush communities has been shown to decrease the sagebrush and herbaceous components, and therefore decreases available forage for wildlife (Miller, Svejcar, & Rose, 2000).



**Map 3:** Estimated mule deer habitat by season and value for WMU 25C, Boulder



**Map 4:** Land ownership for WMU 25C, Boulder

	Year-Long Range		Summer Range		Winter Range	
Species	Area (acres)	%	Area (acres)	%	Area (Acres)	%
Mule Deer	42,311	2%	634,615	30%	1,432,127	67%

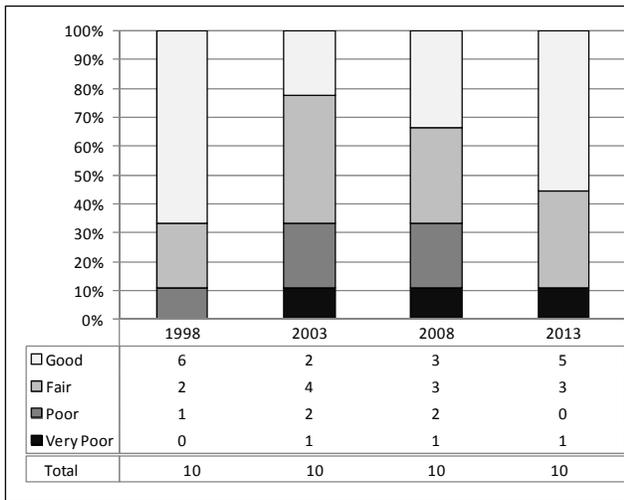
**Table 2:** Estimated mule deer habitat acreage by season for WMU 25C, Boulder

	Year-Long Range		Summer Range		Winter Range	
Ownership	Area (acres)	%	Area (acres)	%	Area (Acres)	%
USFS	21,534	51%	429,081	68%	232,815	16%
BLM	18,453	44%	143,227	23%	906,177	63%
NPS	0	0%	6,451	1%	102,656	7%
SITLA	639	2%	52,905	8%	87,707	6%
Private	1685	4%	2,951	<1%	132,368	5%
UDOT	0	0%	0	0%	3	<1%
USP	0	0%	0	0%	4,539	<1%
UDWR	0	0%	0	0%	1,101	<1%
<b>Total</b>	<b>42,311</b>	<b>100%</b>	<b>634,615</b>	<b>100%</b>	<b>1,432,127</b>	<b>100%</b>

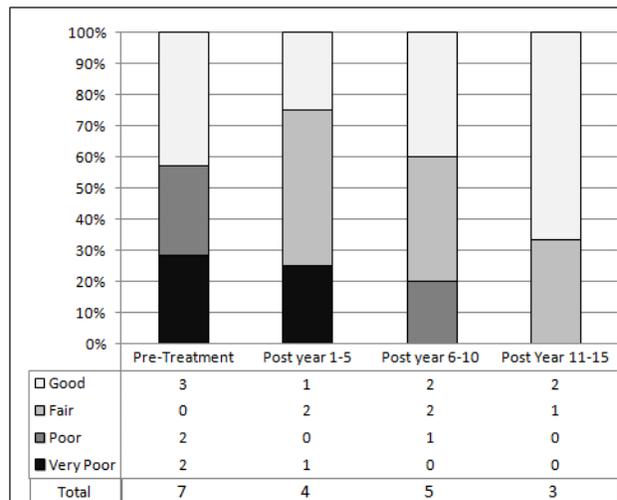
**Table 3:** Estimated mule deer habitat acreage by season and ownership for WMU 25C, Boulder

### Deer Winter Range Condition Assessment

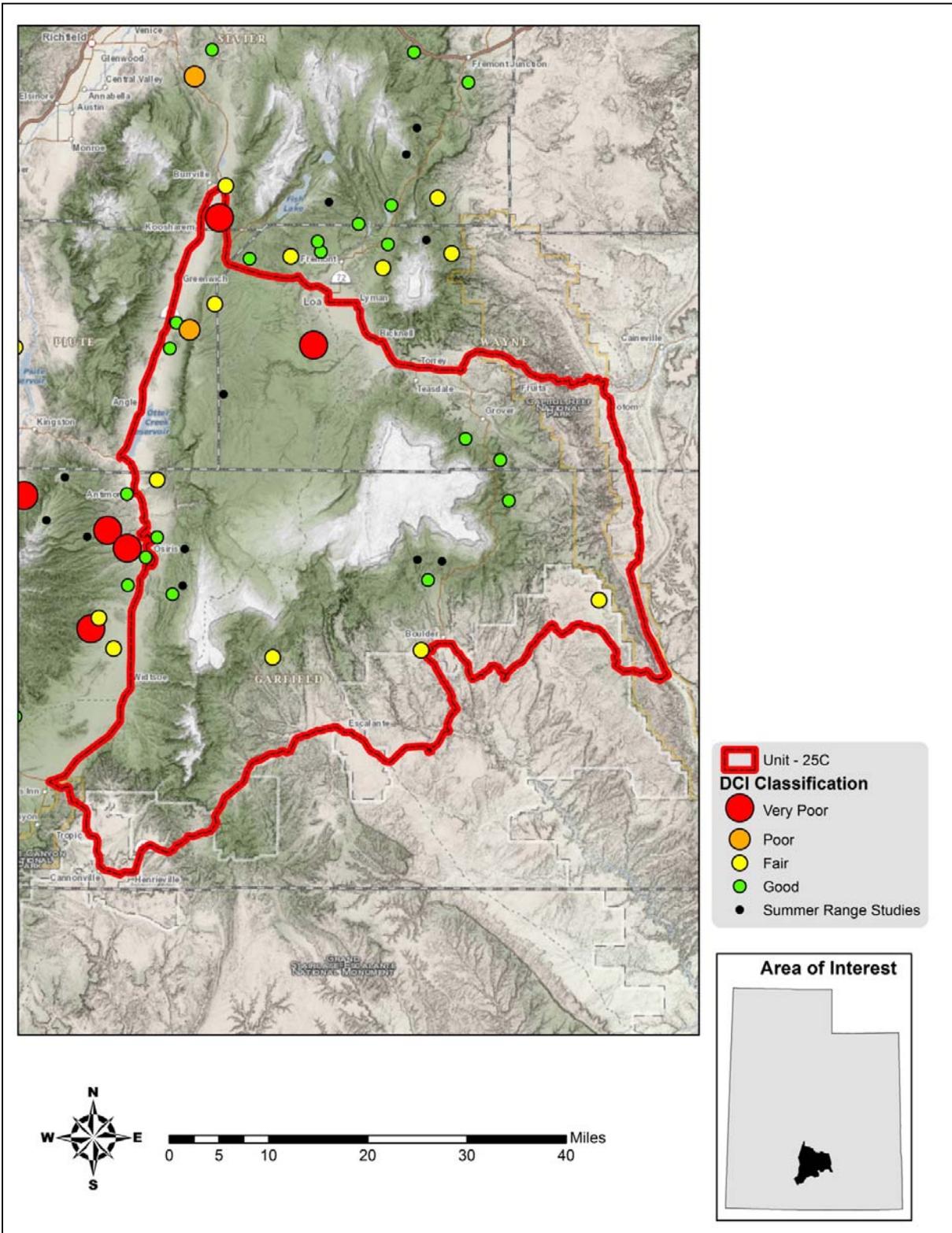
The condition of deer winter range within the Boulder management unit has improved slightly in quality as a whole since 1998. The majority of sites sampled within the unit are considered to be in fair to good condition based on the most current sample data, and the proportion of sites classified as being in poor or very poor condition has varied since 1998, but the poor condition class has transitioned to good since the last evaluation. The only undisturbed study that has consistently and is currently considered to be in very poor condition is the Terza Flat study which has a depleted browse component and lacks a quality herbaceous component that is dominated by the weedy annual forb halogeton. The condition of disturbed and treated sites typically improves with increased time after disturbance on this unit. The disturbed or treated study sites ranked as being in poor or very poor condition are absent in post year 11-15. The North Creek study site was ranked as being in poor condition at 6-10 post years due to a depleted browse and herbaceous components. Cheatgrass has also been present on the North Creek study since the fire disturbance. The very poor condition class is only observed within the pre-treatment and post year 1-5 sample periods, which is primarily due to the lack of browse and herbaceous components of their respective studies.



**Figure.8:** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 25C Boulder.



**Figure.9:** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 25C Boulder.



**Map 5:** Deer winter range Desirable Components Index (DCI) ranking distribution by study site of most current sample date as of 2013 for WMU 25C Boulder

### **Duration of Plan**

This unit management plan was approved by the Wildlife Board on \_\_\_\_\_ and will be in effect for five years from that date, or until amended.

## **APPENDIX**

### **Unit 25a Plateau, Fishlake Subunit**

**Sevier, Piute, and Wayne counties** - Boundary begins at SR-24 and US-89 at Sigurd; south on SR-24 to SR-72 at Loa; north on SR-72 to I-70; west on I-70 to US-89; south on US-89 to SR-24.

### **Unit 25b Plateau, Thousand Lake Subunit**

**Sevier, and Wayne counties** - Boundary begins at the junction of SR-24 and SR-72 at Loa; southeast on SR-24 to the Cainville Wash road; north on the Cainville Wash road to the junction of I-70 and SR-72; south on SR-72 to SR-24 at Loa.

### **Unit 25c Plateau, Boulder Subunit**

**Garfield, Piute, and Wayne counties** - Boundary begins at SR-24 and SR-62; south on SR-62 to SR-22; south on SR-22 to the Antimony-Widtsoe road; south on the Antimony-Widtsoe road to SR-12; east on SR-12 to the Burr Trail at Boulder; east on the Burr Trail road to the Notom Road; north on the Notom Road to SR-24; west on SR-24 to SR-62.

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit #26**  
**(Kaiparowits combined with Plateau, Boulder #25C )**  
**April 2015**

**BOUNDARY DESCRIPTION**

**Kane and Garfield counties** - Boundary begins at the Paria River and the Utah-Arizona state line; north along the Paria River to SR-12; east on SR-12 to the Burr Trail at Boulder; southeast on the Burr Trail to Lake Powell; southwest along the shore of Lake Powell to the Utah-Arizona state line; west along this state line to the Paria River.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	Year-long range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	23185	52 %	0	0%	801	0%
Bureau of Land Management	18765	42 %	119564	94 %	559081	93 %
Utah State Institutional Trust Lands	640	1%	0	0%	34120	1 %
Native American Trust Lands	0	??	0	0%	0	0%
Private	2150	5 %	556	1%	22523	4%
Department of Defense	0	??	0	0%	0	0%
USFWS Refuge	0	??	0	0%	0	0%
National Parks	0	??	0	0%	5614	1 %
Utah State Parks	0	??	0	0%	2187	0%
National Recreation Area	0	??	6447	5 %	7013	1 %
<b>TOTAL</b>	<b>44738</b>	<b>??</b>	<b>126567</b>	<b>100 %</b>	<b>600638</b>	<b>100 %</b>

## UNIT MANAGEMENT GOALS

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

## POPULATION MANAGEMENT OBJECTIVES

- Target Winter Herd Size - Manage for a 5-year target population size of 1,000 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels.
- This unit has scattered areas of deer habitat and does not support high numbers of deer.

	<b>Objective from past plan (2001)</b>	<b>Long-term Objective</b>	<b>2006-2014 Objective</b>	<b>Change</b>
Kaiparowits	1,000	1,000	1,000	0

- Herd Composition - This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 in combination with the Plateau, Boulder unit (25C).
- Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

## POPULATION MANAGEMENT STRATEGIES

### Monitoring

- Population Size - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide statewide harvest survey. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons. The winter population should result in an expected annual buck harvest of 140 when normal conditions occur, but recognize that buck harvest will be above or below what is expected due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives for buck:doe ratios.

### **Limiting Factors (May prevent achieving management objectives)**

- Crop Depredation – Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- Habitat - Extensive dry desert conditions exist. Limited data suggest annual fawn recruitment is low. Classification of deer on this unit is done with very low overall numbers. Forb production is low, especially on dry years. Large areas of Pinyon/Juniper trees are not productive. Water distribution is limited in some areas. Excessive habitat utilization will be addressed. This unit is almost entirely within the Grand Staircase Escalante National Monument (Monument), Glen Canyon National Recreation Area, and the Dixie National Forest (Canaan Mountain). Extensive federal Wilderness Study Areas (WSA) exist in this unit. Questions involving future management of habitat within the Monument or the WSAs are yet to be determined.
- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
  - Predation by mountain lions and coyotes is significant factor to population growth. Rugged topography makes normal harvest of predators difficult in most areas of unit. Incentives for increasing

mountain lion harvest may be helpful. The area is currently a harvest objective cougar unit.

- Highway Mortality – DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. A few kills are recorded on SR-12 each year.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process

### **HABITAT MANAGEMENT STRATEGIES**

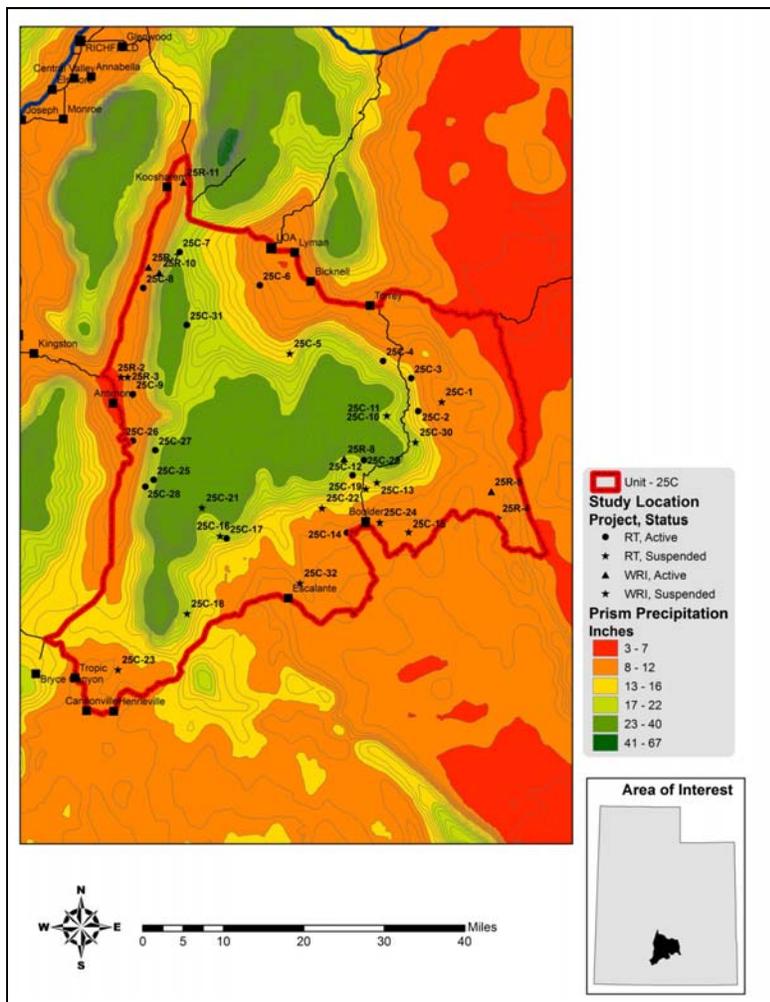
- Increase water for wildlife by re-modeling BLM livestock catchments to include year long water availability.
- Several areas within the Grand Staircase-Escalante National Monument need manipulation (fire, chaining, lop and scatter, etc.) to return vegetation to diversity and production.

### **Climate Data**

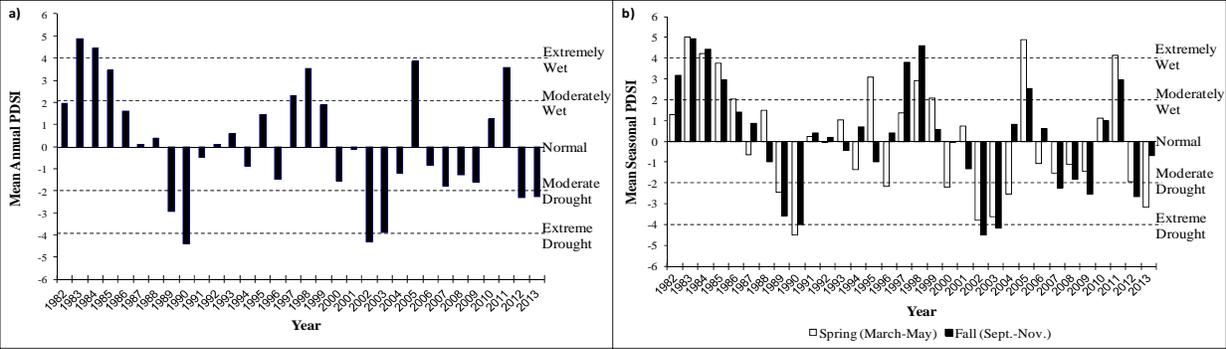
The 30-year (1981-2010) annual precipitation PRISM model shows precipitation ranges between 5 to 7 inches at Capitol Reef, 10 to 12 inches at Boulder and Escalante on the southern border, and 25 to 30 inches on Boulder Mountain. All of the Range Trend and WRI monitoring studies on the unit occur between 7-24 inch precipitations zones (Map) (PRISM Climate Group, Oregon State University, 2013).

Vegetation trends are dependent upon annual and seasonal precipitation patterns.

Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011. The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011. (Time Series Data, 2014).



**Map 2:** The 1981-2010 PRISM Precipitation Model for WMU 25C, Boulder (PRISM Climate Group, Oregon State University, 2013)



**Figure.1:** The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2014).

**Duration of Plan**

This unit management plan was approved by the Wildlife Board on \_\_\_\_\_ and will be in effect for five years from that date, or until amended.

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 27**  
**(Paunsaugunt)**  
**May 2015**

**BOUNDARY DESCRIPTION**

**Garfield and Kane counties** - Boundary begins at US-89A and the Utah-Arizona state line; north on US-89A to US-89; north on US-89 to SR-12; east on SR-12 to the Paria River; south along the Paria River to the Utah-Arizona state line; west along this state line to US-89A.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service	0	0%	122705	37%	8279	1%	130984
Bureau of Land Management	0	0%	76806	23%	502742	85%	579548
Utah State Institutional Trust Lands	0	0%	19551	6%	14011	2%	33562
Native American Trust Lands	0	0%	0	0%	0	0%	0
Private	0	0%	93122	28%	48189	8%	141311
Department of Defense	0	0%	0	0%	0	0%	0
USFWS Refuge	0	0%	0	0%	0	0%	0
National Parks	0	0%	17658	6%	15098	3%	32756
BLM Wilderness Area	0	0%	0	0%	3269	1%	3269
Utah Division of Wildlife Resources	0	0%	0	0%	0	0%	0
<b>TOTAL</b>	<b>0</b>	<b>0%</b>	<b>329841</b>	<b>100%</b>	<b>591587</b>	<b>100%</b>	<b>921430</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.
- Continue with limited entry hunting. Maintain cooperative DWR/landowner relationships, i.e. Paunsaugunt Landowners Association and Alton Cooperative Wildlife Management Unit.

## **POPULATION MANAGEMENT OBJECTIVES**

- **Target Winter Herd Size** - The short-term objective will be a target population of 5,200 wintering deer (modeled number). If winter range conditions improve as indicated by DWR range trend data showing a unit-wide desired component index (DCI) in at least the “fair” category or data collected during spring range rides indicate a marked improvement, this herd may be managed to the long-term population objective of 6,500 wintering deer (modeled number).
- **Herd Composition** - The Paunsaugunt unit will be managed for a post-season buck to doe ratio for a 3-year average of 40–55 bucks/100D does. Continue to provide management buck hunts on these units to provide additional hunting opportunity with a minimum of 10 permits on each unit. The definition of a management buck on the Paunsaugunt will be consistent with the definition provided in the statewide plan for premium limited entry units.
- If the 3-year average buck:doe ratio exceeds 50/100, management buck permits will be increased to bring the population back to objective within 3 years.
- **Buck Harvest** – In accordance with the state-wide mule deer management plan, baseline premium limited entry permits for the public draw will be recommended at current levels (2014) on the Paunsaugunt. If <40% of the harvested bucks (3-year average) are 5 years of age or older, premium limited entry permits will be recommended to be reduced as needed to achieve objective. If >40% of harvested bucks (3-year average) are 5 years of age or older, premium limited entry permits will be recommended at the baseline number.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- **Population Size** - Herd composition and population size will be monitored through computer modeling using data collected during post-season classification, hunter check stations, and hunter harvest surveys.
- **Buck Age Structure** – The age class structure of the harvest will be monitored through the mandatory submission of an incisor (tooth) from each buck harvested on the unit. Additional data on the age class structure of the population may be obtained through post-season classification, uniform harvest surveys and field bag checks.
- **Harvest** - The primary means of monitoring harvest will be through the statewide mandatory harvest survey. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives for buck: doe ratios and the age objective for premium limited entry units.
- On appropriate limited entry and premium limited entry units, provide a multi-season hunting opportunity that will allow 3% of the hunters to hunt all seasons for an increased fee. The permits this hunt will be removed from the any weapon quota.

### **Limiting Factors** (May prevent achieving management objectives)

- **Crop Depredation** - Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- **Habitat** - Based on 2008 DWR range trend study data, the general condition of deer winter range on the Paunsaugunt unit continues to decline. Range condition on 10 of the 13 winter range sites was rated as either poor or very poor with only the higher elevation Moon Landing and Heaton sites rating good or excellent. Range condition worsened on 6 sites between 2003 and 2008, with the Buckskin Mountain study showing the greatest decline resulting from loss of sagebrush combined with an increasing amount of annuals such as cheatgrass.

Range condition did improve slightly on two winter range study sites: Nephi Pasture I, and Five-mile Mountain. The Moon Landing and Heaton studies also showed improvement, but these sites are more characteristic of higher elevation transitional range.

- Predation - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented on that unit.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar could be implemented on that unit. A predator management plan is in place for the benefit of mule deer on the summer ranges of this unit
- Predator management may be conducted with assistance from USDA/Wildlife Services. To be most effective, control efforts should generally occur during and immediately prior to the fawning period.
- Public hunting will be the primary means of managing cougar numbers on the Paunsaugunt unit. Harvest recommendations for cougar will be designed to benefit deer while maintaining the cougar as a valued resource in its own right.
- Highway Mortality - Continue to work with the Utah Department of Transportation in construction of highway fences, passage structures and warning signs etc.
  - In 2013 Utah Department of Transportation and Utah Division of Wildlife Resources worked together with multiple partners to create 12.5 miles of wildlife exclusion fencing (8 feet tall) from mile posts 36 in the east to 48.6 in the west, and three new wildlife crossing culverts along US 89 in the Grand Staircase Escalante National Monument. The goal of the project was to funnel the Paunsaugunt mule deer herd through these three new culverts and three existing culverts and one bridge in their movements north and south, and thus reduce mule deer-vehicle collisions along this stretch of road. A significant reduction in highway mortalities have been observed since the fence and crossings were installed.
  - Also multiple illuminated warning signs have been placed along US89 in Garfield and Kane Counties.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.
- Cooperative Management - Approximately 25-30% of deer that summer on the Paunsaugunt Unit migrate south across the Utah/Arizona border to winter in Arizona. Continue cooperative program with Arizona Game and Fish Department for mutual harvest objectives.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process
- Provide improved habitat security and escapement opportunities for deer.

## **HABITAT MANAGEMENT STRATEGIES**

### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and reseed areas dominated by cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Cooperate with federal land management agencies and private land owners in carrying out aspen regeneration and habitat improvement project.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Future habitat work should be concentrated on the following areas.
  - Continue to reduce Pinyon and Juniper encroaching into shrubland, specifically on Hatch Bench, Buckskin, Kanab Ceek, Thompson creek and other areas in critical winter range.
  - Seek opportunities within upper elevation aspen habitats to remove encroaching conifer and implement aspen rejuvenation projects.
  - Seek opportunities to increase browse, perennial grasses and forbs and reduce annual invasive grasses in areas of critical winter; specifically on the Buckskin

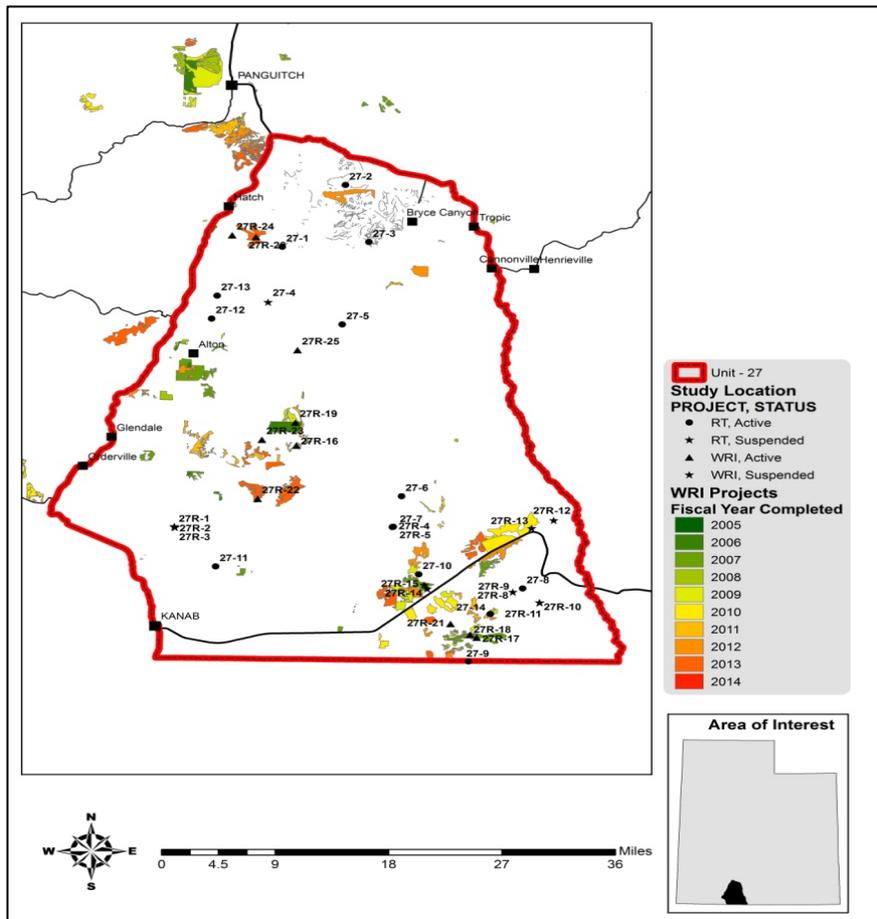
### **Treatments and Restoration Work**

There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 65,021 acres have been treated within the Paunsaugunt unit since

the WRI was implemented in 2004. Other treatments have occurred outside of the WRI through independent agencies and landowners, but the WRI comprises the majority of work done on deer winter ranges throughout the state of Utah.

WRI treatment action size (acres) for WMU 27, Paunsaugunt  
Does not include overlapping treatments.

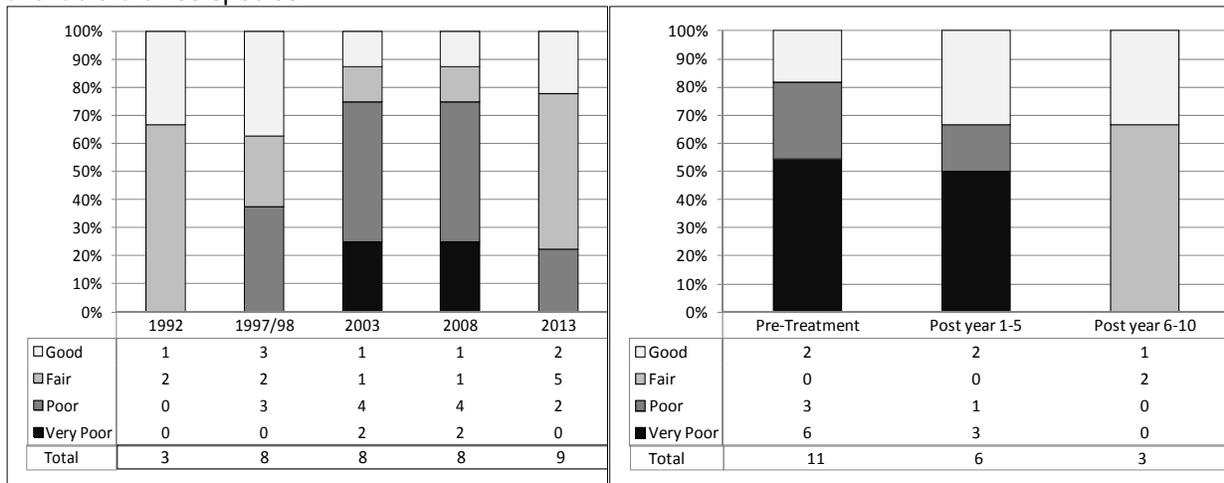
Treatment Action	Acres
Bullhog	5,640
Chaining	7,937
Disc	1,834
Harrow	6,751
Herbicide application	14
PJ push	798
Road decommissioning	482
Seeding	25,428
Lop and Scatter	14,564
Prescribed fire	1,353
<b>*Total Land Area Treated</b>	<b>41,058</b>
<b>Total Treatment Acres</b>	<b>65,021</b>



**PERMANENT RANGE TREND SUMMARIES**

## Unit 27 Paunsaugunt

The condition of deer winter range within the Paunsaugunt management unit has generally decreased from 1997/98-2008, but improved in 2013. The majority of sites sampled within the unit are considered to be in fair to good condition based on the most current sample data, and the proportion of sites classified as being in poor or very poor condition has decreased since 2008 (see figures below). The two undisturbed studies that are currently considered to be in poor condition are the Nephi Pasture Total Enclosure and Mustang Pond studies, which have a marginal herbaceous understory, but have fair browse components. The condition of disturbed and treated sites typically improves with increased time after disturbance on this unit with the exception of sites, which burned in wildfire. The majority of disturbed or treated study sites ranked as being in poor or very poor condition 1-5 years after disturbance are those burned by wildfire or had depleted shrub understory. These study sites generally are still lacking in available browse species.



Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 27, Paunsaugunt.

Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 27, Paunsaugunt.

The high elevation aspen site, which was established to monitor an aspen improvement project, is in poor condition. Even though only one site monitors this community type, it has been observed that conifer encroachment is affecting the aspen community on the Paunsaugunt Plateau with aspen being severely encroached. The herbaceous and shrub layers are in poor condition and provide little cover. It is recommended that work to remove conifer from aspen stand should continue in these communities.

The higher elevation mountain sites, which support basin big sagebrush communities, are generally considered to be in good condition for deer winter range habitat on the Paunsaugunt management unit. This community support robust shrub population that provide valuable browse in mild winters, and good herbaceous and browse community during transitional and summer months. While in generally good condition, these sites appear to be prone to encroachment from pinyon and juniper trees, which can reduce understory shrub and herbaceous health if not addressed. It is recommended that work to reduce pinyon-juniper encroachment (e.g. bullhog, chaining, lop and scatter, etc.) should continue in these communities.

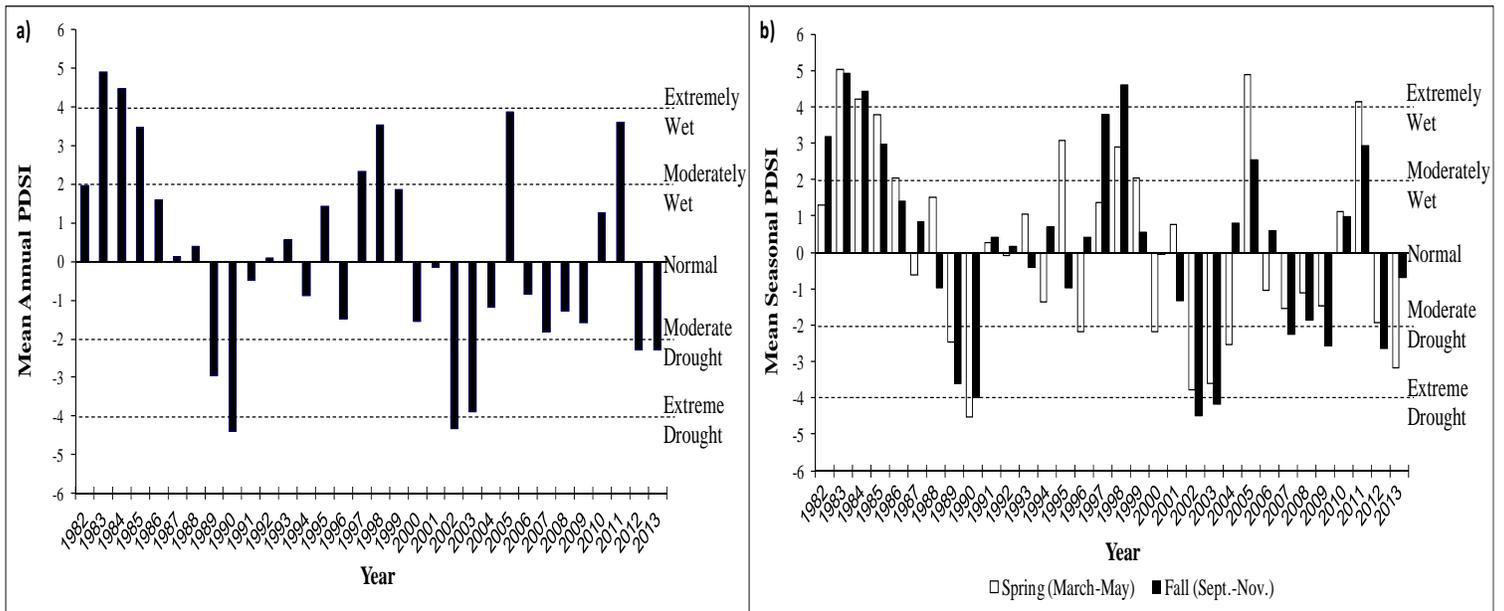
The mid elevation sites which support basin big sagebrush communities are generally considered to be in good condition for deer winter range habitat on the Paunsaugunt management unit. These communities support robust shrub populations that provide valuable browse in mild and moderate winters. While in generally good condition, these sites appear to be prone to encroachment from pinyon-juniper trees. On many of these sites, pinyon and juniper have increased in cover and density over the sampled years. It is recommended that work to reduce pinyon-juniper encroachment (e.g. bullhog, chaining, lop and scatter, etc.) should continue in these communities. When reseeding is necessary to restore herbaceous The mid elevation upland cliffrose communities that have not been disturbed are generally considered to

be in fair condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire and those studies, which have burned since 2006, are typically in poor to very poor condition. If wildfires occur within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. These communities are prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. Annual grass, primarily cheatgrass, can also be an issue within these communities. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire within these communities. It is recommended that work to reduce pinyon-juniper encroachment should continue in these communities. Care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites. Work to diminish fuel loads and create firebreaks should continue in order to reduce the threat of catastrophic fire.

The lower elevation semidesert Wyoming big sagebrush and black sagebrush communities are generally considered to be in fair condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire and if wildfires occur within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. These communities are susceptible to invasion from annual grass, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire on within these communities. These communities are prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. Treatments to establish and increase browse species more rapidly following wildfire should also be implemented, and treatments to increase browse species on historic fires should be considered. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites.

### **Precipitation**

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (Figurea). The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011 (Figureb) (Time Series Data, 2014).



**Figure 6.1: The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2014).**

**Duration of Plan**

This unit management plan was approved by the Wildlife Board on \_\_\_\_\_ and will be in effect for five years from that date, or until amended.

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 28**  
**(Panguitch Lake)**  
**May 2015**

**BOUNDARY DESCRIPTION**

**Garfield, Iron and Kane Counties** - Boundary begins SR-14 and US-89; north on US-89 to SR-20; west on SR-20 to I-15; south on I-15 to SR-14; east on SR-14 to US-89.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service	3210	25 %	246285	75%	35427	17%	284922
Bureau of Land Management	4732	37 %	4458	2%	105564	52%	114754
Utah State Institutional Trust Lands	1003	8 %	1708	0%	12271	6%	14982
Native American Trust Lands	0		0	0%	47	0%	47
Private	3667	29 %	63930	19%	43680	22%	111277
Department of Defense	0		0	0%	0	0%	0
USFS Wilderness	0		7082	2%	0	0%	7082
National Parks	0		6007	2%		0%	6007
Utah State Parks	0		0	0%	0	0%	0
Utah Division of Wildlife Resources	0		504	0%	5100	3%	5604
<b>TOTAL</b>	<b>12652</b>	<b>100%</b>	<b>329972</b>	<b>100%</b>	<b>202088</b>	<b>100%</b>	<b>544675</b>

## **UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.
- **POPULATION MANAGEMENT OBJECTIVES**
  - Target Winter Herd Size – Manage for a 5-year target population of 10,000 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels. Change to the population objective is based on this population’s performance, improved range conditions, the amount of available habitat and the lack of range damage from deer.
  - Herd Composition – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan. This unit typically exceeds the 20 bucks per 100 doe threshold post season. It is a difficult unit to obtain a large enough sample size for this analysis. Caution will be use when adjusting permits and trends will be considered.
  - Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

## **POPULATION MANAGEMENT STRATEGIES**

### **Monitoring**

- Population Size - Utilizing harvest data, postseason and spring classifications, and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 11,700 deer.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide uniform harvest surveys and bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	1168	70	18.7	9,200	8,500	108.2
2013	1146	63	19.8	11,700	8,500	137.6
2014	1093	58	19.3	11,700	8,500	137.6
3 Year Avg	1135	63.6	19.3			

### **Limiting Factors** (May prevent achieving management objectives)

- **Crop Depredation** - Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- **Habitat** - At present, winter range is a limiting factor. Highway construction on the west side of the unit has limited the accessibility to winter range on the west side of I-15. This has created areas of heavy utilization and concentration north of Paragonah. Development has also reduced the amount of available winter range along the east side of I-15, especially in the Cedar City area. Excessive habitat utilization will be addressed through antlerless harvests and transplants from the unit.
- **Predation** - - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years, or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar may be implemented.
- **Highway Mortality** - DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed.
- **Illegal Harvest** - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts.
- Seek cooperative projects to improve the quality and quantity of deer habitat.
- Provide improved habitat security and escapement opportunities for deer.

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

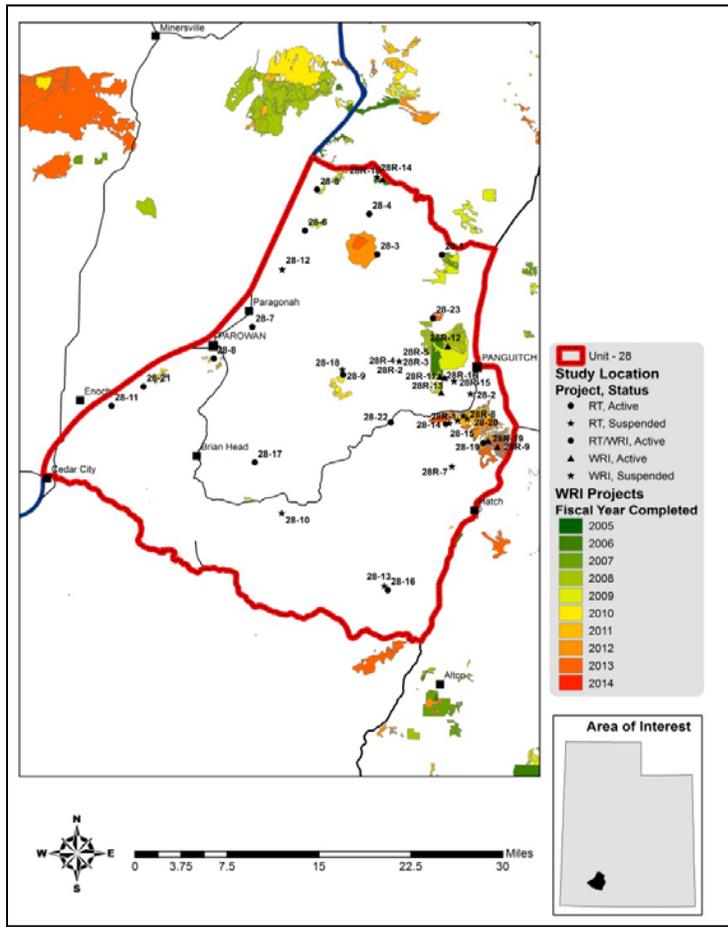
#### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Manage vehicle access on Division of Wildlife Resources land to limit disturbance critical times such as winter and fawning.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding wildfire areas, creating fuel breaks and vegetated green strips and reseed areas dominated by Cheatgrass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and to provide refuges.
- Future habitat work should be concentrated on the following areas.
  - Continue to reduce Pinyon and Juniper encroaching into shrubland, specifically in South Canyon, Five Mile Hollow, Buckskin Valley, Bear Valley and other areas within critical winter range.
  - Seek opportunities on reduce annual grasses and reestablish native perennial grasses, forbs and browse species in the Cottonwood, Swayback Knoll, and Buckskin Valley.
  - Seek opportunities to increase browse and perennial forbs in areas of critical winter range through mechanical treatment and reseeding

#### Treatments and Restoration Work

There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 26,006 acres of land have been treated within the Panguitch Lake unit since the WRI was implemented in 2004. Treatments frequently overlap one another bringing the total treatment acres to 34,263 acres for this unit. Other treatments have occurred outside of the WRI through independent agencies and landowners, but the WRI comprises the majority of work done on deer winter ranges throughout the state of Utah.

Treatments to reduce pinyon-juniper woodlands such as bullhog, chaining, prescribed fire, and lop-and-scatter are among the most common management practices. The use of seeding to supplement the herbaceous understory is also very common. Other common management practices are those to rejuvenate sagebrush stands such as chaining, mowing, and harrow treatments.

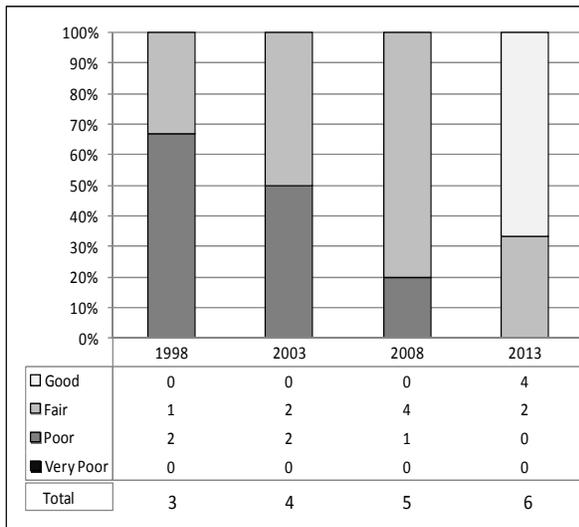


Treatment Action	Acres
Seeding (primary)	8,865
Chaining	940
Prescribed Fire	3,527
Bullhog	7,583
Mow	985
Harrow	1,942
Lop and Scatter	10,419
<b>*Total Land Area Treated</b>	<b>26,006</b>
<b>Total Treatment Acres</b>	<b>34,263</b>

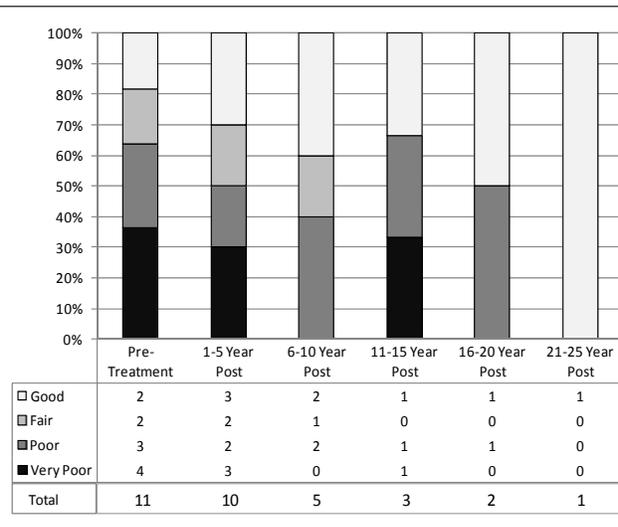
## PERMANENT RANGE TREND SUMMARIES

### Unit 28 Panguitch Lake

The condition of deer winter range within the Panguitch Lake management unit has generally improved on the study sites sampled since 1998. The majority of the undisturbed sites sampled within the unit are considered to be in poor to fair condition with the exception of the most current sample data in which the sites are considered to be in fair to good condition (Figure ). The treated study sites are more variable due in part to the steady decrease in sites included in the figure as time since treatment increases (Figure). There are three studies, Swayback Knoll, Threemile Creek, and Panguitch Creek that were in very poor condition at the last reading. Both Panguitch Creek and Threemile Creek were treated with a bullhog and chain, respectively, and have low browse and herbaceous cover. Panguitch Creek was in very poor condition pretreatment and has remained even after treatment; there is no pretreatment data for Threemile Creek. Swayback Knoll experienced a fire and went from fair to very poor due to a drastic reduction in browse cover as well as an increase in annual grass cover.



**Figure 7.38** Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 28 Panguitch Lake.



**Figure 7.39** Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 28, Panguitch Lake

The high elevation high mountain site supports a silver sagebrush community and is generally considered to be in good condition for deer and elk summer range. This community supports a diverse herbaceous understory that provides valuable forage during the summer months. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible.

The higher elevation upland and mountain sites, which support mountain big sagebrush communities, are generally considered to be in good condition for deer winter range habitat on this unit. These communities support robust shrub populations that provide valuable browse in mild and moderate winters. While in generally good condition, these sites appear to be prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. It is recommended that work to reduce pinyon-juniper encroachment (e.g. bullhog, chaining, lop and scatter, etc.) should continue in these communities. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible.

The mid elevation upland site supports a pinyon-Utah juniper community and is generally considered to be in very poor condition for deer winter range habitat on this management unit. This community is dominated by pinyon and juniper trees that provide good cover, but offer little to no browse or forage opportunities. This community is prone to infilling from pinyon-juniper trees which can reduce understory shrub and herbaceous cover if not addressed. It is recommended that work to reduce pinyon-juniper cover (e.g. bullhog, chaining, lop and scatter, etc.) should continue in this community. Depending on initial tree cover and residual species, reseeding may be necessary to restore herbaceous understory.

The mid elevation upland Wyoming big sagebrush communities are generally considered to be in fair condition for deer winter range habitat on this unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. These communities are prone to encroachment from pinyon-juniper trees, which can reduce understory shrub and herbaceous cover if not addressed. Also, introduced perennial grasses can dominant the herbaceous component on some of these study sites. It is recommended that work to reduce pinyon-juniper encroachment should continue

in these communities. Care should be taken in selecting treatment methods that will not increase annual grass loads. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible. Treatments to reduce annual grass may be necessary on some sites. Work to diminish fuel loads and create firebreaks should continue in order to reduce the threat of catastrophic fire.

The mid elevation upland black sagebrush communities are generally considered to be in good condition for deer winter range habitat on this unit. It is recommended that work to reduce pinyon-juniper encroachment should continue in these communities. Care should be taken in selecting treatment methods that will not increase annual grass loads. Work to diminish fuel loads and create firebreaks should continue in order to reduce the threat of catastrophic fire.

The lower elevation semidesert Wyoming big sagebrush community that has not been disturbed is generally considered to be in fair condition for deer winter range habitat on the unit. These communities are prone to wildfire and the study, which has burned since 1998, is in very poor condition. If wildfire occurs within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. These communities are susceptible to invasion from annual grass, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire on within these communities. Encroachment from pinyon-juniper trees is not typically an issue within these communities. Areas along I-15 maybe susceptible to heavy browsing due to I-15 limiting deer migration. It is recommended that work to diminish fuel loads and create firebreaks should continue within these communities in order to reduce the threat of catastrophic fire. Treatments to establish and increase browse species more rapidly following wildfire should also be implemented, and treatments to increase browse species on historic fires should be considered. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites.

The lower elevation semidesert basin big sagebrush community has not been disturbed is generally considered to be in good condition for deer winter range habitat on the unit. However, this community is prone to wildfire. If wildfire occurs within this community, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. This community is susceptible to invasion from annual grass, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire on within this community. Encroachment from pinyon-juniper trees is not typically an issue within this community.

It is recommended that work to diminish fuel loads and create firebreaks should continue within these communities in order to reduce the threat of catastrophic fire. Treatments to establish and increase browse species more rapidly following wildfire should also be implemented, and treatments to increase browse species on historic fires should be considered. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites.

## Precipitation

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (Figurea). The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011 (Figureb) (Time Series Data 2014).

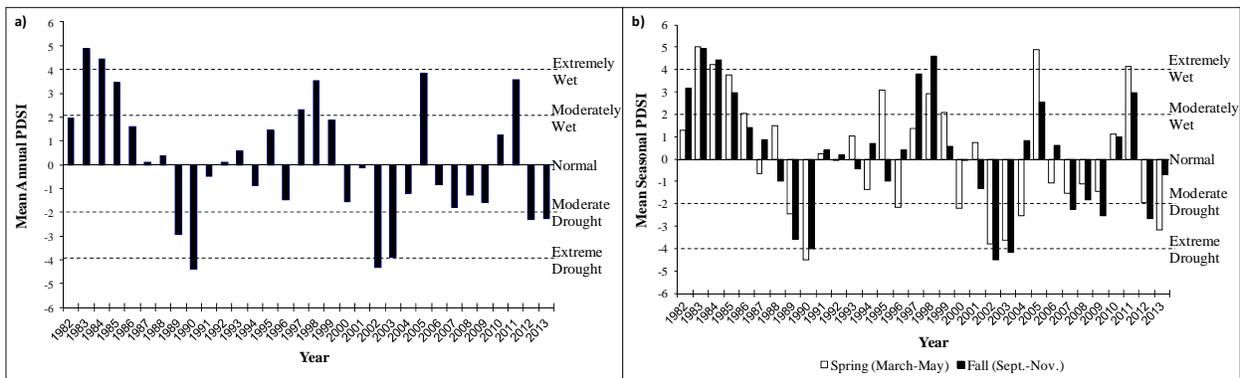


Figure 7.1: The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.).

**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 29**  
**(Zion)**  
**February 2015**

**BOUNDARY DESCRIPTION**

**Iron, Kane and Washington Counties** - Boundary begins at I-15 and the Utah-Arizona state line; north on I-15 to SR-14; east on SR-14 to US-89; south on US-89 to US-89A; south on US-89A to the Utah-Arizona state line; west on the Utah-Arizona state line to I-15.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	Year-long range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0%	60638	20%	1270	<1%
Bureau of Land Management	1270	8%	19123	6%	268291	58%
Utah State Institutional Trust Lands	52	<1%	9059	3%	37693	8%
Native American Trust Lands	0	0%	0	0%	2226	<1%
Private	14149	91%	177242	59%	87560	19%
Department of Defense	0	0%	0	0%	0	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	35501	12%	67854	15%
Utah State Parks	0	0%	0	0%	0	0%
Utah Division of Wildlife Resources	0	0%	0	0%	0	0%
<b>TOTAL</b>	<b>15471</b>	<b>100%</b>	<b>301563</b>	<b>100%</b>	<b>464894</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size - Manage for a 5-year target population of 15,500 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels. Change to population objective is based primarily on new data and models available beginning in 2013. New estimates of actual population numbers have been taken into account and the new Objective should reflect the numbers of deer that are currently on the unit.

### **Unit 29**

1994-2001 Objective: 9,000  
2002-2014 Objective: 9,000  
2015-2020 Objective: 15,500  
Change from last plan +6,500

- **Herd Composition** – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan. This unit typically exceeds the 20 bucks per 100 doe threshold post season. The unit is dominated by private lands and increases in permits have not significantly lowered the buck to doe ratio. The current hunting permits are similar to the current demand. Significant increases in buck permits will not result in more harvest if hunters can not gain access to hunt. It may only result in more trespass issues. Caution will be use when adjusting permits and trends will be considered.
- **Harvest** – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

### **POPULATION MANAGEMENT STRATEGIES**

#### **Monitoring**

- **Population Size** - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 15,000 deer.
- **Buck Age Structure** - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide uniform harvest surveys and bag checks.
- **Harvest** - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	1367	61.9	24.5	11,000	9,000	122.2%
2013	1326	58.6	23.8	13,000	9,000	144.4%
2014	1297	56.3	23.5	15,000	9,000	166.7%
3 Year Avg	1330	58.9	23.9			

#### **Limiting Factors** (May prevent achieving management objectives)

- **Crop Depredation** - Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- **Habitat** - Public land winter range availability, landowner acceptance and winter range forage conditions will determine herd size. Excessive habitat utilization will be addressed through antlerless removal.
- **Predation** - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented on that subunit.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator



## **HABITAT MANAGEMENT OBJECTIVES**

- Maintain mule deer habitat throughout the unit by protecting and enhancing existing crucial habitats and mitigating for losses due to natural and human impacts.
- Reduce highway deer mortality along Interstate I-15 south of Cedar City and along Highway 14 east of Cedar City.
- A major proportion of both summer and winter habitat for deer on this unit is on private land. Therefore, it is paramount to work with private landowners to maintain both summer and winter habitat. Currently, there is one CWMU of 13,000 acres (Mt. Carmel - Zion) in the Muddy Creek drainage on the east portion of this unit. Other landowners have expressed interest in a CWMU and they may be organized in the future.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process
- Provide improved habitat security and escapement opportunities for deer.

## **HABITAT MANAGEMENT STRATEGIES**

### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.

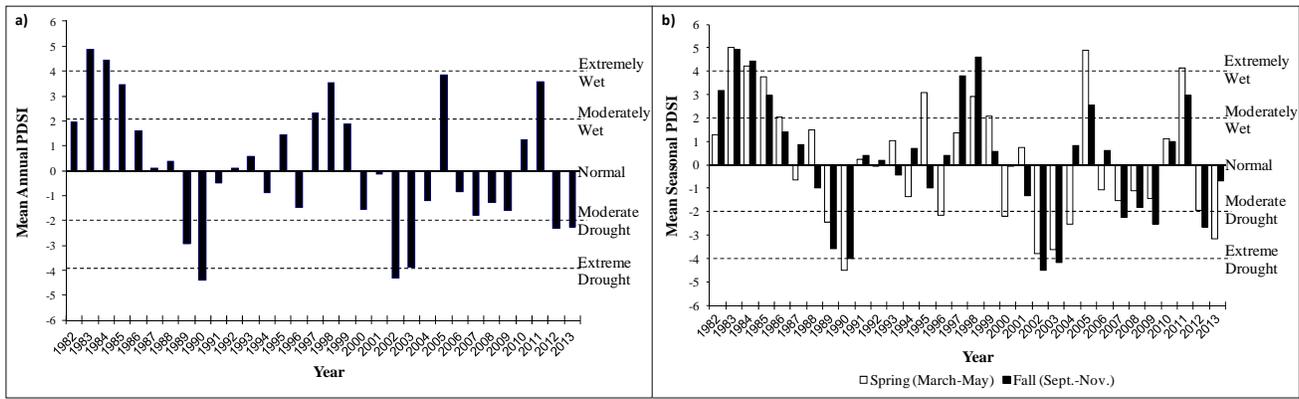
### **Habitat Protection, Improvement and Maintenance**

- Continue to work with UDOT to implement fencing and other strategies to reduce deer-vehicle collisions along I-15, SR-14, and US-89.
- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to: oil and gas development, wind energy, solar energy, and transmission line construction.
- Work toward long-term habitat protection and preservation through agreements with land management agencies and local governments, the use of conservation easements, etc. on private lands and working toward blocking up UDWR properties through land exchanges with willing partners.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects. Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and vegetated green strips, and reseed areas dominated by cheat grass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog, and chaining.

- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and escape or security areas.
- Future habitat work should be concentrated on the following areas.
  - Seek opportunities to increase browse in burned areas of critical summer and winter range.
  - Continue to reduce Pinion and Juniper encroaching into shrubland in critical winter range. Specifically on the west side of the Zion Unit from Cedar City south to Toquerville where it is adjacent to I-15 in critical winter range, and on the East Zion in the Yellowjacket area.
  - Quaking Aspen forests on higher elevation private land, NPS land, & USFS land.

**Precipitation**

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the South Central division (Division 4). The mean annual PDSI of the South Central division displayed years of moderate to extreme drought from 1989-1990, 2002-2003, and 2012-2013. The mean annual PDSI displayed years of moderate to extreme wet years from 1982-1985, 1997-1998, 2005, and 2011 (Figure 1.1a). The mean spring (March-May) PDSI displayed years of moderate to extreme drought in 1989-1990, 1996, 2002-2004, and 2013; and displayed years of moderate to extreme wet years in 1982-1985, 1993, 1995, 1999, 2001, 2005, and 2011. The mean fall (Sept.-Nov.) PDSI displayed years of moderate to extreme drought in 1989-1990, 2002-2003, 2007, 2009 and 2012; and displayed years of moderate to extreme wet years in 1982-1985, 1997-1998, 2008 and 2011 (Figure 1.1b) (Time Series Data, 2014).



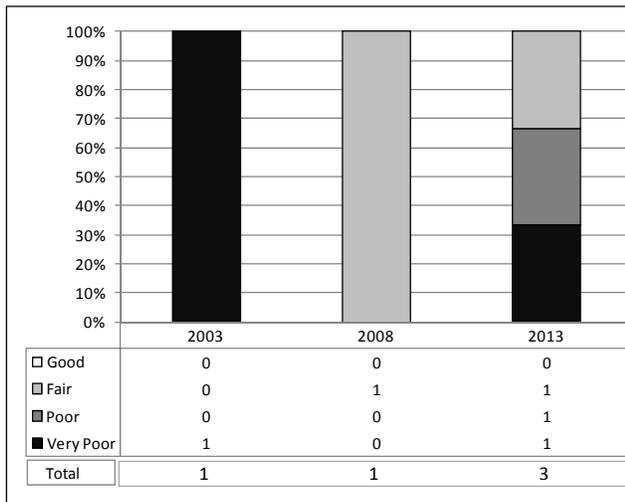
**Figure Error! No text of specified style in document..1: The 1982-2014 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.)(Time Series Data, 2014).**

**PERMANENT RANGE TREND SUMMARIES**

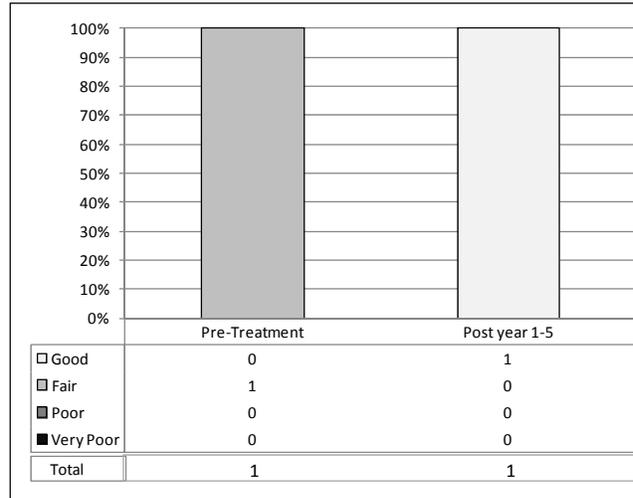
**Unit 29 Zion**

The condition of deer winter range within the Zion management unit has varied on these studies sites since 2008. The Barracks Chaining has gone from very poor to fair to poor, mainly due to sagebrush density and demographics. Kolob Terrace and Elephant Butte were added in 2013 and were considered fair and very poor respectively. The disturbed site, North Hills, was considered fair prior to treatment and good after treatment. This improvement can be contributed to a diversification of the sagebrush

population demographics as well as an increase in perennial grasses. At the last reading most sites were considered poor to fair.



**Figure Error! No text of specified style in document..2: Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 29 Zion.**



**Figure Error! No text of specified style in document..3: Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 29, Zion.**

There are currently 4 active range trend sites varying in conditions from good to very poor. The Elephant Butte site is the only site on the unit that is considered to be in very poor condition. The conditions on this site are due to either lack of diversity of demographics in the sagebrush community, or heavy pinion pine and Utah juniper encroachment causing shrub cover and herbaceous understories to decline or even be non-existent.

The condition of disturbed and treated sites typically improves with increased time on this unit. There is evidence of this on the Barracks Chaining, as well as the North Hills sites. The sagebrush densities have improved in these areas as well as the presence of distinct age classes has been observed. It is also notable that on these sites the herbaceous understory has improved but is still needing better annual and perennial forb cover.

The Higher elevation upland and mountain sites, which support mountain big sagebrush communities, are generally considered to be in good condition for deer summer habitat on the Zion management unit.

The mid elevation upland mountain big sagebrush communities are generally considered to be in fair condition for deer winter range habitat on the unit. These communities are prone to encroachment from pinion-juniper trees, which can reduce understory shrub and herbaceous health if not addressed.

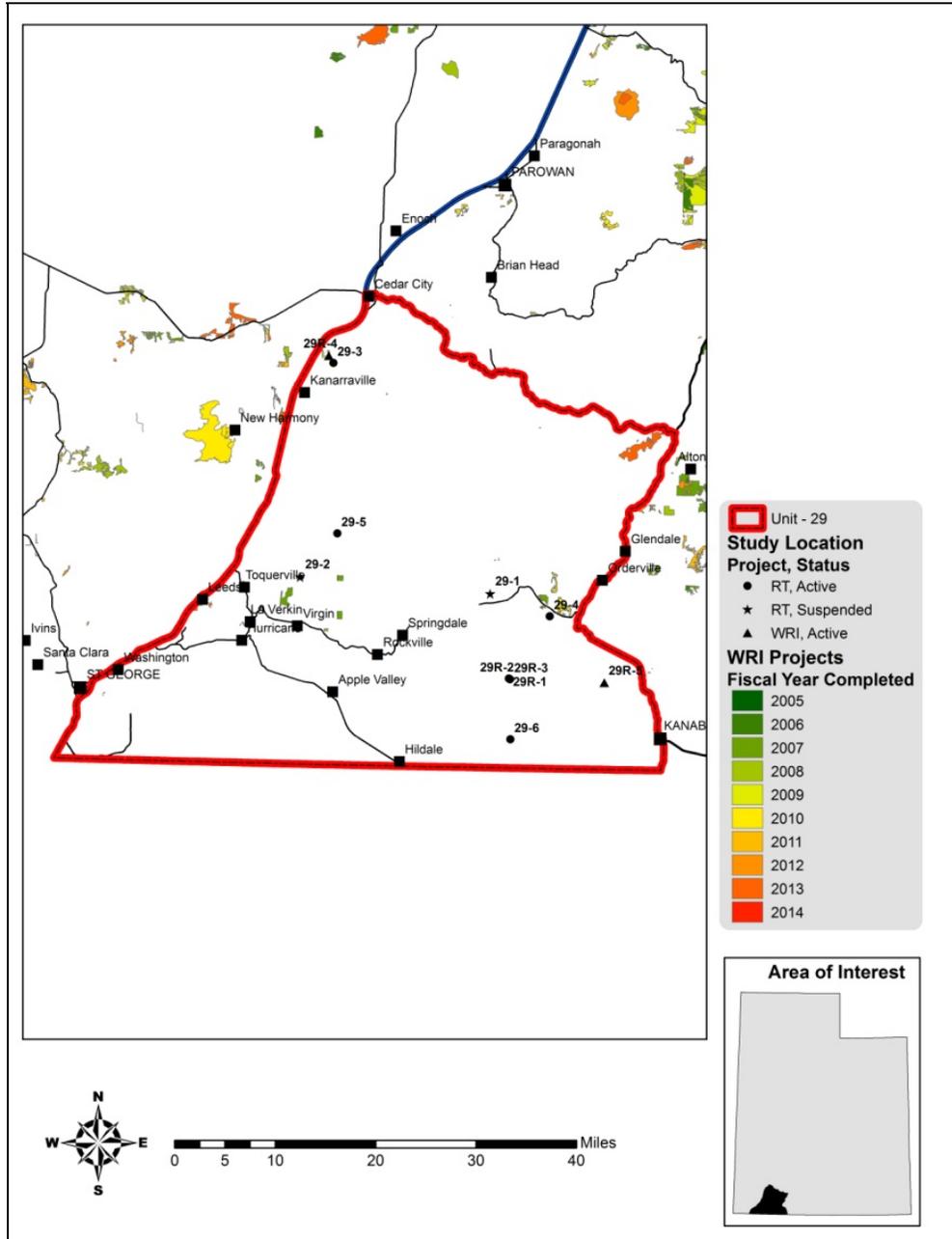
The lower elevation semidesert Wyoming big sagebrush communities that have been disturbed/treated are generally considered to be in fair to good condition

The semidesert and upland communities that are undisturbed are typically in poor or very poor condition, and are heavily invaded with pinion pine and Utah juniper and are lacking in shrub and herbaceous cover. These areas are also prone to catastrophic wildfire, and show little value as deer winter range.

### **Treatments and Restoration Work**

There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 5,509 acres of land have been treated within the Zion unit since the WRI was implemented in 2004. As seen on the map, treatments frequently overlap one another bringing the total treatment acres to 8,329 acres for this unit. Other treatments have occurred outside of the WRI through independent agencies and landowners, but the WRI comprises the majority of work done on deer winter ranges throughout the state of Utah. Treatments to reduce pinion-juniper woodlands such as bullhog, PJ push, and lop-and-scatter are among the most common management practices. The use of seeding to supplement the herbaceous understory is also very common. Other common management practices are those to rejuvenate sagebrush stands such as disking, and harrow treatments. Work in the Yellowjacket area on the Southeast side of the unit has begun since the writing of the most recent Range

Trend Report from which the summary below was taken. To date that work has included approximately 3,000 acres of Pinion-Juniper removal through bullhogging with plans to continue at a rate of 1000-2000 acres per year for the next several years.



Treatment Action	Acres
Bullhog	1,150
Disc	349
Harrow	45
Herbicide	37
PJ push	394
Seeding (primary)	5,451
Seeding (secondary/shrub)	866
Lop and Scatter	37
<b>*Total Land Area Treated</b>	<b>5,509</b>

<b>Total Treatment Acres</b>	<b>8,329</b>
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**DEER HERD UNIT MANAGEMENT PLAN**  
**Deer Herd Unit # 30**  
**(Pine Valley)**  
**February 2015**

**BOUNDARY DESCRIPTION**

**Iron and Washington counties** - Boundary begins at I-15 and the Utah-Arizona state line; north on I-15 to SR-56; west on SR-56 to the Lund Highway; northwest along the Lund Highway to the Union Pacific railroad tracks at Lund; southwest on the Union Pacific railroad tracks to the Utah-Nevada state line; south on this state line to the Utah-Arizona state line; west on this state line to I-15.

**LAND OWNERSHIP**

**RANGE AREA AND APPROXIMATE OWNERSHIP**

Ownership	Year-long range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	15557	23%	212454	67%	182357	38%
Bureau of Land Management	47018	70%	36143	11%	210905	44%
Utah State Institutional Trust Lands	830	1%	1446	<1%	22429	5%
Native American Trust Lands	0	0%	5859	2%	141	<1%
Private	3422	5%	13944	4%	64236	13%
Department of Defense	0	0%	0	0%	0	0%
USFWS Refuge	0	0%	0	0%	0	0%
National Parks	0	0%	0	0%	0	0%
Utah State Parks	0	0%	0	0%	309	<1%
Utah Division of Wildlife Resources	0	0%	0	0%	0	0%
Wilderness (USFS & BLM)	0	0%	47881	15%	2350	<1%
<b>TOTAL</b>	<b>66827</b>	<b>99%</b>	<b>317727</b>	<b>100%</b>	<b>482727</b>	<b>100%</b>

**UNIT MANAGEMENT GOALS**

- Manage for a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and viewing.
- Balance deer herd impacts on human needs, such as private property rights, agricultural crops and local economies.
- Maintain the population at a level that is within the long-term capability of the available habitat to support.

**POPULATION MANAGEMENT OBJECTIVES**

Target Winter Herd Size - Manage for a 5-year target population of 16,000 wintering deer (modeled number) during the five-year planning period unless range conditions become unsuitable, as evaluated by DWR. Range Trend data coupled with annual browse monitoring will be used to assess habitat condition. If habitat damage by deer is occurring due to inadequate habitat, measures will be taken to reduce the population to sustainable levels. Change to the population objective is based on this population's performance, improved range conditions, the amount of available habitat and the lack of range damage from deer. The population objective is being restored from its pre 2002 DCI reduction.

### **Unit 30 Population Objective History**

1994-2001 Objective: 16,000  
2002-2014 Objective: 12,800  
2015-2020 Objective: 16,000  
Change from last plan +3,200

- **Herd Composition** – This is a General Season unit and will be managed to maintain a three year average postseason buck to doe ratio of 18-20 according to the statewide plan. Caution will be use when adjusting permits and trends will be considered.
- General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts. Antlerless removal will be implemented to achieve the target population size using a variety of harvest methods and seasons. It is recognized that buck harvest may fluctuate due to climatic and productivity variables. Buck harvest strategies will be developed through the RAC and Wildlife Board process to achieve management objectives.

### **POPULATION MANAGEMENT STRATEGIES**

#### **Monitoring**

- **Population Size** - Utilizing harvest data, postseason and mortality estimates, a computer model has been developed to estimate winter population size. The 2014 model estimates the population at 13,500 deer.
- **Buck Age Structure** - Monitor age class structure of the buck population through the use of checking stations, postseason classification, statewide harvest survey data and bag checks.
- **Harvest** - The primary means of monitoring harvest will be through the statewide harvest survey and the use of checking stations.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2012	1130	60.0	23.9	12,500	12,800	97.7%
2013	1327	59.3	20.6	13,000	12,800	101.6%
2014	1305	57.8	20.1	13,500	12,800	105.5%
3 Year Avg	1254	59.0	21.5			

#### **Limiting Factors** (May prevent achieving management objectives)

- **Crop Depredation** - Strategies will be implemented to mitigate crop depredation as prescribed by state law and DWR policy.
- **Habitat** - Public land winter range availability, landowner acceptance and winter range forage conditions will determine herd size. Excessive habitat utilization will be addressed with hunting.
- **Predation** - Follow DWR predator management policy:
  - If the population estimate is less than 90% of objective and fawn to doe ratio drops below 70 for 2 of the last 3 years or if the fawn survival rate drops below 50% for one year, then a Predator Management Plan targeting coyotes may be implemented on that subunit.
  - If the population estimate is less than 90% of objective and the doe survival rate drops below 85% for 2 of the last 3 years or below 80% for one year, then a Predator Management Plan targeting cougar could be implemented on that subunit.
  - The southern and eastern portion of this unit is currently under a Harvest Objective cougar management plan with the recent bighorn sheep transplants and the planned additional bighorn sheep transplants. Deer in the Browse and Beaver Dam mountain area will also benefit from this cougar management strategy.

- Highway Mortality - DWR will Cooperate with the Utah Dept. Of Transportation to construct highway fences, passage structures and warning signs etc if needed. Mortality along I-15, SR-56, SR-18 has been significant. At several locations on SR-56, SR-18, New Harmony and Newcastle bench roads flashing deer crossing signs have been installed in cooperation with the Utah Dept. Of Transportation, Iron and Washington County road departments. Deer fencing has been installed along I-15 between Cedar City and New Harmony. Highway mortality will be monitored and additional highway fences, passage structures and warning signs will be added if needed.
- Illegal Harvest - If illegal harvest is identified as a limiting factor, a unit specific action plan will be develop in cooperation with the Law Enforcement Section.

### **HABITAT MANAGEMENT OBJECTIVES**

- Maintain or enhance forage production through direct range improvements on winter and summer deer range throughout the unit to achieve population management objectives.
- Maintain critical fawning habitat in good condition. Fawn recruitment is a major concern on this unit and may be the single greatest factor limiting the population.
- Work with federal and state partners in fire rehabilitation and prevention on crucial deer habitat through the WRI process
- Manage public lands adjacent to areas with heavy agricultural depredation to promote deer use during late summer.
- Maintain and protect critical winter range from future losses. Acquire critical winter range when the opportunity arises.

### **HABITAT MANAGEMENT STRATEGIES**

#### **Monitoring**

- Determine trends in habitat condition through permanent range trend studies, spring range assessments, pellet transects, and field inspections. Land management agencies will similarly conduct range monitoring to determine vegetative trends, utilization and possible forage conflicts.
- Range trend studies will be conducted by DWR to evaluate deer habitat health, trend, and carrying capacity using the deer winter range desirable component index (DCI) and other vegetation data. The DCI was created as an indicator of the general health of deer winter ranges. The index incorporates shrub cover, density and age composition as well as other key vegetation variables. Changes in DCI suggest changes in winter range capacity. However, the relationship between DCI and the changes in deer carrying capacity is difficult to quantify.
- Continue existing monitoring studies, and coordinate with BLM on additional riparian monitoring.
- Seek opportunities to partner with Universities to coordinate research in areas of need.

#### **Habitat Protection, Improvement and Maintenance**

- Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.
- Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality including but not limited to oil and gas development, wind energy, solar energy, and transmission line construction.
- Coordinate with federal and state partners in designing projects that will improve fire resiliency and protect areas of crucial habitat.

- Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands. Continue working toward blocking up UDWR properties through land exchange.
- Manage vehicle access on Division of Wildlife Resources land to limit human disturbance during times of high stress, such as winter and fawning.
- Manage riparian areas in critical fawning habitat to furnish water, cover and succulent forage from mid- to late summer.
- Protect riparian areas to furnish cover, water and succulent forage adjacent to areas with historic agricultural damage.
- Provide guzzlers or other water sources where needed on critical summer fawning areas or in times of severe drought.
- Cooperate with federal land management agencies and private landowners in carrying out habitat improvement projects.
- Protect deer winter ranges from wildfire by reseeding burned areas, creating fuel breaks and vegetated green strips and reseed areas dominated by Cheat grass with desirable perennial vegetation.
- Reduce expansion of Pinion-Juniper woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog, and chaining.
- Seek opportunities to increase browse in burned areas of critical winter range.
- Cooperate with federal land management agencies and local governments in developing and administering access management plans for the purposes of habitat protection and escape or security areas.
- Seek out opportunities to improve fawning habitat across the unit. Consider summer range habitat improvement projects that remove encroaching trees, improves succulent vegetation and wet meadow habitat, increases aspen recruitment, enhances and/or protects riparian areas, use prescribed fire to promote early succession habitats where appropriate.
- Future habitat work should be concentrated on the following areas.
  - Landscape level watershed improvements on the Pine Valley Ranger District of the Dixie National Forest with a focus on transitional ranges
  - Water developments for Mule Deer on federal and state land.
  - Retreatment of older treatments (>10years) to protect investment through maintenance.
  - Continued habitat improvements in the Swett Hills/Duncan Creek.
  - Look for opportunities to implement projects that reduce highway mortality to Mule Deer on highway 56 and 18.

### **RANGE TREND SUMMARY**

The following is a summary of the Pine Valley Unit range trend report that is found in the *Utah Big Game Range Trend Unit Summaries 2013 Wildlife Management Units 22, 24, 25A, 25B, 25C, 27, 28, 29, 30 . Publication # 14-16. Utah Division of Wildlife Resources. 2013.* The full report can be viewed at the UDWR's regional office in Cedar City Utah or at the UDWR Headquarters in Salt Lake City Utah. An online version of the report will become available and currently you can access most of the results online at: <http://wildlife.utah.gov/range/statewide%20management%20units.htm>

## **PINE VALLEY RANGE TREND SUMMARY**

### **Management Unit Description**

#### *Geography*

The Pine Valley wildlife management unit is located in the southwest corner of Utah. It includes three physiographic regions: Mojave Desert, Great Basin, and Colorado Plateau. The Mojave Desert is located in the southern portion of the unit. The Great Basin is located in the central and northern sections of the unit. The eastern section of the unit, mainly the Pine Valley Mountains and Harmony Mountains, are on the western edge of the Colorado Plateau. These physiographic regions have a diverse array of vegetation communities and transitional communities that are important areas for wildlife.

#### *Climate Data*

The 30-year (1981-2010) annual precipitation PRISM model shows precipitation ranges on the unit from 7 inches on the southern part of the unit to 35 inches on the high elevation peaks of the Pine Valley Mountains. All of the Range Trend and WRI monitoring studies on the unit occur within the 11-31 inch precipitation zone (Map 9.1) (PRISM Climate Group, Oregon State University, 2013).

Vegetation trends are dependent upon annual and seasonal precipitation patterns. Palmer Drought Severity Index (PDSI) data for the unit were compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the Western (Division 1), Dixie (Division 2), and South Central (Division 4) divisions. This data is summarized in **Figure 9.1** on the following page.

## Big Game Habitat

### Summer Range

Summer range is confined to elevations above 6,000 to 6,500 feet on the New Harmony and Pine Valley Mountains. The summer range consists of dense conifers with a few aspen clones and dry meadows at higher elevations and mixed oak brush, mountain brush, southern desert shrub, and sagebrush-grass at lower elevations. Part of the summer range is within the officially designated wilderness area. The vegetation characteristics of the Harmony Mountain and lower slopes of Pine Valley are principally oak brush and mountain brush. Aspen and conifer are common on the higher portions of the Pine Valley Mountains, but much less prevalent on the Harmony Mountains. Sagebrush-grasslands and meadows can be found at the summit of the Harmony Mountains. These areas are important for deer during a short period in the summer months. However, these areas have been heavily impacted by cattle. Many similar sagebrush grasslands and meadows occur on the northern end of the Pine Valley Mountains. Summer deer concentrations are primarily on Harmony Mountain and the north end of the Pine Valleys.

### Winter Range

Herd unit 30 winter range varies greatly, depending upon elevation. North of the Great Basin-Colorado River divide, pinion-juniper and sagebrush-grass predominate. South of the divide, pinion-juniper is still prevalent but there are increasing amounts of desert shrub dominated by shrub live oak (*Quercus turbinella*) and other browse species not often found in the north. Both areas possess important acreages of seeded range, most notably east of Pinto at Page Ranch, Woolsey Ranch, New Harmony and Pintura Bench. Deer tend to congregate in these

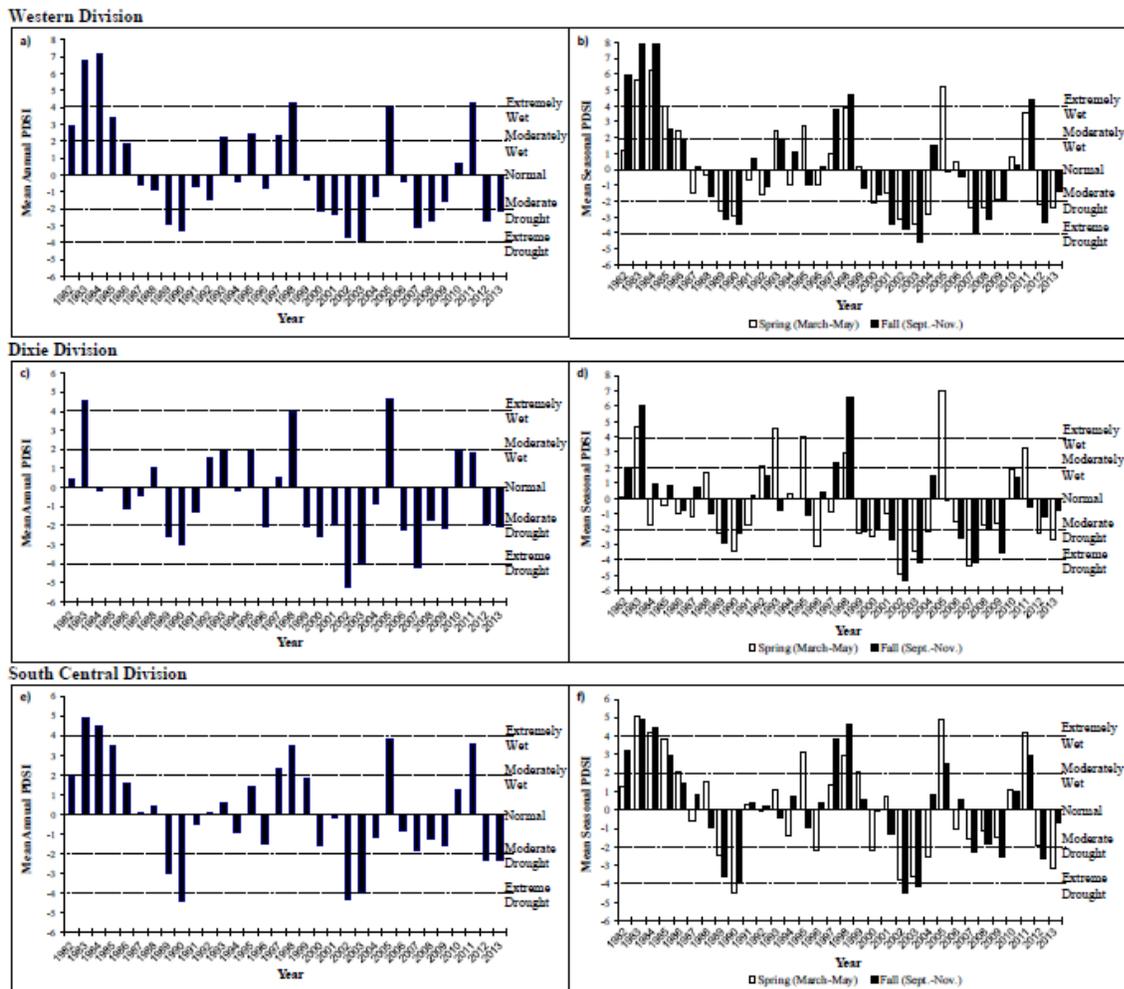


Figure 9.1: The 1982-2014 Palmer Drought Severity Index (PDSI) for the Western, Dixie, and South Central division (Divisions 1, 2, and 4). The PDSI is based on climate data gathered from 1895 to 2013. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is  $\geq 4.0$  = Extremely Wet, 3.0 to 3.9 = Very Wet, 2.0 to 2.9 = Moderately Wet, 1.0 to 1.9 = Slightly Wet, 0.5 to 0.9 = Incipient Wet Spell, 0.4 to -0.4 = Normal, -0.5 to -0.9 = Incipient Dry Spell, -1.0 to -1.9 = Mild Drought, -2.0 to -2.9 = Moderate Drought, -3.0 to -3.9 = Severe Drought and  $\leq -4.0$  = Extreme Drought (Time Series Data 2014). a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2014).

areas, especially the latter three. Additional winter range in the Pine Valley unit can be found south of Pintura, but currently supports few deer. Winter range is extensive, but not uniformly utilized. Pinion-juniper is the dominant vegetation type, but there are also other vegetation types that include large areas of sagebrush-grass, southern desert shrub, oak brush, and mountain brush. Important critical winter concentration areas include the area east of Central, the lower Pinto Creek drainage, the Antelope Range, Iron Mountain, the Shoal Creek drainage, Moody Creek, Tobin Bench, and the middle portion of the East Fork of Beaver Dam Wash. Only during the most severe winters do deer utilize the lower portions of the winter range, especially the Mojave Desert areas. During the spring, summer, and fall, crucial concentration areas include the higher elevations of the Bull Valley Mountains, Lost Peak, Maple Ridge, the slopes surrounding Pine Valley Reservoir, the meadows of the Whipple Valley area, and Flattop Mountains.

#### *Limiting Factors to Big Game Habitat*

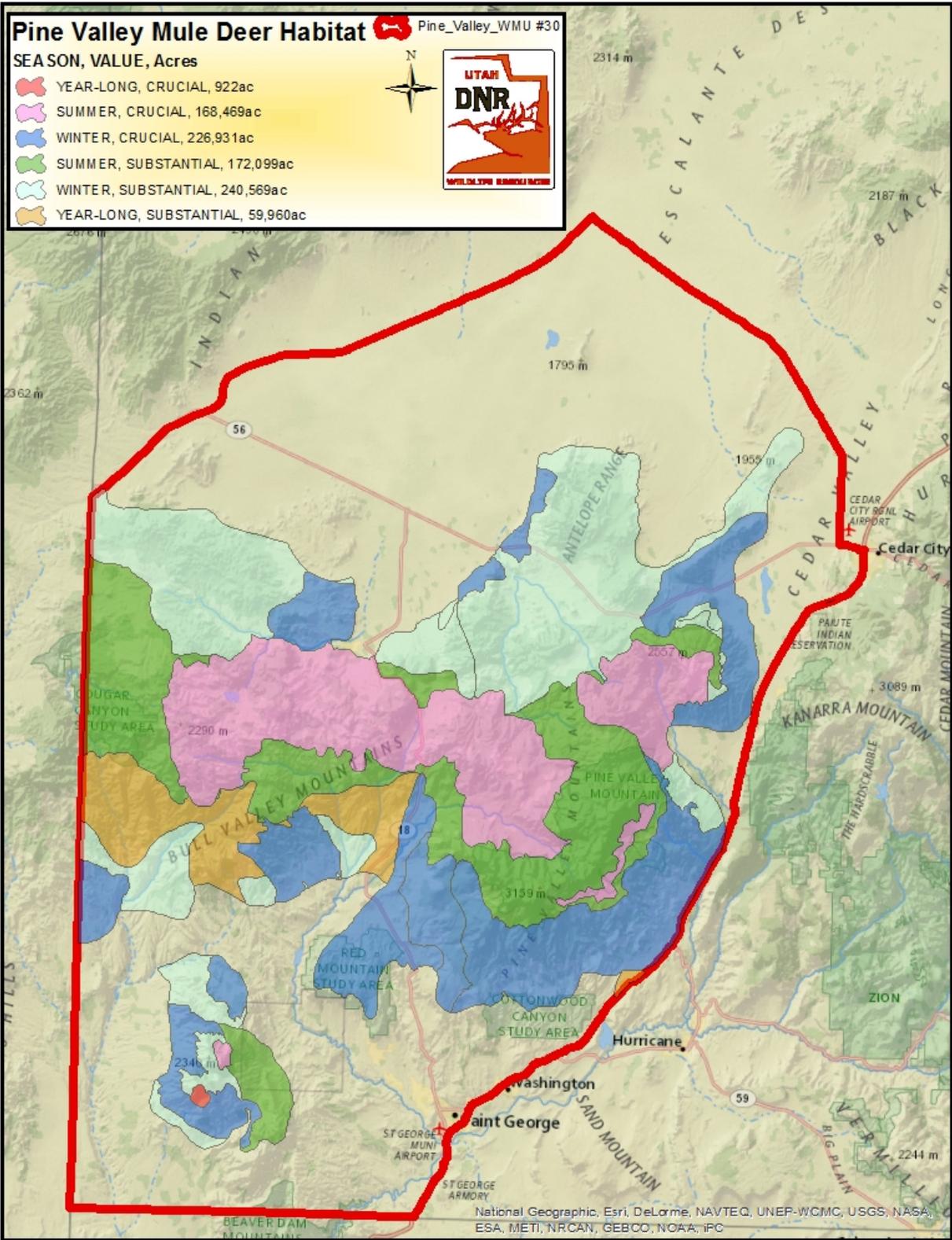
Mortality of deer has been significant along I-15, SR-56, and SR-18. Deer proof fencing has been erected along I-15, impeding deer movement. Fencing may pose some barrier to deer migration to the wintering grounds.

Wildfire has had a significant impact on deer habitat in the southern and western portions of this unit in recent years. From 2000-2012, over 700,000 acres have burned in unit 30 in a variety of vegetative types. The abundance of cheat grass, primarily within the lower elevation sagebrush communities, increases the threat of catastrophic wildfires within the unit.

In addition to wildfire, severe flooding in January 2005 likely impacted deer habitat that drastically altered riparian communities along Moody Wash, Mogatsu Creek, Beaver Dam Wash, Santa Clara River, Virgin River, and neighboring drainages. Results of these events will likely impact deer use of these areas for several years.

Encroachment by pinion-juniper woodland communities also poses a substantial threat to important sagebrush rangelands. Encroachment and invasion of these woodlands into sagebrush communities has been shown to decrease the sagebrush and herbaceous components, and therefore decreases available forage for wildlife.

# Overview Map of Pine Valley Unit Mule Deer Habitat



## Range Trend Studies

Range Trend studies have been sampled within WMU 30 on a regular basis since 1982, with studies being added or suspended as was deemed necessary (see full report or online report for a comprehensive list of study areas). Several of the range trend studies have been suspended over the sample years. Due to changes in sampling methodologies, only data sampled following the 1998 sample year are included in this summary. Monitoring studies of WRI projects have been sampled since 2004. When possible, WRI monitoring studies are established prior to treatment and sampled on a regular basis following treatment.

Range Trend studies that have not had recent disturbance or treatments are summarized in this report by ecological site or potential. Range Trend and WRI studies that have a disturbance or treatment during the reported sample period are summarized by the disturbance or treatment type. For a comprehensive report for each treatment type associated with the range trend site please refer to the full report. The full report can be viewed at the UDWR's regional office in Cedar City, Utah or at the UDWR Headquarters in Salt Lake City. An online version of the report will become available and currently you can access most of the results online at:

<http://wildlife.utah.gov/range/statewide%20management%20units.htm>

### Deer Winter Range Condition Assessment

The condition of deer winter range on the untreated sites within the Pine Valley management unit has generally improved on the study sites sampled since 2003. The majority of sites sampled within the unit are considered to be in fair to good condition based on the most current sample data (Figure 9.33 and Figure 9.34 below). The two undisturbed study sites that are currently considered to be in very poor condition is the North Hills and Wide Canyon 2 studies, which have a poor herbaceous understory and are dominated by cheat grass. The majority of disturbed or treated study sites ranked as being in poor or very poor condition after disturbance are those burned by wildfire or sites with high amounts of cheat grass being sampled. These study sites generally are still lacking in available browse species, and/or typically have increased amounts of cheat grass.

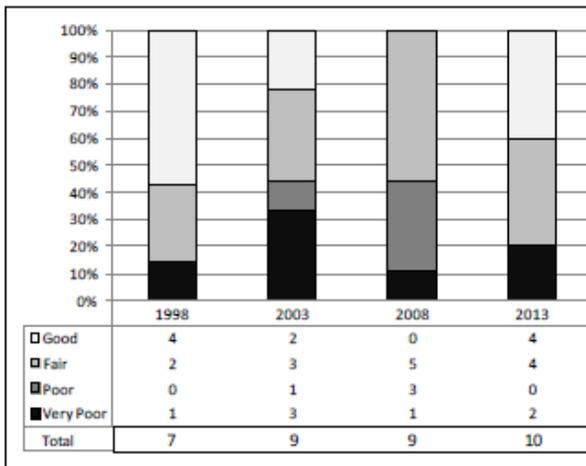


Figure 9.33: Deer winter range Desirable Components Index (DCI) summary by year of undisturbed sites for WMU 30, Pine Valley.

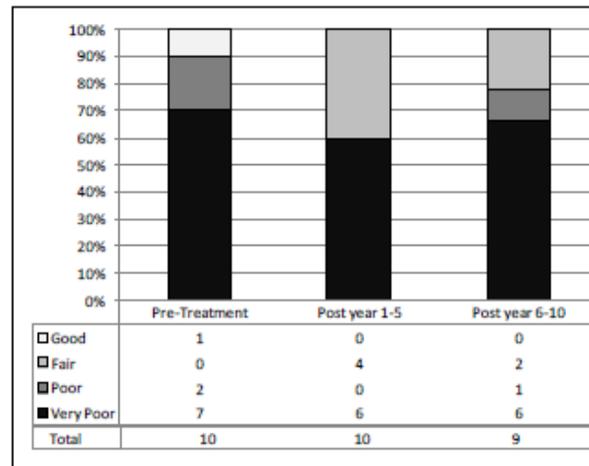
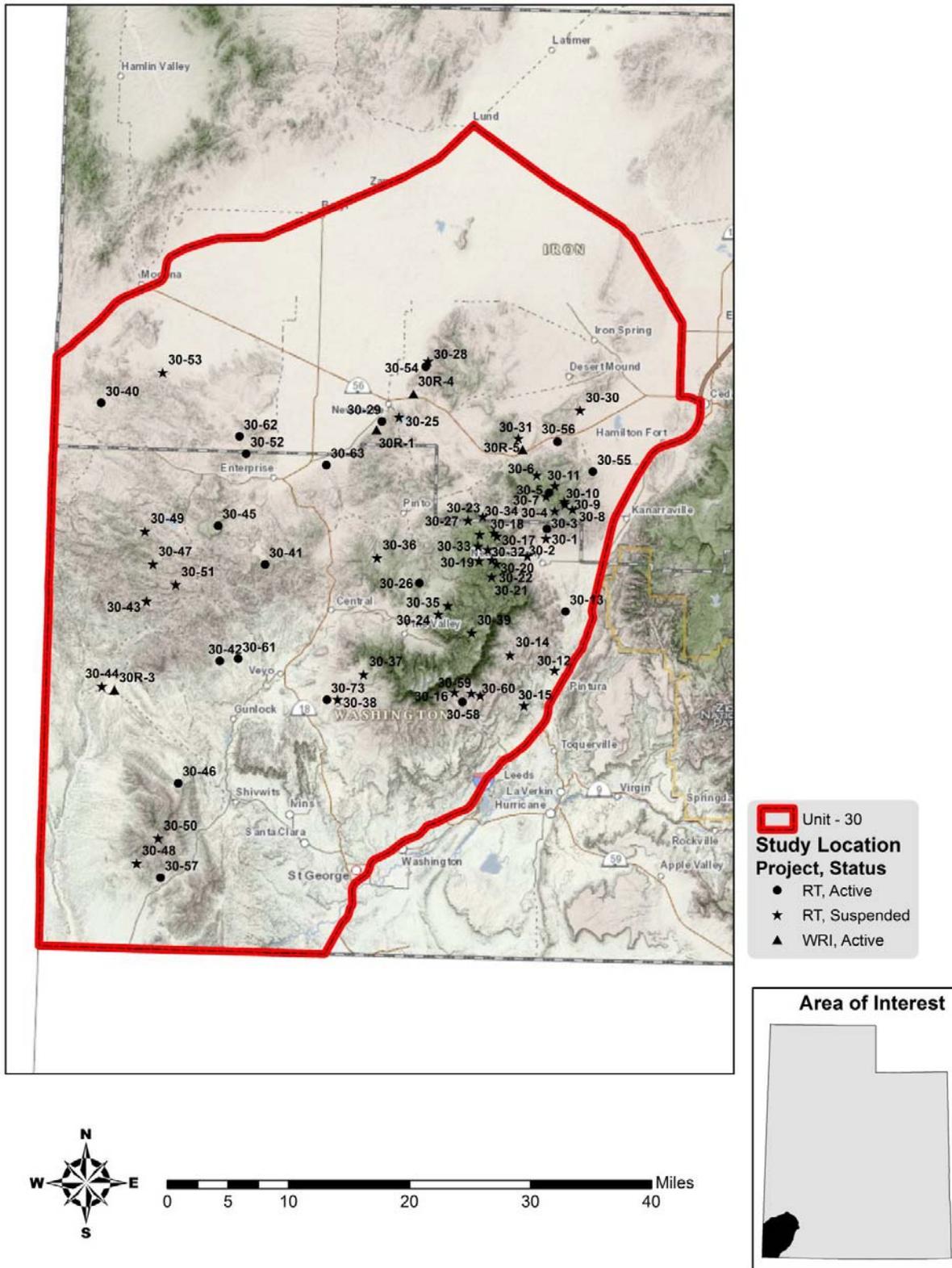


Figure 9.34: Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 30, Pine Valley.

**Pine Valley Range Trend Study Locations – Long Term and WRI**



**Summary of Conditions and Recommendations for Pine Valley Ecological Sites**

### *Mountain (Oak)*

The higher elevation mountain sites, which support Gambel oak communities, are generally considered to be in good condition for deer winter range habitat on the Pine Valley management unit. These communities support robust shrub populations that provide valuable browse in mild winters. While in generally good condition, these sites appear to be prone to wildfire with both of these sites having burned over the course of the sample years. In addition, introduced perennial grass is the dominant herbaceous component on the Spirit Creek South Burn site, which was seeded with introduced grass where as the Flat Top Mountain site was not seeded. While providing valuable forage, these grass species can often be aggressive at higher elevation and precipitation, and can reduce the abundance of other more desirable native grass and forb species.

It is recommended these communities be managed to maintain healthy browse and diverse herbaceous components. When reseeding is necessary to restore herbaceous species, care should be taken in species selection and preference should be given to native grass species when possible.

### *Mountain and Upland (Mountain Big Sagebrush)*

The higher elevation upland and mountain sites, which support mountain big sagebrush communities, are generally considered to be in good condition for deer winter range habitat on the Pine Valley management unit. With the exception being those sites that have been burned or have high abundance of cheat grass with depleted herbaceous understory. These communities support robust shrub populations that provide valuable browse in mild and moderate winters. While in generally good condition, these sites appear to be prone to encroachment from pinion-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. In addition, introduced perennial grasses are often the dominant herbaceous component on these study sites. While providing valuable forage, these grass species can often be aggressive at higher elevation and precipitation and can reduce the abundance of other more desirable native grass and forb species.

It is recommended that work to reduce pinion-juniper encroachment (e.g. bullhog, chaining, lop and scatter, etc.) should continue in these communities. When reseeding is necessary to restore the herbaceous understory, care should be taken in species selection and preference should be given to native grass species when possible.

### *Upland (Wyoming Big Sagebrush, Shrub, and, Shrub Liveoak)*

The mid elevation upland Wyoming big sagebrush and shrub communities that have not been disturbed are generally considered to be in fair condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire and the study, which burned in 2006, is in very poor condition. If wildfire occurs within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. These communities are prone to encroachment from pinion-juniper trees, which can reduce understory shrub and herbaceous health if not addressed. Annual grass, primarily cheat grass, can also be an issue within these communities. Increased amounts of cheat grass can increase fuel loads and the threat of wildfire within these communities.

It is recommended that work to reduce pinion-juniper encroachment should continue in these communities. Care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites. Work to diminish fuel loads and create firebreaks should continue in order to reduce the threat of catastrophic fire.

### *Semidesert (Wyoming Big Sagebrush and other browse)*

The lower elevation semidesert Wyoming big sagebrush and other browse communities that have not been disturbed are generally considered to be in fair condition for deer winter range habitat on the unit. These communities support robust shrub populations that provide valuable browse in moderate to severe winters. However, these communities are prone to wildfire and those studies, which have burned since 1998, are in poor to very poor condition. If wildfire occurs within these communities, they lose most of their value as deer winter range and reestablishment of valuable browse species is typically slow. These communities are susceptible to invasion from annual grass, primarily cheat grass. Increased amounts of cheat grass can increase fuel loads and increase the threat of wildfire on within these communities. Encroachment from pinion-juniper trees is not typically an issue within these communities.

It is recommended that work to diminish fuel loads and create firebreaks should continue within these communities in order to reduce the threat of catastrophic fire. Treatments to establish and increase browse species more rapidly following wildfire should also be implemented, and treatments to increase browse species on historic fires should be considered. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites.

**Habitat Treatments**

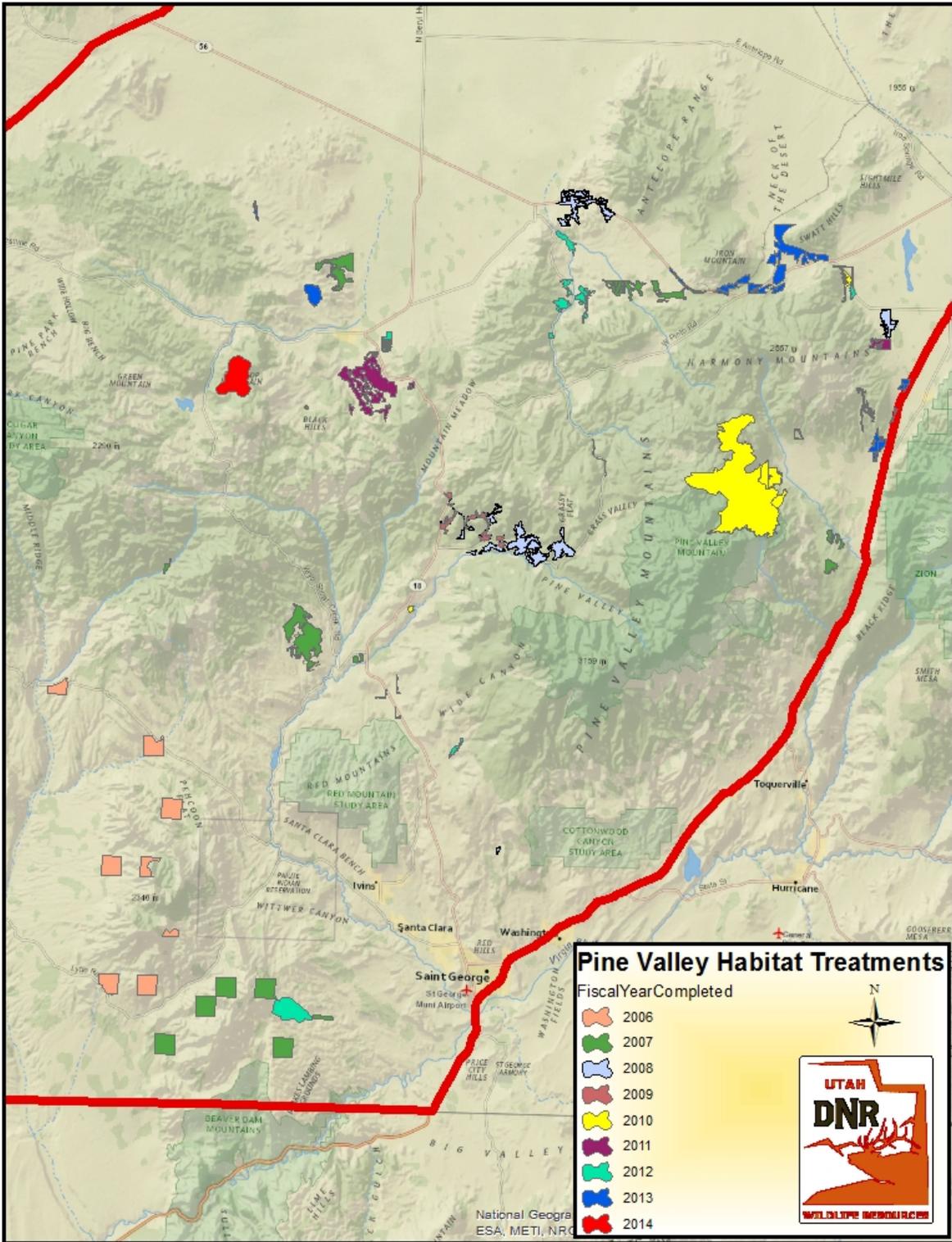
There has been an active effort to address many of the limitations on this unit through the Watershed Restoration Initiative (WRI). A total of 40,535 acres have been treated within the Pine Valley unit since the WRI was implemented in 2004 (See Map on Following Page). Treatments frequently overlap one another bringing the total treatment acres to 40,535 acres for this unit (see Table 9.4 below). Other treatments have occurred outside of the WRI through independent agencies and landowners, but the WRI comprises the majority of work done on deer winter ranges throughout the state of Utah.

The majority of treatment acreage, especially seeding, was done in conjunction with restoration efforts of wildfires within the unit. Treatments to reduce pinion-juniper woodlands such as bullhog, chaining, and lop-and-scatter are the next most common management practices. Other common management treatments are those to rejuvenate sagebrush stands such as chaining and harrow treatments are common. Herbicide treatments within the unit are primarily used to control cheat grass and restore other more desirable species.

<b>Treatment Action</b>	<b>Acres</b>
Bullhog	8,186
Chaining	1,123
Greenstripping	264
Harrow	526
Herbicide application	816
PJ push	41
Road decommissioning	11
Seeding (primary)	26,406
Seeding (secondary/shrub)	1,933
Lop and Scatter	1,230
<b>*Total Land Area Treated</b>	<b>22,566</b>
<b>Total Treatment Acres</b>	<b>40,535</b>

Table 9.4: WRI treatment action size (acres) for WMU 30, Pine Valley.

\*Does not include overlapping treatments.



Map showing Pine Valley Habitat Treatments by Fiscal Year Completed. The map includes a legend, a north arrow, and the Utah DNR logo. The legend shows colored shapes for each year: 2006 (orange), 2007 (green), 2008 (light blue), 2009 (red), 2010 (yellow), 2011 (purple), 2012 (teal), 2013 (blue), and 2014 (dark red). The map shows various study areas like Red Mountain, Cottonwood Canyon, and Pin Valley Mountain, along with geographical features like the Snake River and various mountain ranges.

# **DRAFT**

## **EXECUTIVE SUMMARY**

### **Middle Fork Wildlife Management Area Habitat Management Plan April 2015**

**Primary Purpose of the WMA:** To preserve and protect big game winter range and wintering animals, and to reduce deer and elk depredation on surrounding private property. Provide recreational opportunities which are consistent with and support these wildlife values, and that also support the intent of the Utah State Legislature in creating the WMA.

**Wildlife Species:** Mule deer, Rocky Mountain elk, moose, Rio Grande turkey, upland game (grouse and dove), Bonneville cutthroat trout, neotropical migrant birds, small mammals, and bald eagle.

**Habitat Conditions/Problems:** The south and south-western facing lower elevation slopes have lost many of the perennial grass and browse species important for wintering deer and elk. These species have been lost due to wildfires, past spraying activities, an increase in annual and invasive grass species and drought. Development on crucial big game winter ranges throughout Ogden Valley has led to a significant decrease in available winter range and a concentration of animals onto the WMA. Past human disturbances to wintering wildlife on the WMA contributed to big game animals moving to adjacent agricultural and residential lands, subsequently causing depredation problems. The loss of winter ranges throughout Ogden Valley is continuing to force some animals into developments. Currently, some human trespass occurs during the winter closure period by shed antler hunters and by the public pursuing winter recreation opportunities.

There is high public use of the property due to the proximity to the Wasatch Front, especially by equestrian users. When the property is open to public use, some vandalism and litter problems occur. The high, non-consumptive, recreational uses have caused some concern among consumptive users in terms of access, and a concern with hunting around these users. Horse riders also dump the manure out of their horse trailers throughout the trailhead area.

**Access Plan:** Currently, the public has non-motorized access to the property annually from the second Saturday of April through December 31. The property is closed to all public access outside of this time to protect wintering big game animals. Additional access items which need to be addressed include:

- Negotiate an agreement with an adjacent landowner for perpetual access to the property on the existing entrance road or construct a new access road.
- Continue to enforce public access winter closure periods and camping restrictions to protect wintering wildlife, habitat and to provide for an equitable distribution of public use of the property.

- When the property is within a hunt unit boundary where late season hunts are available, public non-motorized access to the WMA may be provided to hunters with valid hunting tags for this unit.
- Develop parking lot/trailhead area to accommodate increased visitor day use and overnight camping. Evaluate camping uses on the property to determine impacts to wildlife and wildlife habitats.
- UDWR may determine to undertake a public use survey to quantify and qualify uses of the WMA.
- Coordinate with local trails groups to create trail connections to other nearby trails. Trails on MFWMA would be available outside of the winter closure period.

**Maintenance Activities:**

- Complete the posting of signs on boundary locations.
- Wildlife pond maintenance in cooperation with the irrigation company.
- New fences should be installed in certain sections of the south-western and western boundary to prevent livestock trespass and secure the boundary.
- Additional activities include: regular fence, parking lot and road maintenance; sign replacement; noxious weed control (chemical, biological, mechanical); and restroom facility maintenance. These maintenance activities will be conducted on an “as needed” basis.

**Habitat Improvements:**

- Implement habitat improvement projects on south facing slopes below 7,000’ to enhance crucial big game winter range habitats. Increase browse density through seeding and seedling transplants.
- The Middle Fork of the Ogden River is a candidate stream for removal of non-native trout and reintroduction of Bonneville cutthroat trout.
- Green strips should be created and planted with forage kochia at selected locations to prevent and reduce the spread of wildfire and to enhance range forage conditions.
- Use grazing as needed as a management tool to create/enhance wildlife habitat.
- Work with private landowners surrounding the WMA and the Laub CE to conserve and protect properties which support crucial big game winter ranges and sharp-tailed grouse habitats.
- Work with the two land owners of the UDWR held Laub Conservation Easement to reflect the new fee title ownership of the land and to also address UDWR desires to amend the CE language to more fully protect wildlife interests.

**DRAFT**  
**Middle Fork**  
**Wildlife Management Area**

**-Habitat Management Plan-**

**April 2015**

**Prepared by:**

**Utah Division of Wildlife Resources**

**Northern Region**

**515 East 5300 South**  
**Ogden, Utah 84405**



**DRAFT**  
**Middle Fork Wildlife Management Area**  
**Habitat Management Plan**  
**April 2015**

**I. Background Information**

**Location**

The Middle Fork of the Ogden River Wildlife Management Area (MFWMA) encompasses major portions of the Middle Fork of the Ogden River and Geertsen Creek drainages, and is located primarily northeast of Huntsville Town, Weber County, Utah. The 15,080 acre property includes 9,520 acres to which the Utah Division of Wildlife Resources (UDWR) holds fee simple title, 880 acres in a perpetual conservation easement held by UDWR, and 4,760 acres of U.S. Forest Service lands. The U.S. Forest Service land is cooperatively managed under a Memorandum of Understanding between UDWR and the U.S. Forest Service (2014 MOU). This MOU identifies management responsibilities for the agencies to cooperatively manage the area as a wildlife management area.

The WMA boundary, landownership, and access maps are in Appendix A. The WMA legal description is located in Appendix B. The MOU document is located in Appendix C. The Laub Conservation Easement is located in Appendix D.

**Encumbrances**

Grazing: There are no active grazing leases on the property.

Water Rights: UDWR does not have any water rights on the WMA as this area of Weber County is considered a “closed basin” and only “Exchange” water rights are available through Weber Basin Water Conservancy District. There are several water rights by other individuals and entities that were filed on the WMA prior to UDWR ownership. These water rights include:

**Table 1. Water Rights on the MFWMA.**

<b>Water Right Number</b>	<b>Owner</b>	<b>CFS</b>	<b>Status</b>	<b>Priority Date</b>	<b>Source</b>
35-7213	Middle Fork Irrigation Co.	not stated	Ogden River Decree	1863	Spring
35-7212	Middle Fork Irrigation Co.	3.98 cfs	Ogden River Decree	1863	Middle Fork Ogden River
35-7370	Joseph Ferrin	0.40 cfs	Ogden River Decree	1895	Geertsen Creek

To the best of our knowledge, the water rights of Joseph Ferrin are not being actively used by any individual or entity. The Middle Fork Irrigation Company uses its water rights annually during the irrigation season. The water flows from the Middle Fork of the Ogden River through a canal to a water storage pond constructed for wildlife purposes. A canal then carries water from the pond, through the MFWMA parking lot area, and into the irrigation water canal distribution system, which subsequently leaves the WMA.

UDWR does hold 24 shares of water in the Middle Fork Irrigation Company (Certificate #36) that were acquired with the acquisition of the property. These water shares have been used to irrigate wildlife plantings and are currently being used to maintain the 4-5 acre wildlife pond on the irrigation canal system.

Easements/Rights-of-Way (ROW's)/MOU's:

A full summary of all easements, ROW's and MOU's can be reviewed in UDWR's Salt Lake Office. All the easements were granted before UDWR acquired the lands. The following easements currently have the greatest impact on land management activities.

- Utah Power and Light (UP&L) (now Rocky Mountain Power) has a 230kv transmission line that crosses the property. This is the Ben Lomond to Naughton line that is roughly orientated northeast to southwest with a 130 foot wide right of way. UP&L has an additional 65 foot right of way south of the line for ingress and egress. This access road is also used by UDWR for administrative purposes. Rocky Mountain power occasionally removes vegetation under the powerline to reduce the risk of wildfires damaging their poles and transmission lines.
- The Middle Fork Irrigation Company maintains a diversion structure on the Middle Fork of the Ogden River. This diversion transports water from the river through a ditch/canal system (and through the wildlife pond) which then leaves the WMA west of the parking area. Another canal transporting water from the South Fork of the Ogden River, enters the WMA from the southeast, then joins the Middle Fork Irrigation Company canal just before it leaves the western edge of the WMA.
- In 1986, the U.S. Forest Service and UDWR entered into an MOU for management of isolated USFS lands located within and adjacent to the Middle Fork WMA boundary. In 2009, the USFS requested this MOU be updated into their new MOU template. This MOU was signed in November 2014. A copy of this MOU is in Appendix C.

Mineral Rights:

Mineral right information is available in UDWR's Salt Lake Office. In summary, the mineral rights on the property have been claimed by the United States of America, the Union Pacific Railroad, and the State of Utah. There are no active mining activities on the WMA, and UDWR is unaware of any surface or subsurface mineral resources.

## **Land Acquisition History**

In 1985, the Utah State Legislature, in General Session, appropriated funds to acquire the Middle Fork of the Ogden River WMA. (Middle Fork Ogden River Appropriation, S.B. 201). This was the first of several annual payments made between 1985-1990. The MFWMA lands were formerly owned by John H. and Cynthia Laub. Due to bankruptcy, the First Security Bank, N.A., sold the property to UDWR. Property acquisition occurred over a 5 year period with the Utah State Legislature appropriating funds each year. Senate Bill 201 specified that the property would be used “for recreational opportunities and wildlife habitat”. In addition, the “property shall be designated as mitigation land for future water developments”. A review of the minutes of the 1985 General Session suggest that it was the intent of the Legislature to have this land available in the event that additional reservoirs were constructed in Utah, and lands were needed for mitigation to replace acreage lost to reservoir construction. As of this date, the Middle Fork WMA has not been used as mitigation for any reservoir construction. A copy of this bill can be found in UDWR NRO files.

No Pittman-Robertson or Dingell-Johnson funds were used for this acquisition and the property has not been subsequently encumbered by Federal Aid.

In August 1985, John and Cynthia Laub also granted a conservation easement to UDWR on 880 acres adjacent to the western edge of the WMA. This easement protects the land in perpetuity from development, provides for UDWR management of the land for wildlife purposes, and provides for non-motorized public recreational access. This conservation easement was the first easement completed by UDWR in Utah, and it is not adequate to fully address wildlife and habitat protection issues. Fee title to this land was subsequently sold to The Wolf Creek Resort, and in 2012, the easement lands were sold again to the Summit Mountain Holding Group, LLC (800 acres) and the Weber Basin Water Conservancy District (80 acres). A copy of the original conservation easement (Laub CE or CE) can be found in the UDWR NRO files. (See map in Attachment B for the location of conservation easement). UDWR has contacted the Summit Mountain Holding Group, LLC, and the Weber Basin Water Conservancy District regarding the need to update the CE to reflect the new fee title ownership of the land and to also address UDWR desires to tighten the CE language to more fully protect wildlife interests.

## **Historic Uses**

The exact history of the property is not known. However, local knowledge indicates the property was used primarily for grazing. The flat, lower elevations do not appear to have been actively used for the planting or harvesting of crops. When the property was acquired in 1985, a dilapidated structure was located at the east end of the fenced parking area, surrounded by several large and very old cottonwood trees. The “building” is now gone, but the cottonwood trees remain. It was presumed that the structure was an old homestead.

## **Purpose of Division Ownership**

The Middle Fork WMA was purchased to preserve and protect big game winter range and wintering animals, and to reduce deer and elk depredation on surrounding private

property. In addition, the WMA provides recreational opportunities which are consistent with and support these wildlife values, and that support the intent of the Utah State Legislature in the creation of the WMA.

### **Key Wildlife Species Occurring on the WMA**

The Middle Fork WMA provides crucial winter habitat for mule deer, elk and yearlong habitat for moose. This property is one of the last large protected crucial winter ranges remaining in Ogden Valley. In a “normal” winter, the WMA may support 200-300 deer (600 deer on hard winters) and 200 elk. Within the general MFWMA area, up to 65 moose can be found throughout the year.

Rio Grande turkeys were introduced onto the property in the 1990’s and they have expanded their population and range to include surrounding public and private lands. Both turkeys and wintering bald eagles roost in the large cottonwood trees occurring along the lower reaches of the Middle Fork of the Ogden River and Geertsen Creek.

Additional upland game species include dusky (blue), ruffed and sharp-tail grouse, along with mourning dove. The WMA is at the southern extent of the current sharp-tail grouse range in Utah and no leks have been found on the property. However one lek is adjacent to the DWR held Laub conservation easement, and sharp-tail grouse have been observed on the Laub conservation easement and on the MFWMA lands.

The property has not been formally surveyed for the presence of state sensitive species. However, the local Audubon Chapter made a commitment in 2004 to search for birds 2-3 times a year, at the lower trailhead/parking area, wildlife pond and riparian areas. This information has been helpful in determining bird usage of the area and revealed that a state sensitive species (Lewis woodpecker) is using this area, along with a wide variety of resident and migratory songbirds, and diurnal and nocturnal raptors. This bird information is available at the DWR Northern Region office in Ogden.

The Middle Fork of the Ogden River (Section 02 – Middle Fork Irrigation Company diversion structure to the headwaters) was last surveyed for fish species in 2003. Section 02 is considered a Class 3 fishery. Class 3 streams are important to Utah because they make up the bulk of fishable streams. Rainbow trout, rainbow trout x Bonneville cutthroat trout hybrids and Bonneville cutthroat trout were found during this survey equating to over 1,000 fish per mile. Rainbow trout have apparently taken over the bulk of the Middle Fork of the Ogden River fishery.

Geertsen Creek supports a pure strain cutthroat trout population and was initially identified as a local source location for fish transplanting into other locations within the Ogden River drainage, including in the Middle Fork of the Ogden River on the WMA. The discovery of whirling disease in Geertsen Creek eliminates the possibility to move live Bonneville cutthroat trout from this stream, consequently, a different source of fish will need to be identified for reintroduction, if a chemical restoration project is completed in the Middle Fork of the Ogden River.

The 4-5 acre pond on the property has been surveyed for amphibians, and supports populations of boreal toads, chorus and northern leopard frogs.

### **Public Recreation Opportunities and Restrictions**

The Middle Fork WMA is heavily used for recreational pursuits including hunting, fishing, hiking, bird watching and horseback riding. No recent hunter use surveys have been completed on the property, but hunters are found during upland game, turkey, moose, elk and deer hunts. The Middle Fork of the Ogden River is used by anglers, but the lower stretch of the river has never become a heavily used fishery, most likely due to low water flows during the irrigation season. Angler pressure on Geertsen Creek is low due to its remote location (about 1 mile from the Middle Fork WMA parking area), low water flows and dense streambank vegetation which makes it hard to access the stream.

The WMA has become a favorite destination spot for horseback riders during the spring, summer and fall months, with up to 4-5 riders on many weekday evenings, and up to 30-50 riders on weekends (approximately 20 horse trailers). An average of 5-6 different camping groups may use the property on any given weekend. On holiday weekends, there can be an additional 1/3 more riders/users on the property. For sanitary reasons, this heavy day use and overnight camping use necessitated the installation of a one stall pit toilet facility in 2004. No formal surveys have been undertaken to identify either user groups or numbers of people using the property. This may be considered at a later date to quantify user groups and subsequently better address uses of the WMA.

Ogden Valley Pathways and the Wasatch Front Chapter of the Back Country Horsemen of Utah have approached UDWR with a proposal to develop a trail between the Powder Mountain road and the parking lot of the WMA. UDWR has stated our support of the trail if our concerns are addressed. These concerns include, but are not limited to: enforcement of closure periods to protect wintering wildlife; no motorized vehicles allowed; and a defined responsibility for trail maintenance. A Memorandum of Agreement for this trail was being developed, but efforts stalled on the Agreement due to concern over the UDWR Indemnification Clause which both entities were reticent to sign. Both OVP and BCH have expressed a recent interest in re-starting up this trail effort. It is anticipated that the trail MOA would be signed by all 4 interested parties: Ogden Valley Pathways, Wasatch Front Chapter of the Back Country Horsemen of Utah, Summit Mountain Group Holding, LLC, and UDWR. UDWR will provide access to the trail on the MFWMA and the Laub CE by “permission only”, such that UDWR will continue to maintain the ability to close the trail during the annual winter closure period, and for other biological or management reasons.

In the past, various groups have held “events” on the WMA without getting the required permission from UDWR. Occasionally, these events have occurred on an opening weekend for a hunt, or during the general hunting season. Hunters have expressed concern about their lack of hunting access to the property due to the heavy use by non-consumptive users. UDWR has contacted some of the known groups that sponsor these events to make them aware of the need to coordinate activities through UDWR and to

acquire a Special Use Permit. In addition, UDWR plans to post this information at the entrance kiosk.

Activities on the WMA will be considered according to the UDWR Administrative Lands Rule (R657-28). In general, activities that do not promote or protect the goals and objectives of the unit will be prohibited, specifically those activities that disturb or harass wildlife, or degrade important habitats. The MFWMA is closed to all public access during the winter months (Jan. 1 – second Saturday of April) to protect wintering wildlife and wildlife habitats. These dates may be adjusted if necessary for biological or management reasons. The property is also closed year long to all public motorized vehicle use. Camping is permitted on this WMA, but due to the high camping use at the trailhead area and the lack of developed campsites, camping has been restricted to 10 days per individual/group within a 30 day limit to give more people the opportunity to camp. If resource damage occurs, the camping limit may be further restricted and/or the area may be closed to camping. Open fires within fire pits will be allowed on the WMA, but this activity is subject to county, state and federal fire policies and guidelines including closures during hazardous fire conditions.

### **Conservation Partners Involved in Acquisition**

All funds for acquisition of this WMA came from the Utah State Legislature. No additional conservation partners were involved with the acquisition of the property.

## **II. Property Inventory**

### **Existing Capitol Improvements**

Primary access to the property is provided from the corner of 1900 North and 7900 East, Huntsville, Utah. At this location, a large wooden sign has been erected, indicating the entrance to the Middle Fork WMA. In order to comply with S.B. 201 requirements for recreational opportunities, in the early 1990's UDWR constructed a 2-stall restroom, a minor trail system through the lower elevation riparian area and a 6-acre parking lot. This graded, unpaved, buck and pole fenced parking lot is located near the WMA entrance.

In the late 1990's, UDWR entered into a partnership with the U.S. Forest Service and the National Fish and Wildlife Foundation to develop a Nature Watch Program interpretative kiosk at the MFWMA entrance. This kiosk was installed in 2003. Another general information kiosk was later installed near the parking lot to post pertinent property information.

Within the parking lot are several horse tie-racks that were constructed by UDWR and the Wasatch Front Chapter of the Back Country Horsemen of Utah. The Back Country Horsemen of Utah have also adopted the Middle Fork WMA and they complete at least 3 service projects on the property each year, including cleaning out the tie racks, picking up trash within the parking lot/trailhead area, assisting with weed control activities (especially with Dyer's Woad removal), and riding at least 3 miles of the main loop trail on the property to pick up trash and to evaluate trail maintenance needs.

Approximately 2 miles of the southwestern boundary of the WMA has been fenced with a barbed wire fence. Two locked steel gates are located in the southern and south-eastern parking lot buck and pole fence. The southern gate and fence was constructed to keep undesirable activities from occurring near the Middle Fork of the Ogden River and to keep vehicles confined to the parking lot area. The south-eastern gate serves to control unauthorized motorized access to the unimproved road serving the irrigation canal and water control structures associated with the Middle Fork of the Ogden River. This lower road connects with a second unimproved road that roughly follows the high-voltage transmission power line traversing the WMA. A locked steel gate is located at the north end of this unimproved road approximately 4-5 miles northeast of the parking lot. One additional gate is located on the entrance road onto the property to provide for property closure. Primitive foot/horse trails are found in both of the two primary drainages on the WMA. Adjacent to the south-eastern gate, an opening in the fence is provided with a metal bar. This accommodates horse and mountain bike access into the WMA, while keeping most motorized vehicles out. This opening will be re-evaluated to determine how to exclude all motorized vehicles.

The original restroom constructed in the early 1990's was destroyed by vandals and removed in 2003. In 2004, a new concrete, one-toilet restroom was installed using funds secured from the UDWR Habitat Council. The holding tank is pumped out 1-2 times a year.

In 2013, a new letdown boundary fence, 2000-2500', in length was installed on the south-east side of the WMA, between MFWMA lands and an adjacent private landowner (Jensen). This fence will permit elk to more easily move between the properties during the winter months.

### **Cultural Resources**

One cultural resource inventory was completed on the property in 2008 for the creation of a vegetation fire break. No cultural resources were found in the area of this fire break.

### **Sensitive Species**

Other than surveys for Bonneville Cutthroat Trout and the surveys completed by the local Audubon chapter for avian species, no formal sensitive species surveys for state or federal species have been completed on the property. Sharp-tail grouse, Lewis woodpecker, and bald eagles have been observed on the property.

### **Fish and Wildlife Habitats**

Upland habitats range from lower elevation (below 6000 ft.) grass dominated shrub associations (primarily bunchgrass/cheatgrass with a sagebrush/bitterbrush component) to higher elevation (mostly above 7500 ft.) conifer/mountain brush/aspen mixed stands. Important intermediate vegetative types include oak/maple mixes, as well as curl-leaf mahogany occurring mostly on xeric ridgetop sites. Range trend condition information has been collected for the last 30 years on 2 range trend transects on the WMA. A summary of this information is provided below. For more information, please refer to the following documents: 1971 Utah Big Game Range Inventory; 1984-2011 Utah Big Game

Range Trend Studies (<http://wildlife.utah.gov/range>); and the Ogden Valley Natural Resources Evaluation, Weber County Planning Commission (revised 1979). UDWR will undertake another analysis of the range trend sites on the MFWMA in 2016.

The 1990 to 2011 Utah Big Game Range Trend Study reflected the following information for the two permanent range trend sites on the WMA:

**MIDDLE FORK - TREND STUDY NO. 3-17 (located on the MFWMA)**

Type	1990	1996	2001	2006	2011
Browse	Slightly Down	Slightly Up	Up	Slightly Down	Slightly Down
Grasses	Up	Down	Slightly Up	Slightly Down	Stable
Forbs	Down	Slightly Up	Down	Up	Up
Winter Range Condition (DC Index)	N.A.	Fair (59.2)	Good (75.9)	Fair-Good (64.6)	Fair (61.4)

**Middle Fork Trend Assessment Study # 3-17 (2011 Information)**

Browse: The most abundant browse species is low sagebrush, which provides nearly all of the browse cover on the site. The low sagebrush population is comprised of a dense stand of mostly mature plants. Utilization of low sagebrush has been mostly light to moderate since the outset of the study. Decadence was high in the population in 1990, but has been more moderate in other sample years. Recruitment of young plants has fluctuated throughout the sample years, but has been fairly good. Other more valuable species in terms of preference for wildlife are mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*), antelope bitterbrush (*Purshia tridentata*), and Utah serviceberry (*Amelanchier utahensis*). However, these species are found in small numbers, and are not abundant enough to be considered key species. These species have been moderately to heavily utilized over the course of the study. High competition from a dense, weedy understory likely makes establishment of seedlings very difficult. An open stand of bigtooth maple (*Acer grandidentatum*) near the site provides fair resting cover, but thermal cover would be limited in the winter.

Herbaceous Understory: Grasses are moderately abundant and diverse, but are dominated by the weedy species bulbous bluegrass (*Poa bulbosa*). Bulbous bluegrass has provided over half of the grass cover since 1996, and nested frequency has increased significantly over the course of the study. The native perennial bluebunch wheatgrass (*Agropyron spicatum*) is fairly abundant, and has maintained a fairly stable nested frequency throughout the study. Other perennial grass species are far less common. The annual grasses cheatgrass (*Bromus tectorum*) and Japanese chess (*B. japonicus*) were common when first included in the sample in 1996, but have decreased since that time and were rare in 2011. Forbs are also fairly abundant and diverse. The composition is fair with

pacific aster (*Aster chilensis*), carrotleaf leptotaenia (*Lomatium dissectum*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and mulesears (*Wyethia amplexicaulis*) providing the majority of the forb cover.

**GEERTSEN CANYON - TREND STUDY NO. 3-18 (located on the Laub CE)**

Type	1990	1996	2001	2006	2011
Browse	Down	Up	Down	Slightly Down	Down
Grasses	Stable	Stable	Stable	Stable	Stable
Forbs	Stable	Slightly Down	Slightly Up	Slightly Down	Stable
Winter Range Condition (DC Index)	N.A.	Very Poor (7.0)	Very Poor (13.8)	Very Poor (10.2)	Very Poor (16.3)

**Geertsen Canyon Trend Assessment Study # 3-18 (2011 Information)**

Browse: Browse species are not a major component on the site, and provide limited forage. Mountain big sagebrush is the only key browse species, and sagebrush cover has ranged from just 2% to 3% since 1996. The sagebrush population is comprised of a low density stand, with a rather prostrate growth form. Density has steadily decreased since 1996. Recruitment of young sagebrush plants was high at the outset of the study, but has been poor since 2001. Sagebrush recruitment may be difficult with the shallow, rocky soils, and with competition from weedy annuals. Utilization has been light to moderate over the course of the study. Decadence of sagebrush was high in 1990, moderate in 2006, but low in the other sample years. Poor vigor was high in 1990 and 2006, but has been low in the other sample years. Gambel oak (*Quercus gambelii*) and bigtooth maple (*Acer grandidentatum*) are found further up the slope and along the creek. Some of the oak and Utah juniper (*Juniperus osteosperma*) nearby have been high-lined.

Herbaceous Understory: The herbaceous vegetation accounts for most of the cover on the site, but composition is extremely poor with weedy species dominating the site. The weedy grass species bulbous bluegrass (*Poa bulbosa*) has been the most abundant species on the site since 1985. This species alone has accounted for more than 40% of the total vegetation cover since 1996. Other, more high-yielding, long-lived perennial species are few in abundance. These include bluebunch wheatgrass (*Agropyron picatum*), thickspike wheatgrass (*A. dasystachyum*), Kentucky bluegrass (*Poa pratensis*), and Letterman needlegrass (*Stipa lettermani*). The annual species Japanese chess (*Bromus japonicus*) has been very abundant since 1996, but cheatgrass (*B. tectorum*) has been far less common. Forb composition is extremely poor. Many of the common forbs are considered weedy, although they may provide some big game forage in the spring. Weedy increasers include ragweed (*Ambrosia psilostachya*), pacific aster (*Aster chilensis*), storksbill (*Erodium cicutarium*), tarweed (*Madia glomerata*), curlycup gumweed (*Grindelia squarrosa*), yellow salsify (*Tragopogon*

dubius), and moth mullein (*Verbascum blattaria*). The noxious weed dyer's woad (*Isatis tinctoria*) has been sampled in several sample years, but is present in small numbers. It was reported in the summer of 1985 that caterpillars and grasshoppers did considerable damage to the herbaceous vegetation. In 1996, some of the yellow salsify was utilized, most likely by elk.

### **General Habitat Information**

Several wildfires occurred on the property in the late 1980's and early 1990's, burning primarily within the lower elevation habitats. There was also a small fire that started along the powerline road due to heavy equipment being brought onto the property to stabilize stream banks where the road becomes an in-stream road. None of these areas were re-seeded and quality browse species, such as sagebrush and bitterbrush, have not returned to the majority of these sites. Over several years, UDWR attempted bare root browse seedling planting on these crucial deer winter ranges with several thousand browse shrubs planted. However, most of these plantings were unsuccessful mostly due to hot, dry conditions and removal by animals. Within these winter ranges, the WMA has experienced a general browse-to-grass transition.

In fall 2008, a fire line was dozed around the perimeter of a proposed burn (approximately 3 miles long fire break). This fire line was seeded with sage, forage kochia and forbs using broadcast seeder. It was also seeded by hand using boy scouts to plant bitterbrush seed.

Fairly intact riparian habitats are found on both the Middle Fork of the Ogden River and Geertsen Creek. Each creek has an adequate floodplain channel to maintain cottonwood gallery forests with a diverse understory of willow, dogwood and rose. The only man-made disturbances on the Middle Fork of the Ogden River include the irrigation canal diversion structure and two road crossings (within the channel) of the power line road.

According to the Rosgen stream channel classification system, both the Middle Fork of the Ogden River and Geertsen Creek (on the WMA and CE, respectively) and their tributaries are considered "B2"- "B3" Channels. "B" channels are stable channels with a moderate gradient. Due to the presence of boulders and cobbles within the system, the channels are fairly stable, with minimal erosion and scour occurring as a result of channel disturbances. As these rivers leave the WMA, they begin to transition to "C" channels. Both stream channels are in good condition while on the WMA and CE. However, Geertson creek is experiencing some down-cutting of the stream channel, at the southern portion of the UDWR held Laub conservation easement. This situation needs to be more fully evaluated to determine what restoration methods, if any, are needed to stabilize the streambanks.

For three consecutive years in the late 1990's, UDWR planted approximately 60 cottonwood trees within wire cages in the parking lot area. The intent was to start trees that could eventually replace the larger cottonwood trees that currently provide shade to campers and horses. However, rodents, weather and vandalism eventually killed all the trees.

In 2013, the Summit Mountain Holding Group, LLC, retained a grazer for the Laub CE and 500-600 acres adjacent lands. They surveyed the southern property boundary of all the lands, and bladed the boundary to facilitate the installation of a boundary fence. Since portions of this fence line were on the Laub CE, and the additional miles of fence were through crucial big game winter range, UDWR purchased and broadcast wildlife beneficial seed (including forage kochia) along the entire fence line.

### **Habitat Limitations**

The south and south-western facing lower elevation slopes have lost many of the perennial grass and browse species important for wintering deer and elk. These species have been lost due to wildfires, past spraying activities and drought. These lower slopes have been targeted for revegetation efforts, however the steep slopes and rocky soils have made past revegetation efforts mostly unsuccessful. Future efforts will need to undertake more visionary practices to achieve desired outcomes.

### **Human Use-Related Problems**

The MFWMA has become a high public use area, particularly to horseback riders, due to the close proximity to the Wasatch Front. The property has become a favorite of horseback riders during the spring, summer and fall months with up to 4-5 riders on many weekday evenings and up to 30-50 riders/weekend have been observed (approximately 20 horse trailers). An average of 5-6 different camping groups may use the property on any given weekend. On holiday weekends, there can be an additional 1/3 more riders/users on the property. The development of open space lands throughout Ogden Valley and limited public lands with moderate slopes and good trailer access has concentrated horse/human users on MFWMA.

Currently, some human trespass occurs during the winter closure periods by shed antler hunters and by others pursuing recreational opportunities. Past human disturbances to wintering wildlife contributed to big game animals moving to adjacent agricultural and residential lands subsequently causing depredation problems. The winter closure period was established to keep human disturbance to big game animals to a minimum on the WMA.

Camping occurs throughout the parking lot/trailhead area, but with no designated camping slots, campfires have been known to spread outside of makeshift campfire rings and onto the surrounding hillsides. Efforts to plant shade trees to establish future camping sites have been met with vandalism. The restroom located in the parking area and the wooden fences surrounding the trailhead have also seen vandalism including graffiti (“tagging”) and the pulling over of the fences. Horse riders also dump the manure out of their horse trailers throughout the trailhead area

### **Adjacent Land Uses and Potential Impacts**

Expanding recreational and development interests within Ogden Valley and the nearby Wasatch Front have had an increasing influence on management of the WMA.

Recreational and subdivision development have already impacted wildlife by displacing big game from winter ranges that would otherwise be more heavily occupied. The majority of private land adjacent to the WMA, is being subdivided into lots and are in various stages of development. Some of the lands that have not yet been developed have conceptual subdivision design plans.

In 1995, the WMA was closed to all public use during the winter months due to the problem of big game spring depredation on private lands in Ogden Valley. This depredation was caused primarily by elk, along with some deer. With the heavy winter recreation use occurring on the WMA (cross country skiing, unleashed domestic dogs, snowshoeing, antler gathering, etc...), big game animals would move off the WMA onto surrounding private agricultural lands. With the WMA now closed to winter public uses, with minimal disturbance to wildlife, the wildlife have a more secure resting and feeding location, and this has reduced the depredation on surrounding private lands. With the continued loss of agriculture and winter ranges due to development, these depredation issues will shift as the elk and deer become even more concentrated on limited winter ranges and depredation within subdivisions may increase.

The Browning Ranch (Bar B) lies along the south and southwestern boundary of the WMA, and along the southern portion of the Laub CE. The ranch currently grazes cattle throughout the property with the cattle occasionally trespassing onto WMA and CE lands.

Along with the direct loss of habitat through development, additional displacement occurs in the winter through disturbances by recreational snow-machine use, along with cross-country skiing and snowshoeing activities on private lands. The impacts to big game animals are particularly severe in an area that is already deficient in big game winter range acreage.

In early January 2008, the Powder Mountain Resort filed incorporation papers to become Powder Mountain Town. Several thousand acres of the northern portion of the MFWMA were included within the proposed town boundaries. The UDWR did not have voice in the decision and it was unclear as to how this designation might affect management activities on the MFWMA. Utah State Code, however, does not allow a municipality to dictate control of state lands to a state agency. This incorporation was tied up for several years in multiple lawsuits. In 2012/2013, the Powder Mountain Resort was sold to the Summit Mountain Holding Group, LLC. This group is currently working through the Weber County Planning, Engineering and Surveying Departments to design a development scenario (residential and commercial) for areas adjacent to the ski area. The MFWMA is not included within these new development proposals and, with the incorporation petition withdrawn and the lawsuit dismissed, no MFWMA lands remain with the incorporation boundary.

However, several items associated with the Powder Mountain development may affect state land ownership and wildlife on the WMA. At the current time, only one road provides access to the ski area and associated development at the top of the mountain.

This roadway currently bisects big game winter range and contributes to the mortality of deer, elk and moose, along with other species of wildlife. The development of the property into a year-round resort will add additional vehicles to the roadway, especially during the winter months, which may lead to an increase in wildlife-vehicle collisions. An additional issue is that Weber County has indicated that a secondary access road should be established to the Resort. At this time, the route being considered would head east from the resort along the Weber County-Cache County line, ending up near a paved highway. There is an existing dirt road in this area which could be widened to accommodate more vehicle use. Portions of this existing road are located either on the MFWMA or adjacent to WMA lands. Any changes to this road will necessitate coordination with UDWR and possible sale or trade of land(s).

As was mentioned earlier, fee title to the UDWR held Laub CE land was acquired in 2012 by two different entities: the Summit Mountain Holding Group, LLC, (SMHG) (800 acres); and the Weber Basin Water Conservancy District (WBWCD) (80 acres). The SMHG also acquired an additional 500-600 acres of adjacent open space lands formerly owned by the Wolf Creek Resort. At this time, the SMHG does not have any plans for either the CE lands or the additional lands it acquired. However, they have established a formal grazing program on all these contiguous lands. UDWR will be meeting with the SMHG and the new grazer (the Browning Ranch) in 2015 to address wildlife and livestock needs. The WBWCD does not have any current plans for the portion of the Laub CE which they acquired.

### **III. Management Goals and Objectives**

Management of the Middle Fork WMA will take into account the goals, objectives and strategies of other Division planning efforts. These other plans are briefly discussed below.

#### **UDWR Strategic Plan (2007-2011)**

The management of the Middle Fork WMA has relevance to the following goals and objectives as outlined in the Division's strategic plan:

*Resource Goal – Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat.*

*Objective R1- Protect existing wildlife habitat and improve 500,000 acres of critical habitats and watersheds throughout the state by 2011.*

*Objective R2- Increase fish and game populations to meet management plan objectives and expand quality fishing and hunting opportunities.*

*Objective R3- Conserve sensitive species to prevent them from being listed as threatened or endangered.*

*Constituency Goal – Achieve broad-based support for Division programs and budgets by demonstrating the value of wildlife to all citizens of Utah.*

*Objective C1- Increase public awareness of wildlife as a quality of life issue in order to expand our support base and achieve stable funding.*

*Objective C2- Improve Coordination with organizations, public officials, private landowners, industry, and government agencies to obtain support for Division programs.*

These goals and objectives will be accomplished by properly managing the water, vegetation, wildlife and human components of the WMA according to those strategies mentioned in the property and habitat management sections below.

These section's detail property maintenance and development, wildlife species and habitat management, and access and fire management on the WMA.

### **Wildlife Action Plan**

The first-edition Utah Wildlife Action Plan, adopted in 2005, is entitled the Comprehensive Wildlife Conservation Strategy. This document, commonly known by the acronym WAP (Wildlife Action Plan), outlines a statewide approach for the partnership-based, coordinated planning and implementation of wildlife and habitat conservation practices. The WAP addresses the following elements:

- Conservation Targets: Identifies species of greatest conservation need, and those species' key habitats. Provides information about the abundance, trends, and distribution of these species, along with information about the location and condition of these key habitats.
- Threats and limiting factors facing these species and habitats, and research required to better-understand these issues and how to best address them.
- Conservation actions required to abate these threats and improve the supply of these limiting factors.
- Monitoring the effectiveness of these actions.
- Approaches for including the public, partners, and stakeholders in consideration of the mission and authority of partners.
- Provisions for coordinating the WAP with other natural resource management plans.
- Provisions for completing the review and revision of the WAP by October 1, 2015.

The intent of the WAP is that the MFWMA HMP process be used to address those sensitive species found on the WMA, by explicitly including their needs in routine, novel, and emergency management activities. Recommendations include undertaking specific actions to reduce threats or limiting factors, and increase population numbers of the species.

In addition, the WAP identifies key habitats within Utah. General management recommendations for these habitats include actions that will maintain, conserve, protect, enhance and increase these habitats throughout Utah. The MFWMA has several of these priority habitats of concern which include: lowland riparian; shrub-

steppe; mountain shrub; and small areas of aspen habitats. One of the intents of the WAP in identifying these habitats is that local-area management efforts can better focus actions on those specific habitats where actions can have the most benefit for species of greatest conservation need.

Currently, the WAP is being revised to reflect changes in habitat and species status, and priorities in Utah. In addition, the new plan will identify specific management actions that can be taken to reduce threats to these species and habitats. It is recommended that once this new plan is available, that it help guide management actions on MFWMA.

### **Wildlife Species Management Plans**

The management of this unit will address the limiting factors and habitat needs identified in these plans and will seek to implement habitat management strategies that are needed to reach or maintain population objectives. Overall management goals include a population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and non-consumptive opportunities such as wildlife viewing. UDWR also strives to consider impacts of the deer and elk herds on other land uses and public interests, including private property rights, agricultural crops and local economies. This goal also includes activities to maintain populations at a level that are within the long-term capability of the available habitat to support.

#### *Deer and Elk Management Plans- Unit 3*

The elk management plan for this unit was completed in 2011 with the elk population currently being at objective. The target winter herd size is 800 wintering elk with the current population estimate on the Unit at 600 wintering animals. A majority of the winter range (81%) and summer range (76%) is on private land. Summer range is abundant and in good condition. Winter ranges are disappearing due to increased development in Ogden Valley.

The deer management plan for this unit was completed in 2012 with the deer population currently being under objective. The target winter herd size is 11,000 wintering deer with a post hunting season herd composition of 18-20 buck per 100 does.

Lower elevation winter range is the major limiting factor for mule deer populations on the Ogden unit. The winter range areas are also those areas that are most at risk to vegetative changes and development. A majority of the winter range (80%) and summer range (70%) is on private land. The largest threat to mule deer habitat in the Ogden Valley area is the direct loss of crucial winter range acres due to development and urbanization. Most of the increase in home building is occurring on the foothills in what was historic deer winter range. Additional threats and losses to deer winter range include: the reduction in habitat quality due to the loss of critical browse species (sagebrush, bitterbrush etc) and competition from exotic, weedy perennial grasses.

Both of these plans discuss habitat improvements needed to improve winter range conditions unit wide, with specific attention given to rehabilitation efforts on MFWMA, working with private and federal agencies to maintain and protect critical and existing winter range from future losses, work cooperatively to utilize grazing, prescribed burning and other recognized vegetative manipulation techniques to enhance forage quality and quantity throughout the winter range areas. Revisions to these plans are typically completed every 5 years and will be incorporated into the management of this WMA as needed.

Habitat management objectives for the Unit include: to maintain, protect, and improve forage production on winter ranges, especially big game winter ranges located on the Middle Fork WMA. Annual projects of reseeding, seedling planting, and livestock grazing in spring will continue. The habitat projects are designed to address the specific issues within each project area. To address the direct loss of habitat, efforts will be made towards the protection and conservation of remaining mule deer and elk habitat. This includes the use of conservation easements in all ownership sectors, and also includes additional land acquisitions for UDWR.

*Conservation Agreement and Strategy for Bonneville Cutthroat Trout (*Oncorhynchus clarki utah*) in the State of Utah (UDWR Publication #97-19)*

Under this 1997 Agreement, Bonneville cutthroat trout are currently managed as a Conservation Agreement Species by the U.S. Fish and Wildlife Service. As part of the Agreement and strategy, all the signatories to the Agreement, including UDWR, have agreed to work towards restoration of the species to prevent further population declines and to prevent the species from being listed as threatened or endangered. As part of this overall strategy, efforts to protect existing Bonneville cutthroat trout populations are undertaken, along with efforts to restore or recover the trout into historical habitats. Within this context, protection and restoration efforts planned for Geertsen Creek and the Middle Fork of the Ogden River will guide a portion of the management of the WMA.

The Middle Fork of the Ogden River was one of eight streams in northern Utah that was included in an EA for chemical restoration for native cutthroat trout. This EA was finalized in August 2012 and contains a five year window to complete the treatments. The Middle Fork of the Ogden River is lower on the priority list of the eight streams, but a chemical treatment may take place before 2017 if time permits. The private lands in the headwaters of this drainage complicate the chemical treatment as the entire drainage will need to be treated in order to ensure a successful project.

*Strategic Management Plan for Columbian Sharp-Tailed Grouse (UDWR Publication #02-19)*

UDWR developed this plan in 2002 to address the decline of Columbian Sharp-tailed Grouse populations within Utah. Since the early 1900s, agricultural developments, over grazing by livestock and big game animals and human population growth significantly reduced the quantity and quality of native

grassland and shrub-grassland vegetation types used by Sharp-tailed Grouse. Sharp-tailed grouse are now considered a Tier 2, Utah State Sensitive Species.

The goal of the conservation plan and conservation actions in Utah is to: “maintain and increase Columbian Sharp-tailed Grouse population levels, and reintroduce and establish and maintain populations within suitable habitats.” The plan further states: “Maintaining existing populations of Columbian Sharp-tailed Grouse in Utah and ensuring their persistence will depend on continuation of CRP and implementation of an effective conservation effort directed at protecting and restoring remaining habitat and expanding populations into secure habitat within former range.”

The mountain brush, native grasslands, and riparian habitats found on the Laub CE, and surrounding private lands, currently support a small sharp-tailed grouse population. While grouse have not been observed on the MFWMA, the habitat on the WMA is contiguous with those on the CE, and grouse most likely utilize the WMA for portions of their life history requirements. Objectives identified in the strategic conservation plan for grouse for habitat protection and restoration should be undertaken on the WMA and CE lands to enhance these lands for sharp-tailed grouse.

#### **IV. Strategies for Property Management**

##### **Development Activities**

The entire property will not be fenced due to the large size of the property and the rough, rocky terrain. However, “entering/leaving” signs will be placed on the property boundary at every section corner and potentially every quarter section corner. To date, approximately ½ of the property boundary has been staked and signed utilizing Back Country Horsemen of Utah, Wasatch Chapter volunteers. Completion of this signing effort should occur within the next 2 years.

To help control trespass livestock, a new fence, approximately 1.5 miles long, should be considered between portions of the western boundary of the WMA, and the eastern boundaries of both the Browning Ranch and the Laub CE.

As stated earlier, the MFWMA is one of the last large crucial deer winter ranges in Ogden Valley. Given this fact, along with the new developments occurring on crucial winter ranges all around the WMA, an annual public access closure has been implemented (Jan. 1 – second Saturday in April). This closure reduces disturbance on the property, which subsequently reduces stress on wintering big game animals and provides for a better over-winter survival rate. Public motorized access on the property is prohibited at all times.

When the parking area was first constructed, recreational use on the MFWMA was minimal. However, recreational use on the property has significantly increased. In late summer and early fall, overflow vehicles currently park on dry vegetation outside the

gravel/dirt parking area. Some of these users are day-use only, while others are campers. The parking area needs to be re-designed to accommodate this increased use and better define acceptable use areas for day use and overnight camping. The pedestrian access gate between the parking area and the power line road will be evaluated to prevent vehicle access. Camping on the WMA will also be evaluated to determine impacts to wildlife and wildlife habitat. In the future, a public use survey may be undertaken to better quantify and qualify user groups and the number of individuals using the property.

Signs will be placed on the kiosk and around the property to notify potential user groups that “events” need to receive permission from UDWR before being held on the WMA. Contact will also be made with some of the user groups (ie., local Boy Scout office; Back Country Horsemen-Wasatch Front chapter) to make them aware of the need to clear events through UDWR, and possibly secure a Special Use Permit required for some activities.

Portions of the main entrance road lie on land belonging to an adjacent private landowner. UDWR has an informal agreement to access the MFWMA on this road. To resolve this issue, either a formal agreement needs to be obtained to assure perpetual access, the access road property should be acquired in fee title or a new access road should be created on the WMA.

UDWR will continue to work with trail stakeholders to develop a Memorandum of Agreement (MOA) for the proposed trail from the MFWMA trailhead area to either the Wolf Creek Resort trailhead (approximately 5-6 miles) or the Powder Mountain Road (Hwy. 158). It is UDWR’s intent that the majority of trail construction would be undertaken by the other MOA signatories, while UDWR will install signs at appropriate locations. Protection of wintering big game populations will be the primary issue to be addressed in any MOA.

### **Annual Maintenance Activities**

Annual maintenance activities needed on the WMA include: fence maintenance; parking lot maintenance; road maintenance; sign replacement; invasive and noxious weed control (chemical, biological, mechanical); wildlife pond maintenance in cooperation with the irrigation company; and restroom facility maintenance. These maintenance activities will be conducted on an “as needed” basis.

With the adoption of the WMA by the Wasatch Front Chapter of the Back Country Horsemen of Utah, they have 3 annual events wherein they perform cleanup of the parking area, cleanup of horse manure from the tie racks, complete fence and horse tie rack repair, assist with weed control activities, and perform other maintenance activities as requested by UDWR.

### **Compatibility of Proposed Uses with Local Government Plans/Zoning/Land Use Ordinances**

The current and proposed uses for the MFWMA are compatible with local government plans, zoning requirements and land use ordinances.

In 1998, Weber County adopted the Ogden Valley General Plan (OVGP) to guide development activities within Ogden Valley. One vision that was adopted is to “Protect the natural beauty and natural resources of the Valley”. Goals that have been identified for this vision include: protect air quality and water resources; protect open space and sensitive lands; and preserve wildlife and wildlife habitat. The County has also completed a Recreation Element to the OVGP (2005) to address the myriad of recreation opportunities and uses in the Valley, while protecting those resources from loss or damage. The County has also developed several ordinances, including a sensitive lands ordinance, a resort development ordinance and an agri-tourism ordinance to better guide and distribute development throughout the Valley. Weber County has also been contemplating the development of a transfer of development rights (TDR) ordinance to further protect Valley environmental resources. The MFWMA is specifically included in the Recreation Element plan for its wildlife, wildlife habitat and open space, and trail values.

Beginning in 2014, the Weber County Commission began a Charrette study to provide information regarding development concerns and issues within Ogden Valley. A Charrette is a collaborative effort in which a group of stakeholders together find solutions to common problems. This study consisted of two main courses of action. The first course involved the use of Huntsman Scholars who worked with Utah State University (USU) graduate students to provide a financial analysis of all major land use (planning) and scenarios. This analysis focused on: developing a TDR market; and provide analytical information for open space, decreased density, and the preservation of legacy farms and ranches. The second course of action was using USU graduate students in a design Charrette where students analyzed a variety of topics chosen by the Weber County Commissioners and planning staff. These topics ranged from how to protect air and water quality, to where should development nodes be located, to how and where to protect wildlife and open space habitats. During the Fall of 2014, Weber County retained consultants to begin the process of updating the Ogden Valley General Plan. UDWR is hoping to be involved with all these planning efforts to encourage long term protection of wildlife habitats surrounding the MFWMA.

The entire MFWMA is currently zoned as Forest Zone 40 (F-40) with surrounding lands zoned as either F-40 or F-5. According to the County, “The intent of the Forest Zone is to protect and preserve the natural environment of those areas of the County that are characterized by mountainous, forest or naturalistic land, and to permit development compatible to the preservation of these areas.”

The U.S. Forest Service has lands within the Middle Fork WMA Management Area which are managed with common goals of wildlife habitat and recreation with the UDWR through a Memorandum of Understanding. The revised Forest Plan (2003) for the Uinta-Wasatch-Cache National Forest states “The Middle Fork Wildlife Area is

managed to protect wintering habitat for deer, elk and moose, in addition to year-round wildlife protection.”

## **V. Strategies for Habitat Management**

### **Unit Management Plans for wildlife species**

Strategies for habitat management will be consistent with those outlined in the deer and elk management plans for Unit #3, the UDWR Strategic Plan, the Wildlife Action Plan, the Conservation Agreement and Strategy for Bonneville Cutthroat Trout and the Strategic Management Plan for Columbian Sharp-tailed Grouse. These strategies will include, but are not limited to:

- Continue to monitor the permanent range condition and trend studies located on the unit.
- Work cooperatively with land management agencies and private landowners to plan and implement projects that will improve wildlife habitat and range conditions in general. Improvement projects will focus on mountain brush and sagebrush-steppe habitats that provide crucial winter ranges for deer and elk.
- The property should be surveyed for state sensitive species.
- Due to the presence of Bonneville cutthroat trout within the drainage, the Middle Fork of the Ogden River has been identified as a candidate stream for removal of non-native trout and reintroduction of Bonneville cutthroat trout. A chemical treatment, removal of non-native fish and reintroduction of Bonneville cutthroat trout may take place before 2017 if time permits.
- Recognize the value of the unit for nesting neotropical bird species and manage to maintain high quality habitat for these birds, while minimizing disturbance impacts.
- Work with private landowners surrounding the WMA and the Laub CE to conserve and protect properties which support crucial big game winter ranges and sharp-tailed grouse habitats.

### **Habitat Improvement Plan**

- Approximately 1200 acres of lower elevation south facing slopes have the potential to be improved to enhance crucial big game winter range habitats. Habitat restoration proposals will be developed to enhance these habitats. Specific projects will be submitted for funding to the UDWR Habitat Council, the Utah Partners for Conservation and Development Watershed Restoration Initiative (WRI), and other potential funding partners in order to complete the projects.
- Undeveloped crucial winter range on private lands surrounding the WMA will be evaluated for potential protection and habitat enhancement efforts through conservation easements, fee title acquisition, and habitat improvement projects. Efforts will be undertaken to either acquire the Laub CE or to strengthen the Laub CE language to further protect those lands for wildlife.
- Livestock grazing may be utilized to assist with revegetation efforts, fuels reduction, and to control noxious and invasive species. If it is determined that grazing could be utilized in revegetation efforts, a grazing plan/strategy will be developed for the WMA.

- Coordinate with the U.S. Forest Service, the Weber County Fire Marshall, and the Utah Division of Forestry, Fire and State Lands, to develop wildfire management strategies to reduce the risk of wildfire on the property.
- If options become available, acquire water rights in Geertsen Creek and the Middle Fork of the Ogden River to protect Bonneville Cutthroat Trout populations, and to support the associated riparian habitats. At the current time, no water rights are available within Ogden Valley. However, an “exchange” water right may be able to be secured through Weber Basin Water Conservancy District. There would be a one time application fee and a perpetual annual fee to secure water in these streams.
- UDWR is working with the groups proposing the new Middle Fork WMA to Wolf Creek Trail to secure a winter closure period throughout the trail length on both state and private lands, including the Laub CE lands. Having this closure period on these private lands will result in reduced disturbances to wintering big game animals.

### **Access Management Plan**

The MFWMA will be closed to all public access during the winter months (Jan. 1 – second Saturday in April) to protect wintering wildlife. When the property is within a hunt unit boundary where late season hunts are available, public non-motorized access to the WMA may be provided to hunters with valid hunting tags for this unit. The property is also closed year long to all public motorized vehicle use. If a trail is developed from the Middle Fork WMA to either the former Wolf Creek Resort or to the Powder Mountain Road, UDWR will incorporate the winter closure period into any trail agreement documents. The closure areas will include the MFWMA and Laub CE lands.

The parking lot/trailhead area will be assessed to determine if a redesign of the facility is needed to accommodate the increased number of users for both day use and camping. This will not only allow for better use of the area and avoid user conflicts, but will also protect surrounding habitats from degradation. Camping on the WMA may also be evaluated to determine impacts to wildlife and wildlife habitat. A public use survey may also be undertaken to quantify and qualify recreational users of the WMA.

### **Fire Management Plan**

Although a specific fire management plan has not been developed for the MFWMA, the Utah Division of Forestry, Fire and State Lands and the Weber County Fire Marshall have previously made the following suggestions and recommendations:

- create a 150’ fire break under the powerline corridor/road
- create a minimum of 60’ vegetated fuel breaks around the southern boundary
- create a patchwork of 50-60’ fuel breaks across the landscape, especially on ridgelines

Continue to coordinate with the U.S. Forest Service, the Weber County Fire Marshall, and the Utah Division of Forestry, Fire and State Lands, to develop wildfire management strategies to reduce the risk of wildfire on the property.

### **Wood Products**

There are no wood products to be harvested from the MFWMA.

### **Livestock Grazing Plan**

Trespass livestock are occasionally found on the WMA. An aggressive enforcement effort is eliminating most of this trespass grazing. Aside from this minor trespass livestock grazing, there is currently no active grazing on the MFWMA. A grazing management plan may be developed in the future to assist with habitat improvement projects, fuel load reductions, noxious weed control or on an “as needed” basis. Any grazing activities will use the UDWR grazing process as outlined in the UDWR Administrative Lands Rule (R657-28).

With the new ownership of the Laub CE, annual livestock grazing will be used on the property. UDWR is planning to meet with the landowners and livestock grazer in 2015 to discuss opportunities to use livestock to enhance wildlife habitat. To help control trespass livestock, a new fence, approximately 1.5 miles, should be installed between the west boundary of the WMA and the eastern boundary of both the Laub CE and the Browning Ranch.

### **Compatibility of Proposed Plans with Local Government General Plans and Zoning and Land Use Ordinances**

The current and proposed uses for the MFWMA are compatible with local government plans, zoning requirements and land use ordinances.

## **VI. Summary Statement of Proposed Uses**

The primary goals and objectives of the Middle Fork WMA are to preserve, enhance and protect big game winter range and wintering wildlife, and to reduce deer and elk depredation on surrounding private lands. The UDWR will allow for and provide wildlife-related recreational activities that are consistent with the goals and purposes for which the property was acquired.

## **VII. Monitoring and Evaluation**

UDWR will complete the following monitoring and evaluation on the WMA.

- Vegetation Transects at the range trend survey sites every 5 years.
- Completed habitat projects will also be monitored.
- Annual to biennial fish and wildlife surveys/counts.

The Northern Region Habitat Section, in cooperation with the area wildlife biologist, aquatic biologist, and the area conservation officer, will be responsible for monitoring the overall effectiveness of this plan. Appropriate sections and staff will provide expertise as required. The Habitat Maintenance Specialist will monitor the needs and effectiveness of physical facilities and improvements. If necessary, the district conservation officer will write or amend an action plan for this property. All individuals and sections will report to the Regional Management Team through their supervisors. The area wildlife biologist, with assistance from a regional team, will amend this plan as needed.

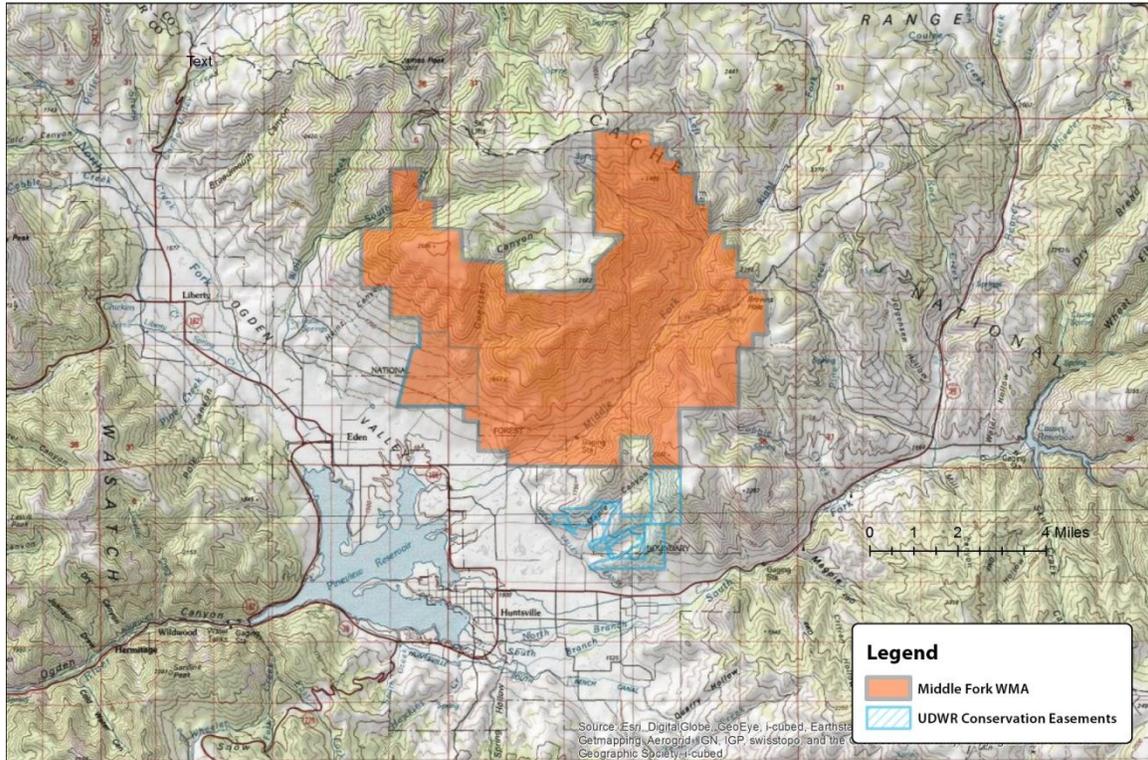
## **VIII. Appendices**

- Appendix A – Maps
  - General Location
  - Land ownership surrounding WMA
  - Access map
- Appendix B – Legal Descriptions
  - UDWR owned lands
  - USFS owned lands
  - Conservation Easement lands
- Appendix C– UDWR-USFS MOU
- Appendix D--Laub Conservation Easement

# Appendix A – Maps

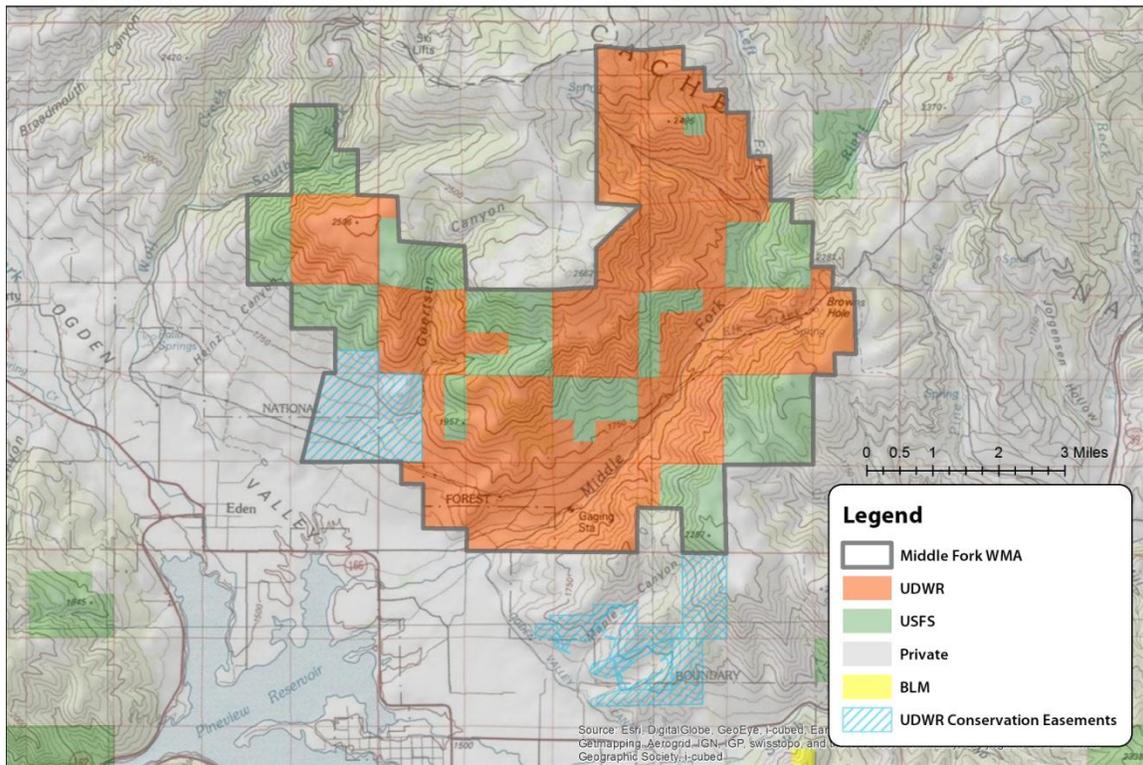


## Middle Fork Wildlife Management Area General Location Map



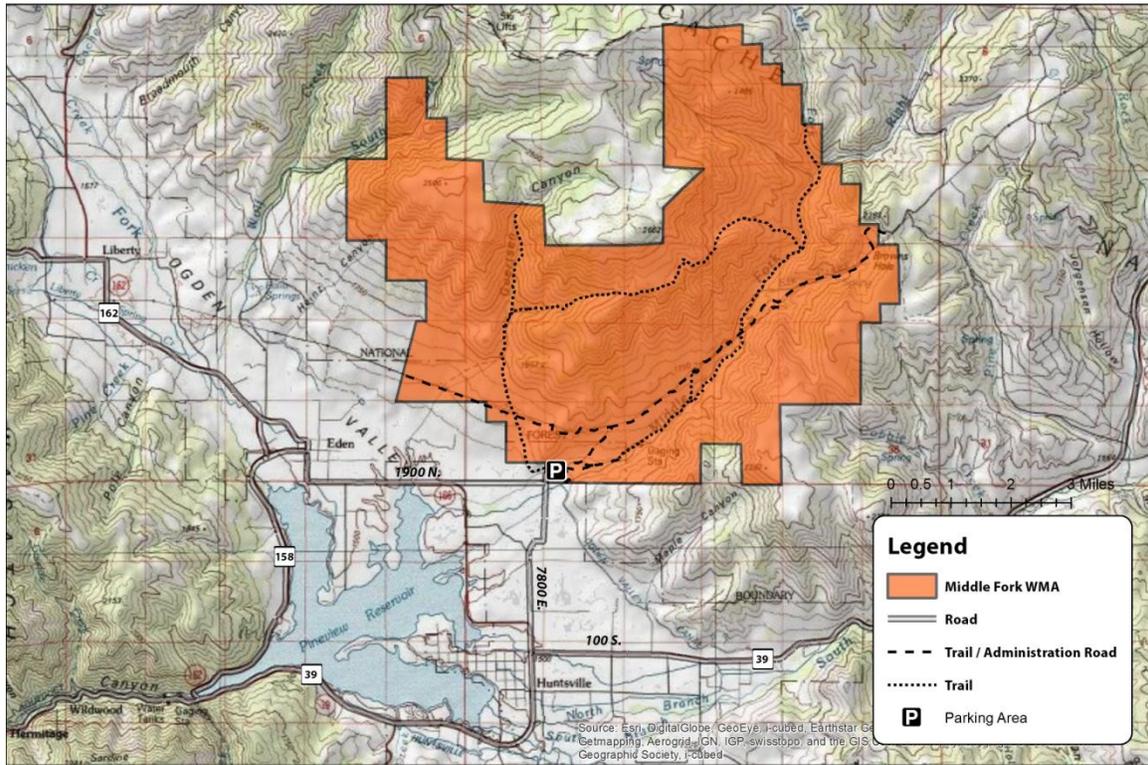


# Middle Fork Wildlife Management Area Land Ownership Map





# Middle Fork Wildlife Management Area Road/Access Map



## Appendix B - Map and Legal Descriptions

### A. UDWR Owned Lands

#### **FIRST SECURITY BANK PURCHASE – DEED # 1034432**

SECTION 19, 7 NORTH, 2 EAST: E2, E2W2.  
SECTION 20, 7 NORTH, 2 EAST: N2SW4  
SECTION 21, 7 NORTH, 2 EAST: ALL  
SECTION 29, 7 NORTH, 2 EAST: ALL  
SECTION 30, 7 NORTH, 2 EAST: W2NE4, NW4SE4, S2SE4.  
SECTION 31, 7 NORTH, 2 EAST: N2SE4 (EXCEPT: THEREFROM 2.3 AC  
IN THE OGDEN VALLEY CANAL.)  
SECTION 32, 7 NORTH, 2 EAST: N2NW4

#### **FIRST SECURITY BANK – DEED # 1074930**

SECTION 27, 7 NORTH, 2 EAST: ALL  
SECTION 28, 7 NORTH, 2 EAST: LOTS 1-4, INCL., NW4SW4, N2SE4.;  
NW4SW4; N2SE4  
SECTION 32, 7 NORTH, 2 EAST: ALL, EXCEPT 2.25 ACRES IN OGDEN  
VALLEY CANAL (NOTES:THIS IS AN INCORRECT DESCRIPTION)  
SECTION 33, 7 NORTH, 2 EAST: ALL  
SECTION 34, 7 NORTH, 2 EAST: W2NW4

#### **FIRST SECURITY BANK PURCHASE – DEED # 1093871**

SECTION 13, 7 NORTH, 2 EAST: SW4SW4  
SECTION 22, 7 NORTH, 2 EAST: NE4NE4, S2NE4, SE4NW4, E2SW4, SE4.  
SECTION 23, 7 NORTH, 2 EAST: ALL  
SECTION 24, 7 NORTH, 2 EAST: W2W2, E2NW4, NE4SW4.  
SECTION 18, 7 NORTH, 2 EAST: NW4NW4 (LOT 1)  
SECTION 31, 7 NORTH, 2 EAST: NE4

#### **FIRST SECURITY BANK – DEED # 961742**

SECTION 3, 7 NORTH, 2 EAST: S2NW4, SW4, W2SE4, SE4SE4.  
SECTION 4, 7 NORTH, 2 EAST: S2NE4, SE4.  
SECTION 9, 7 NORTH, 2 EAST: E2  
SECTION 10, 7 NORTH, 2 EAST: NE4NE4, S2NE4, NW4, S2.  
SECTION 11, 7 NORTH, 2 EAST: W2NW4, SW4.  
SECTION 14, 7 NORTH, 2 EAST: N2NW4  
SECTION 16, 7 NORTH, 2 EAST: SE4  
SECTION 15, 7 NORTH, 2 EAST: N2N2, SW4NW4, W2SW4.

**FIRST SECURITY BANK PURCHASE – DEED # 977441**

SECTION 13, 7 NORTH, 1 EAST: ALL

SECTION 15, 7 NORTH, 2 EAST: S2NE4, SE4NW4, E2SW4, SE4.

SECTION 19 7 NORTH, 2 EAST: W2W2 (NOTES:THE W2W2 IS ACTUALLY LOTS 1-4.)

SECTION 31, 7 NORTH, 2 EAST: NE4NW4

**Encumbrances on the above lands:**

- Mineral Reservation: United States of America; Union Pacific Railroad; State of Utah.
- Utah Power & Light (February 1962): A perpetual easement and right-of-way 130 wide along centerlines for electric transmission, telephone, telegraph circuits and appurtenant structures, together with the necessary rights of ingress and egress.
- Utah Power & Light (September 1967): A perpetual easement and right-of-way for the erection and continued maintenance, and 65 feet on the south side of the lines for electric transmission, telephone and telegraph circuits and appurtenant structures together with necessary rights of ingress and egress.
- Eden Waterworks Company (April 1965): A perpetual easement 16 feet wide for a 4” transite culinary water pipeline in T7 N, R 1 E, Sec. 25.

**| B. U.S. Forest Service Owned Lands**

**T7N, R1E, SLBM**

\*Section 6 - W1/2, W1/2SE1/4

\*Section 14 - E1/2

\*Section 24 - N1/2, N1/2SE1/4

**T7N, R2E, SLBM**

\*Section 10 - NW1/4NE1/4

\*Section 12 - W1/2, NW1/4NE1/4

\*Section 14 - NW1/4NE1/4, S1/2NE1/4, SE1/4, SW1/4SW1/4, N1/2SW1/4, S1/2NW1/4, SE1/4SW1/4, NE1/4NE1/4

\*Section 18 - S1/2, SW1/4NW1/4

\*Section 20 - N1/2, SE1/4, S1/2SW1/4

\*Section 22 - W1/2SW1/4, W1/2NW1/4, NE1/4NW1/4, NW1/4NE1/4

\*Section 26 - All

\*Section 28 - N1/2, NE1/4SW1/4

\*Section 30 - E1/2NE1/4, NE1/4SE1/4

\*Section 34 - E1/2, E1/2NW1/4

**C. Conservation Easement Lands – Owned by Summit Mountain Holding Group**

**T7N, R1E, SLBM**

\*Section 25 – The East half and that part of the West half of Section 25:

beginning at a point 40 rods West from the Northeast corner of the West half of Section 25, and running thence Southwesterly to a point 40 rods east of the Southwest corner of the Southwest quarter of Section 25; thence east 120 rods to

the Southeast corner of the West half of the said Section 25; thence North 320 rods; thence West 40 rods to the place of beginning.

T7N, R2E, SLBM

\*Section 30 – The West half of Section 30.

**Conservation Easement Lands – Owned by Weber Basin Water Conservancy District**

T7N, R1E, SLBM

\*Section 24 – The South half of the Southeast quarter of Section 24.

# Appendix C – UDWR-USFS MOU

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## MEMORANDUM OF UNDERSTANDING Cooperative Management of Middle Fork Wildlife Management Area

This MEMORANDUM OF UNDERSTANDING (MOU) is hereby made and entered into by and between the Utah Division of Wildlife Resources, whose address is 1594 West North Temple, Suite 2110, Salt Lake City, Utah 84114-6301 (hereinafter referred to as “UDWR”) and the United States Department of Agriculture, Forest Service, Intermountain Region, R4, Uinta-Wasatch-Cache National Forest, Ogden Ranger District whose address is 507 25<sup>th</sup> Street, Suite 103, Ogden, Utah 84401 (hereinafter referred to as the “U.S. Forest Service”). UDWR and the U.S. Forest Service are referred to as “Party” or “the Parties.”

**Background:** On August 23, 1984, the State of Utah executed a contract to purchase 9,500 acres, formerly owned by John Laub, developer of the Wolf Creek Resort (“Laub Property”). The Laub Property is managed to provide crucial big game winter range for mule deer, elk, and moose, as well as providing primitive, non-motorized forms of recreation. Approximately 4,760 acres of property managed by the U.S. Forest Service as part of the National Forest System (“NFS”) are intermingled with the Laub Property. This complex ownership pattern creates difficulties in property access and management for the Parties. See map included as Exhibit 1.

In order to address property access and management concerns, UDWR and the U.S. Forest Service entered into an MOU on June 17, 1986 to manage the Laub Property and the NFS Property as a cohesive unit (“Middle Fork Wildlife Management Area” or “WMA”). In this MOU, the Parties agreed to manage the land collectively as big game winter ranges and to provide for the enhancement of dispersed recreation. The Parties continue to have similar management goals for their respective ownerships in the WMA, and the Laub Property and the 4,760 acres of NFS lands have shown to be a logical management unit. However, additional guidelines have since been developed that need to be incorporated into the management plan. The Parties now wish to revise the agreement in order to meet objectives in Utah’s Wildlife Action Plan, The Utah Division of Wildlife Resources Statewide Management Plan for Mule Deer, Conservation Agreement and Strategy for Bonneville Cutthroat Trout (*Oncorhynchus clarkii*) in the State of Utah (UDWR publication #97-19), and to assist in meeting desired future conditions from the Wasatch-Cache Revised Forest Plan (“WCRFP”). Under the WCRFP, NFS lands within the Middle Fork Wildlife Management Area are to be managed “to protect wintering habitat for deer, elk, and moose, in addition to year round wildlife protection” and as “semi-primitive non-motorized” (WCRFP 4-143).

Wildlife and fisheries habitat management areas are established jointly by the U.S. Forest Service and State wildlife and fish agencies under a memorandum of understanding or by cooperative agreements pursuant to the Sikes Act (U.S.C. 670a-670g) (FSM 2601). This MOU is consistent with those requirements. Therefore, the Parties wish to enter into a cooperative MOU defining each Party’s respective responsibilities in managing the Laub Property and the NFS lands in the Middle Fork area.

1

**U.S. Forest Service MOU**  
**#15-MU-11041906-004**

**I. PURPOSE:**

The purpose of this MOU is to document the cooperation between the Parties to collectively manage UDWR and NFS lands within the Middle Fork Wildlife Management Area for wildlife and recreation in accordance with the following provisions.

Many activities occurring on NFS lands require some level of environmental analysis in accordance with U.S. Forest Service policy found in U.S. Forest Service Handbook 1905.15 Chapter 30, codified at 36 CFR 220 and 7 CFR 1b.3, and 40 CFR 1500. This MOU shall not be construed to expand those obligations and shall not be used as the basis for triggering the need for federal environmental analysis that would otherwise not be necessary in the absence of this MOU.

**II. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:**

UDWR is Utah's legislatively established trustee of the State's wildlife resource, and manages wildlife populations across the state and its property interests with the goal of maximizing wildlife and wildlife-based recreational opportunities for Utah's public into the year 2050. U.S. Forest Service manages its property for multiple uses, including wildlife and wildlife-based recreational opportunities. If conflicting management approaches were to be undertaken by the Parties, there would likely be a reduction in the overall quality of the Middle Fork WMA, and the goals of the Parties would likely be unachievable. Therefore, both Parties will benefit from a unified property management plan for the WMA that establishes clear goals and allocates responsibilities to each Party.

In consideration of the above premises, the Parties agree as follows:

**III. UDWR SHALL:**

- A. Maintain fences, gates and signs on the WMA pursuant to separate agreements between the Parties.
- B. Coordinate and notify the U.S. Forest Service of their efforts to control noxious, invasive or undesirable non-native plants on UDWR lands, and will notify U.S. Forest Service of any noxious, invasive or undesirable plants identified or observed on U.S. Forest Service lands.
- C. Notify U.S. Forest Service of livestock found in trespass on NSF lands. UDWR will contact the Ogden District Ranger when trespassing livestock are discovered on NFS lands, so the U.S. Forest Service can take the appropriate permit, financial and/or legal actions against the owner of such livestock.

D. Coordinate with the U.S. Forest Service to develop and prepare a supporting record and Forest Supervisor Closure Order for the seasonal closing of NFS lands to protect wildlife during periods when wildlife are especially sensitive to disturbance, such as reproductive seasons, wintering periods, or for sensitive species.

E. Recommend and coordinate with the U.S. Forest Service to maintain seasonal closures of the NFS lands to protect wintering wildlife. The Parties recognize that because most of the NFS lands are land-locked by UDWR and private lands, the NFS lands within the WMA are inaccessible when UDWR closes their lands.

F. Coordinate with U.S. Forest Service to plan, get approval for, and implement projects for improving habitat conditions by planting native plant species to the extent practicable, or when native seeds are unavailable, use only certified weed free, non-persistent non-native species on NFS lands. Project implementation will be described and approved through separate agreements.

G. Provide input as requested on analysis under NEPA and other federal laws and regulations that may be required when there is a U.S. Forest Service action or decision associated with NFS lands within the Middle Fork Wildlife Management Area. Nothing herein shall be construed as extending NEPA compliance requirements to state wildlife management actions (hunting and fishing regulations) on NFS lands or state lands.

H. Provide the U.S. Forest Service access to NFS lands over existing open roads and trails on the Laub Property for administrative access and fire control efforts.

I. Comply with all environmental laws and regulations as well as all U. S. Department of Agriculture Regulations on NFS Lands.

J. Coordinate annually with the U.S. Forest Service on resource management issues, concerns and opportunities for the Middle Fork WMA.

K. Engage in long-range planning with the U.S. Forest Service to ensure that all necessary actions such as multiple use planning, environmental analyses, and public involvement are completed and evaluated on a coordinated, timely basis.

#### **IV. THE U.S. FOREST SERVICE SHALL:**

A. Recognize UDWR as the primary authority to manage, control, and regulate fish and wildlife populations in the State of Utah, including on U.S. Forest Service lands.

B. Engage in long-range planning with the UDWR to ensure that all necessary actions such as multiple use planning, environmental analyses, and public involvement are completed and evaluated on a coordinated, timely basis.

C. Grant permission, subject to applicable laws and regulations and U.S. Forest Service policy, to the UDWR for the use of the NFS lands identified in this memorandum for the purposes of increasing and improving big game winter range and enhancement of dispersed recreation, including the right of access for construction, maintenance, and inspection of approved projects under separate agreements.

D. Subject to appropriate environmental analysis, issue temporary grazing Permits on NFS lands, as recommended by the UDWR, for a period not to exceed 1 year to graze specified number, kind, and class of livestock for a specific season and area such as the use of grazing to favor species of plants used by big game for winter time forage, or to control undesirable plant species. However, by U.S. Forest Service policy, the U.S. Forest Service must maintain final authority for the approval of any grazing of NFS lands. Authorized use by the UDWR is subject to all rules and regulations of the Secretary of Agriculture, and the agreement may be suspended or canceled in full for noncompliance.

E. Regional, Forest, and District pesticide specialists shall provide pesticide-use management expertise, as needed, to ensure successful completion of all pesticide application projects on the WMA under separate agreements.

F. Coordinate with UDWR in planning and implementing seasonal closures to protect wildlife or other resources during winter and important reproduction seasons, and as necessary to prevent wildlife depredation problems on adjacent landowner property.

G. The U.S. Forest Service shall not amend the Forest Plan and/or Ogden Travel Plan to allow motorized travel on NFS lands within the WMA without meeting regulatory requirements and coordinating with the UDWR.

**V. IT IS MUTUALLY UNDERSTOOD AND AGREED BY AND BETWEEN THE PARTIES THAT:**

A. Because of the WMA's importance to big game during winter, emphasis will be placed on managing habitat for wintering big game although other species will also be considered as outlined in the Middle Fork WMA Habitat Management Plan, the WCRFP, and the State-wide Memorandum of Understanding between the USDA Forest Service, Intermountain Region and the State of Utah, Utah Division of Wildlife Resources (statewide MOU, FS agreement No. 09-MU-11046000-025). The UDWR's and U.S. Forest Service's cooperative management of these lands serves the mutual interest of the Parties and the public. **The U.S. Forest Service and UDWR mutually agree that the Middle Fork WMA area is crucial big game winter range, and that the public and wildlife are better served by cooperative management of these combined lands by UDWR and the U.S. Forest Service.**

Cooperative management shall not be construed to include the following activities:

1. Conveyance in whole or in part of any Federal real property interest or State real property interest.

2. Limitation on the public's use of the NFS lands, other than recreational non-commercial uses, is prohibited without the written agreement of the U.S. Forest Service.

3. U.S. Forest Service lands within the WMA are identified in the Forest Plan as non-motorized, therefore no motorized recreation is allowed. However, use of motorized equipment by agency personnel or persons under contract or written agreement to perform administrative duties may use motorized vehicles.

B. Nothing in this MOU is meant to supersede existing laws, ordinances, or regulations.

C. That, for the duration of this MOU, the subject NFS lands will not be considered in a land-for-land exchange except in negotiations with the State Land Board, State of Utah, as authorized by Section 65-1-70 of the Utah Code Annotated.

D. Each Party agrees that it will assume all risk and liability to itself, its agents or employees, for any injury to persons or property resulting in any manner from the conduct of its own operations, and the operations of its agents or employees, under this MOU, and for any loss, cost, damage, or expense resulting at any time from any and all causes due to any act or acts, negligence, or the failure to exercise proper precautions, of or by its own agents or its own employees, while occupying or visiting the premises under and pursuant to the MOU. The Government's liability shall be governed by the provisions of the Federal Tort Claims Act (28U.S.C. 2671-80 (1976).

E. This MOU does not authorize the cutting of any timber or other standing live trees on NFS lands without prior approval of the U.S. Forest Service, but any dead or down timber may be used for camp use.

F. The UDWR and U.S. Forest Service agree that no new roads will be authorized without the coordination between both Parties, and in any decision when such a road is considered the welfare of wintering big game animals is a high priority. If the decision is made that a paved road is needed, then the road must include an overpass designed for wildlife crossing.

G. That the descriptions of the NFS lands involved are:

<>Township 7 North, Range 1 East. Salt Lake Meridian Section 6 -W2, W2SE4<>Section 14 - E2 Section 24 -N2, N2SE4 Township 7 North. Range 2 East, Salt Lake<>Meridian Section 10 - NW4NE4 Section 12 -W2, NW4NE4 Section 14 -NW4NE4,<>S2NE4, SE4, SW4SW4,N2SW4, S2NW4 Section 18 -S2, SW4NW4 Section20 -N2,<>SE4, S2SW4 Section 22 -W2SW4, W2NW4, NE4NW4, NW4NE4 Section26 -All<>Section 28 -N2, NE4SW4 Section 14 SE1/4 SW1/4, NE1/4 and NE1/4<>Section 30 -E2NE4, NE4SE4 Section 34 -E2, E2NW4A total of about 4,760 acres.

H. Coordinate and cooperate on objectives, plans, projects, programs, and policies for fish and wildlife, and related recreation, consistent with the statewide MOU.

I. Coordinate and cooperate on fish and wildlife management issues on the WMA, consistent with the statewide MOU.

J. Coordinate and cooperate to control noxious, invasive or undesirable non-native plants, any other plants identified in the weed EIS, and aquatic invasive species found on WMA lands.

K. Coordinate and cooperate in planning and implementing fuels treatment projects, fire suppression, and introduction of prescribed fire into the WMA under separate agreements.

L. Coordinate and cooperate on management of recreational use of the WMA, including both consumptive and non-consumptive uses.

M. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this instrument.

**Principal UDWR Contacts:**

**UDWR Program Contact**

Scott Walker  
Habitat Manager  
Utah Division of Wildlife Resources  
515 East 5300 South  
Ogden, UT 84405-4502  
Telephone: (801) 476-2776  
FAX: (801) 479-4010  
Email: [scottwalker@utah.gov](mailto:scottwalker@utah.gov)

**UDWR Administrative Contact**

Scott Walker  
Habitat Manager  
Utah Division of Wildlife Resources  
515 East 5300 South  
Ogden, UT 84405-4502  
Telephone: (801) 476-2776  
FAX: (801) 479-4010  
Email: [scottwalker@utah.gov](mailto:scottwalker@utah.gov)

**Principal U.S. Forest Service Contacts:**

**U.S. Forest Service Program Manager Contact**

Kevin C. Labrum  
Wildlife Biologist  
U.S. Forest Service  
Uinta-Wasatch-Cache National Forest  
Ogden Ranger District  
507 25th Street, Suite 103  
Ogden, UT 84401-2485  
Telephone: (801) 625-5112  
FAX: (801) 625-5914  
Email: [kclabrum@fs.fed.us](mailto:kclabrum@fs.fed.us)

**U.S. Forest Service Administrative Contact**

Marci Bodell  
Grants Management Specialist  
U. S. Forest Service  
Uinta-Wasatch-Cache National Forest  
857 West South Jordan Parkway  
South Jordan, UT 84095-8594  
Telephone: (801) 999-2122  
FAX: (801) 253-8118  
Email: [mbodell@fs.fed.us](mailto:mbodell@fs.fed.us)

N. NON-LIABILITY. The U.S. Forest Service does not assume liability for any third party claims for damages arising out of this MOU.

O. NOTICES. Any communications affecting the operations covered by this agreement given by the U.S. Forest Service or UDWR is sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the MOU.

To UDWR, at UDWR's address shown in the MOU or such other address designated within the MOU.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

P. PARTICIPATION IN SIMILAR ACTIVITIES. This MOU in no way restricts the U.S. Forest Service or UDWR from participating in similar activities with other public or private agencies, organizations, and individuals.

Q. ENDORSEMENT. Any of UDWR's contributions made under this MOU do not by direct reference or implication convey U.S. Forest Service endorsement of UDWR'S products or activities, and any of U.S. Forest Service's contributions made under this MOU do not by direct reference or implication convey UDWR's endorsement of U.S. Forest Service activities.

R. NONBINDING AGREEMENT. This MOU creates no right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity. The Parties shall manage their respective resources and activities in a separate, coordinated and mutually beneficial manner to meet the purpose(s) of this MOU. Nothing in this MOU authorizes any of the Parties to obligate or transfer anything of value. Specific, prospective projects or activities that involve the transfer of funds, services, property, and/or anything of value to a party requires the execution of separate instruments and are contingent upon numerous factors, including, as applicable, but not limited to: agency availability of appropriated funds and other resources; cooperator availability of funds and other resources; agency and cooperator administrative and legal requirements (including agency authorization by statute); etc. This MOU neither provides, nor meets these criteria. If the Parties elect to enter into an obligation instrument that involves the transfer of funds, services, property, and/or anything of value to a party, then the applicable criteria must be met. Additionally, under a prospective instrument, each Party operates under its own laws, regulations, and/or policies, and any Forest Service obligation is subject to the availability of appropriated funds and other resources. The negotiation, execution, and administration of these prospective instruments must comply with all applicable law. Nothing in this MOU is intended to alter, limit, or expand the agencies' statutory and regulatory authority.

S. USE OF U.S. FOREST SERVICE INSIGNIA. In order for UDWR to use the U.S. Forest Service insignia on any published media, such as a Web page, printed publication, or audiovisual production, permission must be granted from the U.S. Forest Service's Office of Communications. A written request must be submitted and approval granted in writing by the Office of Communications (Washington Office) prior to use of the insignia.

T. MEMBERS OF U.S. CONGRESS. Pursuant to 41 U.S.C. 22, no U.S. member of, or U.S. delegate to, Congress shall be admitted to any share or part of this instrument, or benefits that may arise there from, either directly or indirectly.

U. FREEDOM OF INFORMATION ACT (FOIA). Public access to MOU or agreement records must not be limited, except when such records must be kept confidential and would have been exempted from disclosure pursuant to Freedom of Information regulations (5 U.S.C. 552).

V. TEXT MESSAGING WHILE DRIVING. In accordance with Executive Order (EO) 13513, "Federal Leadership on Reducing Text Messaging While Driving," any and all text messaging by Federal employees is banned: a) while driving a Government owned vehicle (GOV) or driving a privately owned vehicle (POV) while on official Government business; or b) using any electronic equipment supplied by the Government when driving any vehicle at any time. All cooperators, their employees, volunteers, and contractors are encouraged to adopt and enforce policies that ban text messaging when driving company owned, leased or rented vehicles, POV or GOVs when driving on official Government business or when performing any work for or on behalf of the Government.

W. U.S. FOREST SERVICE ACKNOWLEDGED IN PUBLICATIONS, AUDIOVISUALS AND ELECTRONIC MEDIA. UDWR shall acknowledge U.S. Forest Service support in any publications, audiovisuals, and electronic media developed as a result of this MOU.

X. NONDISCRIMINATION STATEMENT – PRINTED, ELECTRONIC, OR AUDIOVISUAL MATERIAL. UDWR shall include the following statement, in full, in any printed, audiovisual material, or electronic media for public distribution developed or printed with any Federal funding.

*In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)*

**To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964(voice and TDD). USDA is an equal opportunity provider and employer.**

If the material is too small to permit the full statement to be included, the material must, at minimum, include the following statement, in print size no smaller than the text: ***"This institution is an equal opportunity provider."***

Y. TERMINATION. Any of the Parties, in writing, may terminate this MOU in whole, or in part, at any time before the date of expiration.

Z. DEBARMENT AND SUSPENSION. UDWR shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the federal government according to the terms of 2 CFR Part 180. Additionally, should UDWR or any of their principals receive a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.

AA. MODIFICATIONS. Modifications within the scope of this MOU must be made by mutual consent of the Parties, by the issuance of a written modification signed and dated by all properly

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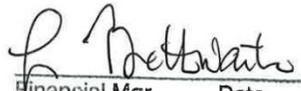
authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change.

BB. COMMENCEMENT/EXPIRATION DATE. This MOU is executed as of the date of the last signature and is effective through **September 30, 2020**, at which time it will expire, unless extended by an executed modification, signed and dated by all properly authorized, signatory officials.

CC. AUTHORIZED REPRESENTATIVES. By signature below, each Party certifies that the individuals listed in this document as representatives of the individual Parties are authorized to act in their respective areas for matters related to this MOU. In witness whereof, the Parties hereto have executed this MOU as of the last date written below.

**ACTING DIRECTOR**

  
GREGORY SHEEHAN  
Director  
Utah Division of Wildlife Resources

 11/10/14  
Financial Mgr. Date  
Division of Wildlife Resources

Date: 11/14/14

  
DAVID C. WHITTEKIND  
Forest Supervisor  
U.S. Forest Service  
Uinta-Wasatch-Cache National Forest

Date: 10/3/14

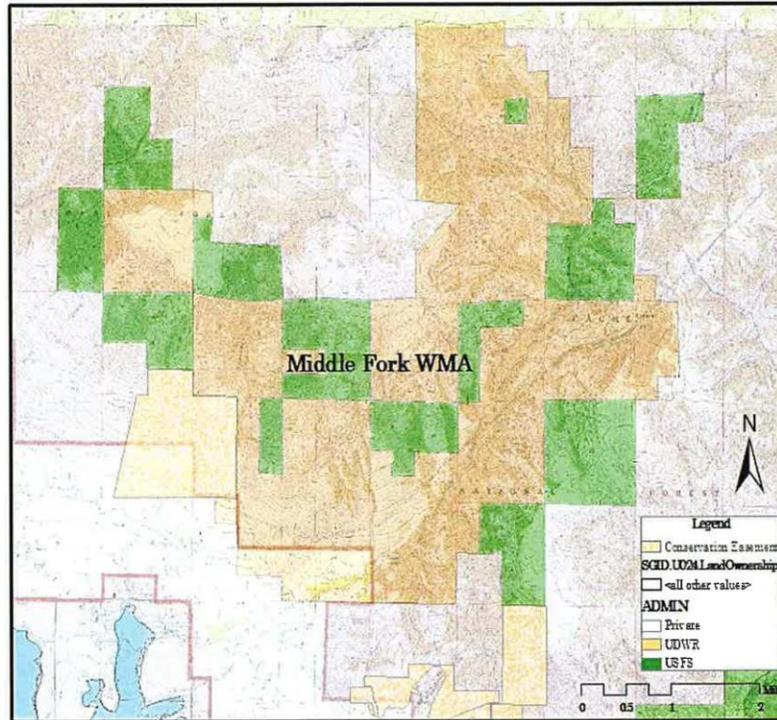
The authority and format of this instrument have been reviewed and approved for signature.

  
MARCI BODELL  
U.S. Forest Service  
Grants Management Specialist

Date: 10/2/2014

U.S. Forest Service MOU  
#15-MU-11041906-004

Land Ownership within and surrounding Middle Fork WMA



Descriptions of the National Forest System (NFS) lands involved are:

◊Township 7 North, Range 1 East. Salt Lake Meridian Section 6 -W2, W2SE4◊Section 14 -E2 Section 24 -N2, N2SE4 Township 7 North. Range 2 East, Salt Lake◊Meridian Section 10 -NW4NE4 Section 12 -W2, NW4NE4 Section 14 -NW4NE4,◊S2NE4, SE4, SW4SW4,N2SW4, S2NW4 Section 18 -S2, SW4NW4 Section20 -N2,◊SE4, S2SW4 Section 22 -W2SW4, W2NW4, NE4NW4, NW4NE4 Section26 -All◊Section 28 -N2, NE4SW4 Section 14 SE1/4 SW1/4, NE1/4 and NE1/4◊Section 30 -E2NE4, NE4SE4 Section 34 -E2, E2NW4A total of about 4,760 acres.

**U.S. Forest Service MOU  
#15-MU-11041906-004**

# Appendix D – Laub Conservation Easement

**COPY**

DEED OF CONSERVATION EASEMENT

THIS GRANT DEED OF CONSERVATION EASEMENT (hereinafter referred to as EASEMENT) by JOHN H. LAUB and CYNTHIA LAUB, his wife, Weber County, Utah (hereinafter referred to as grantor), and the STATE OF UTAH, DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WILDLIFE RESOURCES, (hereinafter referred to as grantee)

WITNESS THAT:

WHEREAS, grantor is the owner of certain real property in Weber County, State of Utah, said real property being more particularly described on Exhibit "A" attached hereto and incorporated by reference herein, hereinafter referred to as GRANTOR'S LAND; and

WHEREAS, the grantor's land is adjacent to and connected with property being purchased by the grantee and the granting of this easement is an integral part of said purchase and part of the consideration therefore; and

WHEREAS, portions of grantor's land currently remain in a substantially undisturbed, natural state and have significant ecological, wildlife, scenic and aesthetic value; and

WHEREAS, all of these natural elements and ecological and aesthetic values are of great importance to the grantor and the grantee and to the people of the state of Utah and are worthy of preservation; and

WHEREAS, grantor, as owner in fee of grantor's land, own the affirmative rights to identify, to preserve and protect in perpetuity the plants and animals, the ecosystems, the natural

features and processes and the great aesthetic value associated with grantor's land; and

NOW THEREFORE, in consideration of the premises and the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, grantor does hereby convey to grantee, its successors and assigns for the use of the general public an easement of access over certain tracts of property of Grantors zoned open space 0-1, excepting golf course lands. Such easement shall be for transit purposes and not include any other use of Grantor's adjacent property. Said transit purposes shall be limited to transit to adjacent public lands by the nearest reasonable access designed to minimize any negative impact on Grantor's property.

Said access shall be limited to non-motorized transportation. Grantors reserve the right to designate routes of such access to minimize detrimental impacts.

Said lands are more particularly described in Exhibit "A" attached hereto and made a part hereof as if set forth herein at length.

The rights conveyed by the EASEMENT are the following:

1. The right of grantee to identify, to preserve and protect in perpetuity and to maintain the ecological and aesthetic features and the native flora and fauna on the grantor's land.

2. To enter upon the grantor's land to enforce the rights herein granted and to observe, study and make scientific observations of its ecosystems.

3. Grantors shall not use any agrichemicals, biocides, herbicides or insecticides except by mutual agreement by the parties hereto.

4. To enjoin any activity on, or use of, the grantor's land which is inconsistent with the EASEMENT granted and with grantor's intentions and to enforce the restoration for such areas or features of the grantor's land as may be damaged by such activities.

The EASEMENT herein granted shall run with and burden title to the grantor's land in perpetuity and shall bind the grantor, his heirs, successors and assigns.

Pursuant to the terms of this EASEMENT, the grantor's land is preserved hereby as open space and natural land, may not be converted or directed to any uses other than those provided herein. No buildings, roads or other structures shall be constructed on the property. The grantee shall have the perpetual right to manage said land as wildlife habitat. Further, the public shall have rights of access to said property for the purposes of hunting, fishing or other recreational activities in such a manner and at such times as allowed by law.

It is expressly understood that should grantor, their heirs, successors or assigns undertake any activity requiring approval of the grantee without or in advance of securing such approval or undertake any activity in violation of the terms of this EASEMENT, the grantee shall have the right to force the restoration of that portion of the grantor's land affected by such activity to the condition that existed prior to the undertaking of such unauthorized activity.

Grantors agree to pay any and all real property taxes and assessments levied by competent authority on the grantor's land. In the event that grantor fails to pay such taxes or assessments, then the grantee shall have the right to pay the same and recover judgment against the grantor pursuant to law, for the amount so paid, together with reasonable attorney's fees, costs of court and such other relief that is just.

The parties hereunto covenant and agree that the grantor may sell or assign its interest that it retains. In the event that grantor shall decide to sell or assign a part or the whole, he shall first offer the property to grantee for the price and on the terms of the intended sale. Grantee shall have 30 days from such offer in which to accept or reject the same. This provision shall inure to the benefit of grantee, its heirs, representatives and assigns and shall continue in force and effect so long as the grantor owns the said property.

The grantee's rights hereunder shall be subject to release and termination pursuant to the terms and conditions of the contract between Grantee and First Security Bank of Utah for the purchase of approximately 9,500 acres of adjacent property, and particularly Section 3(a) thereof.

If any provision of this DEED OF CONSERVATION EASEMENT or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of the DEED OF CONSERVATION EASEMENT and the application of such provisions to persons or circumstances other than those as to which it is found to be invalid, shall not be affected thereby.



By: William H. Geer  
William H. Geer, Director  
Division of Wildlife Resources

STATE OF UTAH            )  
                                  )ss  
COUNTY OF SALT LAKE)

On the 22 day of August, 1985, personally appeared before me William H. Geer, who duly acknowledged to me that he is the Director of the Utah Division of Wildlife Resources; and Dee C. Hansen, who duly acknowledged to me that he is the Executive Director of the Utah Department of Natural Resources; that they are authorized to execute the foregoing DEED OF CONSERVATION EASEMENT for and in behalf of the Utah Department of Natural Resources, Division of Wildlife Resources; and that they did so execute said Easement for and in behalf of the Utah Department of Natural Resources, Division of Wildlife Resources of their own free will.

Dee C. Hansen  
NOTARY PUBLIC, Residing in

SEAL Salt Lake County, Utah

My Commission Expires 4/1/89.

APPROVED AS TO FORM:  
DAVID L. WILKINSON  
Utah Attorney General

By: David L. Wilkinson

EXHIBIT A

John Laubsch/State of Utah  
880 acres

22-020-0008, 0009 X

Section 25: The East half and that part of the West half of Section 25, Township 7 North, Range 1 East, Salt Lake Base and Meridian, described as follows: BEginning at a point 40 rods West from the Northeast corner of the West half of Section 25, and running thence Southwesterly to a point 40 rods East of the Southwest corner of the Southwest Quarter of said Section 25; thence East 120 rods to the Southeast corner of the West half of the said Section 25; thence North 320 rods; thence West 40 rods to the place of beginning. X

ALSO: 23-012-0043 X  
The West half of Section 30, Township 7 North, Range 2 East, Salt Lake Base and Meridian

ALSO: 22-020-0007 X  
The South half of the Southeast Quarter of Section 24, Township 7 North, Range 1 East, Salt Lake Base and Meridian.

945758

NO Fee DOUG CROFTS  
WEBER COUNTY RECORDER  
DEPUTY *Hann Kluw*

AUG 26 10 01 AM '95

FILED AND RECORDED FOR  
*Home Abstract*

PLATTED  VERIFIED   
ENTERED  MICROFILMED

BOOK 1474 PAGE 288

EXHIBIT "B"

The South half of the Southeast Quarter of Section 24, Township 7 North, Range 1 East.

The East half of Section 25, Township 7 North, Range 1 East.

Part of the West half of Section 25, Township 7 North, Range 1 East, Salt Lake Meridian, U.S. Survey: Beginning at a point 40 rods West of the Northeast corner of the West half of Section 25; thence Southwesterly to a point 40 rods East of the Southwest corner of the said West half; thence East 120 rods to the Southeast corner of the said West half; thence North 320 rods; thence West 40 rods to the point of beginning.

Lots 1, 2, 3, 4, 5 and the East half of the Northwest Quarter and the Northeast Quarter of the Southwest Quarter of Section 30, Township 7 North, Range 2 East.

# **DRAFT**

## **EXECUTIVE SUMMARY**

### **Ogden Bay Waterfowl Management Area Habitat Management Plan April 2015**

#### **Primary Purpose of WMA**

The primary purposes of Ogden Bay Waterfowl Management Area are: to preserve, restore, and enhance both aquatic and terrestrial habitat for wildlife; increase wildlife populations to meet wildlife management objectives; conserve, protect, and recover sensitive wildlife species and their habitats; protect cultural resources; and provide for recreational opportunities that are compatible with the purpose of upland and wetland ecosystems.

In 1937, Ogden Bay Waterfowl Management Area (OBWMA) became the first Pittman-Robertson Federal Aid to Wildlife Restoration Act project in the United States. Land was acquired and habitat enhancements were done to: offer improved nesting, resting and feeding habitat primarily for waterfowl and other birds; to mitigate wildlife mortality related to frequent and devastating botulism outbreaks; to accelerate recovery of continental waterfowl populations after they declined (crashed) to all time low population levels during the “Dustbowl Days”; and to provide an area for wildlife-related public recreation because most remaining prime wetlands had been purchased as private duck clubs. To date, the OBWMA is UDWR’s largest waterfowl management area comprised of nearly 19,000 acres containing some of the most highly developed, manageable, productive, and popular wetlands in the nation.

#### **Wildlife Species**

Ogden Bay WMA provides crucial year-round habitat for a variety of avian species, but particularly for waterfowl, wading birds, shorebirds, pheasants, and raptors. Principal waterfowl that inhabit the WMA include Canada geese, and a variety of nesting ducks such as the northern pintail, mallard, cinnamon teal, gadwall, northern shoveler, redhead, and ruddy duck. Principal wading birds include: American avocets, black-necked stilts, herons, and egrets.

The WMA management has been involved and considered critical to the recovery, delisting, and/or current status of some federally listed candidate, threatened or endangered species including bald eagles, peregrine falcons and snowy plover. The WMA provides important winter roosting and foraging habitats for the bald eagle, a state species of concern and contains one active nest site. Other state species of concern that have been observed historically or currently on the WMA include: the American white pelican; bobolink; burrowing owl; Ferruginous hawk; Lewis’s woodpecker; long-billed curlew; mountain plover; and short-eared owl. Several neo-tropical migrant passerines also utilize the riparian and grassland habitats. In total, over 250 species of birds have been observed on OBWMA, and a highly diverse group of mammals, reptiles and amphibians are also found on the area.

### **Habitat Conditions/Problems**

Water distribution, quantity, and quality are of great concern for Ogden Bay WMA. In order to keep impoundments and wetlands at optimal condition, there must be a sufficient supply of water throughout the year. In the spring, water volumes are high and usually more than sufficient to maintain quality habitat. During major flooding events, excessive water is bypassed directly to the Great Salt Lake (GSL) and bypass systems must be cleaned and adjusted daily. In the summer, however, local irrigation decreases the volume of water arriving at the WMA. It is vital that water quantities are monitored and adjusted in order to minimize avian botulism outbreaks that occur on and nearby the WMA. Noxious and invasive weeds including common reed (*Phragmites*), salt cedar and others are abundant on the WMA, and can out-compete more desirable vegetation. The weeds require constant attention. Although much effort has been dedicated to improving habitat conditions and implementing a predator trapping program, some predation of nesting birds still occurs. Undesirable fish species, such as carp, constantly migrate to the pools of Ogden Bay WMA and cause destruction of naturally occurring aquatic invertebrates and aquatic vegetation. Annual eradication efforts are necessary.

### **Access Plan**

The WMA is located 12 miles west of Ogden on the Weber River delta and along the eastern shore of the Great Salt Lake in Weber and Davis Counties. To protect bird nesting habitat, motorized vehicle access is permitted only during waterfowl hunting season. Non-motorized access can be obtained year-round, except in posted wildlife production areas. Five points of entry provide public access to the WMA, three of which are preferred for non-motorized entry. Thirteen parking areas exist and are positioned throughout the WMA at convenient locations. Vehicle travel is generally restricted to gravel roads and parking areas. For hunter and vehicle safety, all vehicles must park in designated parking areas. Parking on or along dikes or roads is strictly prohibited. Small, motorized boats are allowed in river channels and diked impoundments. However, airboats and OHV's are confined to the GSL shoreline west of diked impoundments. Airboat channels and a designated OHV trail are available from the Pintail Flats parking lot to the GSL shoreline. The OBWMA also maintains three dog training areas.

### **Maintenance Activities**

Maintain all fences and gates to protect habitat quality. Maintain buildings, dikes, water control structures, impoundments, access roads and parking lots and assure that appropriate signs are in place to communicate rules and regulations of the WMA. Replace regulatory signs as needed. Monitor and control noxious and invasive weeds using a variety of treatment methods including: herbicide applications supplemented by prescribed burns, water management, and grazing. Adjust, maintain or replace water control structures as needed.

### **Habitat Improvement**

Maintain and preserve existing wetland resources. Enhance and expand wetland resources as opportunities arise. Continue efforts to increase wildlife populations by restoring and diversifying upland habitat by developing more interspersed food and cover plantings. Provide at least 1,000 acres of wetlands in a high productivity, early succession stage for wildlife foraging and reproduction. Aggressively combat invasive weeds, particularly *Phragmites*, using available methods at appropriate intervals to achieve desired results. Control mammalian predators and

undesirable fish populations. Further improvements will be made as personnel time and project budget allows.

**DRAFT**

**Ogden Bay  
Waterfowl Management Area**

**-Habitat Management Plan-**

**April 2015**

**Prepared by:**

**Utah Division of Wildlife Resources**

**Northern Region**

**515 East 5300 South  
Ogden, Utah 84405**



# Ogden Bay Waterfowl Management Area Habitat Management Plan (DRAFT) April 2015

## I. Background Information

### Property Description

The Ogden Bay Waterfowl Management Area (OBWMA) is situated 12 miles west of Ogden on the Weber River delta, and along the central eastern shore of the Great Salt Lake in Weber and Davis Counties, Utah (Appendix A, Map 1). The WMA was created in 1937 with an initial 13,700 acres and a primary mission to decrease wildlife mortality related to catastrophic botulism outbreaks locally occurring along the Weber River delta-fed marshes of the Great Salt Lake. Nationally, major botulism outbreaks were followed by a public desire to establish and maintain sustainable habitat for continentally reduced waterfowl populations. There was additional interest after the “Dustbowl Days” to develop a public recreational area because all remaining viable wetlands had been acquired privately as hunting clubs.

Prior to the existence of the WMA, as the population in the Ogden area expanded, much of the summer water supply of the Weber River delta was diverted for irrigation. With only a comparatively slow trickle of water to feed the delta, instead of its previously full and natural flow, shallow and stagnant pools of water formed at the lake front and on nearby flats, creating favorable conditions for botulism growth. As a result, two major botulism outbreaks occurred. The first occurred in 1921, and resulted in the deaths of more than one-half million ducks on the Great Salt Lake marshes, many of which were attributed to the Weber delta area. This outbreak gained national attention. Another large outbreak followed in 1932. In the early 1930s’, a “dust bowl drought” reduced waterfowl populations continent-wide and, in 1934, record low water volumes flowed to the GSL, increasing the likelihood of more botulism growth. These events caused wildlife officials to become concerned and they created a plan to reduce waterfowl mortality due to botulism. In addition, public requests to government officials for more public hunting areas became common and intense.

As a result of these issues, land was soon acquired and plans were developed for the Ogden Bay WMA, which would serve to better control and monitor water flow to the Weber delta area. In addition, the WMA would restore marshes, eliminate the lethal conditions contributing to botulism outbreaks, and mitigate further waterfowl losses. The future wetland development of the area was to be considered “restoration”, because early explorer records had indicated an expansive marsh had formerly existed on the Weber River Delta.

Development was initiated on the 13,700 acres early in the summer of 1937 by dividing the area into three management units, and beginning construction on a unique system of

dikes and water control structures, buildings, and implementing other habitat improvements.

On September 2, 1937, only weeks after construction began on the WMA, President Franklin D. Roosevelt signed the Federal Aid in Wildlife Restoration Act (a.k.a. the Pittman-Robertson Act) into law which earmarked earnings from a 10% tax on sport-hunting related ammunition and firearms purchases to be distributed to states and used for wildlife restoration purposes.

The United States recognized the urgency of the generally deteriorating situation on the Weber delta, and in 1937, only weeks after it was signed into law, the Ogden Bay WMA was named as the first “Federal Aid to Wildlife Restoration Project” ever to be granted federal aid funding (in the amount of \$2,865.00). This money was to be used for water distribution channels and dike creation, providing wildlife habitat restoration and rehabilitation through the newly enacted Pittman Robertson Act (P-R). The funding allowed wildlife officials to implement the necessary developments to successfully improve habitat conditions for waterfowl. Additionally, federal aid funding has provided the primary monies to further land acquisition, development, restoration, and enhancement of the WMA. The value of the program to Utah and other National WMAs can not be overemphasized. Within 15 years after Ogden Bay WMA was established, 38 states would participate in the P-R program, and within 20 years, nearly 1,000,000 acres were acquired.

To date, the OBWMA has expanded to include approximately 18,680-acres and is Utah’s largest waterfowl management area. It supports some of the most highly developed, manageable, productive, and popular wetlands in the country. It contains a broad diversity of habitats from agricultural farm ground, sage and salt shrub interspersed grasslands, fresh water wet meadow habitats, wooded riparian areas, large shallow impounded lakes or marshes, large seasonally flooded fresh and mixosaline salt flats, and the highly saline waters of the Great Salt Lake (GSL).

For management purposes, the WMA is comprised of six units; Units 1, 2 & 3, the North & South Weber Delta Units and the massive seasonally flooded Pintail Flats Unit. The OBWMA serves as central headquarters for three Waterfowl Management Areas (Ogden Bay, Howard Slough, and Harold Crane) and one Upland Game Management Area (Willard Bay). The Great Salt Lake 4200’ elevation contour line borders the WMA to the west, private farmlands border the WMA on the north and east, and the Howard Slough WMA, which is often managed contiguously with Ogden Bay WMA, borders to the south (Appendix A, Map 2).

**Legal Description:**

Ogden Bay WMA lies within the following full or partial sections: Township 6N, Range 4W, Sections 24, 25, 36; Township 6N, Range 3 W, Sections 19, 20, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36; Township 6N, Range 2W, Section 31; Township 5N, Range 2W, Section 6; Township 5 North, Range 3 West, Sections 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 20, 21, 22, 27, 28; and Township 5 North, Range 4 West, Section 1.

Utah Code, Section 23-21-5 authorizes the DWR to utilize all or parts of 36 townships of sovereign lands below the 1855 Great Salt Lake meander line for the “creation, operation, maintenance and management of wildlife management areas, fishing waters, and other recreational activities.” UDWR’s management authority essentially includes the entire Ogden Bay of GSL, from the eastern shoreline, west to Fremont Island. During low GSL water levels, WMA management activities can enhance and/or affect over 10,000 acres of property west of the WMA’s diked impoundments. Conversely, when the lake rises above the 4,200 foot elevation within OBWMA, there can be over 5,000 acres of GSL open water to the east of the diked impoundments. The salt water habitat is unmanaged by the WMA personnel after it is in the main body of GSL. Descriptions of habitats and management on the west side of the WMA are discussed in later sections. A more complete legal description is listed in Appendix B.

### **Encumbrances**

- **Minerals**
  - All mineral, oil and gas rights were retained by previous landowners, except those rights to sand and gravel, which were retained by the UDWR. This information is available in the UDWR Salt Lake office.
  
- **Water rights/shares**
  - The UDWR currently has 24 water rights for the WMA.
  - The UDWR had previously obtained a number of water rights originating from the Weber River and the North Hooper Slough. However, on April 18, 1967, in an agreement indirectly tied to Contract No. 14-06-400-4643, the UDWR turned over their water rights to the United States Bureau of Reclamation (BOR) for storage in Willard Bay Reservoir. In exchange, the BOR agreed to guarantee minimum flows (90 cfs) from Willard Bay Reservoir, to be delivered by the Willard Canal and lower Weber River, to the east side of Ogden Bay WMA in various specified volumes throughout the course of each year (refer to the Existing Capital Improvements section of this plan for further detail). In addition, flows come to OBWMA through return flow irrigation via several irrigation districts bypass canals and return flow irrigation drains (from April 10 through October 15). After October 15, flows are not diverted into irrigation systems and most of the UDWR water rights flow to OBWMA directly from the Weber River.

These rights were negotiated as part of a major water rights package for mitigation of expected wetland losses during the development of Willard Bay Reservoir. The benefit to UDWR and Ogden Bay was that development funds and water was provided for the eventual annexation of Harold Crane WMA.

As mentioned above, the USBOR took over flows of 3 UDWR water rights in 1967 for storage in Willard Bay Reservoir and in return, agreed to provide the following minimum flow volumes over the course of each year to Ogden Bay WMA:

December 11 to February 28	20 cfs
March 1 to April 10	50 cfs
April 11 to June 15	135 cfs
June 16 to October 15	80 cfs
October 16 to December 10	150 cfs

- In 2004, the above agreement was changed slightly when the UDWR gave Frank Rawson 1 cfs from one location and, in exchange, the UDWR gained 2 cfs from a separate location. A river commissioner from the Utah State Engineers Office monitors and assures that the UDWR receives the correct annual flow volumes as they are stated in the agreement.
- One water right for 0.015 cfs provides water to the residence and headquarters area on the WMA via an underground well.
- UDWR acquired water rights totaling 23 cfs as part of the South Weber Delta land purchase. It included: 10 cfs from runoff, surface drains, and flowing wells; 2 cfs from an underground drain; 6 cfs from the South Run of the Weber River; and 17 underground wells totaling approximately 5 cfs.
- Due to its location downstream from several rivers, creeks, and canals, as well as its proximity to the Great Salt Lake (which is the terminal point for water in the area), Ogden Bay receives some water which drains from nearby farmland and irrigation systems as it seeps toward the lake. Several of these smaller water sources have been filed on by UDWR, but proof of water use has not yet been established and approved by the Utah State Engineer's Office.

All other UDWR water rights pertaining to OBWMA are detailed in Table 1 below. The remaining 21 UDWR water rights total approximately 19 cfs. Complete records of these water rights are on file at Ogden Bay headquarters. While most of the water rights have been perfected and proved up on, some are still being processed. Generally, any areas with secured water rights are adequately irrigated. However, several newer areas with proofed water rights do not have adequate water, particularly on the Weber Delta Units.

**Table 1. OBWMA Water Right information.**

<b>WUCNO</b>	<b>Flow (cfs)</b>	<b>Source</b>	<b>Priority</b>	<b>Period of Use*</b>
35-1774	6.000	Weber River South Run	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3923	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3924	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3928	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3929	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3930	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3931	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3932	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3933	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3934	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3935	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3936	0.059	Underground Well	06/00/1888	S: 01/01 to 12/31 W: 01/01 to 12/31 O: 04/01 to 10/31
35-3937	0.059	Underground Well	06/00/1961	I: 04/01 to 10/31 S: 01/01 to 12/31 D: 01/01 to 12/31
35-3938	0.134	Underground Well	06/00/1888	I: 04/01 to 10/31 S: 01/01 to 12/31
35-3939	0.066	Underground Well	06/00/1888	I: 04/01 to 10/31 S: 01/01 to 12/31
35-3940	0.059	Underground Well	06/00/1888	I: 04/01 to 10/31 S: 01/01 to 12/31
35-3941	0.059	Underground Well	06/00/1888	I: 04/01 to 10/31 S: 01/01 to 12/31
35-3945	0.059	Underground Well	06/00/1888	I: 04/01 to 10/31 S: 01/01 to 12/31 W: 01/01 to 12/31
35-127	0.015	Underground Well	06/07/1937	F: 01/01 to 12/31 C: 01/01 to 12/31 W: 01/01 to 12/31
35-5186	2.000	Underground Drain	03/11/1980	I: 04/01 to 10/31 S: 01/01 to 12/31
35-9880	10.000	Run-off, Surface Drains, Flowing Wells	08/10/1994	I: 01/01 to 12/31 O: 01/01 to 12/31
35-1651**	6.000	North Hooper Slough	00/00/1903	I: 01/01 to 12/01
35-826**	34.700	North Hooper Slough	11/18/1955	I: 04/01 to 11/15 W: 01/01 to 12/31
35-128**	50.000	Weber River	08/07/1937	I: 04/01 to 11/15 W: 01/01 to 12/31

\* S (Stock Water), W (Wildlife), O (Other), I (Irrigation), D (Domestic), F (Fish Culture), C (Commercial)

\*\* Water rights turned over to the BOR in 1967

- **Easements/ROW's/MOU's**
  - Weber County Wildlife Federation donated 355.8 acres of land to the UDWR as part of the original WMA that was created in 1937. An agreement was made between the two parties that declared the land to always be held open as a public shooting ground and for the benefit of wildlife. This land is the current location for the OBWMA headquarters area. Further details of this agreement are available at the headquarters office of Ogden Bay.
  - Morton Salt Company (MSC) and Utah State Fish and Game Department (now the UDWR) created a memorandum of agreement (#20427A) on October 2, 1961 concerning a land exchange that was desired by both parties, to straighten the meandering boundary line between the MSC and UDWR properties at the northern boundary of OBWMA. This agreement allowed for a more direct seven mile fence line to minimize the installation workload, reduce the cost of fencing supplies, and to allow for better maintenance for both parties. MSC granted UDWR the right to erect a fence along the agreed upon boundary. In addition, MSC granted UDWR the right to develop and utilize those lands belonging to MSC situated south of the fence, along with 3 additional acres located in the NE corner of Section 34, T6N, R3W. UDWR could utilize these lands for road development, and waterfowl propagation, feeding and hunting. UDWR agreed to erect the fence along the boundary and granted MSC the right to develop and utilize UDWR lands situated north of the fence for pasture or other purposes. A copy of the agreement and a map detailing the land swap is available at the UDWR NRO Office. Morton Salt Company no longer owns the property, although the agreement remains valid and all current land owners are aware of the agreement.
  - The Wharton land donation package of 9.88 acres in 1985 included a ROW which grants UDWR Administrative and Public access through 3 different landowners. It begins near the end of 5500 West to the OBWMA South Weber Delta unit.
  - A ROW was acquired as part of the 3.27 acre Weber County land donation in 1988. Weber County had not used the land in several years and was aware that the UDWR had recently acquired adjacent property. The pre-existing fence line on the north side of the property has not yet been relocated southward to encompass the donated land. The right-of-way grants access west from the end of 5500 West, along the South Weber Delta fenceline.
  - In October 2004, the United States Air Force obtained a special use permit (SUP) (No. AFMC-HL-4-04-495) from the UDWR for the term of one year to investigate and remediate groundwater contamination of trichloroethene (TCE) and other chemicals of concern traceable to Hill Air Force Base (HAFB) and the Little Mountain Test Annex which is located north of the north boundary of OBWMA. On OBWMA, the contamination was initially believed to have occurred within groundwater under approximately 55 acres within T6N R3W, Section 24. HAFB originally agreed to install 27 piezometers at nine locations with depths ranging from 25 to 100 feet. Subsequently in March 2006, because of inconclusive results, the SUP was converted to a right-of-way agreement for a maximum term of 5 years. The amendment also included an increase in the quantity of temporary piezometers from 27 to a maximum of 60 monitoring sites,

the addition of a maximum of ten permanent sites, as well as permission to conduct non-intrusive surface surveys including, but not limited to geophysical investigations. The ecological risk assessment concluded that site contaminants in the groundwater do not pose an unacceptable environmental risk to human health, groundwater resources, wildlife, or terrestrial plants in the area. Further information concerning this issue is included in the section “Adjacent Land Uses and Potential Impacts” below, and detailed records are on file at the UDWR Northern Region Office. A map is included in Appendix A that shows the approximate affected area.

- John Beus and the UDWR entered into an agreement in 2005 wherein Mr. Beus granted UDWR free and clear usage and easement of a parcel of his land situated in the NE ¼ of Section 11, T5N, R3W, containing 0.335 acres and providing desirable access to the eastern part of OBWMA. The offer was to serve as payment for his unpaid and overdue debt resulting from a contract dated August 1, 1990 in which UDWR was to be reimbursed for costs associated with fence construction along the E ½ of Section 11, T5N, R3W, SLBM. Mr. Beus retains full responsibility for paying all taxes and assessments on the land.
- In 2009, Scott and Nikkol Perkes and the UDWR completed a Right-of-Way Exchange Agreement to secure and grant access to the other party on adjacent parcels of an existing road (WEB-0904EA-074). The Perkes property is located between two parcels of UDWR property on the North boundary of OBWMA and the property lacks direct and convenient access, particularly during the wet months of the year. The access route to Division property on the NE corner of OBWMA must first pass through an isolated 80 acre parcel of Division land, then through the Perkes property in order to access the main body of OBWMA. The UDWR granted the Perkes a right-of-way along the Nielsen Access Lane and over an existing road that traverses Division land in order to access the Perkes Property. In exchange, the Perkes granted UDWR a right-of-way to utilize an existing road on their property for public and administrative access between the two Division properties. This right-of-way term is 30 years. Further details of this agreement are on file at the NRO.

Along with the Perkes agreement outlined above, a small parcel of land along the same ROW is owned by the Barnes Family. UDWR negotiated a similar Right-of-Way Exchange Agreement with the Barnes to secure administrative and public access across their property (WEB-1010EA-165), while also providing the Barnes with access to their property. Further details on this agreement are on file at the NRO.

- The Torgeley family had a historical easement through the South Delta Unit to the Gibson property (now Perkes property). This easement is non-functional due to the alignment through deep water ponds.

### **Continuing Cooperative Projects, Contracts and Special use Permits**

- Weber County and UDWR have entered into a cooperative flood control project principally resulting from river flooding in 2011 (#5084; UDWR #131495). Weber County received a large Emergency Watershed Protection (EWP) grant

from the Natural Resources Conservation Service (NRCS). The grant provides NRCS analysis, consultation and engineering technical services at approximately 10 percent of the total grant amount. However, implementation requires a cost share. UDWR has contributed to the cost share and also entered into a contract with Weber County that spells out its' contributions and personnel commitments. The funding is for analysis and improvements in the Weber Rivers' water distribution and control system, along with structure protection, particularly during periods of high water. In some areas, structure protection at lower water levels will also be evaluated to assist with some management actions. Objectives of the project include reducing flood damages and reducing localized flood water elevations. This will be accomplished by increasing water velocity in the channel, providing the river access to the floodplain to dissipate water flow and velocity, and facilitating channel morphology that enhances sediment transport.

Currently, the Environmental Assessment (EA) and NEPA phases for this project have been completed. The hydrological modeling phase along the lower Weber River and the entire Little Weber Creek drainage has been completed. During flood experimentation surveying, the preliminary hydrological model results indicated at least some infrastructure and development will be placed on Ogden Bay. Improved or additional mechanical water distribution structures are anticipated to be placed on the WMA, along with potential structures in the Rainbow Unit of Harold Crane WMA.

As part of Weber County's flood control project that began in 2011, UDWR issued a Special Use Permit for an ongoing flood debris and silt removal project. Phase I of the project was to remove flood debris from the 2011 flood, as well as to remove previously existing residual deposits. Phase II included enlargement of water system/flood water capacity on OBWMA (additional details in water development section below). The debris removal part of the project has been completed. The County is the primary EWP funding recipient and the local agency overseeing day-to-day activities. A copy of the UDWR's cooperative contract with Weber County is on file at the NRO. From a WMA management perspective, this project is critical to preventing future damages similar to what occurred during the 2011 Weber River flood event. As a response to other agency requests, along with public requests, the design of OBWMA's' water control structures were heavily modified in an attempt to increase flows through the system. During the height of the flooding, drastic, experimental breaching and emergency dike overflow excavation activities were completed. The results of this included: a loss of water control in some management units; a required complete closure of the entire WMA to the public for recreational and agricultural usage during the impact period of six months; a total loss of all high priority wildlife species production; a massive invasion of weeds within approximately 2,600 acres during subsequent years; silt loading within water channels and in various management units; and extensive damages to water control and dike structures. A summary location map of larger structure damages caused by uncontrolled flood

water entry into the interior of units (instead of the normal water route which bypasses around them) is on file at the OBWMA offices.

- Grazing contracts are in effect on the WMA under the UDWR Administrative Lands Rule (R657-28). In 2013, over 2,500 acres and five of the six management units within the WMA supported grazing activities. As per the Land Rule, grazing on the WMA is open to public bid, requires a UDWR special use permit and follows the official statewide bid process for advertising and the selection process. The grazing is done using an area specific prescription to achieve the desired goals and objectives. These goals and objectives are described in the grazing contracts which contain all applicable objectives, provisions, restrictions, limitations and terms of the agreement. Copies of all grazing contracts are in the OBWMA files.

### **Land Acquisition History**

In the 1930s, through a partnership between the UDWR, the Weber County Wildlife Federation, the U.S. Fish and Wildlife Service, and the Civilian Conservation Corps (CCC), the Ogden Bay WMA was created on the shores of the Great Salt Lake. The impetus for the WMA creation was to mitigate the catastrophic, lethal effects on waterfowl from recurring avian botulism outbreaks, to increase waterfowl populations from the continentally depressed waterfowl populations resulting from the drought of the “dust bowl days”, mounting interest to set aside land for wetland restoration to protect and produce waterfowl and increase the amount of wetlands available for public recreational activities

Initial primary land acquisition totaled approximately 13,700 acres including: 355.80 acres that were purchased by the Weber County Wildlife Federation in 1935 for a critically needed headquarters site above both the GSL and Weber River flood plains; 12,429.50 acres owned by the State of Utah which were deeded to the Division in 1937; and 914.71 acres that were purchased in fee title by the Division at a cost of \$14,830.65. Under a cooperative agreement (August 17, 1937) between the State of Utah and the U.S. Biological Survey (now U.S. Fish and Wildlife Service ), the Civilian Conservation Corps (CCC) quickly began development on the land, including construction of buildings, dikes and habitat improvements. The Biological Survey originally administered and planned the project. The developed CCC regional camp was comparatively large with an eventual labor force of over 300 people, and an engineering and equipment operator staff of 38. The original laborer bunk houses and water tower have been removed, but the office building and garage/shop are still used for OBWMA administrative activities. The original camp layout, along with plans of the buildings and other infrastructure for the approximately six acre site, are kept in the OBWMA files.

On September 2, 1937, only weeks after construction began on the WMA, President Franklin D. Roosevelt signed the Federal Aid in Wildlife Restoration Act (a.k.a. the Pittman-Robertson Act; a.k.a. PR) into law which earmarked earnings from a 10% tax on sport-hunting related ammunition and firearms purchases to be distributed to states and used for wildlife restoration purposes. In 1938, Ogden Bay made history by being named

the first project in the nation to receive federal aid funding for wildlife habitat restoration through the Pittman Robertson Act.

By 1943, the UDWR was able to hire a manager, assumed full management of the property, and acquired several hundred additional acres on the east side of Unit 1 by combining Federal Aid funding with revenue from state hunting licenses. In 1958, this combination also funded the purchase of the nearby Howard Slough WMA to the south. No additional OBWMA land was acquired for nearly 30 years.

During the mid-1980s, the water level of the Great Salt Lake gradually swelled and flooded nearby shoreline habitats, until finally peaking in 1986. The result was that all of the WMA, except approximately 500 acres, was submerged by salt water. This flooding event occurred over several years and progressively inundated many productive mixo-saline and freshwater wetlands surrounding the lake that had previously served as internationally important shorebird, wading bird, and waterfowl habitat.

In 1984, cooperation with the Utah Wetlands Foundation, the UDWR temporarily leased approximately 1080 acres of land adjacent to the WMA outside of Great Salt Lake flood boundaries to provide recreational land for the public. The number of leases decreased over time, and all leases were discontinued after flooding subsided and waterfowl habitat and hunting opportunities on the WMA improved. Coincidentally, a combination of declining beef sales at the time and adjacent upland pastures that had been damaged from the GSL flooding, motivated adjacent land owners to sell their property despite the low property values. This provided ideal circumstances for the UDWR to expand Ogden Bay WMA, and preserve and improve waterfowl habitat in the area. The leasing program had been considered “preemptive” to purchase and 720 of the leased acres were acquired. In total, there were approximately 1,700 acres acquired through this cooperative effort between federal, state, and private organizations.

In 1985, Jim L. Wharton donated 9.88 acres of wet pasture and marsh habitats. This donation included a right-of-way to UDWR leased lands that provided hunters with additional access to land above the flooded boundaries of OBWMA. This land is located near the South Weber Delta Unit 5500 West access.

In 1987, UDWR entered into a unique cooperative acquisition project. Using joint funds from federal aid, Utah State Waterfowl Stamp revenues, and monies from the Ducks Unlimited MARSH (Matching Aid To Restore State Habitat) program, UDWR purchased two significant land parcels on the Weber River delta situated on the northeast side of the original WMA. These lands included the 665-acre Penman & Loock property, and the 640-acre Favero property (with water rights).

In 1988, using mainly Utah Duck Stamp and federal aid revenues, additional acreage was acquired: Penman & Loock property (170 acres); Nielson property (80 acres); and a Weber County donation), bringing the total new land area, including the acquired leased lands (see above), to a sum of approximately 2,200 acres. Due to the vastness of the new area and for development purposes, the Weber Delta land was divided into two units

using the Weber River as a boundary for separation. These units became known as the North and South Weber Delta Units. Ducks Unlimited contributed major funding for habitat and infrastructure development of the new units.

In 1990, Hooper Hot Springs, a 300 acre parcel of land adjacent to the southern tip of Ogden Bay WMA was purchased and allowed contiguous management with the Howard Slough WMA. The land was acquired using a North American Waterfowl Management Plan grant monies and federal aid money. The OBWMA's expansion in the 1980's and 1990's using monies from the Utah Wetland Foundation, the Utah Duck Stamp, the DU Marsh program, and North American Waterfowl Management Plan, were the first usage of these funds in Utah.

The Schilling property (a.k.a. the "Higley Jungle"), totaling 60 acres, was purchased in 1997.

In 2006, Ducks Unlimited began negotiations with the Gaskill family to purchase their 50 acre parcel located east of the OBWMA Headquarters dog training area. In 2011-2012, DU had personnel and administrative changes which resulted in DU declining to acquire the property and offering the Right-of-First-Refusal to UDWR. UDWR subsequently purchased the property in 2013, using Habitat Council funds. This property provides a unique freshwater, spring-fed pond and expands the dog training area located west of the property.

Ogden Bay is now comprised of nearly 19,000 acres and future growth is anticipated as land and funding are available. A summary of the WMA land acquisition is included in Table 2 below:

**Table 2. OBWMA Land Acquisition History.**

<b>Date Acquired</b>	<b>Previous Owners &amp; Deed Reference #</b>	<b>Acquisition Method</b>	<b>Price</b>	<b>Acreage</b>	<b>ROW's &amp; Water Rights</b>	<b>Funding*</b>
1937	Unknown	Fee Title Purchase	\$14,831.00	914.71	None	SF
1937	State of Utah	Set aside for Division use	No cost	11,000.00? 12,429.50	None	NA
1935	Weber County Fish and Game Protective Assoc. (now WCWF) (49339)	Donation	No cost	355.80	None	NA
1942	Levi H. and Cora Fowers	Fee Title Purchase	\$600.00	40.00	??	FA, SHL
1942	Jesse and Mara Fowers	Fee Title Purchase	\$600.00	40.00	??	FA, SHL
1942	Arthur L. & Cora Fowers (67793)	Fee Title Purchase	\$600.00	40.00	None	FA, SHL
1942	Cora Fowers	Fee Title Purchase	\$2,386.00	159.07	??	FA, SHL
1943	Higleys	Fee Title Purchase	\$2,744.00	182.90	??	FA, SHL
1984-1985	Jimmy L. Wharton	Donation	No cost	9.88	ROW to previously leased lands	NA
1987	Robert W. Penman and Max G. Look (1017588, 1024389)	Fee Title Purchase	Approx. \$200,000	665.41	None	FA, UWS, DU
1987	Paul & Jeralyn Favero (1005892)	Fee Title Purchase	Approx. \$125,000	639.86	19 cfs: wells, drains, & South Run Weber River	FA, UWS, DU
1987	Weber County (1027814)	Donation	No cost	3.27	None	NA
1988	Penman and Look (1055001)	Fee Title Purchase	??	169.69	None	FA, UWS, DU
1988	Penman and Look (1053295)	Fee Title Purchase	??		None	FA, UWS, DU
1988	Alta B. Neilson (1058936)	Fee Title Purchase	??	80.00	None	UWS
1997	Tawnya Gayle Schilling (a.k.a. Higley Jungle) (1468727)	Fee Title Purchase	\$60,000	60.00	None	??
2013	James H. Gaskill	Fee Title Purchase/Land Donation	\$120,000	50.00	Admin. Vehicle access ROW	HC

\* SF (State Funds), FA (Federal Aid), SHL (State hunting license revenue), UWS (Utah State Waterfowl Stamp), DU (Ducks Unlimited M.A.R.S.H. programs); HC (UDWR Habitat Council)

## **Historic Uses**

Historically, Native American Fremont Indians utilized OBWMA and nearby areas as affiliation camps and burial sites, and they gathered food on the area. In an 1843 account from the explorer John C. Fremont, while camping on what is now OBWMA, he described a scene with thousands of waterfowl. Around 1850 the first settlers arrived to find a receded Great Salt Lake with nearby abundant green pasture lands containing wet meadows, grasslands, cottonwood forests, and black willows along the Weber River delta, all of which provided a plentiful food supply for their cattle to graze. Early records of wildlife in the area include notes of antelope and buffalo numbering in the hundreds found along the river during pre-settlement years.

As duck hunting became a popular sport in the early 1900's, two private hunting clubs became established along the north and south runs of the Weber River. It was common practice for the marshlands to be freely grazed by the local community in the summer, and hunted in the fall and winter.

As more settlers began to farm in the Ogden area, fresh water was diverted upstream and used for irrigation of crops, depriving the area's wetlands of its previously natural volume of water. At the time of UDWR acquisition, much of Ogden Bay consisted of dry, barren salt flats due to a lack of seasonal fresh water from upstream irrigation diversions and a receded Great Salt Lake water elevation. However, since its creation, and development in 1937, the impounding and spreading of fresh water, along with annual variation of GSL water levels providing mudflat habitat, have rehabilitated OBWMA wetlands, and the area is now used as nesting, resting, and feeding habitat for waterfowl and other shorebirds.

## **Purpose of Division Ownership**

Cumulatively, the Ogden Bay WMA was purchased using funds generated from the Weber County Fish and Game Protective Association (now WCWF), the United States Wildlife Restoration Program (Federal Aid; P-R monies), Ducks Unlimited, Inc. M.A.R.S.H. programs, North American Waterfowl Management Plan, Pheasants Forever, the Utah State Upland Game and Waterfowl Stamps, Utah State hunting license revenues, the UDWR Habitat Council Authorization Fund and acquired by private donation. Two Federal Aid Grants were utilized for the initial development of the property and the subsequent fee title acquisitions: FA-W-1-D and FA-W-14-L (Segments 1-10 with various amendments).

OBWMA is managed primarily for avian species such as waterfowl, pheasants, shorebirds and wading birds, but ultimately the WMA is managed to preserve, restore, and enhance both aquatic and terrestrial habitat for all wildlife. In particular, management activities will: preserve, restore and enhance sensitive and unique wetland and upland habitats, including genetically distinct populations of native vegetation and wildlife; protect cultural resources; and provide for recreational opportunities that are compatible with the purpose of upland and wetland ecosystems.

## **Key Wildlife Species Occurring on the WMA**

Ogden Bay WMA provides crucial year round habitat for a vast variety of wetland and upland species associated with the diverse types of habitat it contains. The particularly wide array of avian species present on the WMA in all seasons, ranging from large birds, such as the white pelican and tundra swan, to small birds, such as the least sandpiper, may be attributed to the extensive food resources that are available. Bird-use days number in the millions annually.

The WMA management has been involved in and considered critical to the recovery, delisting, or current improved status of some federally threatened or endangered species including bald eagles, peregrine falcons and snowy plover. The WMA provides important winter roosting and foraging habitats for the bald eagle, a state species of concern, and contains one active bald eagle nest site. Efforts to increase the foraging base for eagles resulted in increased wintering populations. Bald eagles were successfully de-listed in 2007. Peregrine falcons (successfully de-listed in 1999) utilize OBWMA in the spring through summer months. In the 1970's as part of a national effort to save the endangered falcon, one of several nationwide experimental falcon hack towers was constructed on the south end of Ogden Bay. Endangered falcons were raised in artificial conditions and transplanted to the towers. The tower at Ogden Bay WMA was the first one west of the Mississippi to successfully produce wild young, and annual nesting still usually occurs. Surveys on the area for the endangered snowy plover found the highest known nesting density in the United States, and methods for improving production habitat were initially developed on OBWMA and were published internationally.

Other state species of concern that have been observed historically or currently on the WMA include: the American white pelican; bobolink; burrowing owl; Ferruginous hawk; Lewis's woodpecker; long-billed curlew; mountain plover; and short-eared owl. Several neo-tropical migrant passerines also utilize the riparian and grassland habitats. In total, over 250 species of birds have been observed on OBWMA, and a highly diverse group of mammals, reptiles and amphibians are also found on the area.

Principle waterfowl that inhabit the WMA include Canada geese and a variety of nesting ducks including: northern pintail, mallard, cinnamon teal, gadwall, northern shoveler, redhead, and ruddy duck. The WMA provides important nesting and brooding habitat for waterfowl and shorebirds, and serves as feeding and staging habitat for millions of migratory birds that fly over the Great Salt Lake each year as part of both the Pacific and Central flyway migrations. In fact, due to the large abundance of birds (over 1,000,000 bird-use days occur annually representing over 250 species) that utilize the fresh, mixosaline and saline GSL habitats along their migratory routes, Ogden Bay WMA is considered as a critical component to GSL's designation as a "Western Hemispheric Shorebird Reserve Network" site. In addition, the OBWMA, along with several other areas around the GSL, was declared by the National Audubon Society and the American Bird Conservancy as a globally "Important Bird Area" (IBA). A more complete listing of Ogden Bay WMA wildlife species is available in Appendix C. All sensitive species and species of conservation concern known to occur on the WMA are discussed in the

“Sensitive Species” section of this plan, and are summarized in Table 1 located in Appendix C.

### **Public Recreation Opportunities and Restrictions**

Ogden Bay WMA offers a variety of recreational opportunities. With a reasonably close proximity to the Wasatch Front, Ogden Bay has over 80,000 visitors in some years. It is most known for its waterfowl and pheasant hunting opportunities. With 15,000 to 25,000 waterfowl hunter visits harvesting 20,000 to 30,000 birds annually, it is one of the most heavily hunted areas statewide. Visitors may possess a legal firearm or archery tackle only during waterfowl hunting seasons. Upland game may be hunted only with a shotgun using nontoxic shot and only during that time coinciding with waterfowl hunting season. Hunting is allowed anywhere on the WMA during waterfowl season, except near the headquarters equipment storage area and within 100 feet of any vehicle traveled roads or parking lots. For hunter and vehicle safety, vehicles must park in the designated parking areas. Parking on or along dikes or roads is strictly prohibited.

Activities on the WMA will be considered according to the UDWR Administrative Lands Rule (R657-28). In general, activities that do not promote or protect the goals and objectives of the unit will be prohibited, specifically those that disturb or harass wildlife and their habitats.

Additional recreational opportunities include:

- The WMA is a popular site for wildlife viewing, photography, hiking, biking, picnicking, scenic driving, fishing and dog training. Many visitors especially enjoy bird watching during the spring and fall migration periods.
- Year round fishing is permitted on OBWMA, but is restricted to specific sections of the Weber River and select nearby channels in order to avoid disturbance to nesting waterfowl.
- Dogs are allowed anywhere on the WMA during waterfowl season. During the non hunting season months of September, late January, February and March, dog training is restricted to the three designated dog training areas located near 5500 West and near both 7500 West access points. See Map 8 in Appendix A for dog training area locations. Dogs must be leashed at all times from April 1 to September 1, except for a dog walking area along the East Dike of Unit.
- Trapping of muskrat, raccoon, fox, skunk, and mink is allowed for permit holders. Permits are obtained through a public draw application process.
- Permits are also required for special use activities on the WMA and must be filed with the UDWR several months in advance to assure proper review and approval (R657-28). Special uses are defined as “specific, non-depleting land uses, including seismic or land surveys, research sites, organized activity, or physical access on division lands.” Any special use must not compromise the primary objective for original property acquisition.
- Year round access is available to visitors traveling on foot, except in posted closed critical wildlife production areas. For motor vehicles, annual access through the outer gates is available only during the waterfowl season, which

begins in mid September and remains open until February 1<sup>st</sup>. Some perimeter parking areas are open year round.

- Limited camping in designated areas is permitted when gates are open. Camping is permitted on the WMA for no more than 2 weeks as per the UDWR Administrative Lands Rule (R657-28). If resource damage occurs from camping, the camping limit may be further restricted and/or the area may be closed to camping.
- Non-motorized and smaller motorized boats are allowed in river channels or diked impoundments and may launch from any of the six boat launches provided. Airboats are confined to the west side of diked impoundments, and also may launch from 9500 West 900 South at the end of the Pintail Flats access road. More specific guidelines and restrictions for the WMA are stated in the waterfowl and upland game guidebooks, and the UDWR website.
- Public restroom facilities are available at the south end of Ogden Bay, just north of the headquarters area. Visitors are required to pack out all garbage.

### **Conservation Partners Involved in Acquisition**

The WMA has a strong history of innovative, cooperative partnerships. Acquisition of Ogden Bay has been accomplished over time through these partnerships with various agencies and individuals. Partnering funding groups include: the Utah Waterfowl Stamp monies; Wildlife Restoration monies (Federal Aid); U. S. Fish and Wildlife Service; Weber County Wildlife Federation; Weber County; Utah Wetlands Foundation; North American Waterfowl Management Plan; Ducks Unlimited; Pheasants Forever; the UDWR Habitat Council, and by private donation. With some of these agencies and organizations, funds provided to acquire OBWMA were the first time that particular entity provided funds for any land acquisition.

## **II. Property Inventory**

### **Existing Capital Improvements**

- **Roads, Bridges and Trails**

There are approximately 36.50 miles of roads and 6 vehicle bridges that exist on the WMA. Road surfaces are composed of one of three surfaces. An *oiled black top road* runs from the south entrance gate, north one mile to parking lot #1 and around the headquarters yard. This road is 18 feet wide and approximately one mile in length. *Gravel roads* are found on all main dikes. They are surfaced with eight to ten inches of gravel, with the exception of the south dike of Unit 1, which is surfaced with over 12 inches of gravel due to the significant hunter traffic in the area. *Dirt roads* exist on most secondary dikes, and also on the access road on the east side of OBWMA along the south bank of the South Run of the Weber River. Most roadways are currently in good condition with most of the asphalt sections being crack sealed and surrey coated in 2013.

Five of the original spillway bridges installed in 1940 by the CCC have been replaced over time with reinforced bridges with concrete decks and beams. The largest bridge on the area is located at the south end access point. It is wooden and needs rebuilding or replacement. An engineering plan has been drafted and approved for the bridge

replacement within the next year using the NRCS EWP funding grant. The only vehicle access bridge from the north is concrete, but needs repair and is listed as potentially hazardous.

On South Weber Delta Unit, there are 14 miles of foot trails/two-track roads. There are 14 foot bridges in locations where hunters and wildlife watchers need to cross deep channels and borrow pits to access hunting areas, retrieve ducks, or simply observe birds at a closer distance.

- **Dog Training Areas**

There are currently 3 dog training areas on the OBWMA (see map in Appendix A). Two are located immediately east and adjacent to the 7500 West main dike, with one on the north end of the WMA (525.48 acres) and one on the south end of the WMA (504.60 acres). A smaller dog training area is located near 5500 West (17.123 acres). The areas off of 7500 West are signed to identify the areas for dog training, while the parcel off of 5500 West is not yet signed. The areas are fenced along the main roads with styles (stairs) over the fences, or easy “walk-throughs” near gates to permit easy access. There are no interior fences between the dog training areas and the rest of the WMA. Parking is permitted in designated parking areas only; parking along the edge of roads is prohibited. Estimated use is approximately 5-6 vehicles/day using the areas during the dog training season. Both of the training areas off of 7500 West each have 3-4 elevated mounds that were constructed to assist dogs with marking the location of fallen birds as is used in hunt tests and field trials.

Current habitat management of the areas is similar to other areas of the WMA and includes mowing to assist with pedestrian access, planting of upland food plots, and weed spraying.

Current public access management of the dog training areas includes:

- Dogs are allowed anywhere on the WMA during waterfowl season. Outside the waterfowl season, dog training is restricted to the three dog training areas which are open September 1<sup>st</sup> through March 31<sup>st</sup>.
- It is recommended that dogs be leashed from February to September in order to protect nesting wildlife and reduce interference with trapping activities.
- There are several dog groups who utilize the dog training areas for sporting/trial events. These events require a Special Use Permit from UDWR.

Ogden Bay WMA is the only Waterfowl Management Area with designated dog training areas. The UDWR believes the facilities and acreage provided by these areas are adequate in providing unique recreational dog training opportunities. The UDWR has no plans to expand existing dog training facilities at OBWMA.

- **Fences**

The WMA contains 49.50 miles of boundary fence, interior livestock fence and administration fence. All fencing on the WMA, with the exception of three miles of combination field fence on the north boundary, has been constructed using steel posts in

water and marsh areas, and metal, cedar or treated wood posts in all other locations. Between the posts, four strands of barbed wire are strung with two metal stays. Fencing agreements have been made with adjacent land owners concerning the fence that runs along the north boundary of the WMA. Further details of these agreements are contained above in the Right-of-Way and Easement portion of this plan. There are five main gates positioned at all road and other entrances to the WMA. These gates are closely monitored and remained locked outside of waterfowl hunting season. Organizations, visitors, trappers, livestock operators, researchers, mosquito abatement and other authorized individuals may temporarily gain access through public entrance gates by obtaining permission and a key from the UDWR. There are also over 50 smaller livestock and fence maintenance access gates on the area.

- **Facilities**

- Ten buildings currently are used by personnel on the WMA and all are concentrated at the headquarters area. They include a laboratory/office, wooden garage, student bunkhouse, Supervisor's residence, cinder block garage, oil and paint shack, granary, two metal equipment storage buildings, root cellar, chicken coop, and mobile explosives storage magazine.
- OBWMA has provided land for an office, shop, and equipment storage facilities east of the headquarters area for the UDWR Great Salt Lake Ecosystem Project (GSLEP). GSLEP is a program that monitors and performs research on the Great Salt Lake to manage and conserve the avian and aquatic communities. Ogden Bay maintains five restroom facilities including those for employees and personnel residences, and those for visitors. The visitor facilities are outhouse type restrooms (one is wheelchair accessible) and are located on the south end of OBWMA, near the main parking lot, north of headquarters.
- The UDWR has provided thirteen parking areas where camping is permitted during waterfowl season, as well as eight boat ramps suitable for crafts under twenty feet. There are no designated camping spaces and no camping amenities (no water, no toilet dumping facilities, no garbage pickup).
- Parking areas are currently in good condition with the exception of North Weber Delta lot which is not large enough to accommodate all the vehicles that would like to park there. A newer boat ramp for the west airboat access channel was installed by the Utah Airboat Association in 2008 and upgraded in both 2010 and 2012.
- There are four large entrance signs with one at each entrance, except the 9500 access point. The entrance signs were replaced in 2009. More than 290 informational and 36 boundary signs govern the area.
- There are 2 monuments (large rocks with plaques) located near the OBWMA entrance gate. One informational sign acknowledges the WMA as the first Federal Aid to Wildlife Restoration Project in the nation. The second sign, acknowledges the efforts of the Civilian Conservation Corps, and provides OBWMA's former regional camp information and location.

### Ogden Bay WMA Capital Facilities at a Glance

ITEM	AS OF 2014
Fence	49.5 miles
Parking Lots	13
Dikes	43.5 miles
Roads	36.5 miles
Trails/Paths	14 miles
Water Control Structures	153
Gate Openings	55
Signs	340
Vehicle Bridges	6
Foot Bridges/Channel Crossings	14
Boat Launches	8
Ditches/Channels	35 miles
Buildings/Structures	15 /old office, new office, wooden garage, student bunkhouse, Supervisor's residence, cinder block garage, oil and paint shed, granary, two metal equipment storage buildings, root cellar, chicken coop, three restrooms. In addition, there are 5 other buildings on the property associated with the Great Salt Lake Ecosystem Program.

- **Wood Products**

No wood is harvested or utilized for commercial purposes on the OBWMA, nor does there seem to be much opportunity for commercial interests in these mixed species areas.

- **Water Control Structures**

There are over 35 miles of water conveyance channels, 43.50 miles of impoundment dikes, nearly one mile of rock armored emergency overflows and nearly 153 head gates on the area. The main dikes have an average approximate height of six feet, crown width varies from 12 to 18 feet and bases from 36 to 45 feet. Secondary dikes average four feet in height and 12 feet in crown width with 36 foot bases. Additional infrastructure includes: small metal and concrete irrigation spill board head gates that average four feet in width; bridged unit main inlets and outlets average 18 feet; and large radial bypass gates are 20 feet. Approximately six smaller head gates are replaced annually and additional radials are expected soon. The Cooperative Flood Control Project contractors will be installing two large radial, two large box, and seven medium box headgates within the next year. They will also be rebuilding nine large headgates including the areas seven biggest radials.

- **Water Developments – Human Use**

The first government water development on Ogden Bay was for domestic purposes. The headquarters area was supplied with water by a 307 foot deep, three-inch artesian well drilled in 1937. The well and its' shutoff valve are located in a small, covered, concrete

house 265 feet east of the frame garage. The well water is currently used to develop and maintain the lawn areas within the headquarters area, along with the shrub and tree shelterbelt northwest of the office building. Since the well and a former tall tower tank were once part of a water system for a large CCC camp, there are several hundred feet of underground water lines in the headquarters area. Care must be taken when digging deeper than four feet not to inadvertently cut one of these lines.

In 1967, the Hooper Culinary Water System was connected to the residence, bunk house, and shop. The Hooper Culinary Water line comes into the OBWMA east of the cattle guard, then west along the north side of the main entrance road, then north across the road from the garage to a fire hydrant and meter. From the meter, the lines split with one going straight west to the residence and one going northwest to the bunkhouse and shop. Shut off valves for this water are located at all the buildings. Through an agreement with Hooper Water, a fitting on the fire hydrant allows high pressure water usage for lawn irrigation, tank filling, and equipment cleanup. This agreement was modified in 2013 and the hydrant fitting is only allowed for short time usage by permission from Hooper Water. A special valve and meter fitting must be used and it is available from Hooper Water.

- **Water Developments - Habitat Use**

The number and sizes of developed water control structures have been listed previously in the capital improvements section. A detailed document with a chronologically arranged narrative of the water development details is awaiting completion of the Flood Control Project. All historically significant water development written documents, engineering designs, replacement parts and illustrated lists are kept at the OBWMA office. It is recommended that previous planning efforts and subsequent results be reviewed before developing any new additional impoundments to save feasibility assessment time, engineering costs and replicating failures.

The original OBWMA water development objective was to restore the large wetlands that were originally prevalent throughout the area. The Weber River carries water to the WMA through three channels: the South, Middle, and North Runs. Although the OBWMA area was historically known to have large natural wetlands, by the time UDWR acquired the area, it consisted mainly of barren, dry salt flats. The only natural remaining, perennially wet areas were two deep channels of the North and South Runs that did not spread water across the area which resulted in very little associated marsh. In late 1937, immediately after the CCC camp was established, the irrigation water distribution system was developed for the restoration of marshes and ponds on the WMA. The resulting wetland marshes and ponds are almost entirely manmade.

The USFWS and CCC developed a wetland restoration design plan which identified a complex irrigation system comprised of three units. The first feature constructed was a long collector dike with distribution canals across the east side of Units 1 and 3. These dikes and canals elevate water out of three river channels, impound it and through gravity flow, spread the water across shallow flat habitats. This water would continue to be spread out through a series of smaller impoundments with a series of descending, parallel

cross dike impoundments with several head gates placed in dikes at topographically beneficial intervals. This allowed for maximum spread and use of water. The units were also either encompassed by dikes at each end, or by using higher ground that would hold water so that most of the dry flats between the cross dikes could be flush irrigated or impounded. Increasingly larger, shallow ponds would form along the next lower dike as the water moved westward. Eventually, in very flat areas, impoundment outflows spaced at approximately 1,000 foot intervals, spread fresh water widely across the flats before it entered the GSL. A broad diversity of pond or marsh habitats and sizes result from this water management scenario because the water flushes salt from the soil which allows plant seeds to germinate and spread quickly.

The end dike construction materials were excavated from within and along the edge of the already existing North and South Runs channels. These now enlarged channels were used to bypass water during construction and protect smaller interior dikes. Later, after some refinement, they were used to direct flood water by bypassing the units and sending water directly to the GSL. This is especially important during high runoff in the spring to keep the units' interior water levels stable for nesting birds (nesting studies showed over 30 % nest flood loss without bypassing). An emergency overflow spill way is also located north of North Run that can divert water across the flats and around the unit's interior impoundments.

The experienced core group of USFWS and CCC personnel who developed the OBWMA plan had been previously involved in the design of other state WMA's and federal refuges, with Ogden Bay being their most highly refined plan. The effective, unique design of the system resulted in tremendous positive responses from submergent and emergent wetland vegetation and wildlife. The design was widely acclaimed and remains well know among wetland professionals. Some design features have now become a classic standard in newer WMA's and refuges, with some older WMA's, refuges and private duck clubs incorporating the new design features as well. Considering the multitude of WMAs effected by the Ogden Bay design, the OBWMA is almost always listed first in discussions or descriptions of the more innovative and effective restorations of wetlands using Federal Aid funds.

Since the original design and development of the Ogden Bay WMA's water distribution system, it has been extensively enlarged and refined. Some of the later refinements are efficient and have proven very effective. A summary of these key refinements includes the following:

- Original flood control bypass head gates on the east dike required manual labor and were either maintenance intensive or failed to be usable under the volume and depth of hydraulic pressure increases associated with flooding. Dropdown (or spillboard) and screw-type gates were replaced with more functional, user friendly larger radial gates. In 2011, the flood control capacities were reevaluated and a new flow capacity chart is available from the WMA's files. As mentioned previously, in cooperation with Weber County and the NRCS, the bypass system has been analyzed for future possible improvements and enlargements.

- Lateral cross dikes were occasionally placed within the interior of units, subdividing the area into several secondary, independently operable impoundments. This improved water distribution and allowed intensive vegetation management for developing a productive early stage of succession in at least one or two areas each year. The result was a mosaic of impoundments with some in early and intermediate stages of succession. This situation also allowed for more effective equipment access and weed control.
- Following a GSL flood event in 1990, a large impoundment dike system was developed on the area. This system has become the most successful, lowest cost and reduced maintenance dike system ever created on OBWMA. It involved using a dragline placed off the dikes inner slope toe and digging fill for the dike at least 20 twenty feet from the dike toe. As fill material is pulled across the impoundment floor, the bucket is overfilled and the spillage forms a berm along the edge of the borrow channel. The deep channel and berm, with its quickly establishing emergent vegetation, tends to dissipate wind wave surge pressures, which lessens dike slope erosion, and keeps muskrat burrowing away from the dike slope. The muskrats den in the berm instead of the dike. This saved substantial money and time during construction compared to the extra height and elongated gradual slope the literature recommended at the time. It also reduces the two primary causes of dike damage (wind erosion and muskrat burrowing) and any slope erosion fill loss that does occur, remains on the dike toe instead of instead of slipping into the deep borrow channels. It is highly recommended in any flat location, shallow impoundment with over 300 acres of open water.
- Starting in 2003, water conveyance channels were excavated along the perimeter edges of marsh habitats to direct water from impoundment to lower impoundment. This was completed on Ogden Bay and all major units at other associated WMA's. Previously all water had to flow across the marsh. This management action was primarily a response to then rapidly invading exotic *Phragmites*, which started to inhibit cross country sheet flow of water. Eventual, large scale suppression and control of the weed was expected and a direct bypass of the marsh water control structures was considered a prerequisite to all the planned treatment methods. Later, this system proved very useful for prevention of monotypic-type emergent weed seed germination from pulsed, sheet water flows across mud flats. It has also allowed other management actions such as priority maintenance of large open water impoundment with full water levels during droughts, and enhancing summer or winter draw-downs through improved drainage.

Because some of the above discussed improvements allowed drier conditions within the interior of impoundments, innovative heavy equipment excavation methods became an economical, effective new tool. For the first time in the WMAs' history, bulldozer and front-end loaders were used to make or restore dikes, instead of using dragline cranes or dredge-type equipment that are still preferred on larger dikes and in wetter situations. The use of this equipment improved water distribution from the high elevation impoundments to the bottom (lower) impoundments, increased depth management potentials, decreased undesirable dike seepage, and allowed better drainage draw-downs when necessary. The

methods utilized by the new equipment included: downstream oriented, parallel “zigzag” channels; impoundment floor scraping and finer sloping; and better dike slopes and compaction. Methodology eventually evolved into highly sophisticated, precisely engineered, laser driven scraper equipment “swale” and dike developments. The original intent of these methods was for habitat modifications to improve monotypic vegetation situations. The methods have a high value to biotic communities and are further elaborated on under the habitat management section.

Some dike construction or reconstruction methods have been discontinued in some GSL or river flood-prone zones as they have not been able to withstand major flooding events. These areas primarily include structures in the western edge of the WMA. Expensive, heavy rock rip-rapping of dike slopes was discontinued just prior to major rebuilding in the 1990s. This was after an economic analysis of a major 1970’s project which showed the rock did not help prevent erosion when the forceful “wave surges” (over two feet) from GSL were involved, nor did it save in rebuilding costs. Thereafter, straight earthen dikes were considered much more economical and could be rebuilt several times for the same price.

The completed portion of the Unit 2 impoundment dike had been placed too far out into GSL and is well below the average long term elevation of the lake. In the 1940’s, there were plans for the eventual completion of this dike, but after rebuilding losses in the 1950’s, 1970’s and 1990’s, dike completion of the Unit 2 impoundment was abandoned. The remnant dike has been further breached by the river in several places as it is in the South Run Bypass flood plain. The dike is not expected to be rebuilt because of its flood prone location and a dike modification which created an emergency spillway for South Run bypass flood water. The South Run bypass channel is the lowest elevation primary drain for the entire combined Ogden and Weber River watersheds. Some impoundment alternatives in Unit 2 will be revisited during development of unit wetland habitat management plans.

At a landscape scale, two methods have been used for spreading and impounding water to adapt to the terrain. The long dike elevating water method has been used on flat areas and is common on local WMA’s. A second method used in undulating areas, is to simply divert water to fill natural, deflated, or parallel dry relic river channels or depressions, and occasionally installing very short plug dikes at narrow locations. This latter method was developed on Ogden Bay WMA, but it was recently realized it has potential for restoring a large dewatered area at Harold Crane WMA. Both methods have advantages and are most effective when combined with each other. Each method produces different water distribution shapes and interspersions with uplands, and can be visualized by comparing the black and white headgate worksheet maps from Units 1, 2, and 3 to the Weber Delta Units. Worksheet maps, comparative methods information and publications are in Ogden Bays files.

A brief summary of capital improvements from the EWP Flood Control Project include:

- North Run = 3 new large radial gates
- Middle Run = 2 new screw gates and one medium sized radial gate

- South Run = 3 rebuilt radial gates and 3 new radial gates
- Debris removal from 9+ miles of channels
- Bridges = 3 new bridges installed
- All new radial and screw gates will be electronically and remotely controlled
- Unit 1 Distribution Channel is in a new location. Approximately 1.25 miles of the dike is elevated, a 4-bay, forebay structure was installed, and 7 new turn out structures were installed.

### **Cultural Resources**

Most of the management area and vicinity has been previously surveyed for cultural material without resulting in the identification of any archaeological sites. The headquarters office, the old garage and several out-buildings are still present on the WMA today, and were originally constructed as part of a nearly 400-man CCC camp established in 1936. A number of other out-buildings such as personnel barracks were destroyed as part of the camp closure. No CCC buildings have been destroyed in over 40 years. The CCC camp played a significant role in the creation and development of the WMA. The buildings and water control structures constructed for the CCC camp are now considered historically significant cultural resources and are surveyed before any developments.

### **Sensitive Species**

There are several state species of conservation concern (as identified in the Utah Wildlife Action Plan (2005)) known to presently or historically occur either within or immediately adjacent to the WMA. These include: American White Pelican; Bobolink; Burrowing Owl; Ferruginous Hawk; Lewis's Woodpecker; Long-billed Curlew; Mountain Plover; Snowy Plover; Caspian Tern; American Avocet; Black-necked Stilt; Short-eared Owl; and the Peregrine Falcon and Bald Eagle, both delisted from Federal Threatened and Endangered Species list.

Management of the WMA has been considered critical to the recovery or current status of some federally threatened and endangered species, along with state sensitive species. An abundance of formerly federally endangered bald eagles (successfully de-listed in 2007) utilize the WMA for winter roosting and foraging. Efforts to increase the foraging base for eagles resulted in increased wintering populations and the first active bald eagle nest site in Weber County was found in the general vicinity.

Peregrine falcons, successfully de-listed in 1999, utilize OBWMA in the spring through summer months. In the 1970's, as part of a national effort to save the endangered falcon, one of several nationwide experimental falcon hawk towers was constructed on the south end of Ogden Bay, with another tower placed nearby on the Harold Crane WMA. Endangered falcons were raised in artificial conditions and transplanted to the towers. The tower at Ogden Bay WMA was the first one west of Mississippi to successfully produce wild young and annual nesting still occasionally occurs.

Surveys on OBWMA and in surrounding wetland habitats for the endangered snowy plover found the nation's highest known nesting density. Methods developed on OBWMA for improving production habitat for snowy plover were published internationally. Copies of the publication are available in Ogden Bay's files.

Some sensitive species are found in great numbers on the WMA. Of the current state listed species, the only two that were formerly abundant, but show dramatic declines are long billed-curlews and short-eared owls. Future major habitat manipulation plans are targeted for potentially increasing long billed-curlew and short-eared owl habitat. It is believed that current management actions or proposed projects may potentially increase the abundance of 15 state sensitive species.

Long billed curlews, short-eared owls and cinnamon teal are the highest priority species recommended for additional research on the WMA. This is primarily due to the fact that they were formerly present in large numbers and their current production status is undetermined.

A full list containing all species of conservation concern, their classification, state tier level, preferred habitat, season present and relative abundance (if known) and potential for increase from management actions is available in Appendix C.

### **Important Fish and Wildlife Habitats**

As detailed later, Ogden Bay supports a diverse group of habitats that are important to wildlife and wildlife conservation. These include, but are not limited to:

1. Ogden Bay WMA preserves diverse and unique habitat types and their associated wildlife that either may not be found on other nearby public WMA's and refuges, or those habitats and wildlife are sensitive or rapidly declining on private ground. These habitats include: wet meadow; the unique mosaic and close juxtaposition of wetlands from small to large intermixed areas of fresh, mixo-saline and high salinity flats flowing into a highly saline arm of the GSL, and their associated vegetation types; cold desert greasewood saltbush and sagebrush grasslands; cottonwood and willow riparian corridors; inland saltgrass grasslands; and pockets of isolated agricultural fields with food plots, tall grasses and shrub/tree shelterbelts. This diversity of habitat types accounts for over 250 species of wildlife found on the WMA. Some of the WMA's flora species, subspecies, or genotypes are genetically distinct or uniquely adapted to the GSL ecosystem. Examples include: hardstem bulrush and alkali bulrush.
2. The various wetland and upland habitats within the Ogden Bay WMA form a complex mosaic of interspersed habitats that attract millions of annual bird use days for some of the WMA priority groups such as waterfowl, shorebirds and wading birds. These wetlands include all classification types and their associated biotic communities or succession stage as listed in Appendix C. These combined habitats have been considered nationally and internationally significant including: claims as one of the outstanding waterfowl areas of the continent by national authorities; being recognized by the Audubon Society and American Bird Conservancy as a globally

- “Important Bird Area” (IBA) site; and as a critical component of GSL’s nomination to the Western Hemisphere Shorebird Reserve Network (WHSRN). Most of these recognitions were based on the numbers of migratory birds, but nest production was also a factor. The OBWMA area is a central component to the significant role GSL marshes play in the habitat requirements of some populations, such as redhead, cinnamon teal, white-faced ibis, American avocet, black-necked stilt and snowy plovers. On OBWMA, the nesting density of some of these species was measured in acres as opposed to other continental areas where nesting density is measured in square miles.
3. The OBWMA is perhaps the nation’s premier example of a single site in the early wetland conservation movement where protection and restoration involved cooperation between a private wildlife advocate organization’s sizeable donation, and the new or developing interagency governmental programs and partnerships such as the CCC, Federal Aid to Wildlife Restoration, USFWS and UDWR. This cooperation involved not only a complex assortment of state and federal programs, but also created a climate where innovative wetland restoration methods could develop by effective cooperation.
  4. OBWMA provides significant fiscal value from an overall perspective including:
    - Recreation. Recreational expenditures are the most under-valued benefit of the local WMA’s. Among traditional users of wildlife (i.e. public license and special use permit buyers, consumptive usage, etc. . . ) , the greater Ogden Bay WMA area supports much of the annual waterfowl hunting in the state and is paramount to certain types or periods of waterfowl hunting. It has Utah’s two most popular public pheasant hunting areas, and the WMA developed previously uncommon public dog training areas to host this activity. Among non-traditional users, as human populations and urbanization increased, demands for general open space resulted. Bird watching has become the fastest growing form of outdoor recreation in the nation. Under a broad category titled “Wildlife Watching Areas”, Ogden Bay and other WMA’s developed non-traditional user amenities including extensive, specifically developed networks of pathways, trails and impoundments; access to WMA’s that is conveniently accessible and open 24/7/365. Overall, these traditional and non-traditional users contribute hundreds of millions of dollars into the local and state economy annually. (2011 National Survey of Fishing, Hunting and Wildlife Associated Recreation – National Overview; U.S. Fish and Wildlife Service, 2012)
    - The WMA provides a headquarters site for the GSLEP and thus has a role in production and management of the annual multimillion dollar brine shrimp harvest.
    - Grazing. The OBWMA annually grazes approximately 800 head of cattle for about four months, adding to the local agricultural economic longevity and viability, particularly in the drought years of 2012 and 2013.
    - Land Value. The WMA and its’ habitat developments are considered a good investment for the state and public. The expenditure of approximately \$700,000 between 1937 and 1970, was worth over \$20 million when the area was evaluated in the 1970’s. Since then, inflation has contributed to land and construction costs which have risen by several hundred percent. For example, in 1988, two large

parcels of property were purchased for an average of \$240 per acre. Adjacent private properties have sold for an average of \$11,000 and \$12,500 per acre since 2004. Additional land parcels have been offered at over \$30,000/acre since 2010. In addition, the price for a water right, if it is available, has also increased in price and is now approaching \$100,000 per cfs. Throughout the intermountain west, wildlife habitat, wildlife occurrence and a land parcels potential recreational usage is now a major consideration in property appraisals and sales price. The value of OBWMA's land, water and wildlife habitat could likely be very high.

- Operating Budget. Historically, Utah WMA's operations and maintenance budgets have been at a minimum level to accomplish the management needs. When compared to federal refuge budgets, the OBWMA's annual work load is huge for only 2 full time personnel, with some seasonal support. When evaluating the annual workloads, items that should be considered include: the WMA's acreage; the number of capital facilities items and infrastructure; amount of public use; single agency personnel responsibilities for temporal water volume impounding or irrigation; habitat management complexity, diversity, and high intensity management in a manmade area; wildlife abundance and diversity during both production and migration; and wildlife harvest. Over the years, this conservative budget with limited personnel has saved and continues to save Utah a significant amount of money.

## **General Condition of Habitats**

### **Primary Habitat Types**

Wetland habitat on Ogden Bay fluctuates readily depending on the amount of water that is available. Over the past 160 years, many habitat transformations have occurred as land ownership has changed hands and alterations have been made to the natural flow of the water. Previous to settlers arriving around 1850, early descriptions of the area mentioned that lush meadows with sedges, cottonwoods, and black willows thrived on the alkaline flats near the Weber River Delta. But as the human population in the Ogden area expanded, water was increasingly diverted for irrigation purposes, especially during the summer, resulting in a transformation of marshlands between the North and South Run channels. The relic channels were once the veins that spread water through a large marsh flourishing with vegetation from spring to fall; with the reduction of water, this changed to dry, barren salt flats receiving limited water mainly in the spring and fall, with very little water in the summer. The vegetation that did exist consisted of an alkali bulrush marsh at the mouth of the South Run, a small dispersed marsh at the mouth of the North Run, and salt grass along the channel banks; this areas provided relatively little food and cover for waterfowl. This was the condition of the area when it was acquired in 1937.

With the implementation of the unique and extensive fresh water distribution system (comprised of channels, dikes and head gates) described in the water development section, the salt flats of Units 1, 2, 3, and Pintail Flats soon were transformed into productive shallow ponds, mud flats, and marshes. As soil salinity declined, aquatic invertebrates, fish and aquatic/emergent wetland vegetation quickly became established.

Ogden Bay WMA currently contains approximately 18,680 acres. This acreage is a combination of both UDWR fee title (owned) lands, and lands administered by the Utah Division of Forestry, Fire and State Lands, with UDWR management for wildlife. On the west side of the WMA, the elevation varies above and below the long term GSL average of 4200 feet above sea level, with the highest elevation on the WMA at approximately 4217 at the headquarters area. Water is supplied mainly by the Weber River, but is supplemented by Hooper Slough and other smaller streams, wells, drains, and drainage from adjacent landowner irrigation.

The WMA contains a variety of habitat types including fresh and salt water areas, several types of wetland habitats (such as mudflats, playas, fresh water wet meadows, saline wet meadows, and emergent marshes), grasslands, and upland habitats. The quantity of these habitat areas varies with the height of the water table, soil salinity levels, and plant succession stage, along with several other factors, but tentative acreage estimates on average for Units 1, 2, 3, and Pintail Flats are as follows: upland areas comprise approximately 1,623 acres; open fresh water areas comprise approximately 2,486 acres; emergent wetlands and wet meadows account for approximately 8,906 acres; sub irrigated meadows and grasslands comprise approximately 180 acres; mudflats and alkali/mixo-saline lakes account for 3,585 acres; and 180 acres comprise salt water lakes.

There are an additional approximately 6,000 acres of mixed vegetation, mudflat, and open, fresh or mixo-saline water classes. Vegetative types, species and wetland classes can change seasonally and annually in this very dynamic wetland system. This is due to both the annual water elevation fluctuations of GSL that can affect hundreds of acres, and WMA management actions that change water flow patterns within the WMA (for example, recent management actions affected nearly 5,000 acres). It truly is never the same habitat twice and the only constant is change.

Vegetation in the emergent wetland communities of Units 1, 2, 3, and Pintail Flats is currently predominately *Phragmites* and cattail, but traditionally included mainly a variety of bulrush species, ranging from alkali bulrush (*Scirpus maritimus*), in the shallowest waters, occasionally Olney's bulrush (*Scirpus americanus*) in semi-permanent water and less saline soils; and hardstem bulrush (*Scirpus acutus*), in the freshest and deepest water.

Vegetated saline mudflats support red saltwort (*Salicornia rubra*), saltgrass (*Distichlis spicata*), and in slightly less alkaline areas, foxtail barley (*Hordeum jubatum*).

Aquatic vegetation includes mainly sago pondweed (*Potamogeton pectinatus*) with some wigeon grass (*Ruppia maritima*) and horned pondweed (*Zannichellia palustris*).

Upland vegetation includes mainly saltgrass in seasonally flooded areas and saltgrass, sweet clover (*Melilotus sp.*), smartweed (*Polygonum sp.*), alkali sacaton (*Sporobolus airoides*), cheatgrass (*Bromus tectorum*), wheatgrass (*Agropyron sp.*), saltbush (*Atriplex sp.*), salt cedar (*Tamarix sp.*) and greasewood (*Sarcobatus vermiculatus*) in higher, unflooded areas. Slope areas of the dikes support saltgrass, sumpweed (*Iva axillaries*),

bassia (*Bassia hyssopifolia*), and pepperweed (*Lepidium perfoliatum*). Other upland species are domestic grass, forbs and grains discussed under the intensive Upland Habitat Project files.

On the approximately seven miles of riparian habitat within the WMA, Green ash (*Fraxinus pennsylvanica*), black willow (*Salix nigra*), white willow (*Salix alba*), river bank willow (*Salix sp.*), Siberian elm (*Ulmus pumila*), two native cottonwood species, Russian olive (*Elaeagnus angustifolia*), Douglas hawthorne (*Crataegus douglasii*), and salt cedar (*Tamarix sp.*) are the main woody vegetation that occurs on the WMA. Shelterbelt or windbreak plants are discussed elsewhere. Cottonwood trees and three species of willows formerly lined several miles of riparian area along the Weber River and grew in various other locations throughout the WMA. These trees died during the 1980's GSL flood event. These trees have not become re-established along the river channels due to beaver activity which removes most trees before they grow over 8" in diameter.

Most trees and shrubs are naturally occurring, although man-made tree lines, or shelter belts, have been established and include eastern red cedar, Russian olive, wood rose, lilac, *Caragana*, squawbush, and Douglas hawthorn. Other species on the WMA include green ash, black willow, white willow, river bank willow, and Siberian elm.

Previous to acquiring the Weber Delta Units beginning in 1987, the area was dominated by inland salt grass and dead willow trees. The North Weber Delta Unit (NWD) was intensely grazed, and contained mainly salt grass uplands interspersed with severely saline, lowland alkali barren depressions and relic channels of the Weber River (pH 8.6-9.9; ECe mmhos cm 200+). No seasonal wetlands or emergent vegetation existed. Much of the area was classified by the Soil Conservation Service as "Alkali Bottom Range site" and the clay loam depression soils ("Saltair") were "unsuited to crops or as range". As the Great Salt Lake reached peak flood levels in 1986, it sterilized all south periphery areas of vegetation and deposited driftwood and other debris across the NWD. On the South Weber Delta Unit, the soils were less saline than those of the NWD as the Weber River had flowed upon it thereby flushing the salt from the soils. The east side contained heavily grazed salt grass uplands, rare perimeter patches of cattail or bulrush emergent vegetation, little submergent vegetation, uniquely shaped finger-like wetlands, and some open water areas. The west side was completely submerged by the Great Salt Lake at the time of acquisition, but had previously contained salt grass and ten hectares of open water. A mixed, cold desert habitat is also found on the North Weber Delta and supports greasewood, saltbush and sagebrush grasslands. This is the native historical cold desert saltbush or sage brush steppe grasslands that covered much of the local uplands prior to human manipulation. It is now extremely rare in the local vicinity.

A separate and unique complex system comprised of dikes and head gates was designed and implemented for freshwater delivery and distribution to the Weber Delta units. Years of planning and development resulted in an area with diverse waterfowl and shorebird habitat including open water, wetlands, mudflats, and uplands. Despite the previously and recently dry, barren saline condition of the soil, a rapid re-establishment of

vegetation occurred via natural dispersal through seed banks, water delivery, wind, waves, and/or birds.

On all the units with very early stages of vegetation succession, some otherwise rare, but very large areas of important moist soil plants exist only temporarily and usually decline within three years unless they are actively managed to keep them in the system. Also, a number of noxious plant species, as declared by the State and County weed boards, occur on the WMA and include: perennial pepperweed (*Lepidium latifloium*), Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), Russian knapweed (*Centaurea repens*), whitetop (*Cardaria draba* recently moved to *Lepidium*), purple loose strife (*Lythrum salicaria*) and dyers woad (*Isatis tinctoria*). The common reed (*Phragmites australis*) also has a significant presence in all moist soil areas on the WMA and is a target in weed control efforts. A more complete plant and wetland classifications list, including the common temporary moist soil vegetation and a list of invasive weeds is found in Appendix C. A progressive weed control plan, including methods and annual objectives, is in the OBWMA files.

## Habitat Limitations

- **Water Quantity**

With only a few exceptions, Ogden Bay has the most consistent water availability of all the state WMA's and federal refuges in Utah. Since the 1960s, when movement of water rights and water redistribution regimes were implemented, there have always been adequate flows to keep the main historical impoundments full. In order to keep impoundments and wetlands at optimal condition for wildlife, there must be a sufficient supply of water throughout the year. Even in seasonal drawdown areas, it is necessary to have adequate water for re-flooding of the area. There is also a need for additional impoundment outflow water from September 1 to October 15 for the flooding of seasonal flats during the peak of fall waterfowl migration.

A major river, several creeks, irrigation drains, wells, and drainage from nearby lands convey water to the WMA, making flow management, in both times of drought and surplus, a key element in the success of Ogden Bay WMA. UDWR owned water rights are closely monitored, but they require weekly reservoir release coordination with other agencies to prevent problems and to make adjustments during critical periods. For example, past changes in the distribution of upstream irrigation water have bypassed the central area of the North Weber Delta Unit resulting in the drying out of many ponds in the area. This area is the most negatively affected by a major lack of water.

In the spring and fall, water volumes are high and usually more than sufficient to maintain quality habitat. Oftentimes, the water volume requires the utilization of bypass systems to send excess water beyond the units to the intermittently flooded Pintail Flats Unit. As discussed in the water development history section, flooding can become a major issue in some years and it monopolizes management time, reducing the time available for other management activities. A major goal of the Weber County/ NRCS EWP project on the lower Weber River is more effective control of flooding on

OBWMA and on upstream lands. In the summer, however, as an increasing amount of water is taken for irrigation, the volume of Weber River water arriving at the WMA decreases, and supplementation from Hooper Slough and other sources is required. During late spring and summer, intermittent flows or water level fluctuations can cause rapid expansion of germinating emergent vegetation and can result in entire ponds being “closed in” with vegetation within one year.

The WMA is technically considered a desert with less than 12 inches of annual rainfall. This severely limits the types of upland vegetation that can survive on the WMA. During drought conditions, vegetation biomass production is poor. A recent long term drought killed over 30 % of the shrubs and 50 % of the grass in the mixed cold desert greasewood, saltbush and sagebrush grassland on the North Weber Delta.

- **Water Quality and Non-point source pollution**

The Weber River and smaller drainages which flow into the WMA are of high concern as the WMA is at the lowest point in the watershed and water flows through potentially contaminated upstream lands including: former mining sites; farmlands; landfills; hazardous material storage sites; industrial areas; and superfund sites. The water does pick up large volumes of silt, which could contain hazardous or toxic substances, agricultural nutrients and chemicals, and septic contaminants. The river is potentially a non-point pollution conveyance system.

Concurrent to acquiring the new water rights in the 1960’s, efforts to cleanup domestic sewage and industrial effluents were started by several agencies. Due to these efforts over the years, OBWMA has had the highest quality of water on the state WMA’s and federal refuges in Utah, with some sizable exceptions noted later. The Weber River water used for irrigation is now ranked as highest quality, large system in the state by the Utah Division of Water Resources. Ranking is often based on reduced salinity levels and may not be considerate of other important factors.

The amount of sedimentation which comes to OBWMA is the largest form of non-point pollution on the WMA. Silt deposition is responsible for most of the channel restrictions contributing to an increase in upstream flooding that was most evident in the 2011 flood. The amount of silt carried and deposited in the river system during major flooding events is huge and various estimates have the amount at over 200,000 cubic yards. The amount of silt increase directly correlates with the increased cfs of the flood waters. Large event silt deposits can reduce water delivery channel capacities to minimal in just a few weeks which can have a major impact on the water distribution capabilities at the WMA. Recently during even average water years, water levels have increased peak flows and siltation has also increased. This is typical for all the local WMAs and was well documented in the Harold Crane WMA Habitat Management Plan. Historical causes of silt were blamed on upper watershed tributary issues, but studies now indicate silt is also entering from the lower reaches of the river, closer to the WMA. A large number of maintenance projects for debris and silt removal within the WMA are now required to keep water distribution channels functional.

Sedimentation can also cause a major change in habitat and/or in the management potential for an area. The sediment can come into an area either by transport from the river or through the GSL shifting locations due to wave surges, causing the “Leveling Effect”. The “leveling effect” is when the lake is at certain elevations, saline water and the lake sediments can fill ponds, impoundments, and back up into the river channels. This can result in the elimination of deeper submergent habitat and vegetation. Also, during a single major hydrological event on a narrow scale, the Weber River can elevate channel banks over 24 inches and convert them, over time, from herbaceous to woody vegetation. On a broad scale, an 18-inch elevation change can change marsh habitat to upland habitat. This is mainly because of the lost capability to irrigate by gravity flow, and/or the new sediment can overlay saline substrates which limit the ability to manage the marsh. Creating conditions where salt(s) rise to the surface through capillary action is an effective method for weed control and sediments can interrupt this process.

A major goal of the Weber County/ NRCS EWP project on the lower Weber River is effective control of sediment loading.

- **Botulism**

It is vital that water quantities within the impoundments are monitored and adjusted in order to minimize avian botulism outbreaks. These outbreaks more frequently occur in stagnant water and in intermittently exposed areas with minimal water. These outbreaks can be quite catastrophic, causing thousands of bird deaths in some years, as was observed prior to WMA acquisition and development. In 1921 and again in 1932, it is estimated that over 100,000 waterfowl died in each incident from avian botulism. Thousands of shorebirds and wading birds also die during outbreaks.

Recently, huge botulism outbreaks occurred in the 1990s when more than 50,000 birds died on the WMA and in nearby areas. Large events such as this can still occur, but anything more than a few sick birds has become very uncommon on this WMA. It is believed that management changes resulting in deeper water habitat, along with higher inlet and outlet flow priority in some stagnant bays (as opposed to just center drainage), has helped to reduce the historical problem areas. Previous management actions which allowed for water fluctuations that exposed wet mud, killed invertebrates and shallowly reflooded impoundments, have also been attributed to the problem and these actions are now minimized. The dead invertebrates are believed to be the protein source that allows the botulism bacteria to blossom.

In the mid-2000s there was a very small, but particularly virulent botulism outbreak. During the outbreak and up to six weeks after the outbreak, at least 13 local dogs became ill with botulism type C or avian botulism. A dog involved with the botulism die-off cleanup effort exhibited muscle control loss symptoms similar to birds with botulism and blood was drawn for testing. The National Wildlife Disease Research Lab confirmed for the first time that Type C can affect canines. Local vets were notified and at least 12 additional blood submissions came back as Type C. It is not clear if the

environmental conditions present during this outbreak were derived locally and can be managed here, or if migratory birds brought the bacteria with them.

Any future botulism outbreak management actions should include public warnings about potential impacts on dogs. The DWR waterfowl coordinator and wildlife disease specialist are to be contacted immediately when an outbreak starts and numbers are reported annually on the locations, mortality numbers, size of area affected and species involved.

- **GSL Elevation Changes**

With the WMA being adjacent to the Great Salt Lake, the OBWMA can experience changes in both water quantity and quality. In the mid 1980's, an abundance of precipitation and snow melt caused the Great Salt Lake to rise, gradually swelling and flooding nearby land with salt water before peaking in 1986 at 4211.86' elevation. Nearly 90% of the original WMA (previous to acquiring the Weber Delta Units) was inundated with salt water, which temporarily destroyed wetland habitats, and significantly decreased wildlife usage and public recreation opportunities. This GSL flooding event also destroyed approximately seven miles of cottonwood and willow riparian corridors within the WMA boundaries that will likely never recover. However, it must be understood that the GSL typically rises and falls seasonally, annually and over decades. This ever-changing elevation is a normal lake function which contributes to the dynamic water depth, vegetation condition and interspersed wetland habitats throughout the margins of the Lake area. This dynamic condition provides for the concentrated forage areas, exposed or submerged mud or sand islands, and provides early productive successional stages of mud flat habitat needed for the millions of water birds that visit the GSL for both reproduction and migration.

- **Brine Shrimp Harvesting**

Another issue concerning mainly the Great Salt Lake, but which may affect the birds on the OBWMA, is the harvesting of brine shrimp. Although the brine shrimp industry is prohibited from entrance into and extraction from the WMA, or the entire Ogden Bay area of the GSL, concern remains that harvesting of brine shrimp in the Great Salt Lake could negatively impact a variety of avian species that often use the WMA. Conversely, deterioration of the WMAs' water distribution system, and water quantity and quality as it flows into the GSL, could impact shrimp populations and the birds that feed on the shrimp. The two systems are codependent and complement each other. The UDWR Great Salt Lake Ecosystem Program (GSLEP) monitors the annual brine shrimp harvest to assure that harvest activities do not negatively impact either brine shrimp, other aquatic invertebrates or bird populations. GSLEP also identifies research needs and oversees research projects to better understand brine shrimp/brine fly habitat and life history requirements.

- **Weeds**

Invasive monotypic climax weeds are currently one of the major habitat limitations on the WMA. In just a few years with no management actions, many acres of wetlands would become a vast monotypic grassland steppe, mostly covered by exotic weed

species. The biotic community of several native invertebrates, plants and wildlife species could be reduced by an observed estimated loss of over 90 percent. The most undesirable and targeted wetland weeds are: common reed (*Phragmites*) exotic genotype M, and a new cattail super-hybrid exotic/native cross which has spread and now covers thousands of wetland acres. There are not any wildlife species obligates to these extensive stands of climax weeds. They require tireless monitoring and eradication efforts. Weeds such as salt cedar, purple loosestrife, hemlock, thistles, perennial pepperweed, and others are also abundant on the WMA and can out-compete more desirable vegetation. In some areas, ideal nesting and foraging habitat that was once known to attract a variety of birds and consisted of shallow water, mud or sand bars and vegetation such as salt grass, alkali bulrush, cattail, and hardstem bulrush, have been overtaken by monoculture stands of *Phragmites* that only accommodate one or two avian species. A master weed control is located at the Northern Regional Office files. Also, a progressive long term weed plan is in the WMAs files. It details treatment methods and the massive extent of weed control work completed annually on the WMA.

- **Exotic/Invasive Species**

Invasion of an exotic species of wildlife into otherwise suitable habitat and impacting a closely related species or another species through competition or depredation, are common concerns for wildlife ecologists and managers. If the habitat is suitable and large enough for both related species, competition may be minimal. But if the native species requires a restrictive habitat type, a zone with increased competition can result and the native may suffer by displacement. This is known to exist on the WMA during breeding territory and nest site habitat selection, particularly between native snowy egrets and exotic cattle egrets, and native mourning doves with exotic Eurasian collared doves. Negative interactions are also suspected in native leopard frog and exotic bullfrogs for other reasons including direct predation. There are no management actions planned to address these exotic wildlife negative interacts primarily because: colonial nesting management strategies should mitigate the egret problems; the unprotected status of collared doves and their vulnerability to harvest at their night roosts or being controlled by US Wildlife Services should reduce these impacts; and bullfrogs are currently rare, but increasing, while leopard frogs appear to be very abundant, particularly in treated early successional areas. Public release of exotic pets and wildlife such as cats, exotic subspecies of raccoon and turtles (painted and red-eared sliders) have ended with populations becoming established throughout the GSL ecosystem. The raccoon subspecies introduction is considered a major disaster on the local WMAs causing huge annual losses of several wildlife species. Cats and raccoons are a target of predator control on the WMA. These types of exotic species situations are predicted to be more common in the future and require awareness, monitoring, and control work to reduce impacts to wildlife.

Failure to recognize and examine potential impacts of a new exotic weed or wildlife species, including hybrids, subspecies, or genotypes, could be a major management mistake. These species can be very similar to native or naturalized species, but dramatic changes in local populations, species occurrence in unusual locations, or failure of

traditional treatments usually indicates a potential problem. Local examples of this situation include, but are not limited to: *Phragmites* genotypes; raccoon subspecies; Eurasian doves; Eurasian water milfoil; curly leaf pondweed (a potential new genotype); cattail hybrids; mosquito fern expansions; *kochia* potential hybrids; quick diversifications and adaptations of subspecies and genotypes; etc.

- **Predators**

Although habitat improvement alleviates some of the impacts, predation continues to be problematic for nesting birds. Red fox, raccoon, striped skunk, coyote, weasel, feral house cats, and mink are the main mammal predators that threaten the nests, young and adult birds, particularly incubating females. Common avian nest predators include California gull, magpie and ravens. An exotic amphibian predator, the bullfrog also exists on the area. Loss of nests can be substantial with predation rates of over 80% documented in some shorebird and waterfowl species. When predator levels are high within colonial bird nesting colonies, complete abandonment of nesting colonies has been documented as well. High predation rates can happen even if general habitat conditions are considered excellent for the particular nesting species. Predator control efforts are completed annually on the OBWMA and these control efforts are described in a progressive predator management plan in Ogden Bay files, and in a master predator plan for WMA's available at the UDWR Northern Regional Office.

- **Beaver and Muskrats**

Beaver and muskrats can cause damage to water control structures, and add a significant amount of additional work to the operation and maintenance of these structures. Much of the annual maintenance of dikes is related to the extensive burrowing and den activities of hundreds of muskrats. Flood related dike and road damages are primarily caused by muskrat burrows which create weak sections of the dikes. Hazardous situations exist when a den collapses under the weight of a vehicle. These dike burrow blowouts can rapidly drain ponds as well as inhibiting vehicle access. Beaver activities can completely block off head gates, which floods the area above the head gate and drains those areas below. The dams are difficult to clear and are often rebuilt by the next day unless the beaver is removed. Due to changing conditions on a marsh, the positive values of having beaver or muskrats on an area, such as pond creation or opening up of dense marshes, are not currently beneficial on the WMA. These two species are now considered nuisance wildlife species. In 2011 during a flood damage survey on the lower Weber River, notation was made about the beaver population cutting a large amount of young trees which may have a significant impact on tree recruitment in the formerly thickly forested riparian area. This riparian area was considered unique compared to other local WMA's, and it added general biodiversity to the area. Additional information about beaver and muskrat management is included in annual animal population control programs including public trapping permits, WMA personnel removal efforts, and U.S.D.A. Wildlife Service efforts. Annual harvest figures are available from the WMA files.

- **Carp**

Undesirable fish species, such as exotic carp, enter the WMA via the Weber River and smaller tributaries and drainages, seeking food, shelter and spawning grounds in the channels and impoundments of Ogden Bay. The constant immigration of these rough fish raises concern for aquatic invertebrates and aquatic vegetation, which provide important habitat resources for naturally occurring wildlife on the WMA.

Carp are a triple threat to birds and habitat conditions on the WMA. Carp consume aquatic invertebrates that are the predominant or critical food source for some birds. While foraging for bugs, carp uproot and destroy the submergent vegetation that many birds forage upon. This vegetation is also the primary vertical habitat for invertebrates available within the top 12 inches of the water column where most birds forage. Finally, carp rooting creates water turbidity that represses plant achene, seed, or tuber production that some birds need when carbohydrate demands are high for thermal regulation and migration energy. It is vital that rough fish populations are monitored and controlled annually to protect habitat quality.

Carp can grow phenomenally fast and consume immense amounts of food. In a relatively enclosed pond on the WMA, most of the three year old age class weighed over 12 pounds and averaged 14 pounds. Thousands of tons of carp have been removed from the area during some years by commercial fisherman (at approximately five year intervals). Now annual control is performed and only smaller, younger age classes predominate. The small carp are valuable forage for some of the larger, more visible piscivorous birds on the area.

In general, only larger carp are targeted for control efforts. Control measures include: winter kills via freezing the entire depth of the water column and depleting oxygen in deeper areas; drawing down water levels in the summer to rapidly decrease oxygen levels during periods of high water temperatures; and applying a chemical toxicant in small localized areas after winter draw-downs. Additional carp information and control methods can be found later in the progressive carp management plan in WMA files.

## **Human Use-Related Problems**

Vandalism of fences, gates and signs is a constant and increasing problem that is likely related to the close proximity of the WMA to a large metropolitan area, and the increasing urbanization of adjacent areas. Examples of recent urbanization problems include: increased undesirable activity varying from general graffiti to conversion of public information centers and out house walls to gang and Neo-Nazi group's bullet boards; gothic or satanic access to or the placement of symbols and other litter at ritual sites; to local high schools having party's resulting in the trashing of parking lots; and gutted stolen cars, campers, house trailers, water craft, etc... left in parking lots. Eras of heavy sign loss have been traced to desired DWR logos or wordings, and fads in their usage as decorations for juvenile male bedrooms. It appeared that the DWR signs were being bought, sold and traded as a teenager's commodity. Replacement costs were substantial with over 15 aluminum signs being stolen over some weekends.

General litter is somewhat problematic with efforts including biweekly cleanup by area personnel or biannual major efforts using volunteers. During some years, over 20 trucks loads of predominately landscaping or construction materials, car parts, and large dead animals are hauled off to area landfills. Volumetric increases in litter were correlated directly to increases in dumping fees at public and private facilities. Source investigation and prosecutions on stolen vehicles left on the WMA show a changing trend from localized areas to regional expansion including North Ogden, South Ogden, and several Davis County cities, along with interstate thefts from as far away as south-central Idaho.

Public attempts at marsh management and fireworks have resulted in several wildfires starting on the WMA.

GPS cache location storage for games has resulted in several trespass incidents into critical wildlife production areas, along with property damage to WMA gates.

Public release of exotic pets and wildlife such cats, exotic subspecies of raccoon and painted turtles have ended with populations of these species becoming established. Feral cats are voracious predators and the raccoon subspecies is the only raccoon type on the area. The raccoon subspecies introduction is considered a major disaster on the WMA, causing huge annual losses of several wildlife species. It is common for dogs, cats, livestock, domestic waterfowl and chickens to be dumped off on the WMA.

Resolution of some of these problems has come from close coordination with enforcement personnel. The Weber and Davis County Sheriff Departments monitor unusual or potential dangerous groups' activities, thefts dumps, litter and party sites, and vandalism prone areas. Source investigations and prosecutions have been the only effective method for the elimination of major dumping events. Enforcement patrols have also decreased some visitation by unwanted groups. Logos and wording adjustments on signs may be a future consideration to reduce vandalism and theft of signs (ie, make them bland). Weber and Davis County Animal Control Departments have been helpful with the drop off of domestic animals.

Unauthorized OHV and standard vehicle use occasionally occurs and gates are destroyed. This has led to road closures and considerable additional containment fencing to keep vehicles out of certain areas.

Additional problems can arise from different public uses of the WMA.

- Accommodating hundreds of hunters that use the area during the waterfowl season causes some problems. Adequate sign posting and patrols must be done to keep hunters in the correct shooting areas away from public roads or from blocking roads or gates.
- Trespass into wildlife production areas can create problems for nesting birds that are vulnerable to disturbance. Two very large historical heron rookeries were abandoned when photographers constructed blinds in the areas. Waterfowl typically abandon their breeding territories and even nests after a few disturbances during early incubation periods.

- Some disagreement exists among visitors on the amount of motorized boat traffic that should be allowed on the WMA. Some concessions to these concerns have led to non-motorized or wakeless speed areas.
- In previous years, local helicopter companies have done training over the WMA including hovering over the area and landing on the dikes, which disturbs wildlife and is unsafe during hunting season. The helicopter companies have somewhat responded to UDWR concerns, but placement of an aircraft ceiling below which the helicopters should not fly should be considered for this and surrounding WMA's.
- Usage of low level, ultra light aircraft is common and very disturbing to wildlife.

### **Adjacent Land Uses and Potential Impacts**

The WMA is bordered on the west by the Great Salt Lake, on the north and east by privately owned lands and to the south, by the UDWR-owned Howard Slough WMA. The Great Salt Lake serves as important habitat for millions of birds, but is also used for salt and mineral extraction, brine shrimp harvesting, boating and other recreational activities. These uses do not usually infringe on the management of the WMA. Current use of surrounding privately owned lands mainly consists of agricultural activities, such as crop production and grazing, but residential development is increasing along the eastern side. Trespass by livestock, and free roaming dogs and cats can be a problem. The number of free ranging dogs and cats has also increased as more houses have been built closer to and along boundary lines.

The UDWR-owned Howard Slough WMA is adjacent to the southwestern tip of Ogden Bay WMA. Uses of Howard Slough are similar to those of Ogden Bay, such as waterfowl hunting and bird watching. Ogden Bay and Howard Slough WMA's are often managed contiguously.

Rapid urbanization and shifting agricultural practices on adjacent lands have dramatically increased the importance of these WMA's for wildlife. Birds such as Canada geese, white-faced ibis, ring-neck pheasants, and wintering mallards have been dependent on habitat on private lands for feeding areas. As development removes lands from wildlife availability, wildlife becomes more concentrated into the remaining habitat areas. The UDWR will continue to pursue the purchase of additional land and conservation easements supporting quality habitat as funds permit, but opportunities are rare and high land costs can be prohibitive. The most feasible and practical plan is to improve UDWR existing property.

A 740-acre parcel north of Ogden Bay, referred to as the Little Mountain Test Annex (LMTA), is owned and operated by Hill Air Force Base and is used for testing engines and missile components. An investigation was completed concerning confirmed limited groundwater contamination which affected a small area extending approximately 300 feet into the north portion of Ogden Bay WMA. This contamination originated as industrial waste that was improperly disposed of in the sludge drying beds of LMTA in the 1970's. There are no existing records detailing exactly what was disposed of in the sludge beds, although testing results show that contaminants include, but are not limited to, cleaning solvents such as trichlorethene (TCE), paint strippers, degreasing solvents, fuel

components, rocket motor propellant components, dissolved explosives and metals. Recent characterization work suggests that further spread of contamination is not expected. Limited monitoring was completed on the shallow groundwater of the Ogden Bay mudflats to more fully understand the situation. The contaminated groundwater exists 150-170 feet subsurface and is not a source for drinking water. Thus the risk to human health is low; the ecological risks have been assessed and cleanup remedies on the OBWMA contamination area were determined to not be needed at this time. Maps are available at the Northern Regional Office that show more detail on the affected area. More information on this matter is available at the NRO and at Hill Air Force Base.

Contamination or other negative impact incidents have occurred in the past with the nearby Great Salt Lake Minerals company, the Western Zirconium company, local septic lagoons, used oil pits associated with the railroad, animal dump sites and landfills.

### **III. Management Goals and Objectives**

Ogden Bay WMA management is based primarily upon goals, objectives, and strategies of various plans, which are summarized below.

#### **UDWR Strategic Plan (2007-2011)**

The management of the Ogden Bay WMA has relevance to the following goals and objectives as outlined in the Division's strategic plan:

*Resource Goal: Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat.*

*Objective R1- Protect existing wildlife habitat and improve 500,000 acres of critical habitats and watersheds throughout the state by 2011.*

*Objective R2- Increase fish and game populations to meet management plan objectives and expand quality fishing and hunting opportunities.*

*Objective R3- Conserve sensitive species to prevent them from being listed as threatened or endangered.*

*Constituency Goal: Achieve broad-based support for Division programs and budgets by demonstrating the value of wildlife to all citizens of Utah.*

*Objective C1- Increase public awareness of wildlife as a quality of life issue in order to expand our support base and achieve stable funding.*

*Objective C2- Improve coordination with organizations, public officials, private landowners, industry, and government agencies to obtain support for Division programs.*

These goals and objectives will be accomplished by properly managing the water, vegetation, wildlife and human components of the WMA according to those strategies mentioned in the property and habitat management sections below. These section's detail property maintenance

and development, wildlife species and habitat management, and access and fire management on the WMA.

### **Utah Wildlife Action Plan**

The first-edition Utah Wildlife Action Plan, adopted in 2005, is entitled the Comprehensive Wildlife Conservation Strategy. This document, commonly known by the acronym WAP (Wildlife Action Plan), outlines a statewide approach for the partnership-based, coordinated planning and implementation of wildlife and habitat conservation practices. The WAP addresses the following elements:

- Conservation Targets: Identifies species of greatest conservation need, and those species' key habitats. Provides information about the abundance, trends, and distribution of these species, along with information about the location and condition of these key habitats.
- Threats and limiting factors facing these species and habitats, and research required to better-understand these issues and how to best address them.
- Conservation actions required to abate these threats and improve the supply of these limiting factors.
- Monitoring the effectiveness of these actions.
- Approaches for including the public, partners, and stakeholders in consideration of the mission and authority of partners.
- Provisions for coordinating the WAP with other natural resource management plans.
- Provisions for completing the review and revision of the WAP by October 1, 2015.

The intent of the WAP is that the OBWMA HMP process be used to address those sensitive species found on the WMA, by explicitly including their needs in routine, novel, and emergency management activities. Recommendations include undertaking specific actions to reduce threats or limiting factors, and increase population numbers of the species.

In addition, the WAP identifies key habitats within Utah. General management recommendations for these habitats include actions that will maintain, conserve, protect, enhance and increase these habitats throughout Utah. The OBWMA has several of these priority habitats of concern which include: lowland riparian; wetlands; wet meadows; flowing water; and standing water. One of the intents of the WAP in identifying these habitats is that local-area management efforts can better focus actions on those specific habitats where actions can have the most benefit for species of greatest conservation need.

Currently, the WAP is being revised to reflect changes in habitat and species status, and priorities in Utah. In addition, the new plan will identify specific management actions that can be taken to reduce threats to these species and habitats. It is recommended that once this new plan is available, that it help guide management actions on OBWMA.

### **Wildlife Species Management Plans**

There are over 250 species of wildlife found on OBWMA with no management plans written individually for any of the species. Although current management activities primarily focus on waterfowl management, these same activities can also benefit shorebirds and wading birds, among other wildlife species. Given the number of state

sensitive species found on the WMA, some specific management efforts need to be undertaken to address the habitat needs of these species.

Long billed curlews, short-eared owls and cinnamon teal are the highest priority species recommended for additional research on the WMA. This is primarily due to the fact that they were formerly present in large numbers and their current production status is undetermined. No active long billed-curlew nests and only one short-eared owl nest and young have been observed in the past five years. The teal are still producing, but a large block of marsh searched for nests, where they formerly nested in large numbers, indicated no nests. Habitat management was intensified on this area, but the effectiveness of this effort needs evaluation. Additionally, the historically significant and formerly productive peregrine falcon hack tower site has not produced young in the last three years due to its degraded condition. A new nest box is required for the hack tower.

### **Great Salt Lake Comprehensive Management Plan and Mineral Leasing Plan**

In order to more specifically articulate the Utah Department of Natural Resources (DNR) management objectives for the resources of GSL, and to reconcile the diverse mandates of the seven divisions of DNR, the Great Salt Lake Planning Project was initiated. The UDWR has authority for managing wildlife in, on and around the Great Salt Lake and participated in the development of the Great Salt Lake Comprehensive Management Plan and the Mineral Leasing Plan (documents final March 2013).

The purposes of the Great Salt Lake Planning project are:

- To establish unifying DNR management objectives and policies for GSL trust resources
- To coordinate the management, planning, and research activities of DNR divisions on GSL
- To improve coordination among DNR divisions, establish a decision-making proposal review and appeal process, resolve some issues between divisions, and improve management of the lake and its resources.
- To develop a sovereign land and resource management plan for the lake that balances multiple-uses and sustainability issues
- To establish processes for plan implementation, monitoring, evaluation, and amendment

The comprehensive management plan covers a wide range of elements of the Great Salt Lake including information about the hydrology, chemistry, water quality, air quality, biology, ecosystem, land, minerals & hydrocarbons, recreation, tourism & cultural resources, commercial & industrial use, agriculture, transportation, law enforcement, search & rescue, open space, critical lands & visual resource management. It also developed a GSL Lake level matrix and Lake Level management strategies.

The mineral leasing plan identifies the extractive resources found on, in, adjacent to or under the GSL. It further identifies critical wildlife habitat areas where habitat protection

is the preferred option. One of the goals of this planning effort is to integrate mineral resource planning with other resources and resource planning efforts.

The Utah Legislature gave administrative control of the GSL Planning Project to the Utah Division of Forestry, Fire and State Lands (FF&SL). The first plan was created in 2000 and the first Minerals Leasing Plan was created in 1996. In 2012, FF&SL completed an updated effort for the GSL Comprehensive Great Salt Lake Plan, including a new Minerals Leasing Plan, to address new issues that have arisen over the last 10 years. Of particular note for planning purposes is the resource matrix which identifies impacts to various resources at various GSL water elevations. This matrix should be helpful in the management of OBWMA.

#### **Waterfowl Management Plan for the Great Salt Lake Waterfowl Management Areas**

This plan approved in 2012 provides general statewide, and WMA specific, objectives and strategies for UDWR Waterfowl Management Areas. These recommendations cover issues such as: education and outreach; habitat management; hunter retention and recruitment; operation and management; and hunt management.

#### **Wildlife Management Program: Waterfowl Management Areas (W-65-M)**

This is a periodic plan prepared for Federal Aid to Wildlife Restoration grant monies. Funds from this grant are used to: to operate and maintain buildings, structures, and infrastructure on 24 WMA's totaling about 120,000 acres to provide habitat for wildlife and to provide public hunting and other wildlife oriented recreation. In addition, monies are used to monitor waterfowl and other wetland dependent avian populations on important state administered management areas.

### **IV. Strategies for Property Management**

#### **Development Activities**

- Survey needs:
  - Survey Wharton's Lane access off the dead end of 5500 west for boundary line and property rights concerns.
  - Install/restore/replace base elevations markers on the east dike and all outer dikes, along with several benchmarks.
  - List, map and install or replace as needed, base operation water level gauges or markers on all main inlet and outlet water distribution and control structures.
  - Confirm accuracy of elevations on currently used water level gauges along the east dike distribution channel at North, Middle and South Runs intersection locations. This has been requested as part of current cooperative flood control project, but a decision has not been made by Weber County.
- Fence needs:
  - The following sections of fence need restoration work:
    - North boundary of the North Weber Delta Unit (~1 mile)
    - Nielson access perimeter fence (all boundaries)
    - South end of Ogden Bay east of Unit 3 (all boundaries)

- East side of Unit 3 (~3 miles)
  - South end of South Weber Delta
  - Install one half mile of fence in the Unit 3 grazing allotment
  - Install six, bi-swing gates in Unit 1's secondary's grazing allotment
  - Renegotiate with above adjacent landowners on cooperative boundary fence, along with repairs, maintenance and replacement (due to Weber County becoming a fence-in County).
- Sign needs:
    - Develop a new spreadsheet of sign types, location, status, condition and number. Inventory sign condition and order signs annually as needed.
    - Request GSLEP place a main entrance sign at the OBWMA entrance for their facilities; an additional sign should include hours of operation and when the facility is open to the public.
    - Add signs for dog training area off of 5500 West.
- Facilities:
    - Replace cracked and rotting plumbing lines of old CCC camp buildings.
    - Continue to request approval to have the remaining older buildings and water control structures placed on the historical structures list due to the role they played in the Federal Aid to Wildlife Restoration and CCC programs. This request is supported by local politicians and the general public, along with UDWR personnel.
    - Several buildings have inadequate insulation and need to be upgraded. Request additional insulation through the UDWR's Facilities Coordinator.
    - There is not enough storage space for large equipment, leaving expensive equipment exposed to outside elements. Requests for larger buildings have been made by enhancement requests, but have been denied. Some buildings are currently being constructed in conjunction with GSLEP. Assess need for additional buildings after relocation of some equipment.
    - Replace wood trim and repaint the steel bunkhouse.
    - Replace old garage roof.
    - Request repairs of the rain gutter system around the shops.
    - Continue periodic inspection of buildings, infrastructure and maintenance programs using the WIN system.
- Water Control Structures:
    - Continue assistance and coordination with Weber County on the Emergency Watershed Protection flood control project. Finish Debris Removal phase of project by having the North East Parking Lot cleared of excavation spoil piles by the County. Incorporate new hydrologic modeling findings and recommendations into flood water management questions and responses, and address media/public flood event questions. Continue weekly requests to begin the Emergency Watershed Protection Flood Control project bid process.

- Public Access Needs:
  - Request crack sealing and slurry coating of the remaining paved roads as a follow up to the projects finished in 2013.
  - List public access dirt roads which need to be re-graveled and request enhancement funds.
  - Contract with a licensed engineer for an evaluation of bridge conditions on the main bridges across the South and North Runs; Request funds and upgrade conditions of bridges when funds become available. The South Run bridge has been evaluated and will be rebuilt under Emergency Watershed Protection grant. All other bridges still need evaluation.
  - UDWR needs to assist the Weber County Sheriff Department with monitoring and/or prosecution of litter dumping, vandalism, stolen vehicle and undesirable group activities.
  - Develop and pave a parking lot in front of the 2 monuments depicting the history of OBWMA and the CCC at OBWMA.
  
- Habitat needs
  - Complete annual evaluation of wetland habitat units by both aerial and ground methods, and analyze results. Determine which areas need additional enhancements (as described later in this plan) and implement. In upland areas, assess habitat needs annually by ground methods.
  - Communicate with other local habitat managers and researchers. Investigate, test or implement new or different habitat improvement methods including, but not limited to: burning; chemical use; seedling or seed plantings; grazing; drawdowns; seasonal flooding; water control; mechanical methods; Biological Control Agents (BCA); and other currently unknown mechanisms. These methods can be used to aid in the control of noxious weeds, make alterations in vegetation succession stages, achieve desirable interspersed ratios, maximize food production and develop desirable cover types.
  - Request and review the ongoing university study's findings for possible suggested changes in habitat management methods.
  - If identified during habitat evaluations, request additional funding through the UDWR Habitat Council, Upland Game Habitat dollars to improve vegetative quality of upland habitat to benefit wildlife such as deer, pheasants, geese, short-eared owl, northern harrier, long-billed curlew, shorebirds, passerines, etc.
  - Identify and investigate potential benefits or concerns with native or exotic new plants and wildlife species dispersing into the WMA.
  - When new major habitat manipulation projects are created, develop monitoring procedures and protocol which may include, but are not limited to: ground photo points; line transects; vegetation enclosures; or aerial transects.
  - Develop habitat management needs and strategies for suites of wildlife species.
  - Develop unit by unit habitat management plans, including history, and identify each unit's potential habitat condition (desired future condition) to provide better wildlife habitat. Create an annual unit by unit spreadsheet system to document habitat work.

- Investigate possibilities of acquiring additional water on the Weber Delta Units due to changes in upstream irrigation drainages; develop enhancement proposals as necessary.
- Update and expand old, outdated water management procedures including effective usage of both the new hydrologic modeling findings and new flood control structures installed from the Emergency Watershed Protection grant.
- Incorporate new acreage, fencing, buildings and water control structures into WMA's capital facilities master list.
- Update and expand the draft grazing plan annually or as needed, including the findings from upcoming USU research.
- Renegotiate with the Utah Division of Forestry, Fire & State Lands (DFFSL) for permission for only DWR personnel to be involved with completing small burns less than 50 acres.

## **Annual Operations and Maintenance Activities**

- Fence maintenance:
  - Inspect entire boundary and internal fence lines each year. Repair and replace dilapidated or damaged fences and gates cooperatively with adjacent landowners.
- Road, dikes and trail maintenance/closures:
  - Maintain areas where motorized vehicles are unauthorized. Oiled black top roads should be seal coated every four years or as is necessary after current grant is completed.
  - Grade all main public gravel roads twice a year and other gravel dike roads once a year. Grade dirt dikes and roads as needed, and as vegetation permits.
  - Fill chuck holes on all road types and mow roadside vegetation to improve visibility to drivers navigating the roads (particularly prior to hunting season).
  - Maintain dikes by filling muskrat holes, mowing, and grading at least once annually, and graveling as needed. Assess and fill any weak sections.
  - Monitor and repair foot bridges as necessary. Inspect vehicle bridges annually and complete small repairs.
  - Manage public access by opening and closing access gates on appropriate dates.
- Parking areas:
  - Maintain existing parking areas and boat ramps. Rebuild boat ramps and mow vegetation as necessary.
  - Open and relock the expansion parking areas on the WMA during opening weekend and other major events days.
  - Expand the North Weber Delta parking lot due to heavy use and vehicle overflow on busy pheasant hunting days.
- Noxious weed control:
  - Large noxious weeds projects such as the *Phragmites* and cattail control projects will be monitored and controlled through coordination with various agencies. Potential control methods include, but are not limited to: aerial and ground

herbicide applications; water management; grazing; and prescribed burning done in accordance with the burn plan agreement between the UDWR and the Utah Division of Forestry, Fire & State Lands (DFFSL).

- Other large acreage weed control efforts are completed by WMA personnel through water management actions such as increasing water depth (to inhibit *Phragmites* or cattail expansion), seasonal drought (i.e. summer drawdown), and contractual grazing. The use of biological control agents (BCA) requires an extensive approval process and must be approved by the Weber County extension agent. Mechanical treatments include dike mowing, and the use of agricultural weed treatment methods in fields. Weed control efforts may also include the excavation of pond floors to greater depths.
- All noxious weed control for the local WMA's is monitored, tabulated and submitted to the waterfowl group noxious weed project leader and included in the master spreadsheet available from the project leader. An extensive Weed Control Project Plan is available from the Northern Regional Office and a progressive area plan is in the WMA files.
- Predator, other animal, and fish control:
  - Apply necessary control methods annually to keep avian/mammalian predators, muskrat and carp populations in check. Public trappers, along with state WMA personnel, and federal trappers, are all involved in control of some of these populations. A master WMA's predator plan is available from the Northern Region Office
  - Develop OBWMA Predator and Carp Control Plans.
  - Increase beaver and general predator control in the last two weeks of May. Observations started in 2011 identified this timeframe as when both average bird nesting and elevated riparian recruitment losses from beaver cutting occurs.
  - The WMA files contain average muskrat and predator harvest figures.
- Sign replacement and closures:
  - Maintain boundary, entrance, and regulatory signs to clearly identify ownership, access, vehicle restrictions, and rules and regulations enforced on the WMA. Assure that all signs are clear, legible, and in place prior to hunting season. Rebuild, repaint or replace signs as needed.
  - Post or repair OHV trail signs. Assure appropriate signs are in place to indicate any rules or restrictions.
  - Post Wildlife Production Areas as closed during nesting and brood rearing seasons, and place 'littering prohibited' signs over them during hunting seasons.
- Maintenance of water developments:
  - Manage water levels and maintain dikes, culverts, head gates, risers, gauge houses, ponds, and wetlands to maximize habitat quality on the WMA. Weekly check water control structures during most the year, with daily checks during major flooding events.
  - Periodically assess water control structures for damages from muskrat or rust. Replace equipment as needed.

- Excavate and remove accumulated vegetation and sediment from head gate areas.
  - Remove and safely store extra spill boards prior to hunting season. Remove boards from control structures to provide for winter drainage; place in storage racks as illustrated in the board rack chart in the WMA files.
  - Check water depths and excavate the inlet heads and main distribution irrigation channels as needed, but annually during February drawdown and the early September pre hunt period.
  - Survey status and replace approximately six non-functional smaller headgates annually on a priority basis.
- Habitat Enhancement and Development:
    - Maintain and manage all WMA habitats and vegetation.
    - In upland areas, evaluate habitat conditions, prepare and conduct herbaceous seedings, or renovations. Throughout the WMA keep at least 10 to 20 percent of the habitat and its associated biotic communities in early succession stages.
    - Manipulate wetlands to recycle dormant seed banks to increase habitat quality for wildlife. On the WMA wetlands, keep at least 10 to 20 percent of the habitat and its associated biotic communities in early succession stages and habitat types.
- Facilities:
    - Maintain buildings and grounds. Clean, paint and make repairs as needed. Mow and water lawns, and irrigate trees. Winterize low use buildings and drain all necessary exterior pipes, hoses, and sprinklers as winter approaches.
    - Inspect, monitor, and replace as needed, all inventory listed within the WIMS Program System.
- Equipment:
    - Maintain all equipment and machinery, and make necessary repairs. This includes: daily lubrication during use periods and one complete annual service with fluid changes or stabilizations. Winterize equipment as season approaches.
- Wildlife Census:
    - Current wildlife census activities include:
      - monthly or bimonthly waterfowl population census;
      - quarterly upland and shorebird census;
      - breeding pair duck and goose surveys;
      - duck and goose brood surveys;
      - duck and goose banding;
      - shorebird, wading bird, and rails cooperative surveys with university researchers and GSLEP;
      - sandhill crane and tundra swan population and classification surveys;
      - western-snowy plover nesting and population surveys;
      - white-faced ibis and other wading bird nest colony counts;
      - rail counts;
      - waterfowl and shorebird nesting survey;
      - National bald eagle counts;

- waterfowl hunter counts and bag check surveys;
- Tracking and tabulation of animal control efforts.

### **Zoning and Land Use Ordinances**

Portions of the OBWMA have been classified into various zones by Weber County. These include:

- That portion of the WMA that lies within Weber County and in the following specific areas: T6N R4W Sections 24, 25 & 36; T6N, R3W Sections 19, 20, 27 – 35; has been classified as S-1 (Shoreline Zone) wherein the primary use of the land is for agricultural and recreational purposes. As per the Weber County Code, the objectives for the Shoreline classification include: to promote the use of the land for agriculture and for fish, wildlife and recreational purposes both public and private; to facilitate the conservation of water and other natural resources; to reduce hazards from floods and fires; to preserve open space, natural scenic attractions, natural vegetation, and other natural features within the zone; and to insure adequate provision for water supply, domestic sewage disposal and sanitation. The specified land use is compatible with WMA management.
- Those portions of the Weber Delta area of the WMA occurring in T6N R3W Sections 26 (S ½) and 36 (N ½) have been classified by Weber County as A-3 (Agricultural Zone). The purpose of this zone is to designate farming areas where heavy agricultural pursuits can be permanently maintained. The specified land use is also compatible with WMA management.
- The S ½ of T6N R3W Section 36 has been classified as A-2 (Agricultural Zone) which serves to designate farming areas where agricultural pursuits and the rural environment should be promoted and preserved. The specified land use is compatible with WMA management.
- That portion of the WMA situated in T5N R3W & R4W of Weber County, south to the Davis County line has been classified by Hooper City as R-1 (Single Family Residential Zone). The purpose of this zone is to provide for newly constructed, low density single-family residential development (40,000 square foot minimum lot size), which conforms to the system of services available. Although no residences exist on the WMA, the permitted uses of this zoning classification are in line with the current management of the WMA. As homes are built adjacent to the WMA, there may be future management concerns involving habitat or recreational opportunities.
- The small southern portion of the WMA that lies in Davis County (T5N R3W Sections 21, 22, 27, 28) has been classified as A-5 (Agricultural Zone). The purpose of this zone is to promote and preserve agriculture industry and open space within the County by allowing relatively small lot sizes, while maintaining an overall low dwelling density. The specified land use is compatible with WMA management.

Housing communities exist just outside the OBWMA boundary, raising concerns of habitat fragmentation for wildlife that reproduce on the WMA and forage on adjacent properties. This includes high priority species such as waterfowl, colonial nesting birds, wading birds, and pheasants. Safety restrictions are in place to protect the nearby housing

community, including statewide firearm use restrictions which call for a minimum 600 foot hunting buffer from any buildings, outbuildings and livestock.

## **V. Strategies for Habitat Management**

### **Management Plans for Wildlife Species**

The OBWMA was primarily acquired and originally developed to improve and maintain quality habitat conditions for waterfowl. Strategies for habitat management are now based on a holistic approach that takes into account all the wildlife, habitat and human components of the WMA, while still maintaining quality habitat for waterfowl. These strategies include:

- Provide an array of different water depths, pond sizes, salinities and regimes, interspersed with different habitat types which are diverse in structure, succession stage, composition, density and occurrence intervals, and that meet the diverse species and chronological annual cycle needs of wildlife that use the area. This management focus is on improving conditions for waterfowl, and is also usually beneficial to other high priority upland game, shore and wading bird species, along with sensitive species, while minimizing negative impacts to other wildlife that use the area.
- Maintain a diverse plant and wildlife community using the available tools, technology and knowledge.
- Maintain control of undesirable plant species, increase food quality and production, and enhance cover quality.
- Maintain control of undesirable wildlife species that negatively impact higher priority species.
- Minimize negative impacts to wildlife from public recreational use, along with other impacts on the WMA.

Objectives or strategies to preserve, enhance, or restore wildlife populations on the WMA are usually habitat related. The strategies are completed as mentioned earlier or by following a series of plans as listed in the Habitat Improvement Plan section. However, some overall populations, groups of species (such as waterfowl and non-game species) or individual species (such as tundra swan and Canada geese) are dealt with directly through their own strategies, surveys, population goals, harvest recommendations, UDWR's long term Standardized Operating Procedures, by university research projects or the Pacific Flyway Council. Most of the avian species do not have individual plans to guide management activities.

### **Habitat Improvement Plan**

The enhancement, creation and maintenance of quality habitat conditions on OBWMA are done primarily for waterfowl since the WMA was originally created and qualified for federal aid funding to benefit waterfowl species. As improvements have been made to waterfowl habitat, other species have also benefitted. The habitat conditions for all wildlife on the WMA are important, and although waterfowl is of primary concern, efforts are made to accommodate the needs of other species. Examples of this include: creation of many compatible large marshes, flats, and ponds that attract thousands of shorebirds and wading birds; planting of shelter belts and crops for pheasants; hack

towers built for peregrine falcons; assuring large trees remain for bald eagles; and improving riparian habitat for passerines.

As stated in earlier WMA documents, the “waterfowl mission” for OBWMA, “is to perpetuate, enhance and increase wetland resources to maximize habitat, wildlife populations and public use through education, management and regulation.”

#### Habitat Objectives:

1. Inventory existing habitat conditions.
2. Maintain, restore, preserve, enhance, diversify, and manage existing wetland resources.
3. Expand wetland resources.
4. Aggressively combat invasive weeds with herbicide and prescribed burn treatments, grazing, and water management.
5. Repair, replace and maintain fences and signs to keep motorized vehicles on authorized roads and reduce public intrusion into wildlife production areas.
6. Identify education parameters and develop awareness of wetland resources and values.
7. Increase recreational opportunities where compatible with wildlife needs.
8. Provide and promote regulation to insure maintenance and preservation of wildlife and wildlife habitat.
9. Preserve and manage the unique upland, riparian, and GSL shoreline habitats.
10. Acquire important wildlife habitats surrounding OBWMA through donation, fee title or conservation easement.

Some recent examples of the magnitude of recent efforts to expand, preserve, maintain, restore, enhance, and diversify habitat include:

- The WMA expanded by acquiring nearly 2,000 acres within the Weber Delta: the Higley’s, Wharton, and Neilson properties, along with additional smaller acreage areas.
- Preservation through enhancement of 3,000 acres of the WMA’s unique, seasonally flooded saline flats began in 2006 by using seasonal-only flooding when it was realized that constant water flow encourages *Phragmites* invasion.
- Preservation through acquisition of approximately 200 acres in western Weber County of some of the last remaining (relic), native, low elevation, cold desert saltbush and sagebrush grassland steppe on the North Weber Delta. It is estimated that there are less than 750 acres of this unique habitat remaining in the entire county.
- Restoration from the 2011 flood damage and long term sediment buildup by removal of 200 thousand tons of silt, trees/logs and debris from channels, and repairing approximately 20 major dike breaches and blowouts.
- In 2006, the UDWR received funding from the Utah Transit Authority (UTA) to be used for improvements on the South Weber Delta of OBWMA. This funding served as wetland mitigation for the construction of the new Frontrunner Utah commuter rail system to run between Salt Lake and Pleasant View. Approximately 3 acres of formerly existing wetland habitat was filled for this project. The mitigation included: development of 150 acres of seasonally flooded flats and 15 acres of type-1 native, predominately short grass wet meadow habitat with a high water table and comparatively longer summer

open water period; the creation of a 30 acre impoundment; excavation of approximately 3,400 feet of channel, and the installation of eight head gates.

- Maintained structures on over 100 headgates; 75 miles of conveyance channels, dikes and roads; over 35 miles of fence and hundreds of signs.
- Additional enhancements include: a 2013 acquisition of over four million dollars for water control structures in cooperation with Weber County and NRCS; a 2010 project sponsored by Ducks Unlimited with federal aid funding to include the construction of several thousand feet of dikes and the installation of six head gates to create approximately 300 acres of impounded ponds. The Weber Delta area enhancement during the 1990's included development of 500 acres of wetlands.
- Returned vegetation to an earlier succession state on over 5,000 acres of monotypic emergent wetland plant stands.
- Acquired the 50 acre Gaskill property in 2013. This property is located east of the main headquarters area and supports freshwater emergent marsh and open water ponds, along with upland pastures. It will provide a buffer to existing OBWMA lands.

## **Additional Plans that guide OBWMA Management**

### **Access Management Plan**

The access management plan for the Ogden Bay WMA is available at the Ogden Bay offices. It discusses access to the WMA, general issues and concerns, rules and regulations for motorized land vehicles and boat operations in the area, and how this access is compatible with the achievement of WMA management goals and objectives. The access map is included in Appendix A, and shows authorized roads, parking facilities, dog training areas, restroom facilities, and boat ramp/launch locations.

### **Water Management Plan**

A request has been received to complete a new OBWMA water management plan as time allows. The old plan and procedures are outdated and are missing key information, including: new units habitat types and older units change in habitat types; numerous new headgates, miles of dikes and several impoundment locations and their management information; and flood control developments. It only contains old procedures used to establish vegetation which could be disastrous because they can quickly lead to monocultures by newer types of noxious weeds. This old plan also fails to recognize the importance of managing for early stages of succession. Sections in this HMP are the required preliminary steps to a new water management plan and should assist with its' development. This water management plan title is "Procedure Manual" and is on file at the Ogden Bay WMA offices.

### **Grazing Management Plan**

The OBWMA was historically grazed, although grazing had been discontinued for 60+ years. Upon evaluation of surrounding private lands (during the mid-2000's) which were being grazed, experimental grazing allotments were created on different OBWMA units. This experimental grazing was to evaluate grazing impacts on plant succession and weed control, with the overall goal of enhancing the quality and quantity of wildlife habitat. This plan explains the effects of grazing on wildlife habitat and details some of the

successes and failures of grazing on the WMA with suggested recommendations for grazing in wetland habitats. This plan can be found in the Ogden Bay WMA offices.

### **Weed Management Descriptions and Strategy**

Weeds are a constant problem on the OBWMA. Since the GSL flooded in the mid-1980's and saline waters inundated and killed the existing marsh habitats, several weed species have aggressively moved into these unoccupied habitats. While all weeds are of concern as they degrade wildlife habitat, the weed species of specific concern are *Phragmites* and a hybrid cattail. These two species have caused a significant loss of wetland habitat. A variety of methods have been used on the WMA to treat weeds, with both positive and negative aspects. This strategy explains the effects of weeds on wildlife habitat and details some of the efforts which have been undertaken to control or suppress various weed species. The strategy/description can be found in the WMA files. As mentioned previously, the master weed control plan is available in the WMA files.

### **Predator Management Plan**

A joint effort predator management plan has been developed for use on the UDWR Waterfowl Management Areas and is available in the WMA files.

### **Carp Management Information**

Undesirable fish species, such as carp, enter the WMA via the main-stem Weber River, tributaries and other drainages, seeking food, shelter and spawning grounds in the channels and impoundments of Ogden Bay. The constant immigration of these rough fish raises concern for aquatic invertebrates and aquatic vegetation, which provide important habitat resources for naturally occurring wildlife on the WMA. Carp are a triple threat to birds and habitat conditions on the WMA. Carp consume aquatic invertebrates that are the predominant or critical food source for some birds. While foraging for bugs, carp uproot and destroy the submergent vegetation that many birds forage on, and this vegetation is the primary vertical habitat for invertebrates available within the top 12 inches of the water where most birds forage. Finally, carp rooting creates water turbidity that represses plant achene, seed, or tuber production that some birds need when carbohydrate demands are high for thermal regulation and migration energy. It is vital that rough fish populations are monitored and controlled annually to protect habitat quality. This information is being updated and refined, and details additional information regarding carp management on OBWMA. This document can be found in the WMA files.

### **Fire Management Plan**

A large, formal burn plan for the WMA was developed and provided to the Utah Division of Forestry, Fire and State Lands (DFFSL) when they took over jurisdiction for burning on WMA's. The plan is available through that Division. Historically, fire has been used as a major habitat manipulation method on the WMA as described earlier in this plan. Today, with a few small exceptions, it is used exclusively as a second phase or step in the chemical treatment of large emergent vegetation stands of *Phragmites*. Fire will quickly remove biomass litter and facilitates spot retreatment, nutrient recycling and the re-establishment of native and desirable wildlife plants. As such, the formal objectives are

essentially the same as those listed in the early succession management section and Weed Control Plan. Burning large areas has become increasingly difficult to complete due to increased restrictions on large fires because of continually decreasing local air quality. The small jurisdiction exception mentioned earlier is for burns less than 50 acres. A smaller plan specific to this WMA and UDWR's role in burning can be found in the WMA files.

## **VI. Summary Statement of Proposed Uses**

The goals and objectives of the Ogden Bay WMA are primarily to ensure enhancement and protection of habitat quality primarily for waterfowl, wading birds, shorebirds, and sensitive species in wetlands, and pheasants and sensitive species in uplands. Ultimately the goals are to preserve, restore, and enhance both aquatic and terrestrial habitat for all wildlife; protect cultural resources; and provide for recreational opportunities that are compatible with the purpose of upland and wetland ecosystems.

## **VII. Monitoring and Evaluation**

The area supervisor, assistant wildlife manager and regional wildlife manager will be responsible for monitoring the overall effectiveness of the program. Appropriate UDWR sections will provide expertise as required. The area supervisor will oversee the effectiveness of the WMA HMP. The regional team will amend this plan as needed.

## **VIII. Appendices**

**Appendix A:** Maps

**Appendix B:** Legal Descriptions and Encumbrances

**Appendix C:** Wildlife and Plant Information

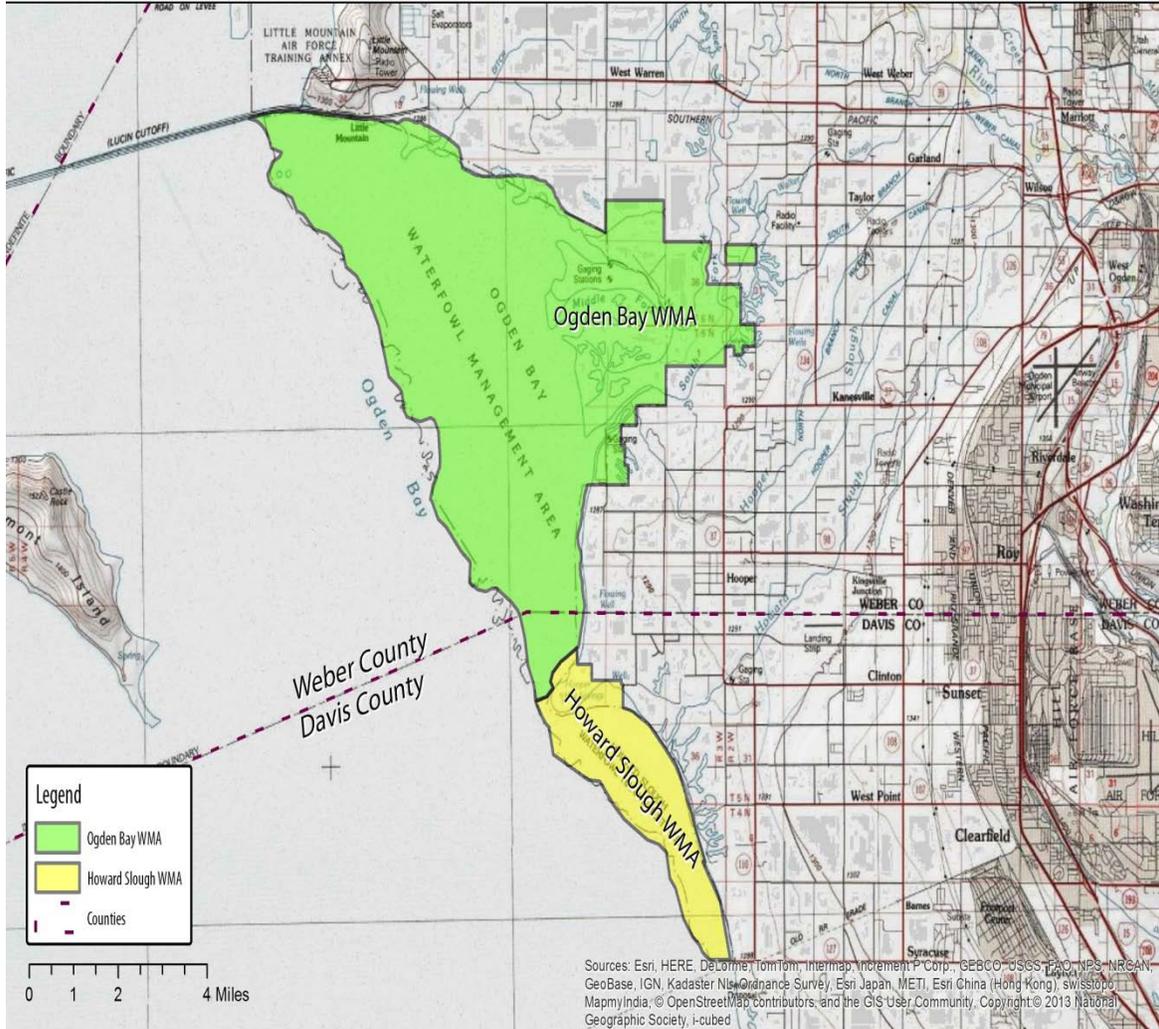
# Appendix A

## Maps

- Map 1: General Ogden Bay WMA Location
- Map 2: Ogden Bay WMA and Surrounding Land Ownership
- Map 3: Ogden Bay WMA Access

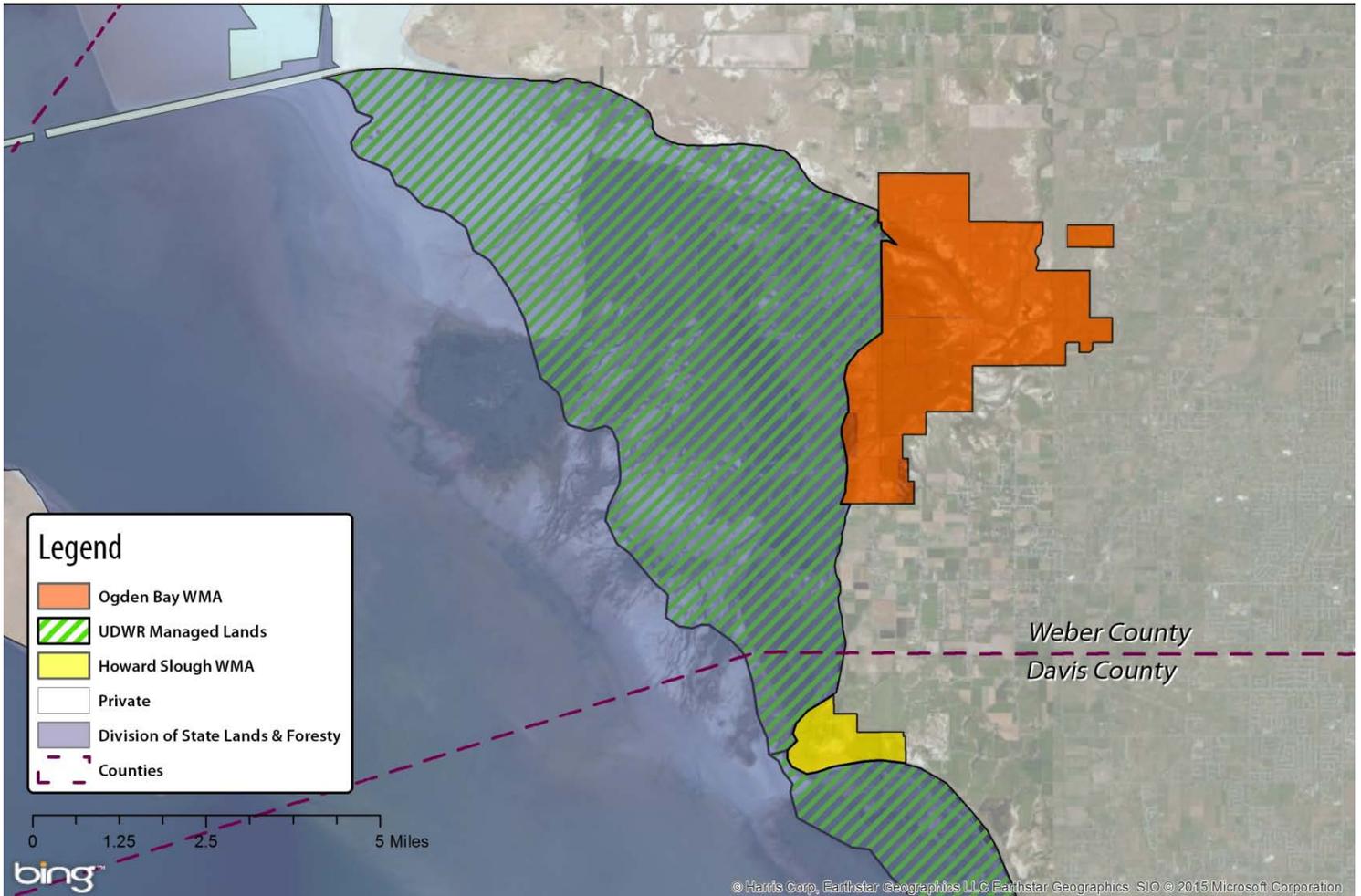


# Ogden Bay Waterfowl Management Area General Location Map



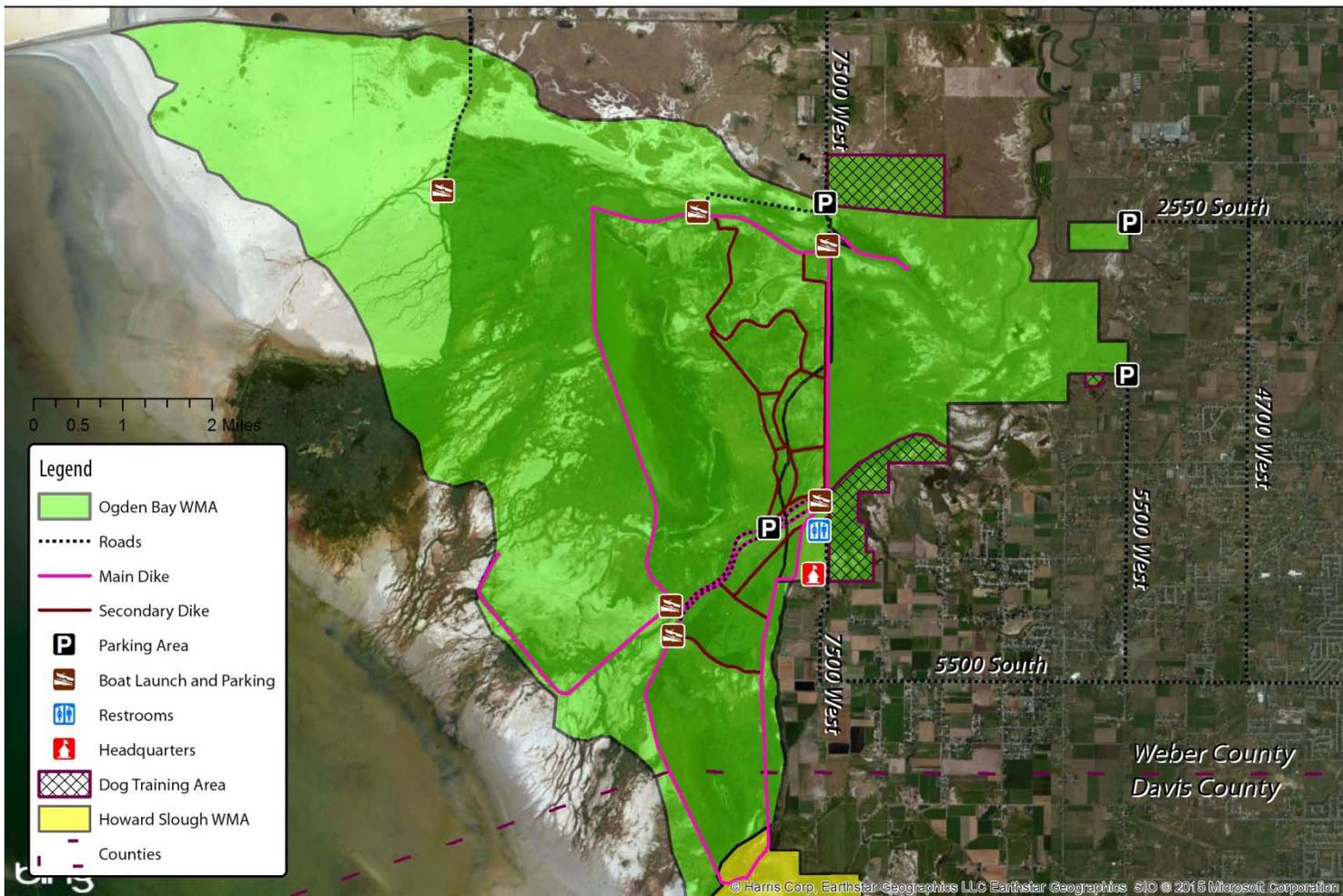


# Ogden Bay Waterfowl Management Area Land Ownership Map





# Ogden Bay Waterfowl Management Area Road/Access Map



# Appendix B

Legal Descriptions and Encumbrances

**Land Acquisition Details/Legal Descriptions**

**Grantor:** *Paul & Jeralyn Favero*

Warranty Deed 1005892 (~ 640 acres)

Township 5 North, Range 2 West	
Section 6: N ½ NW ¼	79.86 acres
Township 5 North, Range 3 West	
Section 1: N ½	320 acres
Township 6 North, Range 3 West	
Section 36: SE ¼	160 acres
Township 6 North, Range 2 West	
Section 31: W ½ SW ¼	80 acres

**Encumbrances & Limitations:**

- All mineral, geothermal, oil and gas rights (excluding sand & gravel) and the right for full ingress and egress are reserved to Grantor, subject to payment to Grantee for interference or damage to land surface.

**Grantor:** *Max G. & Geraldine M. Loock and Robert W. & Joyce S. Penman*

Warranty Deed 1017588 (~ 305.15 acres)

Township 6 North, Range 3 West	
Section 36: S ½ NW ¼, SW ¼, & NE ¼	305.15 acres

**Encumbrances & Limitations:**

- All mineral and mineral rights of every kind (excluding sand & gravel) and the right for full ingress and egress, subject to payment to Grantee for interference or damage to land surface resulting from exploration, development or extraction of minerals or ingress and egress for such purposes.

**Grantor:** *Max G. & Geraldine M. Loock and Robert W. & Joyce S. Penman*

Warranty Deed 1024389 (~ 360.26 acres)

Township 6 North, Range 3 West	
Section 35: Portions of	
Section 36: N ½ NW ¼	360.26 acres

**Encumbrances & Limitations:**

- All mineral and mineral rights of every kind (excluding sand & gravel) and the right for full ingress and egress, subject to payment to Grantee for interference or damage to land surface resulting from exploration, development or extraction of minerals or ingress and egress for such purposes.

**Grantor:** *Weber County*  
Quit Claim Deed 1027814 (~ 3.27 acres)

Township 5 North, Range 2 West  
Section 6: S ½ NW ¼            3.27 acres

Encumbrances & Limitations:

- None listed

**Grantor:** *Robert W. Penman & Max C. Loock*  
Warranty Deed 1053295 (~? acres)

Township 6 North, Range 3 West  
Section 26: SE ¼ SW ¼

Encumbrances & Limitations:

- Right of Way reserved to Grantor for 30 feet along entire north and west property lines (Weber County 10-047-0003/0004??)

**Grantor:** *Max G. & Geraldine M. Loock and Robert W. & Joyce S. Penman*  
Warranty Deed 1055001 (~ 169.69 acres)

Township 6 North, Range 3 West  
Section 26: Portion of

Encumbrances & Limitations:

- All mineral and mineral rights of every kind (excluding sand & gravel) and the right for full ingress and egress, subject to payment to Grantee for interference or damage to land surface resulting from exploration, development or extraction of minerals or ingress and egress for such purposes.

**Grantor:** *Alta B. Neilson*  
Warranty Deed 1058936 (~ 80 acres)

Township 6 North, Range 2 West  
Section 31: N ½ NW ¼            80 acres

Encumbrances & Limitations:

- Together with a right of way described as follows: The South one rod of the SE ¼ of Section 30, Township 6 North, Range 2 West, Salt Lake Meridian, U.S. Survey. Subject to a right of way over the above one rod of land to adjoining property owners. Also; Beginning at the SE corner of the SW ¼ of Section 30, Township 6 North, Range 2 West, SLBM, U.S. Survey; running thence West 1 rod; thence East 1 rod; thence South 1 rod to the place of beginning for right of way purposes.
- Together with all water rights owned by the Grantor and appurtenant to the above described land.

- All mineral and mineral rights of every kind (excluding sand & gravel) and the right for full ingress and egress, subject to payment to Grantee for interference or damage to land surface resulting from exploration, development or extraction of minerals or ingress and egress for such purposes.

**Grantor:** *Larue Appoline, Kent P. Higley, Jerry R. Higley, Gloria L. Dickemore, Rex V. Higley*  
Warranty Deed 1468727 (60 acres)

Township 5 North, Range 3 West  
Section 11: SW ¼

Encumbrances & Limitations:

- Subject to a right of way over and across the South 1 rod of the above described tract of land (10-006-0004)

**Grantor:** *Weber County Fish and Game Protective Association*  
Warranty Deed 49339 (355.80 acres)

Township 5 North, Range 3 West  
Section 10: Lots 1, 2 & the E ½ NE ¼ and Lots 3 & 4  
Section 3: Lots 1, 2 & 3

Encumbrances & Limitations:

- None listed

**Grantor:** *Arthur L. Fowers & Clara Fowers*  
Warranty Deed 67793 (~ 40 acres)

Township 5 North, Range 3 West  
Section 11: NW ¼ NW ¼      40 acres

Encumbrances & Limitations:

- None listed

**Grantor:** *Levi H. Fowers & Cora C. Fowers*  
Warranty Deed 68994 (~ 40 acres)

Township 5 North, Range 3 West  
Section 11: SW ¼ NW ¼      40 acres

Encumbrances & Limitations:

- None listed

**Grantor:** *Levi H. Fowers & Cora C. Fowers*  
Quit Claim Deed 68995 (~ 40 acres)

Township 5 North, Range 3 West  
Section 11: SW ¼ NW ¼      40 acres

Encumbrances & Limitations:

- None Listed

**Grantor:** *Cora C. Fowers*  
Warranty Deed 70462 (159.07 acres)

Township 5 North, Range 3 West  
Section 2: NW ¼ SE ¼; SW ¼ NE ¼; SE ¼ NW ¼; and Lot 3

Encumbrances & Limitations:

- None Listed

**Grantor:** *George E. Higley & Martha Belle Higley*  
Warranty Deed 75366 (~ 182.9 acres)

Township 6 North, Range 3 West  
Section 35: All that portion lying S of N channel of Weber River      182.9 acres

Encumbrances & Limitations:

- None Listed

**Grantor:** *Jimmy L. Wharton*  
Quit Claim Deed 956798 (9.88 acres)

Township 5 North, Range 2 West  
Section 6: S ½ NW ¼

Encumbrances & Limitations:

- Subject to a non-exclusive right of way for ingress, egress, utilities, drainage, and for irrigation ditch (specific location described in deed)

**Grantor:** *James H. Gaskill, et al.*  
Warranty Deed 2642168 (50 acres)

Township 5 North, Range 3 West  
Section 11: SW ¼

Encumbrances & Limitations

- None Listed.

**As authorized by Utah Code, Section 23-21-5, the DWR may utilize all or parts of 36 townships of sovereign lands on the Great Salt Lake below the 1855 Great Salt Lake meander line for the “creation, operation, maintenance and management of wildlife management areas, fishing waters, and other recreational activities.” For OBWMA, this can be applicable to several thousand acres of seasonally irrigated flats located west of the diked impoundments and east of the Great Salt Lake (GSL) open water. The amount of seasonally irrigated acreage depends on the elevation of GSL.**

# Appendix C

(Wildlife and Plant Information for OBWMA)

- Table 1: Sensitive Species and Species of Conservation Need
- Birds of Ogden Bay and Vicinity - Checklist
- Common Wetland Associated Birds, Mammals, Amphibians, Reptiles, Invertebrates and Fish of Howard Slough, Harold Crane and Ogden Bay WMA's and Vicinity
- Common Wetland Plants and Wetland Classifications
- Noxious and Invasive Weeds of Ogden Bay, Howard Slough, & Harold Crane WMAs, and Willard Bay UGA and those with Biological Control Agent (BCA) Availability

Table 1. Sensitive Species and Species of Conservation Need (adapted from Utah Sensitive Species List (2007) and Utah Comprehensive Wildlife Conservation Strategy Plan (2005))

Species*	Scientific Name	Tier	Group	Classification	Primary Habitat	Secondary habitat	Season Present**	Relative Abundance***
American Avocet	<i>Recurvirostra americana</i>	III	Bird		Wetland	Playa	Summer	Common, <a href="#">stable, MA</a>
American White Pelican	<i>Pelecanus erythrorhynchos</i>	II	Bird	State Wildlife Species of Concern	Water - Lentic	Wetland	Summer	Common, <a href="#">variable, MA</a>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	I	Bird	State Wildlife Species of Concern	Lowland Riparian	Agriculture	Winter	Common, <a href="#">stable, MA</a>
Black-necked Stilt	<i>Himantopus mexicanus</i>	III	Bird		Wetland	Playa	Summer	Common, <a href="#">stable, MA</a>
Black-throated Gray Warbler	<i>Dendroica nigrescens</i>	III	Bird		Pinyon-Juniper	Mountain Shrub	Transient	Rare, <a href="#">decreasing</a>
Bobolink	<i>Dolichonyx oryzivorus</i>	II	Bird	State Wildlife Species of Concern	Wet Meadow	Agriculture	Summer	Rare****
Brewer's Sparrow	<i>Spizella breweri</i>	III	Bird		Shrubsteppe	High Desert Scrub	Transient	Rare****, <a href="#">MA</a>
Broad-tailed Hummingbird	<i>Selasphorus platycercus</i>	III	Bird		Lowland Riparian	Mountain Riparian	Summer	Uncommon
Burrowing Owl	<i>Athene cunicularia</i>	II	Bird	State Wildlife Species of Concern	High Desert Scrub	Grassland	Summer	Rare, <a href="#">increasing, MA</a>
Caspian Tern	<i>Sterna caspia</i>	III	Bird		Playa	Water - Lentic	Summer	Rare, <a href="#">decreasing</a>
Ferruginous Hawk	<i>Buteo regalis</i>	II	Bird	State Wildlife Species of Concern	Pinyon-Juniper	Shrubsteppe	Summer	Rare
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	II	Bird	State Wildlife Species of Concern	Shrubsteppe			Occasional****
Lewis's Woodpecker	<i>Melanerpes lewis</i>	II	Bird	State Wildlife Species of Concern	Ponderosa Pine	Lowland Riparian	Transient	Occasional, <a href="#">decreasing</a>
Long-billed Curlew	<i>Numenius americanus</i>	II	Bird	State Wildlife Species of Concern	Grassland	Agriculture	Summer	Rare, <a href="#">decreasing, MA</a>
Mountain Plover	<i>Charadrius montanus</i>	III	Bird	State Wildlife Species of Concern	High Desert Scrub		Transient	Occasional****
Northern Goshawk	<i>Accipiter gentilis</i>	I	Bird	Conservation Agreement Species	Mixed Conifer	Aspen	Transient	Rare
Osprey	<i>Pandion haliaetus</i>	III	Bird		Water - Lentic	Water - Lotic	Transient	Rare, <a href="#">increasing, MA</a>
Peregrine Falcon	<i>Falco peregrinus</i>	III	Bird	De-listed 1999	Cliff	Lowland Riparian	Summer	Uncommon, <a href="#">stable, MA</a>
Sage Sparrow	<i>Amphispiza belli</i>	III	Bird		Shrubsteppe	High Desert Scrub	Transient	Occasional, <a href="#">Maybe, MA</a>
Sage Thrasher	<i>Oreoscoptes montanus</i>	III	Bird		Shrubsteppe	High Desert Scrub	Summer	Occasional, <a href="#">Maybe, MA</a>
Short-eared Owl	<i>Asio flammeus</i>	II	Bird	State Wildlife Species of Concern	Wetland	Grassland	Summer	Rare, <a href="#">decreasing, MA</a>
Snowy Plover	<i>Charadrius alexandrinus</i>	III	Bird		Playa		Summer	Uncommon, <a href="#">decrease, MA</a>

\* This list is wildlife within the WMA and its nearby vicinity. Survey and sighting information does not separate out those sightings only occurring on the WMA from those on nearby WMAs.

\*\* *Permanent* (Found year round or at least early spring to late fall)  
*Summer* (Present during the nesting season)  
*Winter* (Present during January and/or February)  
*Transient* (Migrates through in spring and/or fall)

\*\*\* *Common* (Found consistently in fair numbers in appropriate habitat and season)

*Uncommon* (Found consistently in small numbers in appropriate habitat and season)

*Rare* (Found infrequently in very small numbers in proper habitat and season)

# BIRDS OF OGDEN BAY W.M.A. and VICINITY

## Key to Codes

### Relative Abundance

- C = Common (Found consistently in fair numbers in appropriate habitat and season)  
 U = Uncommon (Found consistently in small numbers in appropriate habitat and season)  
 R = Rare (Found infrequently in very small numbers in proper habitat and season)  
 O = Occasional (Seldom found and not reported annually)  
 I = Irregular (Abundance varies greatly from year to year- may be common one year and absent the next)

### Status

- P = Permanent Resident (Found year round or at least early spring to late fall)  
 S = Summer Resident (Present during the nesting season)  
 W = Winter Visitant (Present during January and/or February)  
 T = Transient (Migrates through in spring and/or fall)

### LOONS

		__ Snowy Egret	CS
		__ Little Blue Heron	OT
__ Common Loon	OT	__ Cattle Egret	CS
		__ Black-crowned Night Heron	CS

### GREBES

__ Pied-billed Grebe	CS
__ Horned Grebe	RT
__ Eared Grebe	CS
__ Red-necked Grebe	OT
__ Western Grebe	CS
__ Clark's Grebe	CS

### IBISES, SPOONBILLS & STORKS

__ White faced Ibis	CS
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### SWANS, GEESE & DUCKS

### PELICANS & CORMORANTS

__ American White Pelican	CS
__ Double-crested Cormorant	CS

__ Fulvous Whistling-Duck	OT
__ Tundra Swan	CT
__ Trumpeter Swan	OW
__ Gr. White-fronted Goose	OT
__ Snow Goose	UT
__ Ross Goose	RT
__ Brant	OT
__ Canada Goose	CP
__ Wood Duck	OP
__ Green-winged Teal	CT
__ Mallard	CP
__ Northern Pintail	US
__ Blue-winged Teal	CS

### BITTERN & HERONS

__ American Bittern	RS
__ Least Bittern	OT
__ Great Blue Heron	CP
__ Great Egret	OT

__Cinnamon Teal	CS
__Northern Shoveler	CS
__Gadwall	CS
__Eurasian Wigeon	OT
__American Wigeon	CT
__Canvasback	CT
__Redhead	CS
__Ring-necked Duck	UT
__Greater Scaup	RT
__Lesser Scaup	CT
__Harlequin Duck	OT
__Oldsquaw	RT
__Black Scooter	OT
__Surf Scooter	OT
__White-winged Scooter	IT
__Common Goldeneye	CT
__Barrow's Goldeneye	RT
__Bufflehead	CT
__Hooded Merganser	OT
__Common Merganser	CT
__Red-breasted Merganser	CT
__Ruddy Duck	CS

#### HAWKS, FLACONS & VULTURES

__Turkey Vulture	UT
__Osprey	RT
__Bald Eagle	CW
__Northern Harrier	CP
__Sharp-shinned Hawk	CT
__Cooper's Hawk	CT
__Northern Goshawk	UT
__Swainson;s Hawk	US
__Red-tailed Hawk	UP
__Ferruginous Hawk	US
__Rough-legged Hawk	CW
__Golden Eagle	UT
__American Kestral	CS
__Merlin	UT
__Peregrine Falcon	US
__Prairie Falcon	CT

RT

__Stilt Sandpiper	RT
__Buff-breasted Sandpiper	OT

#### GROUSE, PHEASANTS, TURKEY & QUAIL

__Gray Partridge	RP
__Ring-necked Pheasant	CP
__Sage Grouse	OR
__California Quail	RP

#### CRANES, RAILS, GALLINULES AND COOTS

__Virginia Rail	CS
__Sora	CS
__Common Gallinule	IP
__American Coot	CS
__Sandhill Crane	US
	UT

#### PLOVERS AND SANDPIPERS

__Black-bellied Plover	UT
__Lesser Golden-Plover	RT
__Snowy-Plover	US
__Semi-palmated Plover	UT
__Killdeer	CS
__Mountain Plover	OT
__Black-necked Stilt	CS
__American Avocet	CS
__Greater Yellowlegs	CT
__Lesser Yellowlegs	CT
__Solitary Sandpiper	UT
__Willet	CS
__Wandering Tattler	O
__Spotted Sandpiper	CS
__Whimbrel	RT
__Long-billed Curlew	US
__Hudsonian Godwit	OT
__Marbled Godwit	CT
__Ruddy Turnstone	RT
__Red Knot	RT
__Sanderling	IT
__Semi-palmated Sandpiper	RT
__Western Sandpiper	CT
__Least Sandpiper	CT
__Baird's Sandpiper	UT
__Pectoral Sandpiper	UT

\_\_Dunlin

__ Short-billed Dowitcher	RT
__ Long-billed Dowitcher	CT
__ Common Snipe	CS
__ Wilson's Phalarope	CS
__ Red-necked Phalarope	CT
__ Red Phalarope	OT

### **GULLS, TERNS AND ALCIDS**

__ Parasitic Jaeger	OT
__ Long-tailed Jaeger	OT
__ Franklin's Gull	CS
__ Bonaparte's Gull	UT
__ Ring-billed Gull	UT
__ California Gull	CS
__ Herring Gull	UW
__ Glaucous-winged Gull	OT
__ Glaucous Gull	RW
__ Sabine's Gull	RT
__ Caspian Tern	US
__ Common Tern	RT
__ Forster's Tern	CS
__ Black Tern	US
__ Ancient Murrelet	OT

### **PIGEONS AND DOVES**

__ Eurasian Collared Dove	CP
__ Rock Dove	CP
__ Morning Dove	US

### **OWLS**

__ Barn Owl	CP
__ Flammulated Owl	US
__ Western Screech-Owl	UT
__ Great Horned Owl	CP
__ Burrowing Owl	US
__ Great Gray Owl	OT
__ Long-eared Owl	UT
__ Short-eared Owl	CS

### **GOATSUCKERS**

__ Common Nighthawk	US
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### **SWIFTS**

__ Vaux's Swift	OT
__ White-throated Swift	OT

### **HUMMINGBIRDS**

__ Black-chinned Hummingbird	US
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\_\_Calliope Hummingbird RS  
\_\_Broad-tailed Hummingbird US

### **KINGFISHERS**

\_\_Belted kingfisher UT

### **WOODPECKERS**

\_\_Lewis' Woodpecker UT  
\_\_Red-headed Woodpecker OT  
\_\_Downy Woodpecker CP  
\_\_Northern Flicker CP

### **FLYCATCHERS**

\_\_Western Wood-Pewee US  
\_\_Hammond's Flycatcher US  
\_\_Dusky Flycatcher US  
\_\_Gray Flycatcher US  
\_\_Black Phoebe US  
\_\_Eastern Phoebe OT  
\_\_Vermilion Flycatcher RS  
\_\_Ash-throated Flycatcher US  
\_\_Western Kingbird CS  
\_\_Eastern Kingbird CS

### **LARKS**

\_\_Horned Lark CT

**SWALLOWS**

__Tree Swallow	CS
__Violet-green Swallow	CS
__N. Rough-winged Swallow	CS
__Bank Swallow	CS
__Cliff Swallow	CS
__Barn Swallow	CS

**JAYS AND CROWS**

__Stellers' Jay	OT
__Pinyon Jay	RT
__Black-billed Magpie	CP
__American Crow	UT
__Common Raven	CP

**TITMICE, VERDIN & BUSHTIT**

__Black-capped Chickadee	UT
__Mountain Chickadee	UT

**NUTHATCHES & CREEPERS**

__Red-breasted Nuthatch	UT
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**WRENS**

__Rock Wren	RT
__Canyon Wren	RT
__Marsh Wren	CS

**DIPPERS**

__American Dipper	RT
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**KINGLETS & GNATCATCHERS**

__Ruby-crowned Kinglet	UT
__Blue-gray Gnatcatcher	RT

**THRUSHES**

__Western Bluebird	OT
__Mountain Bluebird	UT

__Townsend's Solitaire	UT
__Swainson's Thrush	UT
__Hermit Thrush	UT
__American Robin	CP

**THRASHERS**

__Gray Catbird	RS
__Northern Mockingbird	UT
__Sage Thrasher	US

**PIPITS**

__American Pipit	UT
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**WAXWINGS & PHAINOPELA**

__Cedar Waxwing	IT
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**SHRIKES**

__Northern Shrike	RW
__Loggerhead Shrike	UP

**STARLINGS**

__European Starling	CP
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**VIREOS**

__Solitary Vireo	US
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**WARBLERS**

__Orange-crowned Warbler	RS
__Yellow Warbler	US
__Yellow-rumped Warbler	RT
__Black-throated Gray Warbler	RT
__American Redstart	RT
__MacGillvray's Warbler	RT
__Common Yellowthroat	RT
__Wilson's Warbler	OT
__Yellow-breasted Chat	RT

**TANAGERS**

\_\_Western Tanager RT

**GROSBEAKS & SPARROWS**

\_\_Black-headed Grosbeak IT  
 \_\_Lazuli Bunting UT  
 \_\_Indigo Bunting RS  
 \_\_Green-tailed Towhee UT  
 \_\_Rufous-sided Towhee UT  
 \_\_American Tree Sparrow UW  
 \_\_Chipping Sparrow UT  
 \_\_Clay-colored Sparrow OT  
 \_\_Brewer’s Sparrow UT  
 \_\_Vesper Sparrow UT  
 \_\_Lark Sparrow UT  
 \_\_Black-throated Sparrow UT  
 \_\_Sage Sparrow UT  
 \_\_Lark Bunting RT  
 \_\_Savannah Sparrow UT  
 \_\_Le Conte’s Sparrow OT  
 \_\_Song Sparrow CT  
 \_\_Lincoln’s Sparrow UT  
 \_\_Swamp Sparrow UT  
 \_\_White-crowned Sparrow CW  
 \_\_Harris’ Sparrow RW  
 \_\_Dark-eyed Junco CT  
 \_\_Snow Bunting RW

**BLACKBIRDS & ORIOLES**

\_\_Bobolink RS  
 \_\_Red-winged Blackbird CS  
 \_\_Western Meadowlark CS  
 \_\_Yellow-headed Blackbird CS  
 \_\_Brewers’ Blackbird UP  
 \_\_Great-tailed Grackle RP  
 \_\_Common Grackle RS  
 \_\_Brown-headed Cowbird CS  
 \_\_Northern Oriole CS

**FINCHES**

\_\_House Finch UT  
 \_\_Lesser Goldfinch US

\_\_American Goldfinch US  
 \_\_Evening Grosbeak IT

**WEAVER FINCHES**

\_\_House Sparrow CP

**OCCASIONAL SPECIES- STATUS UNDETERMINED**

\_\_American Flamingo  
 \_\_Black Duck  
 \_\_Upland Sandpiper  
 \_\_Parakeet Anklet  
 \_\_Curlew Sandpiper  
 \_\_White-faced Tree Duck  
 \_\_Ruddy Shelduck  
 \_\_Ruddy Shelduck  
 \_\_Western Flycatcher  
 \_\_Whooping Crane  
 \_\_Brown Pelican  
 \_\_Gyr Falcon

**PLEASE REPORT UNLISTED AND STATUS UNDETERMINED SIGHTINGS TO:**

SUPERVISOR  
 OGDEN BAY WMA  
 4786 SOUTH 7500 WEST  
 HOOPER, UT 84315

# Common\* Wetland Associated Birds, Mammals, Amphibians, Reptiles, Invertebrates, and Fish of Howard Slough, Harold Crane, Ogden Bay W.M.A. and Vicinity

\*Populations numbers can cycle or fluctuate widely even in year round residents

## Key To Codes

### Common Usage Types

**f** = Foraging and/or loafing

**n** = Nesting or denning

**y** = Young, rearing

**w** = Wintering

**c** = Climax Species (Numbers increase, persist or dominate in the rest of the group unless a disturbance changes the vegetation and overall habitat)

**es** = Early successional species (Species that are numerically highest within the first five years of a wetland being new or renovated by disturbance. Their numbers decrease rapidly as primary production, forage base, and open water, mudflat, or short grass habitats, decreases through time. Other species decrease because they do best at higher salinity and the area species composition changes as fresh water inflows flush out salinities.)

**wd** = Water foraging depth preferences, includes average range and assumes all species use terrestrial (\*- water table > 6 inches deep) or moist soil (ms – water table >4 to 0 inches deep) eco-edge at times, such as loafing.

**p** = Predator (Over 50% of diet is animal or fish matter throughout the year. Numbers often increase in time, particularly if they are a climax species.)

## BIRDS

### GREBES

\_Pied-billed Grebe (es/c, wd: 18 to > 60, p)

\_Western Grebe (c, wd: 12 to > 60, p)

\_Eared Grebe (wd: 18 to > 60, p)

### PELICANS & CORMORANTS (P)

\_American White Pelican (p, es/c, wd: 6 to 24)

\_\_Double-crested Cormorant (p, c, wd: 36 to > 60)

### WADERS (P)

\_\_Great Blue Heron (p, c, wd: 2 to 18)

\_\_Snowy Egret (p, es, wd: 2 to 10)

\_\_Black-crowned Night Heron (p, wd: 2 to 12)

### WATERFOWL

\_\_Tundra Swan (ec through c wd: 12 to 36)

\_\_Canada Goose (es, wd: T to 24, 18 to > 60)

#### *\*Small Dabblers*

\_\_Green-winged Teal (es, wd: + to 2, 5 to 7)

\_\_Cinnamon Teal (es, wd: + to 4, 6 to 8)

\_\_Northern Shoveler (es, wd: + to 4, 6 to 8)

#### *\*Large Dabblers*

\_\_Mallard (c, wd: 4 to 15)

\_\_Northern Pintail (es, wd: + to 5, 7 to 16)

\_\_Gadwall (c, wd: 4 to 15)

#### *\*Divers*

\_\_Redhead (es, wd: 6 to 36)

\_\_Ruddy (wd: 6 to 12, 16 to 48)

\_\_Common Goldeneye (c, p, wd: 12 to 48)

\_\_Common Merganser (c, p wd: 18 to 60)

### HAWKS & FALCONS (P)

\_\_Northern Harrier (c, wd: + to 6, above surface, p)

\_\_Rough-legged Hawk (c, p)

\_\_Peregrine Falcon (es, wd: + to 4, above surface, p)

\_\_Prairie Falcon (es)

### PHEASANTS

\_\_Ring-necked Pheasant (es)

### RAILS & COOTS

\_\_Virginia Rail (wd: 3 to 12)

\_\_Sora (es, wd: + to 6)

\_\_American Coot (ed to c, wd: 11 to 18)

SHOREBIRDS (P)

**\*Small Gleaners**

- Snowy Plover (es, wd: + to 1)
- Killdeer (es, wd: + to 3)
- Spotted Sandpiper (es, wd: 2 to 12)
- Western Sandpiper (es, wd: + to 2)
- Least Sandpiper (es, wd: + to 1)

**\*Large Gleaners**

- Greater Yellowlegs (wd: 2 to 7)
- Lesser Yellowlegs (es, wd: 1 to 5)
- Wilson's Phalarope (es, wd: + to 3)
- Red-necked Phalarope (wd: 1 to 3, 12 to > 60)

**\*Gleaner/Sweepers**

- Black-necked Stilt (wd: 4 to 7)
- American Avocet (es, wd: 3 to 6)

**\*Prober**

- Willet (es, wd: 2 to 6)
- Long-billed Curlew (es, wd: + to 6)
- Marbled Godwit (es, wd: + to 3)
- Long-billed Dowitcher (es, wd: 2 to 4)
- Common Snipe (es, wd: + to 4)
- White-faced Ibis (es, wd: 2 to 8)

GULLS & TERNS

- Franklin's Gull (es, wd: 2 to 6)
- Ring-billed Gull (wd: + to 2)
- California Gull (c, wd: + to > 60 on surface)
- Forster's Tern (es, wd: 2 to 12)

OWLS (P)

- Barn Owl (es, p)
- Great Horned Owl (c, p)
- Burrowing Owl (es, p, rare)
- Short-eared Owl (es, wd: 0 to 12, p)

SWALLOWS (P)

- Bank Swallow (es)
- Cliff Swallow (es)

\_\_Barn Swallow (es)

JAYS & CROWS (P- sometimes)

\_\_Black-billed Magpie

\_\_Common Raven

WRENS

\_\_Marsh Wren (c, wd: 4 to 24 in emergent vegetation)

SHRIKES (P)

\_\_Loggerhead Shrike (p)

SPARROWS

\_\_Song Sparrow

\_\_White-crowned Sparrow

BLACKBIRDS & ORIOLES (P- sometimes)

\_\_Western Meadowlark (es, wd: + to ms)

\_\_Red-winged Blackbird (es, wd: + to 6 in emergent vegetation)

\_\_Yellow-headed Blackbird (c, wd: 6 to 24 in emergent vegetation)

\_\_Brown-headed Cowbird (c)

**COMMON MAMMALS**

\_\_Beaver (c, wd: 18 to >60, recently adapted to using common reed and tamarisk locally)

\_\_Muskrat (es, wd: 18 to 24)

\_\_Meadow Vole (es, wd: + to 2)

\_\_Raccoon (p, c, wd: + to 6)

\_\_Red Fox (p, es, wd + 6)

\_\_Mule Deer (es,-c)

\_\_Coyote ( p, es-c)

**COMMON AMPHIBIANS**

\_\_Boreal Chorus Frog (es, wd: + to 6)

\_\_Bullfrog (p, c, wd: 2 to >12, in warmer water well fed or ground erupting artesian seeps or spring areas, p)

\_\_Northern Leopard Frog (es, wd: + to 6)

\_\_Wood House Toad (egg and tadpoles, wd: + to 6)

## COMMON REPTILES

- \_\_Eastern painted Turtle (wd: + to 4 to 24)
- \_\_Four-striped (wandering) Garter Snake (wd: + to 6, p)

## COMMON FISH

- \_\_Bullhead Catfish (wd: 12 to > 60)
- \_\_Carp (c, es, wd: 6 to > 60, but in young age class numbers and annual growth in larger sizes locally)
- \_\_Channel Catfish (es, wd: 24 - > 60, young age class numbers, annual growth)
- \_\_Fathead Minnow (es, wd: 4 to 24)

## COMMON MACROINVERTEBRATES

### *Key To Codes*

### **Habitat Preferences**

- a = Above surface on soil or plants*
- s = On or near surface (Neuston)*
- f = Free swimming in water*
- fl = Floating, but submerged, dispersed by current (Plankton like)*
- cl = Clinging to structure such as rocks or aquatic vegetation stems and leaves (Periphyton)*
- b = Bottom dwelling or borrowing (Benthon)*

### **WORMS**

#### *Freshwater*

- \_\_Aquatic Worms (es, b)
- \_\_Thread Worms (b)
- \_\_Earth Worms (es, b)

### **SHRIMP**

#### *Freshwater*

- \_\_Crayfish (c, b, f)
- \_\_Cyclops Shrimp (es, f)
- \_\_Daphnia Shrimp (es, f)
- \_\_Fairy Shrimp (several species, es, f)
- \_\_Scuds (c, f)
- \_\_Seed Shrimp (es, f)

\_\_Tadpole Shrimp (es, f)

*Brackish* (mixosaline)

\_\_Brine Shrimp (c, s, f)

\_\_Other Fairy Shrimp (es, s, f)

### SPIDERS (P)

*Freshwater*

\_\_Two common unknown species, locally called “web parachute spiders” (es, c, s)

### MAYFLIES (Mostly Nymphs)

*Freshwater*

\_\_Burrowing Mayflies (c, b)

\_\_Free Ranging Mayflies (es, f)

### DRAGONFLIES & DAMSELFLIES (P)

*Freshwater Dragonflies*

\_\_Western Dragonfly (aeshna, larvae, (c, cl) and adult (a))

*Brackish or Mixosaline Dragonflies*

\_\_Western Dragonfly (adult only (a,c))

*Freshwater Damselflies*

\_\_Blue Darners (larvae, (c, cl) and adult (a))

\_\_Bright Blues (larvae and adult)

*Brackish or Mixosaline Damselflies*

\_\_Blue Darners (adult only (a))

### APHIDS

*Freshwater*

\_\_more than two unknown species that attack emergent vegetation, particularly common reed (a)

BEETLE

*Freshwater*

\_\_Predacious diving beetle (c, f, p)

TRUE FLIES

*Freshwater*

\_\_Midges (a, es-c, b, most numerous and most common of all species)

\_\_Mosquitoes (usually larvae form, a, c, s, in isolated, stagnant, or lentic environments, 5 species, uncommon in WMA lotic water managed areas).

\_\_Deer Flies (c, p, cl, b, larvae mostly)

\_\_Horse Flies (c, p, cl, b, larvae mostly)

*Brackish (mixosaline)*

\_\_Midges (es, b, larvae and adults, a –reduced number of species)

\_\_Brine Flies (es, larvae, b, c, l, pupae, s, and adult, a –huge numbers)

\_\_Deer Flies (larvae, c, -reduced numbers)

BUTTERFLIES & MOTHS (Major herbivore of some emergent vegetation)

*Freshwater*

\_\_Miller Moths (es, a, caterpillars)

\_\_Scape Moths (es, a, caterpillars)

MUSSELS and SNAILS

*Freshwater*

\_\_At least one unknown Mussel species suspected to as Western Pearlshell /Oregon Floater (b)

\_\_At least three unknown species of pouch and pond snails (c, cl)

## **COMMON WETLAND PLANTS WITH WETLAND CLASSIFICATIONS**

### *Key To Codes*

**c** = Climax Species (Numbers increase, persist or dominate in the rest of their class and/or classes, unless they experience periodic disturbance or renovation. Some are widely adapted and can persist, though repressed, in relatively dry, low water table, upland type situations)

**es** = Early Succession species (Species that are numerically highest within the first five years of a wetland being new or renovated by disturbance. Their numbers decrease rapidly as primary production and/or open water, mudflat, or short height plant habitat decreases with taller vegetation occurring over time. Other species decrease because they do best at higher salinity and the area species composition changes as fresh water inflows flush out salinities.)

### **SUBMERGED AQUATICS (Aquatic Bed, Lacustrine, Seasonally to Permanently Flooded)**

#### **Fresh Water**

- Coontail (c)
- Muskgrass (es)
- Curly Leaf Pondweed (c)
- Horned Pondweed (es)
- Sago Pondweed (c)
- Eurasian Water milfoil (c)

#### **Brackish (Inland Saline Open, Mixosaline)**

- Muskgrass (es)
- Horned Pondweed (es)
- Widgeongrass (c in saline areas)

### **FREE FLOATING AQUATICS (Open Water, Lacustrine, Seasonally to Permanently Flooded)**

- Algae (es-c)
- Duckweed (es)
- Ducksmeal (es)
- Mosquito fern (es-c)

### **EMERGENT MARSH (Shallow, Palustrine to Littoral Lacustrine, Seasonally or Semi-Permanently flooded, Deep Aquatic Bed, Permanent)**

#### **Fresh Water**

- Common Three-square Bulrush (es)
- Hardstem Bulrush (c)
- Olney's Three-square Bulrush (c)
- Broadleaf Cattail (c: AKA Common Cattail)
- Southern Cattail (c: most of these are believed to be the "Super Hybrid" type cross with Broadleaf Cattail)
- Common Reed/*Phragmites* (c: widely adapted exotic genotype M occurs in several classes of wetlands and have replaced native genotypes)

#### **Brackish (Inland Saline Marsh, Mixosaline)**

- Olney's Three-square Bulrush (es)
- Alkali Bulrush (es)
- Common Reed/*Phragmites* (c: widely adapted exotic genotype M occurs in several classes of wetlands)

## **WET MEADOW (Shallow Emergent, Palustrine, Temporary Flooded)**

### **Fresh Water**

- Wire Bush/Baltic (c)
- Beaked Spikerush (es)
- Common Three-square Bulrush (c)
- Common Reed/*Phragmites* (c: widely adapted exotic type M occurs in several classes of wetlands)
- Broadleaf Cattail (c: AKA Common Cattail)
- Perennial Pepperweed (c)
- Inland Saltgrass (c; can persist in relatively dry or fresh water situations locally)

### **Brackish (Inland Saline Flats, Mixosaline)**

- Barley Foxtail
- Inland Saltgrass (c; can persist in relatively dry or fresh water situations locally)
- Common Reed/*Phragmites* (c: widely adapted exotic type M occurs in several classes of wetlands)
- Alkali Sacaton (c: on drier, higher ground and can persist through long term drought.)

## **MUDFLATS & MOIST SOIL (Shallow Emergent, Palustrine, Seasonally to Temporary Flooded)**

### **Fresh Water**

- Curley Dock (es)
- Wild Millet (es)
- Nodding Smartweed (es)
- Perennial Pepperweed (c)
- Cocklebur (c)
- Red Goosefoot (es)
- Teasel (es)
- Beggartick (es)
- Nutsedge (es)
- Common Reed/*Phragmites* (c: widely adapted exotic type M occurs in several classes of wetlands, persistent rootstock but repressed annual growth once established here)
- Broadleaf Cattail (c: AKA Common Cattail)
- Inland Saltgrass (c; can persist in relatively dry or fresh water situations locally)

### **Brackish (Saline Mudflat, Vegetated Mudflat, Mixosaline)**

- Glasswort/Salicornia (es-c in higher salinities)
- Pickleweed/Iodine Bush (c: on drier, higher ground)
- Fivehook Bassia (es)
- Alkali Sacaton (c: on drier, higher ground and can persist through long term drought.)
- Inland Saltgrass (c; can persist in relatively dry or fresh water situations locally)
- Seepweed (es-c in higher salinities)
- Common Reed/*Phragmites* (c: widely adapted exotic type M occurs in several classes of wetlands but even rootstock decreases eventually if drawn down all summer here in higher salinities zones)

## **MOSTLY RIPARIAN BRUSH & TREES (Riverine, Lacustrine, and Channel)**

### **Fresh Water**

- Narrowleaf Cottonwood (c)
- Russian Olive (c)
- Black Willow (c)
- Sandbar Willow (es)

### **Brackish (Saline Channels to Flat, Mixosaline)**

- Saltcedar/Tamarisk (occurs in fresh water area also)

## Noxious and Invasive Weeds of Ogden Bay, Howard Slough, & Harold Crane WMAs, and Willard Bay UGA and those with Biological Control Agent (BCA) Availability

Table 2.

BAI Availability	Weed Common Name	Scientific Name
	<i>UPLAND WEEDS</i>	
	Bulbous Bluegrass	<i>Poa bulbosa</i>
	Bull Thistle	<i>Cirsium vulgare</i>
•	Canada Thistle	<i>Cirsium arvense</i>
	Cheat and Downy Brome	<i>Bromus spp</i>
•	Dyers Woad	<i>Isatis tinctoria L.</i>
•	Field Bindweed	<i>Convolvulus arvensis</i>
•	Hoary Cress	<i>Lepidium spp, formerly Cardaria spp.</i>
	Kochia	<i>Kochia scoparia L.</i>
•	Musk Thistle	<i>Carduus nutans</i>
	Perennial Pepperweed	<i>Lepidium latifolium L</i>
•	Poison Hemlock	<i>Conium maculatum</i>
	Scotch Thistle	<i>Onopordum acanthium L.</i>
	Western Water Hemlock	<i>Cicuta douglasii</i>
•	Yellow Starthistle	<i>Centaurea solstitialis</i>
	<i>RIPARIAN, WETLAND &amp; AQUATIC WEEDS</i>	
•	Cattail	<i>Typha spp</i>
	Common Reed	<i>Phragmites australis</i>
	Curly Pondweed	<i>Potamogeton crispus</i>
•	Eurasian Watermilfoil	<i>Myriophyllum spicatum</i>
•	Purple Loosestrife	<i>Lythrum salicaria</i>
•	Tamarisk	<i>Tamarix spp</i>

**DRAFT**  
**EXECUTIVE SUMMARY**  
**Swan Creek WMA**  
**Habitat Management Plan**  
**April 2015**

**Primary purpose of WMA:** The primary purposes of the Swan Creek WMA are to preserve and protect big game winter range and wintering animals, reduce big game depredation on surrounding private property, and maintain instream flows and water quality for Bonneville Cutthroat Trout that ascend Swan Creek from Bear Lake to spawn.

**Wildlife Species:** Key wildlife species include: mule deer, elk, moose, Greater sage grouse, and Bear Lake Bonneville Cutthroat Trout.

**Habitat Conditions/problems:** Development of private lands adjacent to the Swan Creek WMA has led to fragmentation, degradation and loss of winter habitat adjacent to the WMA, as well as increased vehicle traffic on the WMA. This development has greatly reduced the available winter range in the area, thus concentrating wintering big game populations onto the WMA. As the areas human population continues to grow, there will be an increased demand on the Swan Creek water supply making the DWR-owned water rights even more important.

**Access Plan:**

Continue to monitor permanently closed ATV trail that leads up the Swan Creek drainage from the parking area by the enclosed springhead. Repair and modify gates and fences to reduce trespass from access points and private lands. Evaluate additional property boundary fencing needs. There are no proposed changes to the existing road structure and roads currently open will continue to provide year long public access.

Work cooperatively with the Rich County Commission and the Bear Lake Regional Commission on developing seasonal public biking and hiking trails on the WMA.

**Maintenance Activities**

Maintain existing road closures to protect habitat and minimize creation of new unauthorized roads. Maintain and improve access road and parking areas as needed. Maintain boundary and main entrance signs as needed. Monitor rock barrier to trail up Swan creek drainage, and repair or improve as needed.

**Habitat Activities**

Work cooperatively with land management agencies and private landowners to plan and implement projects that will improve wildlife habitat and range conditions in general. Improvement projects will focus on sagebrush-steppe habitats that provide crucial winter ranges for deer and elk.

Due to the presence of Bear Lake Bonneville cutthroat trout within the drainage, several enhancement activities are recommended. These include: monitoring Swan Creek at intervals to obtain population estimates of BCT; monitoring riparian areas for any unpermitted activities (bridges, vegetation removal); and evaluate the Swan Creek canal to determine if there is significant fish loss and, if so, develop recommendations to reduce this fish loss.

**DRAFT**  
**Swan Creek**  
**Wildlife Management Area**

**-Habitat Management Plan-**

**April 2015**

**Prepared by:**

**Utah Division of Wildlife Resources**

**Northern Region**

**515 East 5300 South**  
**Ogden, Utah 84405**



**DRAFT  
Swan Creek WMA  
Habitat Management Plan  
April 2015**

**I. Background Information**

**Location**

The Swan Creek WMA is 672.352 acres located northwest of Garden City and west of Bear Lake in Rich County Utah. The north boundary of the property is the Idaho state line with residential developments located adjacent to the WMA. To the west is the Wasatch-Cache National Forest. Residential developments are also located south and east of the WMA. To access the property, travel north from Garden City 3 miles on US-89, turn left (west) on Swan Creek Road (2150 North) at Lakota. Swan Creek Spring is approximately one mile up the road. The area is located on U.S.G.S. quadrangle topographic map – Garden City, Utah. The area can also be found using U.S. Forest service map – Wasatch-Cache National Forest. See property map and description in Appendix A.

**Encumbrances**

- a. Minerals: All mineral, oil and gas rights, except sand and gravel rights, were retained by all former property owners. Detailed information on these rights are on file with the UDWR Salt Lake Office.
- b. Water rights/shares: The following are the water rights filed on the WMA prior to UDWR ownership.

<b>Owner</b>	<b>Water Right</b>	<b>CFS</b>	<b>Priority Date</b>	<b>Source</b>
Kimball, Heber C.	23-1283	0.0	1870	Swan Creek
Booth, Bryan L.	23-2913	0.0	1870	Swan Creek
Brown, Trudy Ann & Lynn D.	23-1284	0.0	1870	Swan Creek
Swan Creek Canal Company	23-158	66.50	Sept 1882	Swan Creek
Hodges Irrigation Company	23-219	66.50	Sept 1882	Swan Creek
Swan Canal Company	23-359	66.50	Sept 1882	Swan Creek Spring
<b>Division of Wildlife Resources</b>	<b>23-404</b>	<b>19.0</b>	<b>9/6/1910</b>	<b>Swan Creek</b>
Garden City Corporation	23-134	0.50	3/12/1934	Swan Creek Spring
Garden City	23-1713	1.0	2/26/1962	Swan Creek Spring
<b>Division of Wildlife Resources</b>	<b>23-1714</b>	<b>10.40</b>	<b>2/28/1962</b>	<b>Swan Creek Spring</b>
Garden City Corporation	23-3378	1.0	8/12/1977	Swan Creek Spring
Kunz, Mark L. & Blaine L.	23-3656	50.0	10/20/1982	Swan Creek Spring
Swan Creek Power Associates	23-3658	50.0	12/31/1982	Swan Creek Spring

- c. Easements/ROW's/MOU's: When UDWR acquired the WMA, Garden City already had a buried water pipeline which takes water from the Swan Creek spring to Garden City's water treatment plant. All easement, ROW's, and MOU's are on file in the UDWR Salt Lake office.
- d. Grazing: There are no agreements to graze the WMA and trespass grazing is a rare occurrence on the property.

### **Land acquisition history**

In May 1988, UDWR acquired 670 acres from First Security Mortgage Company to protect big game winter range west of Bear Lake. Pittman-Roberson monies from the U.S. Fish and Wildlife Service Federal Aid program were used for this acquisition (W-124-L).

In March 1974, Utah Power & Light Company deeded 2.352 acres to UDWR. These parcels were deeded to UDWR as mitigation for UDWR lands that were inundated with water when Utah Power & Light built a dam for Electric Lake in southern Utah. A small cabin, can be found on the property. The old storage shed and turbine was torn down in 2010 due to their dilapidated condition. The above ground turbine tubes were removed in 2011, and the ground restored to natural conditions.

### **Historic Uses of the WMA**

The WMA is near a historic mountain man rendezvous. Irrigation canals were created in 1877 and 1886 to carry water from Swan Creek to Garden City. There is a cabin, on the old Utah Power & Light parcel. This property served as the Swan Creek Electric Company facilities prior to being acquired by Utah Power & Light. Livestock grazing most likely occurred on the property in the past. The area was and still is a popular hunting destination.

### **Purpose of Division Ownership**

The Swan Creek WMA serves as crucial winter range for mule deer, elk and moose in the Cache Herd Unit 2. It also serves to reduce depredation on surrounding private lands on the south, east and north. The WMA continues to grow in importance as more and more of the surrounding winter range is developed. Bear Lake Bonneville Cutthroat Trout spawn in Swan Creek and the DWR has a fish trap downstream of the WMA used to collect eggs from the spawning fish. By owning the WMA and water rights, the DWR can ensure the Bonneville Cutthroat Trout will have a place to spawn. The spring area also creates valuable riparian habitat for migrating neo-tropical songbirds.

### **Key Wildlife Species Occurring on the WMA**

Key wildlife species include mule deer, Rocky Mountain elk, moose, greater sage grouse, and Bear Lake Bonneville Cutthroat Trout.

### **Public Recreation Opportunities and Restrictions**

The property is used for big game and upland game hunting, hiking and wildlife

viewing pursuits. Swan Creek is occasionally used by anglers. The Boy Scouts use the WMA frequently for activities, such as survival camping. There is not a seasonal road closure on the main roads at this time, but the property is posted regarding the important big game winter range. This education effort seems to be working, as the public does not utilize the WMA during the winter when big game wildlife would be disturbed. In addition the snow is too deep for wheeled vehicle operation and snowmobiles do not use the area due to it not being linked to groomed trails.

Activities on the WMA will be considered according to the UDWR Administrative Lands Rule (R657-28). In general, activities that do not promote or protect the goals and objectives of the unit will be prohibited, specifically those that disturb or harass wildlife and their habitats. The Swan Creek WMA does not currently have a public access closure period. However, a closure period may be established for the property in the future if deemed necessary for biological or management reasons. Camping is permitted on the WMA for no more than 2 weeks as per R657-28. If resource damage occurs from camping, the camping limit may be further restricted and/or the area may be closed to camping. Open fires within fire pits will be allowed on the WMA, but this activity is subject to county, state and federal fire policies and guidelines including closures during hazardous fire conditions.

Due to high public use of Bear Lake shoreline trails, the Rich County Commission and the Bear Lake Regional Commission have asked UDWR to work cooperatively with them on developing seasonal public biking and hiking trails on the WMA. UDWR is interested in exploring additional recreational opportunities on the WMA which could be encouraged, while still providing for the protection of wildlife and wildlife habitat.

### **Conservation Partners Involved in Acquisition**

United States Fish and Wildlife Service, Sportfish and Wildlife Restoration Grant monies (Federal aid grant W124L) were used to acquire a portion of the Swan Creek WMA to protect wintering big game animals and their wintering habitat.

## **II. Property Inventory**

### **Existing Capital Improvements**

Roads: The main road is graded dirt (2150 North) from US-89 and heads west through houses and past the small cabin on the WMA property on the way to the spring. There are small two track roads on the property that head west as they gain elevation. There is a 4-wheeler trail that has been blocked off behind the spring head which prevents motorized travel up the stream drainage to protect the watershed from erosion and further degradation. New roads have been constructed south of the WMA and water storage tanks have been installed. When homes are built in this area, there will be an increased risk for unauthorized roads cutting through the Swan Creek property so fence installation will become increasingly important.

Fences: There is a tall fence with razor wire around the springhead. There is no fence around the entire WMA boundary at this time. Signs that delineate the approximate boundaries of the WMA are posted on metal t-posts, and a larger sign welcomes visitors to the WMA on the eastern boundary.

Facilities: There is a small two bedroom cabin on the Utah Power parcel. There was a small storage shed across the road from the cabin and a garage structure that used to house turbines for the power company. In 2010, the old shed and turbine holes were torn down, debris hauled away and turbine holes filled. In 2011, the 3' diameter pipes located between the old power plant and the upper diversion ditch were also removed.

Water rights: The Division owns two water rights for instream flow on Swan Creek, 23 1714 (10.4cfs) and 23 404 (19.0cfs).

Water developments: The Swan Creek Spring is on the WMA and flows off the property to a spawning trap for Bonneville Cutthroat Trout. There are no guzzlers, tanks, ponds or other water development structures on the property.

### **Wood products**

There is no harvesting of wood products on the WMA.

### **Cultural Resources**

A letter provided by the Utah State Historic Preservation Office for the Garden City water treatment plant's Environmental Assessment (EA) stated that there are no historic properties located within the project area. This facility is located adjacent to the Swan Creek WMA, and the property was included within the "project area" of the EA. The cabin, storage shed and turbine garage were not considered historical properties.

### **Sensitive Species**

Other than surveys for Bear Lake Bonneville Cutthroat Trout and surveys completed by the local Audubon chapter for avian species, no sensitive species surveys for state or federal species have been completed on the property. Western toad has occurred historically on the WMA but no studies have been conducted recently. Within a 2 mile radius of the WMA, a population of Bear Lake Springsnail was recently found. Within a 2 mile radius of the WMA, both the Lyrate Mountainsnail and northern leopard frog have historically occurred in appropriate habitats.

### **Important Fish and Wildlife Habitats**

Upland habitats support crucial winter range for mule deer, elk and moose. The dominant plant species is curleaf mountain mahogany, with an understory of bitterbrush, serviceberry, mountain snowberry and mountain big sagebrush. A Greater sage grouse lek has been observed by the area biologist approximately 1

mile south of the WMA on private property, and sage grouse have been observed on the WMA.

A Range trend study site (02-21) has been established in Rich County with a portion of the site located on the WMA and a portion on adjacent private lands. The study determined that the site remained stable for all evaluated conditions between 2006-2011, although the winter range condition remains poor. This site will continue to be monitored as development of the surrounding area increases the pressure by wintering big game on the WMA.

Type	1990	1996	2001	2006	2011
Browse	Stable	Stable	Stable	Slightly Up	Stable
Grasses	Stable	Stable	Up	Slightly Down	Stable
Forbs	Stable	Down	Stable	Slightly Up	Stable
Winter Range Condition (DC Index)	NA	Very Poor (25.7)	Poor (38.7)	Poor (42.9)	Poor (41.9)

#### 2006 TREND ASSESSMENT

Trend for key browse was slightly up. Curlleaf mahogany has maintained a fairly stable population. Most plants remain large and unavailable to browsing. Serviceberry is the most abundant available shrub and density has increased from 1,060 plants/acre in 2001, to 1,220 plants/acre in 2006. Young recruitment has remained excellent at 31% of the population. Mountain big sagebrush continues to decline, but it is not an abundant species. Bitterbrush has maintained a stable population.

Trend for grasses was slightly down. Sum of nested frequency for perennial grasses has not changed much from 2001. However, Japanese brome and cheatgrass nested frequency both increased significantly, but combined cover averaged only 2%.

Trend for forbs was slightly up. Perennial forb sum of nested frequency increased by 23%, but cover remained at 9%. The Desirable Components Index rated this study as poor due to low browse cover, but with fair perennial grass and forb cover. Annual grass cover remained similar to 2001.

#### 2011 TREND ASSESSMENT

The trend for key browse species was stable from 2006 to 2011. The density for curlleaf mountain mahogany decreased 42% to 220 plants/acre. There was no display of decadence and poor vigor within the mahogany population. The density for serviceberry increased 15% to 1,400 plants/acre. Decadence and poor vigor for serviceberry were minimal at 3% and 1%, respectively.

The trend for grasses was stable from 2006 to 2011. The sum of nested frequency for perennial grasses remained similar. Sandberg bluegrass had a significant decrease in nested frequency. The weedy annual Japanese brome had a significant increase in nested

frequency, and cover increased to 3%. Cheatgrass did not change significantly in nested frequency, but did increase in cover to 3%.

The trend for herbaceous forbs was stable from 2006 to 2011. The sum of nested frequency for perennial forbs remained similar from 2006. No significant change was observed within the perennial forb community. The weedy annual species pale alyssum had a significant increase in nested frequency, and had an increase in cover from less than 1% to 2%.

Range Trend condition data can be found at <http://wildlife.utah.gov/range/>. UDWR will undertake another analysis of the range trend site on the WMA in 2016.

### **Aquatic Species**

Swan Creek provides spawning habitat for adfluvial Cutthroat Trout and yearlong habitat for stream resident Bear Lake Bonneville Cutthroat Trout. The only fish found in Swan Creek during electro-fishing surveys for the past 40 years are Cutthroat Trout and Rainbow Trout x Cutthroat Trout hybrids. Interestingly, no Sculpin, Brook Trout, or any other fish have been sampled. All non-native fish (rainbow trout and hybrids) have been removed from the creek.

The creek is very valuable to the Cutthroat Trout population and to the overall Bear Lake fishery program. The channel has year-round flow to Bear Lake and the distance between the mouth of the stream and the lake (even during extremely low water periods) is less than a 1/4 mile. The Cutthroat Trout, therefore, are able to ascend the stream to spawn in all years. The UDWR operates a Cutthroat Trout trap near the mouth of the stream which collects eggs from wild fish that are then reared in a hatchery and stocked back into the lake the following spring. Without this egg take and stocking program, the Cutthroat Trout fishery in Bear Lake would simply not exist since many of the other tributaries around the lake have been dewatered due to irrigation and development demands, and natural reproduction by the fish is unable to sustain the sport fishery.

The stream type in the area of the fish trap is a Rosgen C4 channel and has stable banks. Farther upstream, on the WMA, the channel type changes to a B2 or B3 channel with stable banks. Downstream of the Swan Creek canal, the Swan Creek stream habitat supports large numbers of Cutthroat Trout. The stream channel upstream up the canal becomes steep and does not provide optimal habitat for large numbers of fish.

The riparian zone along the entire stream is well developed and there is no livestock grazing. The majority of the riparian corridor outside the WMA boundary is privately owned and has been developed. As new developments continue, the landowners and Rich County Planning and Zoning Commission have come to realize the importance of Swan Creek and have willingly worked with the UDWR to maintain proper setbacks, bank stability, etc... This corridor of riparian habitat found at both the Swan Creek spring head site and the corridor

along the creek, provides an important stopover site for neo-tropical migrant songbirds.

### **Habitat limitations**

The primary habitat limitation of the WMA is the small acreage of the property. With only 670 acres and residential development occurring on the surrounding private lands, the property does not provide enough contiguous winter range to support significant numbers of big game animals, however it is the only winter range habitat that is currently being protected from development in the immediate area.

The Swan Creek canal was constructed in the late 1800's to distribute irrigation water in the Garden City area (May 15 – Oct. 31). It begins approximately ¼ mile east of the Swan Creek spring, and flows south about 10 miles, with any “excess” water entering Bear Lake north of Gus Rich Point. The canal is approximately 8' wide and can take approximately 50 cfs of Swan Creek water. Depending upon the flows needed, the water can be up to 3' deep. While UDWR has not undertaken any formal surveys for fish that may get entrained into the canal, Bear Lake Bonneville Cutthroat Trout were collected from the canal after they became trapped in the canal when it was shut down for the winter season (2007/2008). This has raised a potential concern that more fish may become entrained in the canal. At this time, UDWR proposes to further evaluate the Swan Creek canal to determine if there is significant fish loss and, if so, develop recommendations to reduce this fish loss.

### **Human use-related problems**

There was an ATV trail that headed up the bottom drainage, adjacent to the spring. Several attempts were made to block the trail with boulders but failed. Larger boulders were placed and this has been effective in blocking ATV travel up this sensitive riparian corridor. There is minimal disturbance to the wintering deer and elk as the unit is not suitable for snowmobile use and too steep for cross-country skiing. There is usually a late season cow elk hunt that runs to the end of December, but the elk typically are not found on the unit after November so pressure and disturbance are minimal.

### **Adjacent land uses and potential impacts**

On the north border, on the Idaho side of the state line, there is residential development and to the south of the WMA, all the land has been zoned for development and will most likely have houses on it in the future. Several water storage tanks have already been constructed in this area. This will make the WMA even more important in the future as encroaching development further reduces the available acreage of quality winter range. The WMA is bordered on the south and east by Garden City. To the west is Forest Service land, but it is mainly at too high of elevation to be productive winter range.

The Town of Garden City completed construction of a culinary water treatment plant in 2009, which is adjacent to the east-side of the SCWMA on privately owned land. The town also installed a sewer system to handle treatment wastes, and Utah state law mandated that the current homes along Swan Creek be required to hook onto the sewer line and to abandon their septic systems. This has resulted in further protection of the Swan Creek watershed.

### **III. Management Goals and Objectives**

The Swan Creek WMA will be managed by taking into account the goals, objectives, and strategies of other Division planning efforts. These other plans are briefly discussed below.

#### **UDWR Strategic Plan (2007-2011)**

*Resource Goal – Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat.*

- *Objective R1- Protect existing wildlife habitat and improve 500,000 acres of critical habitats and watersheds throughout the state by 2011.*
- *Objective R2- Increase fish and game populations to meet management plan objectives and expand quality fishing and hunting opportunities.*
- *Objective R3- Conserve sensitive species to prevent them from being listed as threatened or endangered.*

*Constituency Goal – Achieve broad-based support for Division programs and budgets by demonstrating the value of wildlife to all citizens of Utah.*

- *Objective C1- Increase public awareness of wildlife as a quality of life issue in order to expand our support base and achieve stable funding.*
- *Objective C2- Improve Coordination with organizations, public officials, private landowners, industry, and government agencies to obtain support for Division programs.*

These goals and objectives will be achieved through a variety of measures specified in the property and habitat management sections of this plan. These include development and maintenance activities, habitat improvements, access management and fire management. Specific efforts will include: protecting the upland winter range along with the Swan Creek channel and riparian habitats; and instituting improvement projects as needed. These activities will help to sustain and expand big game populations that winter on the property, Bear Lake Cutthroat Trout that utilize Swan Creek as a spawning ground and sensitive species, such as Greater Sage Grouse and neotropical songbirds, that use the riparian habitat during migration and nesting seasons.

## **Utah Wildlife Action Plan**

The first-edition Utah Wildlife Action Plan, adopted in 2005, is entitled the Comprehensive Wildlife Conservation Strategy. This document, commonly known by the acronym WAP (Wildlife Action Plan), outlines a statewide approach for the partnership-based, coordinated planning and implementation of wildlife and habitat conservation practices. The WAP addresses the following elements:

- Conservation Targets: Identifies species of greatest conservation need, and those species' key habitats. Provides information about the abundance, trends, and distribution of these species, along with information about the location and condition of these key habitats.
- Threats and limiting factors facing these species and habitats, and research required to better-understand these issues and how to best address them.
- Conservation actions required to abate these threats and improve the supply of these limiting factors.
- Monitoring the effectiveness of these actions.
- Approaches for including the public, partners, and stakeholders in consideration of the mission and authority of partners.
- Provisions for coordinating the WAP with other natural resource management plans.
- Provisions for completing the review and revision of the WAP by October 1, 2015.

The intent of the WAP is that the SCWMA HMP process be used to address those sensitive species found on the WMA, by explicitly including their needs in routine, novel, and emergency management activities. Recommendations include undertaking specific actions to reduce threats or limiting factors, and increase population numbers of the species.

In addition, the WAP identifies key habitats within Utah. General management recommendations for these habitats include actions that will maintain, conserve, protect, enhance and increase these habitats throughout Utah. The SCWMA has several of these priority habitats of concern which include: lowland riparian and mountain shrub communities. One of the intents of the WAP in identifying these habitats is that local-area management efforts can better focus actions on those specific habitats where actions can have the most benefit for species of greatest conservation need.

Currently, the WAP is being revised to reflect changes in habitat and species status, and priorities in Utah. In addition, the new plan will identify specific management actions that can be taken to reduce threats to these species and habitats. It is recommended that once this new plan is available, that it help guide management actions on SCWMA.

## **Wildlife Species Management Plans**

The management of this unit will address the limiting factors and habitat needs identified in these plans and will seek to implement habitat management strategies that are needed to reach or maintain population objectives. Overall management goals include a

population of healthy animals capable of providing a broad range of recreational opportunities, including hunting and non-consumptive opportunities, such as wildlife viewing. UDWR also strives to consider impacts of the deer and elk herds on other land uses and public interests, including private property rights, agricultural crops and local economies. This goal also includes activities to maintain populations at a level that are within the long-term capability of the available habitat to support.

*Elk Management Plan-Unit 2(Cache Unit includes Cache and Rich Counties)*

The elk management plan for this unit was completed in 2011 with the elk population currently being at objective. The target winter herd size is 2,300 wintering elk. Most of the range on the unit is in suitable condition to expect growth in elk numbers into the future.

Habitat is not limiting at this time on the unit and most losses of winter range to development are taking place in areas where elk do not traditionally winter. Existing elk winter range is currently in acceptable condition with most losses of winter range to development taking place in areas where elk do not traditionally winter.

*Deer Management Plan-Unit 2(Cache Unit includes Cache and Rich Counties)*

The deer management plan for this unit was completed in 2013 with the deer population currently being under objective. The target winter herd size is 25,000 wintering deer with a post hunting season herd composition of 15-17 buck per 100 does. The current population estimate on the Unit is 15,000 wintering animals.

Lower elevation winter range is the major limiting factor for mule deer populations on the Cache unit, and the largest threat to mule deer habitat is the direct loss of crucial winter range acres due to development and urbanization. In Rich County, estimates are that 33% of the winter range is on private land with a high percentage of the severe winter range also on private lands. Unfortunately, much of the winter range is in poor condition due to past fires, competition from introduced weedy species (especially weedy, invasive grasses), reduction in habitat quality due to the loss of critical browse species, juniper expansion, and a lack of browse regeneration. A large number of deer died during the winter of 1991-1993 and the herd in Rich County has not fully recovered.

Habitat management objectives for the Unit include: to maintain, protect, and improve forage production on winter ranges, especially big game winter ranges owned by the Utah Division of Wildlife. Annual projects of reseeding, seedling planting, and livestock grazing in spring will continue.

*Conservation Agreement and Strategy for Bonneville Cutthroat Trout (Oncorhynchus clarki utah) in the State of Utah (UDWR Publication #97-19)*

Under this 1997 Agreement, Bonneville cutthroat trout are currently managed as a Conservation Agreement Species by the U.S. Fish and Wildlife Service. As part of the Agreement and strategy, all the signatories to the Agreement, including UDWR, have agreed to work towards restoration of the species to prevent further population declines and to prevent the species from being listed as threatened or endangered. As part of this overall strategy, efforts to protect

existing Bonneville cutthroat trout populations are undertaken, along with efforts to restore or recover the trout into historical habitats. Within this context, protection and restoration efforts planned for Swan Creek include: removal and enhancement of a diversion structure on the creek; continuing the annual seasonal fishing closure (April 15-second Saturday in July); and maintaining the creek with catch and release regulations.

## **IV. Strategies for Property Management**

### **Development Activities**

1. Property boundary
  - Survey needs: The property has been surveyed so there are no survey needs.
  - Boundary fence needs: The existing fence should be monitored as development continues to increase around the WMA. As development increases, the property boundary should be evaluated for additional fencing needs.
2. Sign needs: It is anticipated that there will be an increased need for signage along the south border as that area continues to be developed. Signs need to be placed on all property corners, section corners, and access routes, and then monitored for repair and replacement as needed.
3. Public access plan: No specific public access plan will be developed and the roads that are currently open on the property will remain open. The area is used by Boy Scouts in the summer and hunters in the fall. For large Boy Scout groups/events on the property, they will be notified of the need to apply for a special use permit for any events. Monitor use of WMA by ATV's and make necessary adjustments to prevent off road usage in order to prevent erosion.

### **Annual Maintenance Activities**

Annual maintenance activities needed on the WMA include: fence maintenance; parking lot maintenance; road maintenance; sign replacement; and invasive and noxious weed control (chemical, biological, mechanical). These maintenance activities will be conducted on an "as needed" basis.

### **Compatibility of Proposed Uses with Local Government General Plans and Zoning and Land Use Ordinances**

The Bear Lake Regional Commission lists the Swan Creek WMA as zoned for agriculture. Current management activities on the WMA are compatible with this zoning and the general plans for the area.

## **V. Strategies for Habitat Management**

### **Unit Management Plans for wildlife species**

Strategies for habitat management will be consistent with those outlined in the deer and elk management plans for Unit #2, the Wildlife Action Plan and the Conservation Agreement and Strategy for Bonneville Cutthroat Trout. These strategies will include, but not be limited to:

- Continue to monitor the permanent range condition and trend study located on the unit.
- Work cooperatively with land management agencies and private landowners to plan and implement projects that will improve wildlife habitat and range conditions in general. Improvement projects will focus on mountain shrub and sagebrush-steppe habitats that provide crucial winter ranges for deer and elk.
- Monitor Swan Creek at intervals as recommended by the NRO Aquatics Management Plan for Bonneville Cutthroat Trout streams, to obtain population estimates of Bonneville Cutthroat Trout.
- Periodically monitor Swan Creek riparian areas for any unpermitted activities (bridges, vegetation removal, etc...) which may affect stream health and function.
- The property should be surveyed for state sensitive species.
- Evaluate the Swan Creek canal to determine if there is significant fish loss and, if so, develop recommendations to reduce this fish loss.
- Recognize the value of the WMA for nesting neotropical bird species and manage the WMA to maintain high quality habitat for these birds, while minimizing disturbance impacts.

#### **Habitat Improvement Plan**

- Maintain rock barrier to prevent ATV access to bottom of Swan Creek Canyon.
- Although no specific enhancements are planned to increase the browse component on the WMA, enhancement activities may occur in the future.

#### **Access Management Plan**

The purpose of an access plan on the WMA is to grant public use and access on the Swan Creek WMA in a way that supports the Utah Division of Wildlife Resources (UDWR) goals and objectives as indicated in the habitat management plan, and that support the primary purpose for WMA acquisition. The Swan Creek WMA was purchased with assistance of federal aid monies to provide winter range for wintering big game animals in the Cache herd. The WMA also provides recreational opportunities for the public and is used by boy scouts and recreationists in the summer months. While no formal access plan will be developed, the intent of public access is to allow the public to utilize the property to the extent that it doesn't conflict with the goals of wildlife and habitat management. The access map in Appendix A identifies the roads which will be open on the WMA.

UDWR will work cooperatively with the Rich County Commission and the Bear Lake Regional Commission on developing seasonal public biking and hiking trails on the WMA, while still providing for the protection of wildlife and wildlife habitat.

#### **Fire Management Plan**

All activities dealing with wildland and prescribed fire will be coordinated with the Utah Division of Forestry, Fire and State Lands according to the guidelines established in the MOU (2005) between the DWR and DFFSL. UDWR may develop a fire management plan, including the creation of fire breaks, in the

future to protect or enhance the crucial winter range from fires that may come from surrounding private lands onto the WMA.

### **Wood Products**

There are no wood products to be harvested from the WMA.

### **Livestock Grazing Plan**

There are currently no livestock grazing allotments on the property. A grazing management plan may be developed in the future to assist with habitat improvement projects, fuel load reductions, noxious weed control or on an “as needed” basis. Any grazing activities will use the UDWR grazing process as outlined in the UDWR Administrative Lands Rule (R657-28).

### **Compatibility of Proposed Plans with Local Government General Plans and Zoning and Land Use Ordinances**

With the exception of the Forest Service land to the west of the property, all the surrounding lands are zoned for development, with the land to the south being at the highest risk for new development. However, the Bear Lake Regional Commission lists the Swan Creek WMA as zoned for agriculture. Current management activities on the WMA are compatible with this zoning and the general plans for the area.

## **VI. Summary Statement of Proposed Uses**

The primary goals and objectives of the Swan Creek WMA are to preserve, enhance and protect big game winter range and wintering wildlife, and to reduce deer and elk depredation on surrounding private lands. The UDWR will allow for and provide wildlife-related recreational activities that are consistent with the goals and purposes for which the property was acquired.

## **VII. Monitoring and Evaluation**

UDWR will complete the following monitoring and evaluation on the WMA.

- Vegetation Transects at the range trend survey sites every 5 years.
- Completed habitat projects will also be monitored.
- Annual to biennial fish and wildlife surveys/counts.

The Northern Region Habitat Section, the area aquatic wildlife biologist, the Habitat maintenance specialist and the area conservation officer will be responsible for monitoring the overall effectiveness of this plan. Appropriate sections and staff will provide expertise as required. The Habitat Maintenance Specialist will monitor the needs and effectiveness of physical facilities and improvements. If necessary, the district conservation officer will write or amend an action plan for this property. All individuals and sections will report to the Regional Management Team through their supervisors. The area aquatic wildlife biologist, with assistance from a regional team, will amend this plan as needed.

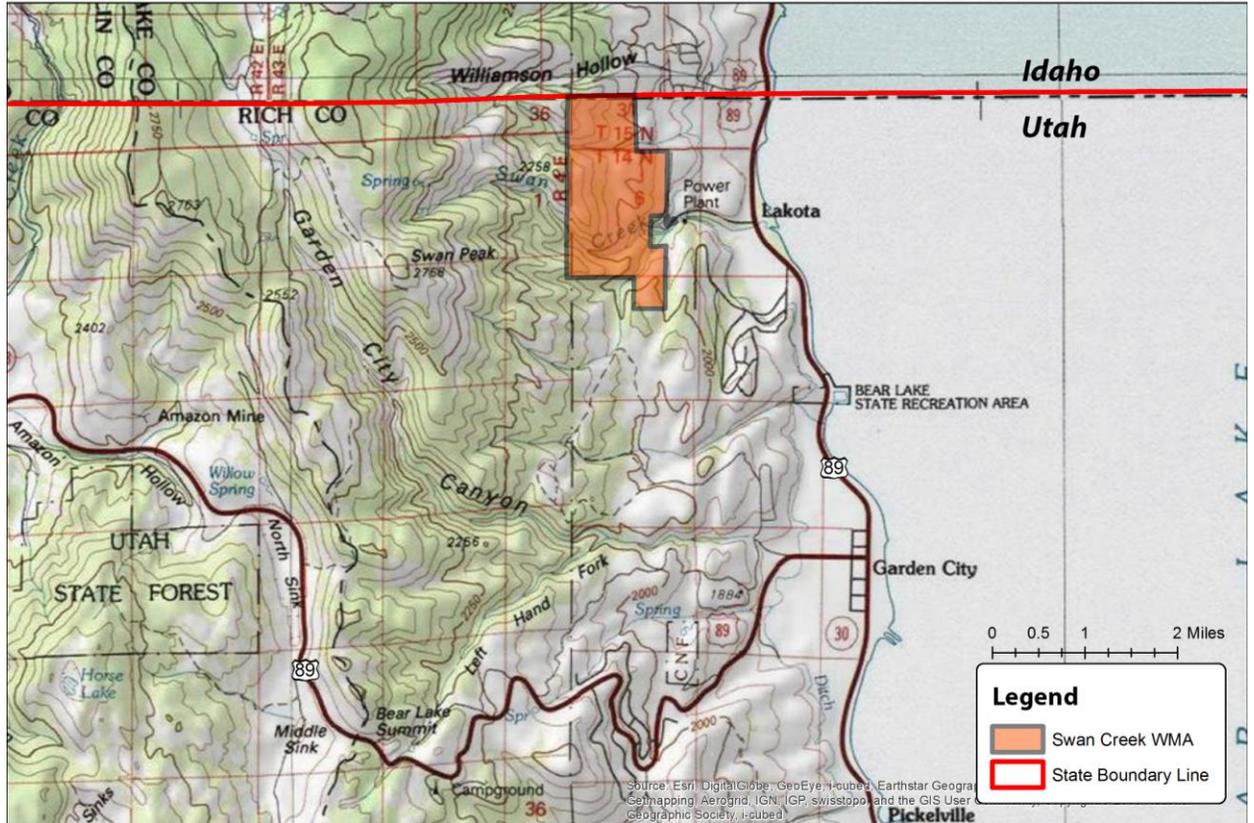
## **VIII. Appendices**

- A. Property Maps
  - General location
  - Surrounding landownership
  - Roads/Access
- B. Legal Description and Deed Information

# Appendix A: Maps

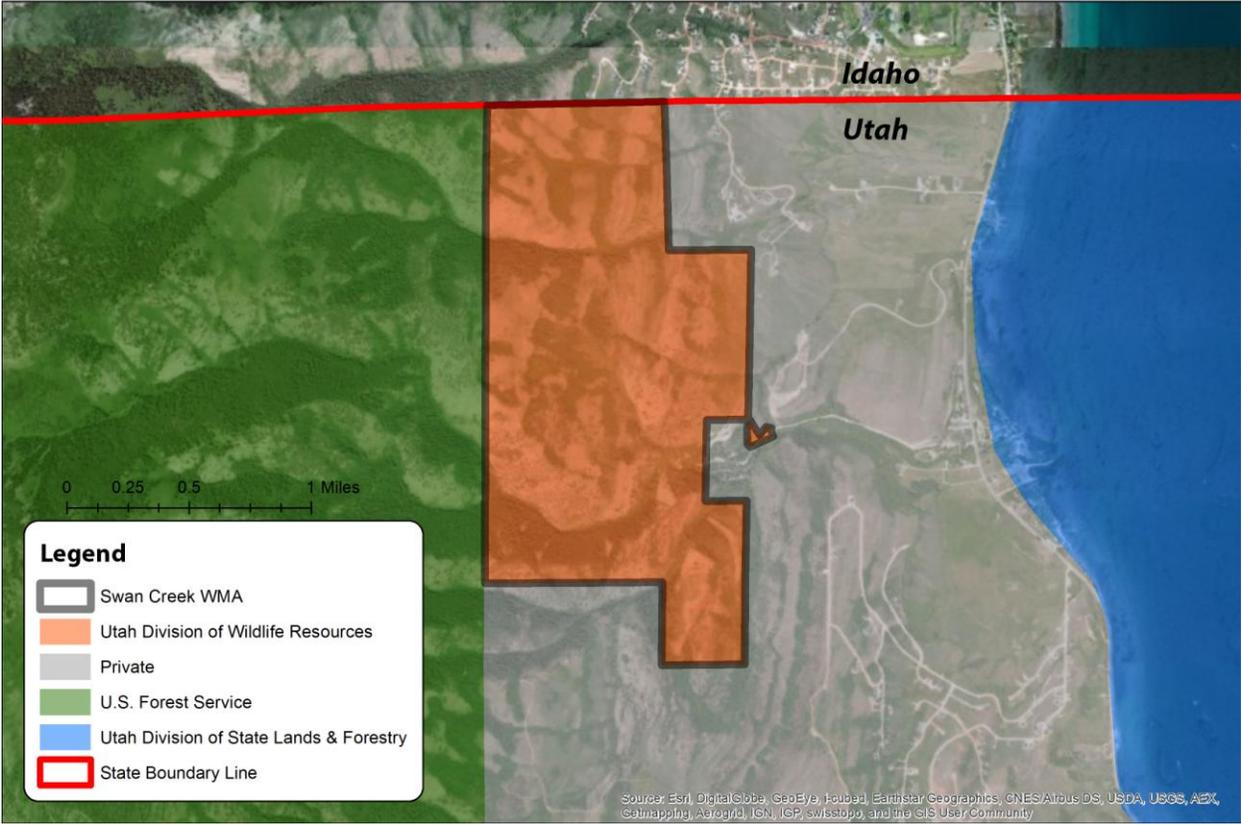


## Swan Creek Wildlife Management Area General Location Map



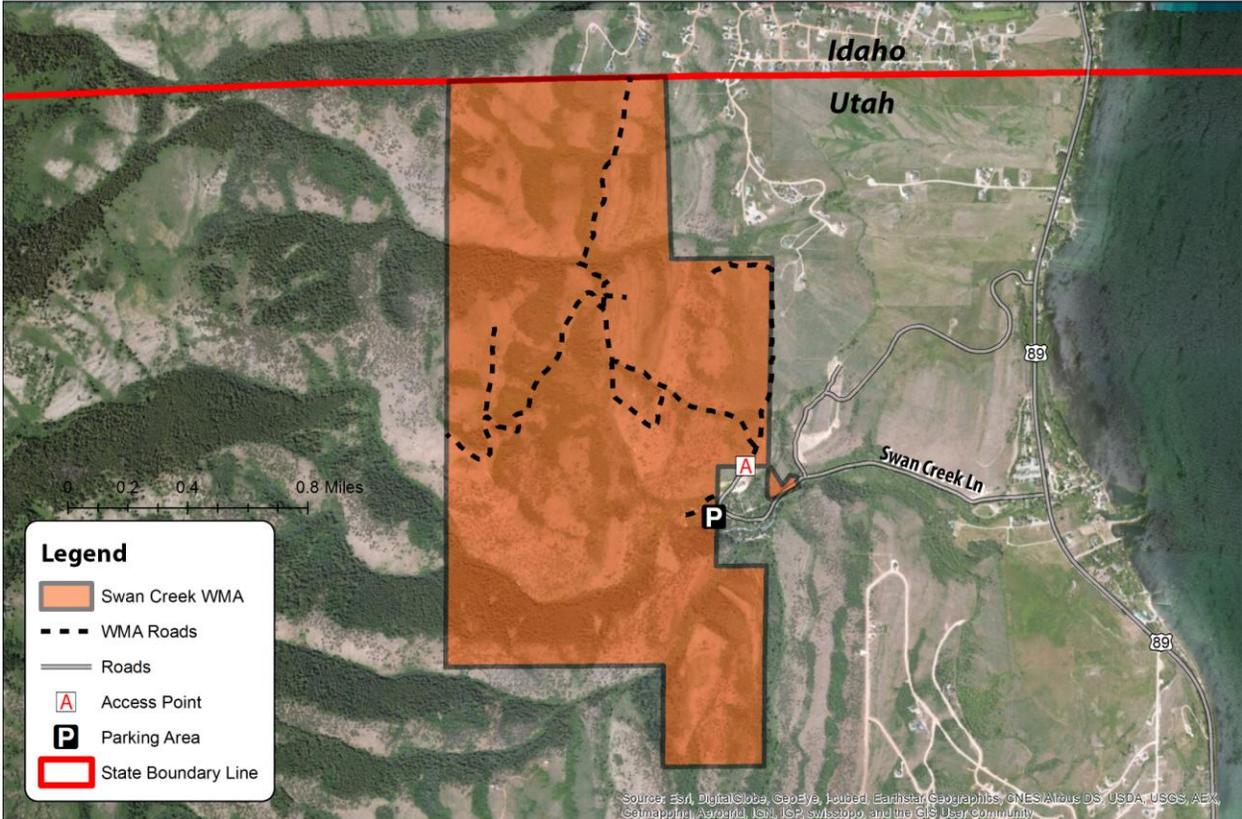


# Swan Creek Wildlife Management Area Land Ownership Map





# Swan Creek Wildlife Management Area Road/Access Map



## Appendix B: Legal Descriptions

Deed	Grantor	Legal Description	Acres	Federal Aid
36941	First Security and Mortgage Company	TOWNSHIP 14 NORTH, RANGE 5 EAST, SECTION 6 & 7 TOWNSHIP 15 NORTH, RANGE 5 EAST, SECTION 31	670	W-124-L
F 14, 261	Utah Power and Light Company	TOWNSHIP 14 NORTH, RANGE 5 EAST, SECTION 6	2.352	None

### Encumbrances

- Mineral Rights: All rights to minerals, coal, oil, gas and geothermal resources has been reserved by other parties. This information is on file in the UDWR Salt Lake office.
- Garden City Right of Way (August 1935): A right of way to lay, maintain, operate and improve all water works, pipe lines over, through, under and across the NW ¼ of the SE ¼ and the NE ¼ of the SW ¼ of Section 6.