

RAC AGENDA – September 2018



1. Welcome, RAC Introductions and RAC Procedure
- RAC Chair
2. Approval of Agenda and Minutes
- RAC Chair **ACTION**
3. Wildlife Board Meeting Update
- RAC Chair **INFORMATIONAL**
4. Regional Update
- DWR Regional Supervisor **INFORMATIONAL**
5. 2019-2020 Fishing Guidebook and Rule R657-13
- Randy Oplinger, Coldwater Sportfish Coordinator
- Craig Walker, Sportfish Assistant Chief **ACTION**
6. CRO Deer Unit Management Plans
-Riley Peck, Wildlife Central Region Program Manager **ACTION**

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

Meeting Locations

CR RAC – Sept. 4th 6:00 PM
Springville Civic Center
110 S. Main Street, Springville

SER RAC – Sept. 12th 6:30 PM
John Wesley Powell Museum
1765 E. Main Street, Green River

NR RAC – Sept. 5th 6:30 PM
Brigham City Community Center
24 N. 300 W., Brigham City

NER RAC – Sept. 13th 6:30 PM
Wildlife Resources NER Office
318 North Vernal Ave, Vernal

SR RAC – Sept. 11th 7:00 PM
Hurricane Community Center
63 S. 100 W., Hurricane

Board Meeting – September 27th 9:00 AM
DNR - Boardroom
1594 W. North Temple
Salt Lake City, UT



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

MICHAEL D. FOWLKS
Division Director

MEMORANDUM

Date: August 13, 2018

To: Regional Advisory Council Member and Wildlife Board

From: Craig Walker, Assistant Fisheries Chief, Sport Fisheries Program
Randy Oplinger, Sport Fisheries Program Coordinator

SUBJECT: 2019-2020 Fishing Regulation Proposals

Statewide Rule Changes

- Permit the use or possession of corn as bait statewide
- Eliminate reciprocal permit for Arizona residents to fish Utah portion of Lake Powell
- Allow dead individuals of all color variants of fathead minnow (including rosy red minnows) to be used or possessed as bait where bait is permitted
- Strike rule requiring setline anglers under the age of 12 years to possess a valid Utah fishing license

CRO

Strawberry Reservoir (Wasatch County):

Remove: "An angler may have only one daily limit in possession at any time"

NERO

Flaming Gorge Reservoir (Daggett County):

Remove: "An angler may have only one daily limit in possession at any time"

Change: "Limit 8 lake trout/mackinaw, only 1 may exceed 28 inches" to
"Limit 12 lake trout/mackinaw, only 1 may exceed 28 inches"

Old Fort Pond (Duchesne County):

Add: "Closed to the possession of tiger muskellunge"

SRO

East Fork Boulder Creek (Garfield County):



Change: "Limit 4 trout" to "Limit 4 trout, excluding brook trout"

Remove: "Bonus limit of 4 brook trout (total limit of no more than 8 trout if at least 4 are brook trout)"

Add: "No limit for brook trout"

Navajo Lake (Kane County):

Add: "Limit 4 splake, brook trout, or tiger trout, only 1 may exceed 22 inches"

East Fork Sevier River (Garfield and Piute Counties):

Change: "Limit 2 trout" to "Limit 4 trout"

Remove: "Artificial flies and lures only"

Mammoth Creek (Garfield County):

Remove: "Limit 2 trout between 10 and 15 inches"

Remove: "All trout less than 10 inches or over 15 inches must be immediately released"

Remove: "Artificial flies and lures only"

UM Creek (Sevier and Wayne counties):

Remove: "Closed to the possession of cutthroat trout or trout with cutthroat markings"

Remove: "Artificial flies and lures only"

Paragonah (Red Creek) Reservoir (Iron County):

Remove: "Limit 8 trout"

NRO

Cutler Reservoir (Cache and Box Elder counties):

Add: "Limit 4 channel catfish"

Cutler Reservoir Tributaries (Cache County):

Add: "*Little Bear River* and all tributaries to Little Bear River upstream to Mendon Road (600 S); *Logan River* and all tributaries to Logan River upstream to Mendon Road (600 S); *Bear River* and all tributaries to Bear River upstream to Highway 218."

Add: "Limit 4 channel catfish"

SERO

Petes Hole Reservoir (Sanpete County):

Remove: "Closed Jan. 1 through 6 a.m. on the second Saturday of July"

Recapture Reservoir (San Juan County):

Add: "Limit 20 northern pike"

Add: "No more than 1 northern pike over 36 inches"

R657. Natural Resources, Wildlife Resources.

R657-13. Taking Fish and Crayfish.

R657-13-1. Purpose and Authority.

(1) Under authority of Sections 23-14-18 and 23-14-19 of the Utah Code, the Wildlife Board has established this rule for taking fish and crayfish.

(2) Specific dates, areas, methods of take, requirements and other administrative details which may change annually and are pertinent are published in the proclamation of the Wildlife Board for taking fish and crayfish.

R657-13-2. Definitions.

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

(2) In addition:

(a) "Aggregate" means the combined total of two or more species of fish or two or more size classes of fish which are covered by a limit distinction.

(b) "Angling" means fishing with a rod, pole, tipup, handline, or trollboard that has a single line with legal hooks, baits, or lures attached to it, and is held in the hands of, or within sight (not to exceed 100 feet) of, the person fishing.

(c)(i) "Artificial fly" means a fly made by the method known as fly tying.

(ii) "Artificial fly" does not mean a weighted jig, lure, spinner, attractor blade, or bait.

(d) "Artificial lure" means a device made of rubber, wood, metal, glass, fiber, feathers, hair, or plastic with a hook or hooks attached. Artificial lures, including artificial flies, do not include fish eggs or other chemically treated or processed natural baits or any natural or human-made food, or any lures that have been treated with a natural or artificial fish attractant or feeding stimulant.

(e) "Daily limit" means the maximum limit, in number or amount, of protected aquatic wildlife that one person may legally take during one day.

(f) "Bait" means a digestible substance, including [corn](#), worms, cheese, salmon eggs, marshmallows, or manufactured baits including human-made items that are chemically treated with food stuffs, chemical fish attractants or feeding stimulants.

(g) "Camp" means, for the purposes of this rule, any place providing temporary overnight accommodation for anglers including a camper, campground, tent, trailer, cabin, houseboat, boat, or hotel.

(h) "Chumming" means dislodging or depositing in the water any substance not attached to a hook, line, or trap, which may attract fish.

(i) "Commercially prepared and chemically treated baitfish" means any fish species or fish parts which have been processed using a chemical or physical preservation technique other than freezing including irradiation, salting, cooking, or oiling and are marketed, sold or traded for financial gain as bait.

(j) "Dipnet" means a small bag net with a handle that is used to scoop fish or crayfish from the water.

(k) "Filleting" means the processing of fish for human consumption typically done by cutting away flesh from bones, skin, and body.

(l) "Fishing contest" means any organized event or gathering where anglers are awarded prizes, points or money for their catch.

(m) "Float tube" means an inflatable floating device less than 48 inches in any dimension, capable of supporting one person.

(n) "Free Shafting" means to release a pointed shaft that is not tethered or attached by physical means to the diver in an attempt to take fish while engaged in underwater spearfishing.

(o) "Gaff" means a spear or hook, with or without a handle, used for holding or lifting fish.

(p) "Game fish" means Bonneville cisco; bluegill; bullhead; channel catfish; crappie; green sunfish; largemouth bass; northern pike; Sacramento perch; smallmouth bass; striped bass, trout (rainbow, albino, cutthroat, brown, golden, brook, lake/mackinaw, kokanee salmon, and grayling or any hybrid of the foregoing); tiger muskellunge; walleye; white bass; whitefish; wiper; and yellow perch.

(q) "Handline" means a piece of line held in the hand and not attached to a pole used for taking fish or crayfish.

(r) "Immediately Released" means that the fish should be quickly unhooked and released back into the water where caught. Fish that must be immediately released cannot be held on a stringer, or in a live well or any other container or restraining device.

(s) "Lake" means the standing water level existing at any time within a lake basin. Unless posted otherwise, a stream flowing inside or within the high water mark is not considered part of the lake.

(t) "Length measurement" means the greatest length between the tip of the head or snout and the tip of the caudal (tail) fin when the fin rays are squeezed together. Measurement is taken in a straight line and not over the curve of the body.

(u) "Liftnet" means a small net that is drawn vertically through the water column to take fish or crayfish.

(v) "Motor" means an electric or internal combustion engine.

(w) "Nongame fish" means species of fish not listed as game fish.

(x) "Permanent residence" means, for the purposes of this rule only, the domicile an individual claims pursuant to Utah Code 23-13-2(13).

(y) "Possession limit" means, for purposes of this rule only, two daily limits, including fish in a cooler, camper, tent, freezer, livewell or any other place of storage, excluding fish stored in an individual's permanent residence.

(z) "Protected aquatic wildlife" means, for purposes of this rule only, all species of fish, crustaceans, or amphibians.

(aa) "Reservoir" means the standing water level existing at any time within a reservoir basin. Unless posted otherwise, a stream flowing inside or within the high water mark is not considered part of the reservoir.

(bb) "Seine" means a small mesh net with a weighted line on the bottom and float line on the top that is drawn through the water. This type of net is used to enclose fish when its ends are brought together.

(cc) "Setline" means a line anchored to a non-moving object and not attached to a fishing pole.

(dd) "Single hook" means a hook or multiple hooks having a common shank.

(ee) "Snagging" or "gaffing" means to take a fish in a manner that the fish does not take the hook voluntarily into its mouth.

(ff) "Spear" means a long-shafted, sharply pointed, hand held instrument with or without barbs used to spear fish from above the surface of the water.

(gg) "Tributary" means a stream flowing into a larger stream, lake, or reservoir.

(hh)(i) "Trout" means species of the family Salmonidae, including rainbow, albino, cutthroat, brown, golden, brook, tiger, lake (mackinaw), splake, kokanee salmon, and grayling or any hybrid of the foregoing.

(ii) "Trout" does not include whitefish or Bonneville cisco.

(ii) "Underwater spearfishing" means fishing by a person swimming, snorkeling, or diving and using a mechanical device held in the hand, which uses a rubber band, spring, pneumatic power, or other device to propel a pointed shaft to take fish from under the surface of the water.

R657-13-5. Interstate Waters [~~And~~] and Reciprocal Fishing Permits.

(1) [~~Bear Lake~~] When fishing interstate waters, an individual must:

[~~(a) The holder of a valid Utah or Idaho fishing or combination license may fish within Bear Lake as follows:~~]

[~~(i) an individual may fish with up to two poles on the Utah portion of Bear Lake~~] a) obtain the necessary fishing licenses and permits, as provided below; and

[~~(ii) an individual must~~] b) comply with [Idaho regulations regarding fishing with more than one pole when fishing on the Idaho portion of Bear Lake.] angling regulations applicable to the state where they are fishing.

[~~(b) Only one daily limit may be taken in a single day even if licensed in both states. (2) Reciprocal Fishing Permits~~] (2) Bear Lake.

(a) [~~The purchase of a reciprocal fishing permit allows a person to fish across state boundaries of interstate waters.~~] A person possessing a valid Utah or Idaho fishing or combination license, whether resident or nonresident, may fish both the Utah and Idaho portions of the Lake in accordance with the angling regulations applicable to the state where they are fishing. .

(b) [~~Reciprocal fishing permits are offered for Lake Powell and Flaming Gorge Reservoir (See Subsections (3) and (4)).~~] Only one daily limit may be taken in a single day, even if licensed in both states.

(3) Lake Powell Reservoir.

(a) A person possessing a valid Utah or Arizona fishing or combination license, whether resident or nonresident, may fish both the Utah and Arizona portions of the Reservoir in accordance with the angling regulations applicable to the state where they are fishing.

(b) Only one daily limit may be taken in a single day, even if licensed in both states.

(4) Flaming Gorge Reservoir.

(a) A Utah resident possessing a valid Utah fishing or combination license and a Wyoming reciprocal fishing permit for Flaming Gorge Reservoir may fish the Wyoming portions of the Reservoir as prescribed in Wyoming angling regulations.

~~([e]i)~~ Utah residents may obtain reciprocal fishing permits for Flaming Gorge Reservoir by contacting the ~~[state of Arizona for Lake Powell and the state of Wyoming for Flaming Gorge]~~ Wyoming Game and Fish Department.

(b) A person possessing a valid, resident or nonresident, Wyoming fishing or combination license and a Utah reciprocal fishing permit for Flaming Gorge Reservoir may fish the Utah portions of the Reservoir as prescribed in Utah angling regulations.

~~([d]—Nonresidents may obtain.)~~ i) A Utah reciprocal fishing ~~[permits]~~ permit for Flaming Gorge Reservoir may be obtained through the division's web site, ~~[from online]~~ authorized license agents ~~[—and division]~~, or regional offices.

~~([e]ii)~~ The Utah reciprocal fishing permit must be:

~~([i]A)~~ used in conjunction with a valid ~~[—unexpired]~~, Resident or nonresident Wyoming fishing or combination license ~~[—from a reciprocating state]~~; and

~~([ii]B)~~ signed by the holder as the holder's name appears on the ~~[valid unexpired]~~ Wyoming fishing or combination license ~~[—from the reciprocating state]~~.

~~([f]c)~~ ~~[Reciprocal]~~ A Utah reciprocal fishing ~~[permits are]~~ permit is valid for 365 days from the date of purchase.

~~([g]—Anglers are subject to the laws and rules of the state in which they are fishing.)~~

~~([h]d)~~ Only one daily limit may be taken in a single day, even if licensed in both states.

~~[(3)—Lake Powell Reservoir]~~

~~[—(a)—Any person qualifying as an Arizona resident and having in their possession a valid resident Arizona fishing license and a Utah reciprocal fishing permit for Lake Powell can fish within the Utah boundaries of Lake Powell.]~~

~~[—(b)—Any person who is not a resident of Utah or Arizona must purchase the appropriate nonresident licenses for Utah and Arizona to fish both sides of Lake Powell.]~~

~~[—(c)—Any person possessing a valid Utah fishing license is permitted to fish anywhere on Lake Powell, including the Arizona portion of the reservoir.]~~

~~[—(d)—A person possessing a valid Arizona fishing license shall be required to purchase a valid Utah reciprocal permit to fish the Utah waters of Lake Powell.]~~

~~[(4)—Flaming Gorge Reservoir]~~

~~[Any person possessing a valid Wyoming fishing license and a Utah reciprocal fishing permit for Flaming Gorge is permitted to fish within the Utah waters of Flaming Gorge Reservoir.]~~

R657-13-8. Setline Fishing.

(1) A person may use a setline to take fish only in the Bear River proper downstream from the Idaho state line, including Cutler Reservoir and outlet canals; Little Bear River below Valley View Highway (SR-30); Malad River; and Utah Lake.

(2) A person may use up to two lines for angling while setline fishing.

(3) No more than one setline per angler may be used and it may not contain more than 15 hooks.

(4)(a) A setline permit may be obtained through the division's web site, from license agents and division offices.

(b) A setline permit is required in addition to any valid Utah fishing or combination license.

(c) A setline permit is a 365 day permit valid only when used in conjunction with any unexpired Utah fishing or combination license.

(5) When fishing with a setline, the angler shall be within 100 yards of the surface or bank of the water being fished.

(6) A setline shall have one end attached to a nonmoving object, not attached to a fishing pole, and shall have attached a legible tag with the name, address, and setline permit number of the angler.

~~[(7) Anglers under 12 years of age must purchase a valid Utah one day, seven day or annual fishing or combination license and setline permit in order to use a setline.]~~

R657-13-12. Bait.

(1) Use or possession of corn while fishing is lawful, except as otherwise prohibited by the Wildlife Board in the Fishing Guidebook.

~~[(1)]~~ (2) Use or possession of ~~[-corn, hominy, -or]~~ live baitfish while fishing is unlawful, except as authorized by the Wildlife Board in the Fishing Guidebook.

~~[(2)]~~ (3) Use or possession of tiger salamanders (live or dead) while fishing is unlawful.

~~[(3)]~~ (4) Use or possession of any bait while fishing on waters designated artificial fly and lure only is unlawful. ~~[(4)]~~

(5) Use or possession of artificial baits which are commercially imbedded or covered with fish or fish parts while fishing is unlawful.

~~[(5)]~~ (6) Use or possession of bait in the form of fresh or frozen fish or fish parts while fishing is unlawful, except as provided below and in Subsections (7) and (8).

(a) Dead Bonneville cisco may be used as bait only in Bear Lake.

(b) Dead yellow perch may be used as bait only in: Big Sand Wash, Deer Creek, Echo, Fish Lake, , Gunnison, Hyrum, Johnson, Jordanelle, Mantua, Mill Meadow, Newton, Pineview, Red Fleet, Rockport, Starvation, Utah Lake, Willard Bay and Yuba reservoirs.

(c) Dead white bass may be used as bait only in Utah Lake and the Jordan River.

(d) [~~(d)~~] Dead shad, from Lake Powell, may be used as bait only in Lake Powell.

Dead shad must not be removed from the Glen Canyon National Recreation Area.

(e) Dead striped bass, from Lake Powell, may be used as bait only in Lake Powell.

(f) Dead fresh or frozen salt water species including sardines and anchovies may be used as bait in any water where bait is permitted.

(g) Dead mountain sucker, white sucker, Utah sucker, redbreast shiner, speckled dace, mottled sculpin, fat head minnow (all color variants including rosy red minnows), Utah chub, and common carp may be used as bait in any water where bait is permitted.

(h) Dead burbot, from Flaming Gorge Reservoir, may be used as bait only in Flaming Gorge Reservoir. [~~(6)~~]

(7) Commercially prepared and chemically treated baitfish or their parts may be used as bait in any water where bait is permitted.

~~(7)~~ (8) The eggs of any species of fish caught in Utah, except prohibited fish, may be used in any water where bait is permitted. However, eggs may not be taken or used from fish that are being released.

~~(8)~~ (9) Use of live crayfish for bait is legal only on the water where the crayfish is captured. It is unlawful to transport live crayfish away from the water where captured.

~~(9)~~ (10) Manufactured, human-made items that may not be digestible, that are chemically treated with food stuffs, chemical fish attractants, or feeding stimulants may not be used on waters where bait is prohibited.

~~(10)~~ (11) On any water declared infested by the Wildlife Board with an aquatic invasive species, or that is subject to a closure order or control plan under R657-60, it shall be unlawful to transport any species of baitfish (live or dead) from the infested water for use as bait in any other water of the State. Baitfish are defined as those species listed in sections (5)(b), (5)(c), (5)(f) and (8).

KEY: fish, fishing, wildlife, wildlife law

Date of Enactment or Last Substantive Amendment: December 8, 2016

Notice of Continuation: [~~September 28, 2017~~] October 1, 2012

Authorizing [~~7~~] and Implemented or Interpreted Law: 23-14-18; 23-14-19; 23-19-1; 23-22-3



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

MICHAEL D. FOWLKS
Division Director

MEMORANDUM

Date: August 28, 2018

To: Wildlife Board and Regional Advisory Council Members

From: Riley Peck, Central Region Wildlife Manager

Subject: CENTRAL REGION UNIT DEER MANAGEMENT PLANS

Unit deer management plans are revisited every five years in conjunction with the range trend assessments on deer winter range. The range trend assessments were conducted in the Central Region in 2017, therefore the Central Region deer plans were revisited and updated in 2018. Unit management plans are necessary to guide management decisions regarding deer across the region according to the goals, objectives, and strategies outlined in the statewide mule deer management plan while allowing for regional variations according to local conditions. Deer management plans for four units in the northern region (Wasatch Mountains, Oquirrh Stansbury, Central Mountains, West Desert/Vernon) are proposed.

We are proposing in our plans:

- 1) No change to population objectives.
- 2) No change to buck:doe ratios.
- 3) Continued emphasis on habitat improvement.
- 4) Continued disease monitoring, agricultural damage and urban deer mitigation, predator management, deer/vehicle collision avoidance.
- 5) A new translocation site on the south end of the Nebo mountain on the Central Mountains unit.

DEER HERD UNIT MANAGEMENT PLAN

Deer Herd Unit # 16, Central Mtns and Deer Herd Unit #12, San Rafael August, 2018

CENTRAL MOUNTAINS BOUNDARY DESCRIPTION

Utah, Carbon, Emery, Juab, Sevier and Sanpete counties - Boundary begins at the junction of US-6 and I-15 in Spanish Fork; southeast on US-6 to SR-10 in Price; south on SR-10 to I-70; west on I-70 to US-50 at Salina; north on US-50 to I-15 at Scipio; north on I-15 to US-6 in Spanish Fork.

This boundary includes three subunits including;

Central Mountains, Manti Subunit - Carbon, Emery, Sanpete, Sevier and Utah counties—Boundary begins at the junction of US-6 and US-89 in Spanish Fork Canyon; southeast on US-6 to Price and SR-10; south on SR-10 to I-70; west on I-70 to US-89; north on US-89 to US-6 in Spanish Fork Canyon. USGS 1:100,000 Maps: Nephi, Price, Huntington, Manti, Salina.

Central Mountains, Nebo Subunit - Juab, Millard, Sanpete, Sevier and Utah counties—Boundary begins at US-6 and I-15 at Spanish Fork; southeast on US-6 to US-89 near Thistle; south on US-89 to US-50 at Salina; northwest on US-50 to I-15 at Scipio; north on I-15 to US-6 at Spanish Fork. Excludes all CWMUs. USGS 1:100,000 Maps: Maps: Delta, Manti, Nephi, Provo, Salina.

San Rafael Unit - Carbon, Emery, Sanpete, Sevier and Utah counties—Boundary begins US-6 and US-10 in Price; southeast on US-6 to Interstate 70; east on I-70 to the Green River; south along this river to the Colorado River; south along this river (and the west shore of Lake Powell) to SR-95; north on SR-95 to SR-24 (hunters may harvest deer within 2 miles south of SR-24 between SR-95 and the Notom Road); west on SR-24 to Caineville and the Caineville Wash road; north on this road to the Cathedral Valley road; northwest on the Cathedral Valley road to the Capital Reef National Park boundary; north and west on the CRNP boundary back to the Cathedral Valley road; west on this road to Rock Springs Bench and the Last Chance Desert road; north on this road to the Blue Flats road; north and east on this road to the Willow Springs road; north on this road to the Windy Peak road; north and west on this road to I-70; east on I-70 to US-10; north on US-10 to US-6 in Price. Excludes all CWMUs. USGS 1:100,000 Maps: Hanksville, Hite Crossing, Huntington, La Sal, Loa, Manti, Nephi, Price, Salina, San Rafael Desert.

LAND OWNERSHIP

Ownership	Yearlong range		Summer Range		Winter Range	
	Area (acres)	%	Area (acres)	%	Area (acres)	%
Forest Service	0	0%	721980	73.8%	300717	28.3%
Bureau of Land Management	24	2.2%	28187	2.9%	224215	21.1%
Utah State Institutional Trust Lands	1039	93.4%	14980	1.5%	110636	10.4%
Private	50	4.5%	198911	20.3%	353779	33.3%
Department of Defense	0	0%	0	0%	200	0%
Utah State Parks	0	0%	23	0%	116	0%
Utah Division of Wildlife Resources	0	0%	14774	1.5%	72704	6.8%
TOTAL	1113	100%	978855	100%	1062367	100%

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 carrying capacity of the available habitat, based on winter range trend studies conducted by the DWR every five years.

POPULATION MANAGEMENT OBJECTIVES

- Target Winter Herd Size - Manage for a 5-year target population of 60,600 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. Biologists will continue to carefully monitor winter ranges and make recommendations to improve and protect winter habitat. Should over-utilization and range damage by deer occur, recommendations will be made to reduce deer populations to sustainable levels in localized areas.

Long Term Objective:

Central Mountains, Manti Subunit - 38,000 deer
 Central Mountains, Nebo Subunit - 22,600 deer
 Total Central Mountains Objective - 60,600 deer

- Herd Composition - A three year average postseason buck to doe ratio of 15 to 17 bucks/100 does in accordance with the statewide plan.

- Harvest - General Season unit by unit buck deer hunt regulations, using archery, any legal weapon, and muzzleloader hunts. Buck permits will be adjusted to maintain buck/doe ratio objectives. Caution and moderation will be used when adjusting buck permit numbers. Antlerless permits may be issued to address specific localized crop depredation or range degradation concerns.

POPULATION MANAGEMENT STRATEGIES

Monitoring

- Population Size - A population estimate will be made based on herd composition counts conducted by biologists, harvest surveys, and mortality estimates based on radio collar studies and range rides. These data will be used in a computer model to determine a winter deer herd population estimate.
- Buck Age Structure - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys and field bag checks.
- Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey and the use of checking stations (Table 1a-c).
- Research - Continue to deploy GPS collars to monitor spatial use, survival, reproduction, and cause-specific mortality. Other research such as the statewide effort to collect body condition scores and disease profiles may continue as needed. The Manti subunit will likely be used as a surrogate for the entire central mountains area. Research projects addressing predator-prey dynamics as it pertains to mule deer should also be pursued.

Table 1a. Population Trends and Harvest for the Central Mountains, Manti Deer Subunit.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2015	2,215	64	23	25,700	38,000	68%
2016	2,459	64	16	23,300	38,000	61%
2017	2,141	63	13	23,500	38,000	62%
3 Year Avg	2,272	64	17			

Table 1b. Population Trends and Harvest for the Central Mountains, Nebo Deer Subunit.

Year	Buck harvest	Post-Season F/100 doe	Post-Season B/100 doe	Post-Season Population	Objective	% of Objective
2015	1,238	52	16	14,900	22,600	66%
2016	1,485	66	15	12,900	22,600	57%
2017	1,209	64	17	13,700	22,600	61%
3 Year Avg	1,311	61	16			

Table 1c. Harvest Trends for the San Rafael portion of the Manti subunit.

	2012	2013	2014	2015	2016	2017
Hunters Afield	1649	1264	1463	1531	1492	1558

Harvest	497	338	305	421	341	396
---------	-----	-----	-----	-----	-----	-----

Population Augmentation

- Transplant deer to portions of the Manti subunit with low deer densities, particularly but not restricted to the southeast portions of the subunit. Consider transplant sources from areas with high deer densities and range over-utilization on this and other units as well as areas of urban nuisance populations.

Possible Transplant Locations (north to south; Figure 1)

Emery County: East Mtn, Stump Flat, Danish Bench, Cedar Bench, Horn Mtn/Biddlecome Ridge, Black Dragon, Dry Mtn, Sage Flat, Muddy Creek Cyn, Link Cyn

Sanpete County: McEwen Flat, The Pines/Greens Hollow/Wildcat Knolls

Sevier County: The Pines/Greens Hollow/Wildcat Knolls, Link Cyn, Quichupah Cyn/Water Hollow/Saleratus Benches, Trough and Mill Hollow/Gilson Valley

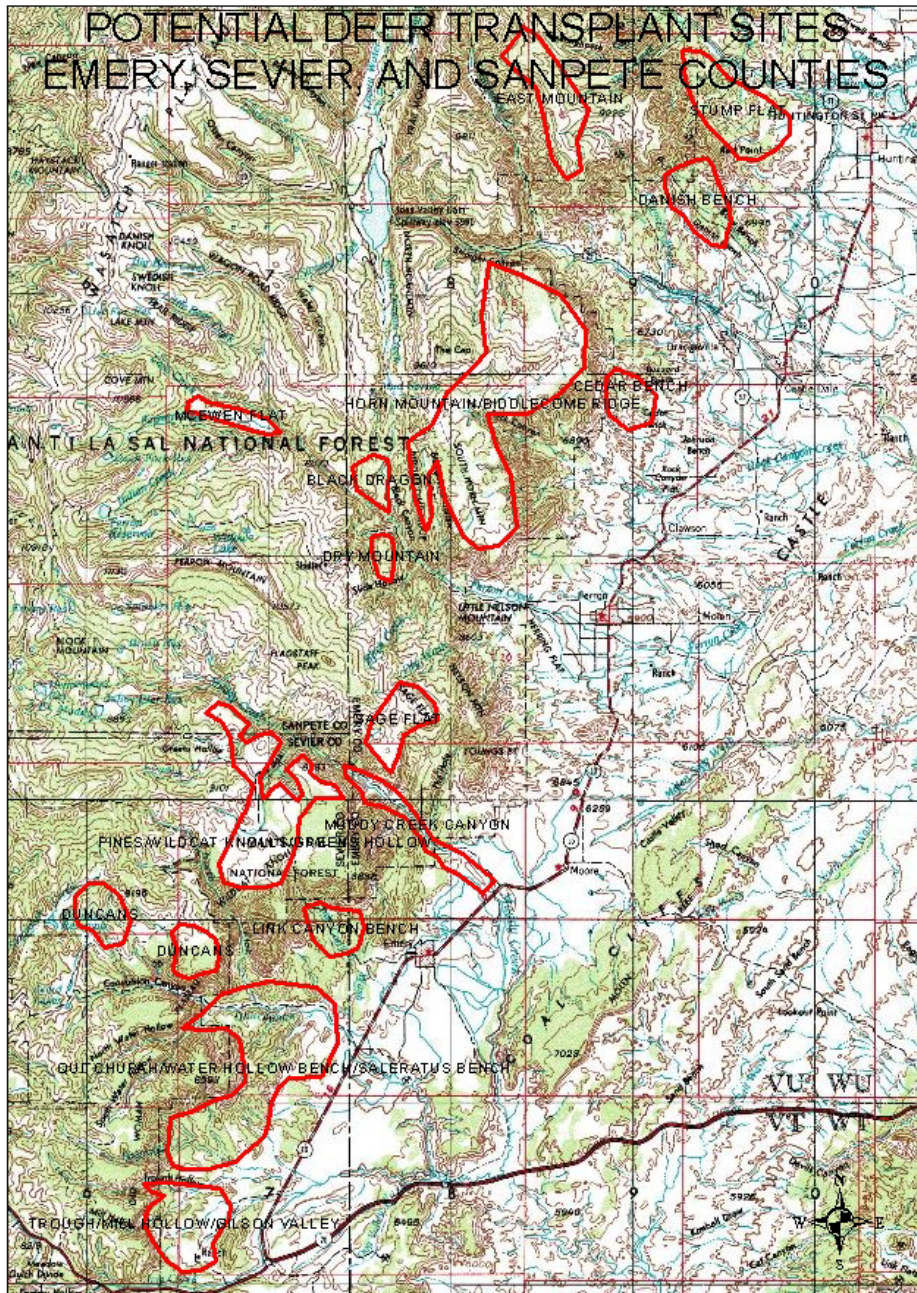


Figure 1. Map of Potential Deer Transplant Sites on the Southeast Manti.

- Transplant deer to portions of the Nebo subunit with low deer densities, particularly but not restricted to the southern portion of the San Pitch Mtns. Consider transplant sources from areas with high deer densities and range over-utilization on this and other units as well as areas of urban nuisance populations.

Possible Transplant Locations (counter-clockwise; Figure 2)

- Deep Creek WMA*
- Chriss Creek*
- Flat Canyon*
- Mellor Canyon*
- Maple Canyon WMA*
- Maple Canyon*
- Wales Canyon*

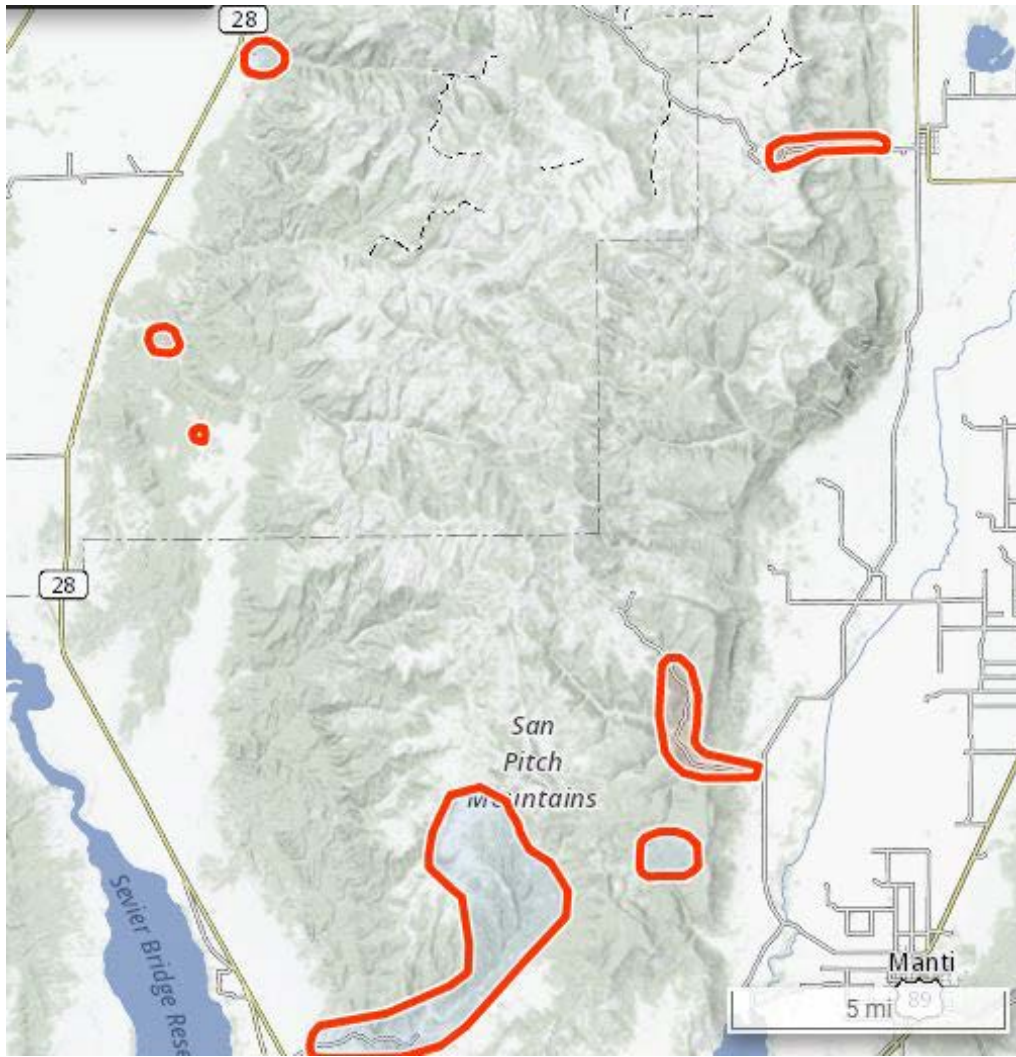


Figure 2. Map of Potential Deer Transplant Sites on the Nebo subunit, San Pitch Mtns.

Disease Management

Investigate and manage diseases that threaten mule deer populations and continue monitoring for chronic wasting disease (CWD) as stated in the statewide plan. This unit is a CWD positive unit. Continue surveillance through check stations and other methods to document prevalence, and location of positive animals.

Limiting Factors (may prevent achieving management objectives)

- Crop Depredation - Take all steps necessary to minimize depredation as prescribed by state law and DWR policy.
- Habitat - Winter range is a limiting factor for deer on this unit. Portions of critical winter ranges are in poor condition (See range trend summary below). Factors contributing to poor range conditions include recent droughts and range use by deer and domestic livestock. This has resulted in a reduction of winter range carrying capacity. Utilization of key shrub species on critical winter ranges will be closely monitored.
- Predation - Follow DWR predator management policy:

-If the population estimate is less than 90% of objective and is stable or decreasing 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 will be implemented on that subunit. If the population trend is increasing the population must be below 65% of objective and meet the above criteria in order to initiate Predator Management for Coyotes. In 2015, the Central Mountains unit did not qualify for predator management specific to coyotes as the population trend was increasing and was 66% of objective.

- 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 would be implemented on that subunit.

- Highway Mortality - Cooperate with the Utah Dept. Of Transportation in construction of highway fences, passage structures and warning signs etc. Collect highway mortality data. A Deer Highway Crossing Study along SR-6 is ongoing. Propose analysis of SR-96, SR-31, and SR-264 to minimize highway mortalities in the future.
- Illegal Harvest - Should illegal kill become an identified and significant source of mortality, attempt to develop specific preventive measures within the context of an Action Plan developed in cooperation with the Law Enforcement Section.

HABITAT MANAGEMENT OBJECTIVES

- Protect, maintain, and/or improve deer habitat through direct range improvements to support and maintain herd population management objectives.
- Work with private landowners and federal, state, and local governments to maintain and protect critical and existing ranges from future losses and degradation through grazing management and OHV and Travel Plan modifications.
- Work with federal, private, and state partners to improve crucial deer habitats through the WRI process.
- Work with federal and state partners in fire rehabilitation on crucial deer habitat through the WRI process.
- Maintain and protect critical winter range from future losses. Acquire critical winter range when the opportunity arises.
- Minimize and mitigate impacts from energy development activities.
- Minimize deer vehicle collisions along highways on the unit.

HABITAT MANAGEMENT STRATEGIES

- Continue to improve, protect, and restore sagebrush steppe habitats critical to deer. Cooperate with federal land management agencies and private landowners in carrying out habitat improvements such as pinion-juniper removal, reseeding, controlled burns, grazing management, water developments etc. on public and private lands. Habitat improvement projects will occur on both winter ranges as well as summer range.

- Continue to monitor permanent range trend studies located throughout the unit.
- Conduct cooperative seasonal range assessments to evaluate forage condition and utilization. Determining opportunities for habitat improvements will be an integral part of these surveys. This will also be pivotal in determining if antlerless harvest is necessary.
- Work toward long term habitat protection and preservation through the use of agreements with federal agencies and local governments and the use of Conservation Easements etc. on private lands.
- Support, cooperate with, and provide input to land management planning efforts dealing with actions affecting habitat security, quality and quantity.
- Work with land management agencies and energy companies to minimize and mitigate impacts of energy development activities. Oil and Gas specific habitat biologists will lead this effort.
- Continue to monitor deer survival on this unit through GPS collar studies. Use GPS collar data to determine potential habitat improvement projects.
- 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 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 pinyon-juniper and other woodlands into sagebrush habitats and improve habitats dominated by Pinion-Juniper woodlands by completing habitat restoration projects like lop & scatter, bullhog, and chaining.
- Manage conifer encroachment on important summer ranges by utilizing prescribed fire.
- Seek opportunities to increase browse in burned areas of critical winter range.
- Utilize antlerless deer harvest to improve or protect forage conditions when vegetative declines are attributed to deer over utilization.

PERMANENT RANGE TREND SUMMARIES – Nebo Subunit

Management Unit Description

This management unit incorporates most of the old North and South Nebo deer herd units and is approximately 943,923 acres in size. Nephi Canyon divides the northern and southern parts of the unit running east to west. A majority of the permanent range trend studies are placed on the western faces of the Wasatch and San Pitch Mountains (Figure 3).

The northern section of the Nebo unit is dominated by high mountains such as Santaquin Peak, Bald Mountain, and Mount Nebo. Mount Nebo represents the southernmost extension of the Wasatch Range. This range

is high and rugged, with steep slopes on the western portion and less steep slopes on the eastern portion of the mountain range. The San Pitch and Valley Mountains make up the majority of the southern portion of the unit. These mountains are lower and less steep than the northern part of the unit with shallow canyons throughout. Towns within this unit include Fountain Green, Moroni, Levan, Fayette, Payson, Chester, Wales and Salem. Towns partially included in the unit include Spanish Fork, Fairview, Mount Pleasant, Ephraim, and Manti.

Limiting Factors to Big Game Habitat

The principal limiting factor and management concern in the Nebo management unit is the lack of winter range in good condition, especially severe winter range on the west side of the unit. In the area from Spanish Fork Canyon south to Nephi, the normal winter range averages two miles or less in width. Severe winter range is even narrower, ranging from a few hundred yards to 1.5 miles in width. However, the winter range on the east and south sides of the unit is more expansive and not nearly as critical.

Some of the major problems related to the limited winter range on the unit (especially low elevation severe winter range) include: restricted access to traditional wintering areas west of I-15, predominantly private ownership of critical ranges (57% of normal winter range), and agricultural depredation. To remedy the situation, the UDWR has acquired approximately 12,800 acres of winter range in the unit (11% of total winter range) and has attempted treatments and rehabilitation projects in these critical areas. The available winter range, especially critical areas on the west side of the unit, remains threatened by urban development and a high fire hazard caused by the presence of significant amounts of cheatgrass (*Bromus tectorum*). As previously mentioned, a major threat to deer winter habitat is the development of winter range on private property. Most of the winter range on the north end of the Nebo unit is privately owned: there is continual expansion of new home construction in the higher elevations of winter range in the communities of Spanish Fork, Salem, Woodland Hills and Elk Ridge. The same is true on the central part of the Nebo Unit, along Water Hollow and Big Hollow; the development there, however, is more for cabin lots and not for residential housing. Both of these areas have historically been very important winter ranges for large populations of mule deer. State- owned WMAs along the east and west side of the unit are important areas of protection. However, these WMAs may prove inadequate to sustain the deer population at the desired objective as private development continues in the future. Therefore, further habitat acquisition and rehabilitation are necessary to adequately maintain the winter range in this management unit.

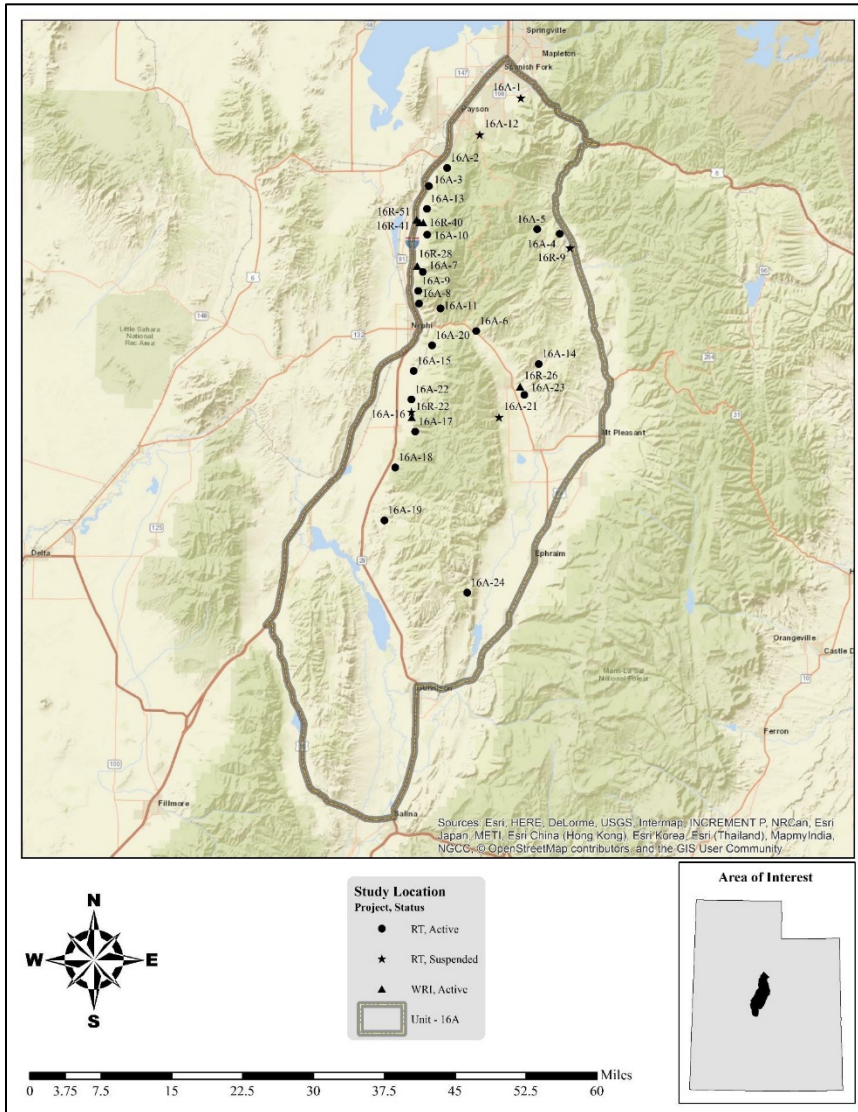


Figure 3. WMU 16A, Nebo, including range trend study sites.

Range Trend Studies

Twenty-one interagency range trend studies were sampled in Unit 16A during the summer of 2017 to establish a Desired Components Index (DCI) ranking for each study site (Figure 4). A total of twenty-four studies have been established within the Unit 16A since 1983. Thirteen studies were established in 1983, and of these studies five sample mixed oak and sagebrush communities, two studies sampled big sagebrush communities, one study samples bitterbrush communities, two studies sample cliffrose communities, and two sample mountain brush communities. Six studies were established in 1989, and of these studies four studies sample big sagebrush communities, one study samples a cliffrose community, and one study samples a mixed oak and sagebrush community. Two studies were established in 2007 and sample Wyoming big sagebrush communities. One study was established in 2012 and samples a pinyon pine and Utah juniper woodland.

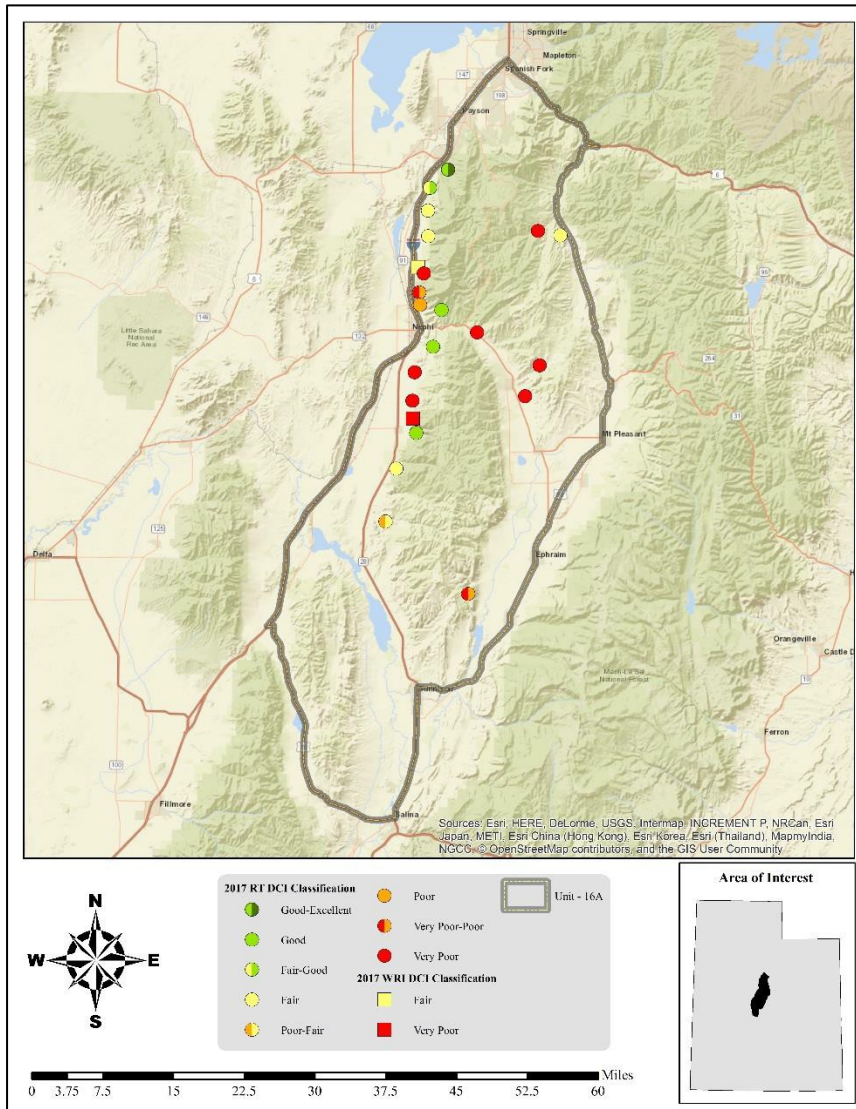


Figure 4. 2017 Desirable Components Index (DCI) ranking distribution by study site for WMU 16A, Nebo.

Discussion and Recommendations

Mountain (Big Sagebrush)

The study sites within the Mountain (Big Sagebrush) ecological type vary in condition from very poor to good for deer winter range habitat. The sagebrush communities support plant populations that provide winter forage for wildlife. Introduced annual grasses are present on all sites in varying amounts. Bulbous bluegrass (*Poa bulbosa*) is also present on all sites within this ecological type and can reduce the ecological integrity and diversity of the plant communities. The Wash Canyon and Triangle Ranch study sites are both in Phase I of woodland encroachment and have potential for future encroachment.

Treatments to reduce the undesirable grasses may become necessary on some sites if these grasses persist on the sites. Areas with conifer encroachment should be treated (e.g. bullhog, chaining, lop and scatter, etc.) where feasible. If reseeding is necessary to restore herbaceous communities, care should be taken in seed selection and preference should be given to native species when possible.

Mountain (Oak)

The studies that are considered to be Mountain (Oak) ecological sites vary in condition from very poor to good for deer winter range habitat. The oak communities provide cover and forage for wildlife in winter. Bulbous bluegrass is present on all the sites sampled, and threatens the integrity and diversity of the plant communities. Introduced annual grasses are also present on all sites except Rees Flat: these grasses can increase fuel loads and pose a risk for wildfire. The Santaquin Hill site is currently in Phase I of woodland encroachment and has potential for future encroachment.

Treatments to reduce undesirable grasses may become necessary on some sites if high levels of these grasses persist. Areas with conifer encroachment should be treated (e.g. bullhog, chaining, lop and scatter, etc.) where feasible. If reseeding is necessary to restore herbaceous communities, care should be taken in seed selection and preference should be given to native species when possible.

Upland (Big Sagebrush)

The study sites within the Upland (Big Sagebrush) ecological type vary in condition from very poor to very poor-poor for deer winter range habitat on this unit. These lower elevation sagebrush communities support populations that provide winter forage for wildlife. The Old Pinery, Maple Canyon, and Levan North sites are currently in Phase I of woodland encroachment, indicating the potential for future encroachment or infilling. Introduced annual grasses are present on all sites to varying degrees, and can increase fuel loads and pose a risk for wildfire. Bulbous bluegrass is also present on all sites except Maple Canyon: this grass can alter and reduce the diversity of the plant community.

Treatments to reduced undesirable grasses might be necessary if high levels of these grasses persist. It is recommended that areas with significant conifer encroachment be treated (e.g. bullhog, chaining, lop and scatter, etc.) where feasible and maintenance should continue on sites that have already been treated. If reseeding is necessary to restore herbaceous communities, care should be taken in seed selection and preference should be given to native species when possible.

Upland (Cliffrose)

Studies that are considered to be Upland (Cliffrose) ecological sites vary in condition from very poor to good for deer winter range habitat on this unit. These cliffrose communities support browse populations that provide good winter forage for wildlife. These communities have the potential for invasion by annual grasses and introduced perennial grasses. Annual grasses, specifically cheatgrass (*Bromus tectorum*), can increase fuel loads and exacerbate the risk for wildfire. The Chicken Creek and Deep Creek study sites are currently in Phase I of conifer encroachment and are at risk for further encroachment.

Treatments to reduce annual grass might be necessary if high levels of these grasses become an issue in these communities. It is recommended that areas with significant conifer encroachment undergo a tree-removing treatment (e.g. bullhog, chaining, lop and scatter, etc.) where feasible. If reseeding is necessary to restore herbaceous communities, care should be taken in seed selection and preference should be given to native species when possible.

Treatments/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 47,250 acres of land have been treated within the Nebo unit since the WRI was implemented in 2004 (Figure 5). An additional 2,636 acres are currently being treated and treatments have been proposed for 1,321 acres. Treatments frequently overlap one another bringing the total completed treatment acres to 51,207 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.

Anchor chaining to remove pinyon and juniper is the most common management practice in this unit. Bullhog treatments to treat pinyon and juniper are also frequently used. Seeding plants to augment the herbaceous understory is also very common. Other management practices include (but are not limited to): container stock planting, hand crews to remove pinyon and juniper, herbicide application to remove weeds, harrow, and other similar vegetation removal techniques.

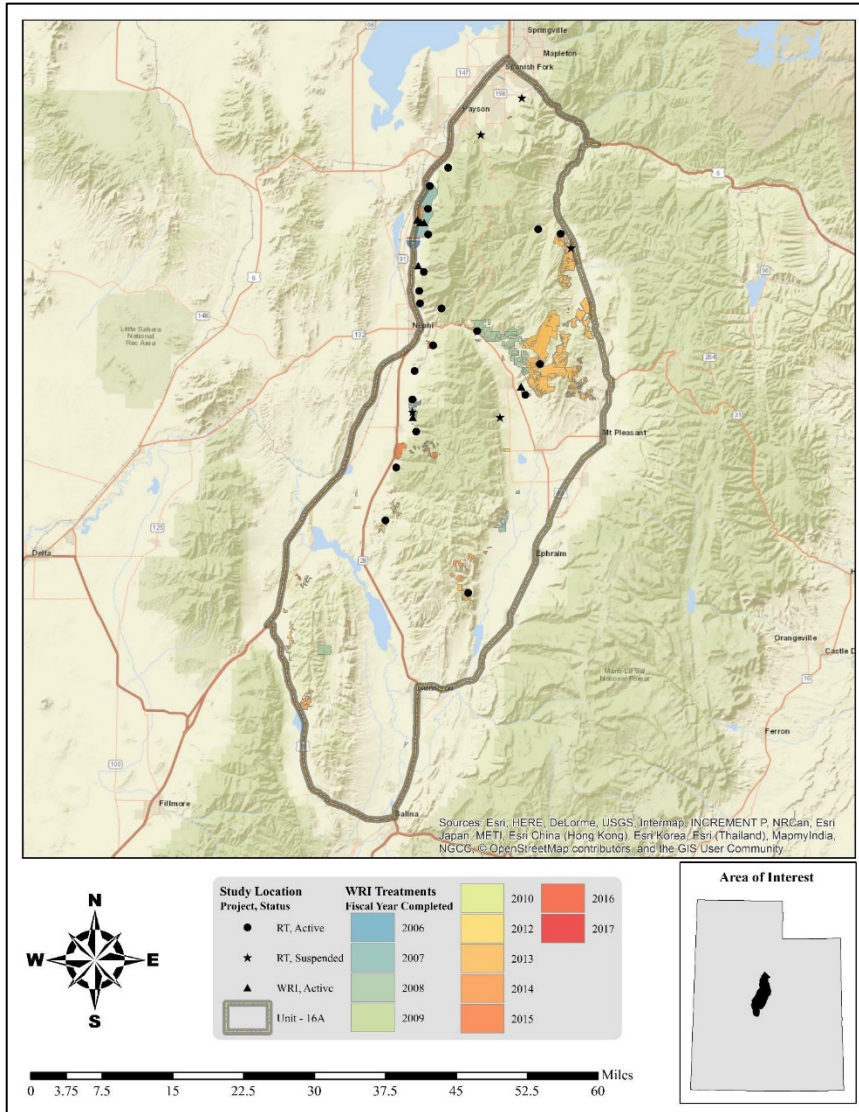


Figure 5. WRI treatments by fiscal year completed for WMU 16A, Nebo

PERMANENT RANGE TREND SUMMARIES - Manti Subunit

Management Unit Description

Geography

Wasatch Plateau

Unit 16B (Figure 6) covers the east and west sides of the Wasatch Plateau. Skyline Drive to Soldiers Summit roughly divides the eastern and western halves of the unit. This unit was previously called the Northeast Manti Deer Herd Unit 30. In the spring of 1998, this unit was incorporated into the much larger Wildlife Management Unit 16. Unit 16C was previously called Deer Herd Unit 31- South East Manti. It was enlarged in the spring of 1998 to include both the east and west sides of the Wasatch Plateau and renamed Wildlife Management Unit 16C. Unit 16C is a subunit of the very large management unit 16, which encompasses areas in Utah, Carbon, Juab, Sevier, and Sanpete Counties.

Wildlife Management Unit 16C (Figure 6) covers the southern portion of the Wasatch Plateau. As with unit 16B, this subunit's western and eastern halves are divided roughly by Skyline Drive. The upper limits of the winter range on 16C generally follows the rim of the plateau and the 9,000 foot level of the south and west exposures of the large canyons and mountain slopes. Many of the plateaus drop steeply to the valley floor below to the very lowest portion of the herd unit that supports a low desert shrub type on unproductive shale hills. This acreage is not considered part of the winter range.

Management unit 16B and 16C is large with deer summer and winter ranges covering nearly 1.4 million acres. The U.S. Forest Service (USFS) administers 81% of the summer range and the BLM 1%. Fifty-one percent of the winter range is on federal land with another 30% on private lands.

Central Mountains Manti North

Most of the winter range in subunit 16B lies on the east side of the Wasatch Plateau which is a broad alluvial fan ranging in elevation from 5500 to 7500 feet. It runs from Price Canyon south to Huntington Canyon. Other important winter ranges include a large section of land along the Price River in the Colton area, and below Scofield Reservoir. The winter range is made up of mountain big sagebrush and wyoming big sagebrush communities with pinyon-juniper woodlands interspersed throughout the area.

Central Mountains Manti South

The key deer wintering areas are the lower end of Muddy Creek and Ferron Creek, Black Dragon, Biddlecome Hollow, Cottonwood Canyon, and Huntington Canyon. Elk winter higher on Trail Mountain, North and South Horn Mountain, Sage Flat and the foot hills along US 89 from salina to Mount Pleasant. Deer also utilize these areas during mild winters. On the Southeast Manti Unit, much of the key winter range is on Forest Service lands. Pinyon-juniper benches become more limited to the south and there are mostly low desert shrub foothills associated with Muddy Creek. Overall, the pinyon-juniper type occupies a fair amount of the winter range at low elevations, but is not critical to the trend monitoring program. However, the chained and seeded portions of this type provide important wintering areas and are monitored for trend. Chaining treatments are sampled in the foothills from Huntington Canyon to south of Dry Wash. Other key areas at Middle and Dry Mountains are also sampled. The big sagebrush/grass range type is found on many key areas, especially on the North East Manti Unit, but also on high elevation elk winter range on Trail, East, and Horn Mountains. Big sagebrush/grass is limited on crucial deer winter range, but key areas are found on Black Dragon and Muddy Creek.

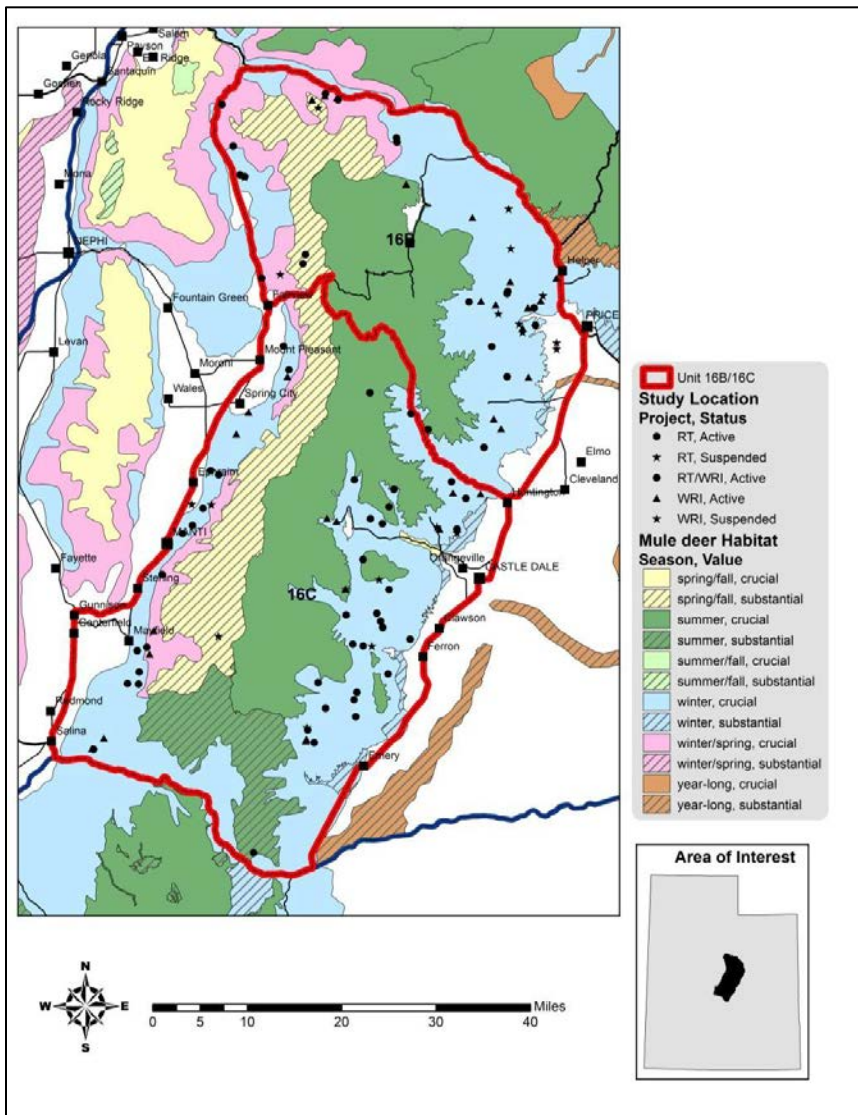


Figure 6. Seasonal Ranges on WMU 16B/16C, Manti Subunit, including range trend study sites.

Limiting Factors to Big Game Habitat

Central Mountains Manti North

The Manti-North area has historically supported a variety of wildlife and outdoor recreation, livestock grazing, ranches and farms, energy developments, and some forest industry. Industrial activities on the unit are associated primarily with coal production, electrical power generation, and oil and gas development. Exploration and development activities for oil and gas have the potential for future increases. Add to this a growing demand for low-sulfur Wasatch coal, and the demands placed upon winter ranges in this area will likely increase. Power plants, pipelines, slack piles, coal load-out facilities, ghost towns, railroads, and agriculture compete for valuable winter range property. An extensive road system provides year-round access to large portions of the winter range. Heavily used access roads to coal mines and gas wells dissect important winter ranges all along the east side of the Wasatch Plateau and are accountable for a large number of the highway deer mortality.

Central Mountains Manti South

The upper portions of the winter range on Forest Service lands are managed primarily for livestock grazing. Widespread watershed rehabilitation through contour trenching and seeding was done on this rangeland in the 1960's. An extensive road system provides access to a large percentage of the winter range. Many roads in crucial areas are open or maintained and used winter long in relation to various activities, namely mining, gas wells, the Horn Mountain TV towers, and for recreation. Access is more restricted further south in the Ferron and Muddy Creek drainages. The lowest foothill ranges are accessible year-round and are usually adjacent to agricultural areas. Coal mining and the power plants are the major economic activities in the area. Other associated impacts include road improvements, truck traffic, and an increased human population. Outdoor recreation is popular in the area. These activities include camping, hunting, fishing, four-wheeling, and snowmobiling and are facilitated by the extensive road system in the mountains and foothills.

Both

Encroachment by pinyon-juniper woodland communities also poses a substantial threat to important sagebrush rangelands. Pinyon-juniper woodlands dominate the vegetation cover within the deer winter range. Encroachment and invasion of these woodlands into sagebrush communities has been shown to decrease sagebrush and herbaceous cover, and therefore decreases available forage for wildlife.

Range Trend Studies

Range Trend studies have been sampled within WMU 16B and 16C on a regular basis since 1985, with studies being added or suspended as was deemed necessary. Seventy-one interagency range trend studies were sampled in Unit 16B/C during the summer of 2014 to establish a Desired Components Index (DCI) ranking for each study site (Figure 7) Monitoring studies of WRI projects began in 2004. When possible, WRI monitoring studies are established prior to treatment and sampled on a regular basis following treatment. Due to the long-term nature of the studies, many of the Range Trend and WRI studies have had some sort of disturbance or treatment prior to or since study establishment.

Range Trend studies that have not had recent disturbance or treatments are summarized in this report by ecological site. Range Trend and WRI studies that have a disturbance or treatment during the reported sample period are summarized in this report by the disturbance or treatment type.

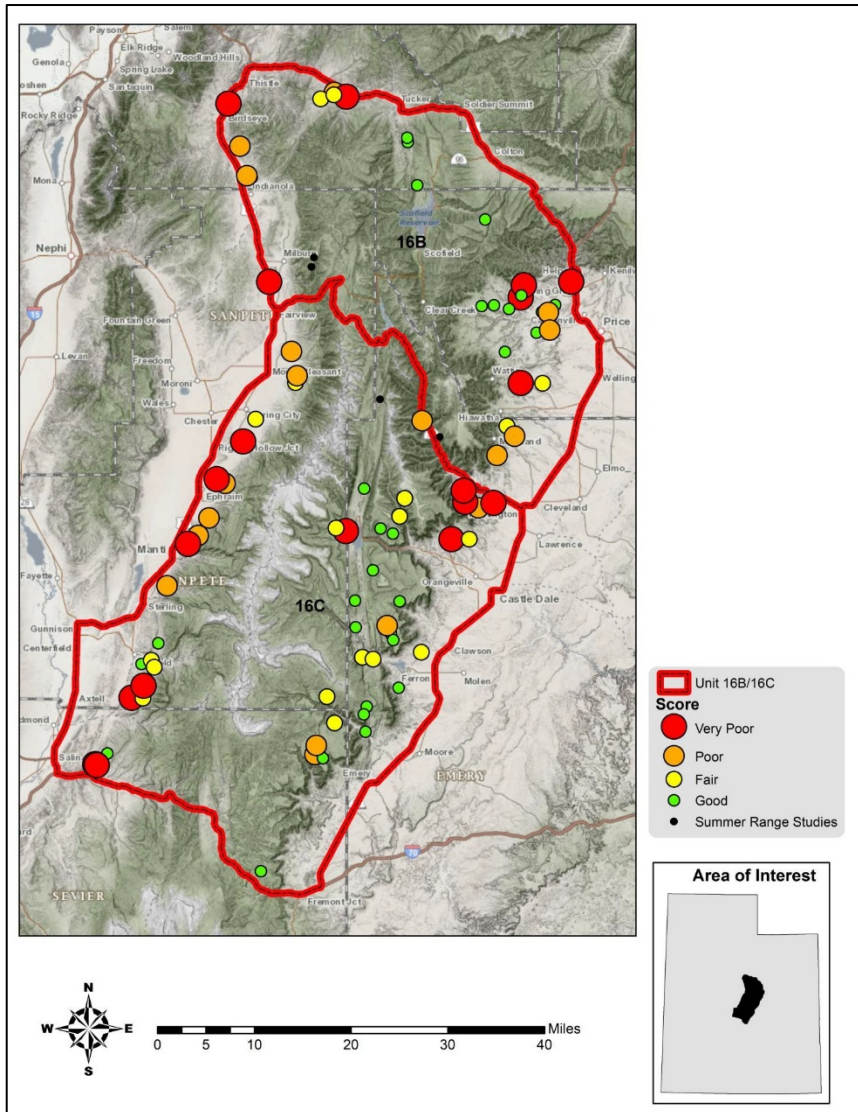


Figure 7. Deer winter range Desirable Components Index (DCI) ranking distribution by study site of most current sample date as of 2014 for WMU 16B/C, Manti North/South.

Discussion and Recommendations

High Mountain (Aspen)

This high mountain ecological site supports an aspen community and is generally considered to be in good condition for deer and elk summer range habitat on the Manti North unit. This community supports a diverse herbaceous understory that provides valuable forage during the summer months. While in generally good condition, introduced perennial grasses are present in the herbaceous understory. While providing valuable forage, these grass species can often be aggressive at higher elevations and can reduce the prevalence and abundance of other more desirable native grass and forb species. Additionally, the presence of noxious weeds, namely hounds tongue, have the potential to expand within the understory and reduce the amount of valuable forb species available to wildlife during summer months.

It is recommended that monitoring of this community continue. 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. Additional actions may be necessary to reduce the presence of noxious weeds within this

community type.

High Mountain (Slender Wheatgrass)

This high mountain ecological site supports grass and forb communities that are generally considered to be in good condition for deer and elk winter range habitat on Manti North unit. This community supports a diverse herbaceous component that provides valuable forage during the summer months. While in generally good condition, introduced perennial grasses are present in the community. Although they provide valuable forage, these grass species can often be aggressive at higher elevations and can reduce the prevalence and abundance of other more desirable native grass and forb species. Additionally, the presence of invasive and noxious weeds, namely tarweed and hounds tongue, have the potential to expand within the herbaceous community and reduce the amount of valuable forb species available to wildlife during summer months.

It is recommended that monitoring of this community continue. 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. Additional actions may be necessary to reduce the presence of noxious weeds within this community type.

High Mountain/Mountain (Mountain Big and Silver Sagebrush Communities)

The higher elevation mountain ecological sites that support 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. These sites are not prone to encroachment from pinyon-juniper trees or invasion of cheatgrass. As with the ecological potentials mentioned above, 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 elevations and can reduce the prevalence and abundance of other more desirable native grass and forb species. Intensive herbivore may also lead to a weakened herbaceous community structure that can result in the introduction of invasive and noxious weeds that reduce the amount of valuable forb species available to wildlife during summer months.

It is recommended that monitoring of this community continue. If habitat rehabilitation is needed in these community types, it is likely not necessary to seed these forb communities due to their high diversity and resilience to disturbance. If 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. Monitoring should also continue in order to watch for the presence of noxious weeds within this community type.

Upland (Pinyon-Utah Juniper)

The mid elevation upland pinyon and juniper communities are generally considered to be in poor to very poor condition for deer winter range habitat on these units. These communities support small, dispersed shrub populations that provide valuable browse in mild to moderate winters. These communities are prone to increases of pinyon-juniper tree density and cover as community phases climax. Climax community phases have reduced understory diversity and vigor, and shrub populations display high decadence and low densities if the progression is not set back through pinyon and juniper tree removal. As with the high potential mountain sites, these upland mid-potential sites have introduced perennial grasses present in the herbaceous understory. While providing valuable forage, these grass species can often be aggressive at higher elevations of these upland potentials and can reduce the prevalence and abundance of other more desirable native grass and forb species. 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. 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.

It is recommended that work to reduce pinyon-juniper should continue in these communities in order to diversify community structure and increase the availability of preferred browse in these crucial winter ranges for when winters are harsh. 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. Care should also be taken in selecting treatment methods that will not increase annual grass loads. Treatments to reduce annual grass may be necessary on some sites. Furthermore, work to diminish fuel loads and create fire breaks should continue in order to reduce the threat of catastrophic fire.

Upland (Shrub Communities)

These mid elevation upland communities are generally variable in deer winter range with many of the communities in poor to very poor condition; however, there are a few communities that are considered to be in good to excellent condition. These communities support many vegetation types including the following: black sagebrush, basin big sagebrush, Wyoming big sagebrush, mountain big sagebrush, antelope bitterbrush, and mahogany species. These communities support large, dense shrub populations that provide valuable browse in mild to moderate winters for deer. These communities are prone to encroachment from pinyon-juniper trees which can reduce understory shrub and herbaceous health if not addressed. As with the high potential mountain sites, these upland mid-potential sites have introduced perennial grasses present in the herbaceous understory. These grass species can often be aggressive at higher elevations of these upland potentials and can reduce the abundance of other more desirable native grass and forb species. 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. 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.

Although most of the communities have small populations of pinyon and juniper trees, it is strongly recommended that work to prevent and reduce pinyon-juniper encroachment 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. Moreover, 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 fire breaks should continue in order to reduce the threat of catastrophic fire that results in the loss of preferred browse. If a treatment to rejuvenate sagebrush occurs, care should be taken in selecting treatment methods that will not increase annual grass loads.

Semidesert (Birchleaf Mahogany, Black Sagebrush, and Shadscale)

The lower elevation semidesert shrub communities are generally considered to be in poor condition for deer winter range habitat on the unit. These communities support shrub populations that provide valuable browse in moderate to severe winters. These communities are susceptible to invasion from annual grasses, primarily cheatgrass. Increased amounts of cheatgrass can increase fuel loads and increase the threat of wildfire on within these communities. 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. Encroachment from pinyon-juniper trees is a moderate threat within these communities.

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. 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.

Treatments/Restoration Work

There has been an active effort to address many of the limitations on these units through the Watershed Restoration Initiative (WRI). A total of 36,336 acres of land have been treated within the Manti North and South units since the WRI was implemented in 2004 (Figure 8). As seen on the map, treatments occasionally overlap one another bringing the total treatment acres to 38,043 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, and lop-and-scatter are common management practices on this unit. Other common management treatments are those to rejuvenate sagebrush stands such as herbicide, disc, and harrow treatments. In addition to these treatments, many have had seeding treatments associated with it to increase desirable species.

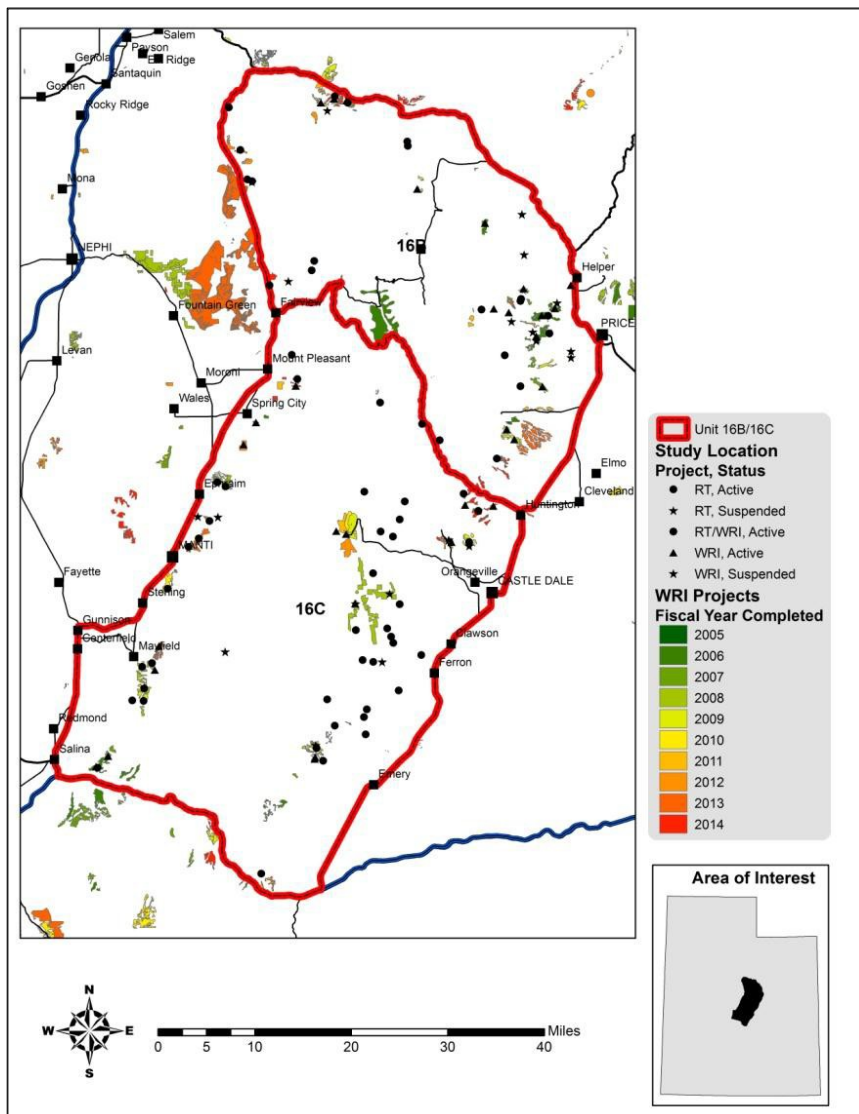


Figure 8. WRI treatments by fiscal year completed for WMU 16B/C,

DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 18
(Oquirrh-Stansbury)
August 2018

BOUNDARY DESCRIPTION

Salt Lake, Utah and Tooele counties - Boundary begins at the junction of I-15 and I-80; south on I-15 to SR-73; west on SR-73 to SR-36; south on SR-36 to the Pony Express road located just south of Faust; west on this road to the Skull Valley-Dugway-Timpie road; north on this road to I-80 at Rowley Junction; east on I-80 to I-15.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

Ownership	SUMMER RANGE		WINTER RANGE		TOTAL RANGE
	Area (acres)	%	Area (acres)	%	Area (acres)
Forest Service	48386	28.8%	20269	7.2%	68,655
Bureau of Land Management	45,888	27.3%	88,076	31.3%	133,694
Utah State Institutional Trust Lands	5,727	3.4%	20319	7.2%	26,046
Native American Trust Lands	28	0%	28,777	10.2%	28,805
Private	64,177	38.2%	108,703	38.6%	172,880
Department of Defense	3,969	2.4%	15,263	5.4%	19,232
Utah State Parks	0	0%	0	0%	0
Utah Division of Wildlife Resources	0	0%	0	0%	0
TOTAL	168175	100%	281407	100%	449,582

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 11,600 wintering deer.

Unit 18

2012 – 2017 Objective	11,600
<u>2017 – 2022 Objective</u>	<u>11,600</u>
Change	no change

- < 5 year Winter Herd Size – Manage for a 5-year target population of 11,600 wintering deer 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 Maintain a region-wide three year average postseason buck to doe ratio according to the statewide plan. (unit 18 is managed for 15-17 bucks per 100 does).

- < Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts apply on Oquirrh/Stansbury, Unit 18.

POPULATION MANAGEMENT STRATEGIES

Monitoring

- < Population Size - Utilizing harvest data, postseason and spring sex and age classifications and mortality estimates, a computer model has been developed to estimate winter population size. The 2017 model estimates the population at **12,500** deer.
- < Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons.

Limiting Factors (May prevent achieving management objectives)

- < Crop Depredation - Take all steps necessary to minimize depredation as prescribed by state law and DWR policy.
- < Hunter Access - Excessive habitat utilization will be addressed. Because of the large amount of private land on this unit, its location and the number of owners, public access for deer hunting will continue to be a problem. Formation of the Heaston East CWMU may help in this regard on the North Oquirrh Mountains.
- < Habitat - At present, the availability of high quality summer range may be more limiting to this deer population than winter range. Condition of winter ranges is a long-term problem. Fire and encroachment by pinyon and juniper trees results in the loss of forage production, diversity and quality.
- < Predation - Refer to DWR predator management policy.
 - If the population estimate is less than 90% of objective and postseason fawn to doe ratio drops below 55 for 2 of the last 3 years or if the fawn survival rate drops below 40% for one year, then a Predator Management Plan targeting coyotes will 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 805 for one year, than a Predator Management plan targeting cougar could be implemented on that subunit.
- < Highway Mortality - Cooperate with the Utah Dept. Of Transportation in construction of highway fences, passage structures and warning signs etc.
- < Illegal Harvest - If illegal kill becomes an identified and significant source of mortality, attempt to develop specific preventive measures within the context of an action plan developed in cooperation with the Law Enforcement Section.

HABITAT MANAGEMENT OBJECTIVES

- < Maintain and protect existing critical deer ranges sufficient to support the population objectives. Seek cooperative projects to improve the quality and quantity of deer habitat. Promote enhancement of habitat security and escapement areas for deer.
- < 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 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 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.

Habitat Improvement

- < 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 Cheatgrass with desirable perennial vegetation.
- < 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.
- < 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.

Habitat projects 2013-2018

Stansbury BHS Disease Risk Reduction GP 24136-18	Central	Utah Foundation for North American Wild Sheep	Current	2018
Stansbury Mountain Guzzler Project	Central	Utah Division of Wildlife Resources	Completed	2015
Onaqui East Bench Bullhog Phase 3	Central	Bureau of Land Management	Completed	2016
Cedar Fort Discretionary seed	Central	USDA Natural Resources Conservation Service	Completed	2015
Stockton Shrub Planting	Central	Utah Division of Wildlife Resources	Completed	2014
Stockton Sagebrush Enhancement	Central	Bureau of Land Management	Completed	2014
Stockton Bullhog Phase 3	Central	Bureau of Land Management	Completed	2014
Onaqui East Bench Bullhog Phase 2	Central	Bureau of Land Management	Completed	2014
Faust Fire ESR	Central	Bureau of Land Management	Completed	2013
Ophir Fire Rehabilitation Project	Central	Utah School and Institutional Trust Lands	Completed	2013
Central Region Guzzlers MDF Project	Central	Mule Deer Foundation	Completed	2013
Stockton Lop and Scatter Project	Central	Utah Division of Wildlife Resources	Completed	2013
Clover Creek Bullhog Phase 4	Central	Bureau of Land Management	Completed	2013
Onaqui East Bench Sagebrush Habitat Enhancement	Central	Bureau of Land Management	Completed	2013
Stockton Bullhog Phase 2	Central	Bureau of Land Management	Completed	2013
Iosepa Bullhog Phase 5	Central	Bureau of Land Management	Completed	2013

Total Habitat Projects and Acres by Project Type

PERMANENT RANGE TREND SUMMARIES

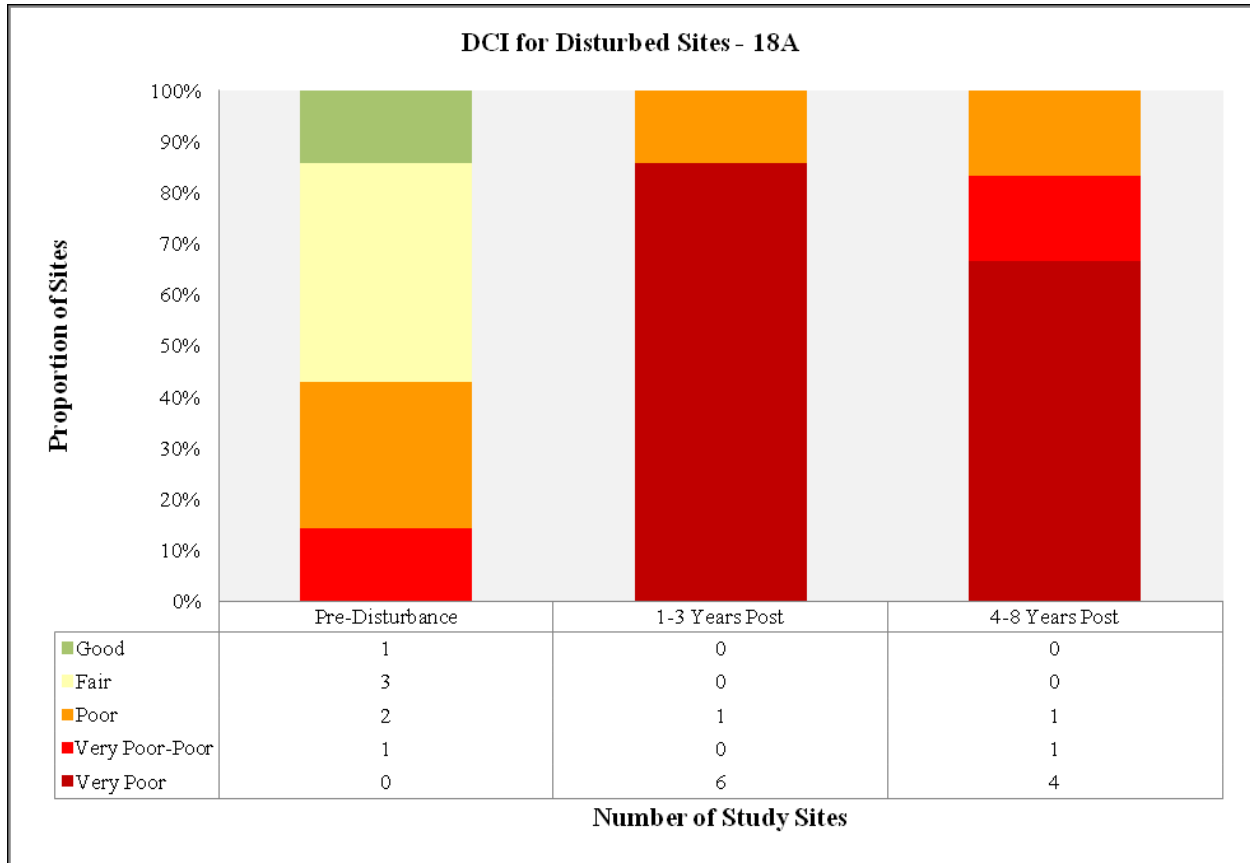


Figure 8.12: Deer winter range Desirable Components Index (DCI) summary by year of treated/disturbed sites for WMU 18A, Stansbury Oquirrh-Stansbury

Deer winter range condition on Unit 18, Oquirrh-Stansbury, as indicated by the Desirable Components Index (DCI).

**Unit 18, Oquirrh-Stansbury 2016
DWR Winter Range Trend Assessment**

Oquirrh Range

The condition of deer winter range within the Oquirrh Mountains Oquirrh-Stansbury management unit has continually changed on the sites sampled since 1997. The Range Trend sites sampled within the unit are considered to be in very poor to fair condition as of the 2016 sample year. Carr Fork 2 went from good to fair condition, Manning Canyon deteriorated from fair to poor, Big Dip Gulch and South of Soldier Canyon remained in poor condition. The Three O’Clock and Settlement Canyon Reservoir studies are considered to be in very poor and very poor-poor condition (respectively) generally due to the lack of browse cover and sagebrush diversity. The treated study site, South of Soldier Canyon, is in poor condition. It is possible given more time and continual monitoring that these sites might improve.

Stansbury Range

The condition of deer winter range within the Stansbury Oquirrh-Stansbury management unit has continually changed on the sites sampled since 1997. The Range Trend sites sampled within the unit are considered to be in very poor to fair condition as of the most recent sample year . Below Chokeycherry Spring improved from very poor to poor condition and Magpie Canyon remained in fair condition. The South Palmer Point, Salt Mountain Stock Pond, Salt Mountain, South of Broons Canyon, Deadman Canyon, Hatch Ranch, and East Hickman Canyon studies are considered to be in very poor or very poor-poor condition generally due to the lack of browse cover and sagebrush diversity. The disturbed study sites range from very poor to poor; all of these studies – South Palmer Point, Salt Mountain Stock Pond, Below Chokeycherry Spring, Salt Mountain, South of Broons Canyon, Deadman Canyon, and Hatch Ranch – are also considered to be Range Trend sites and are therefore discussed above. It is possible given more time, continual monitoring, and further rehabilitation when necessary that these sites will improve.

Stansbury Oquirrh - Stansbury

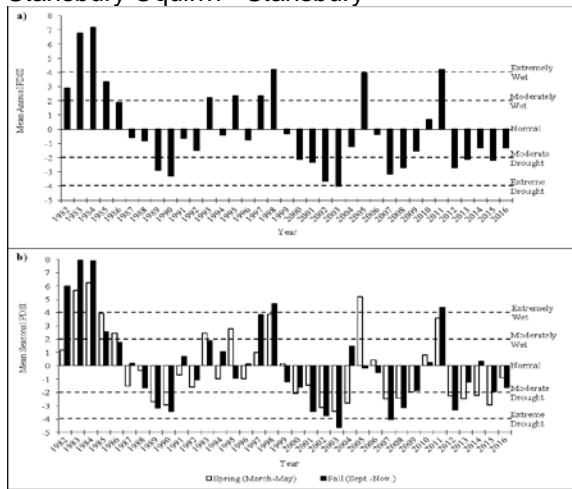


Figure 8.1: The 1982-2016 Palmer Drought Severity Index (PDSI) for the Western division (Division 1). The PDSI is based on climate data gathered from 1895 to 2016. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is >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 <-4.0 = Extreme Drought. a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2017).

Stansbury Oquirrh – Oquirrh

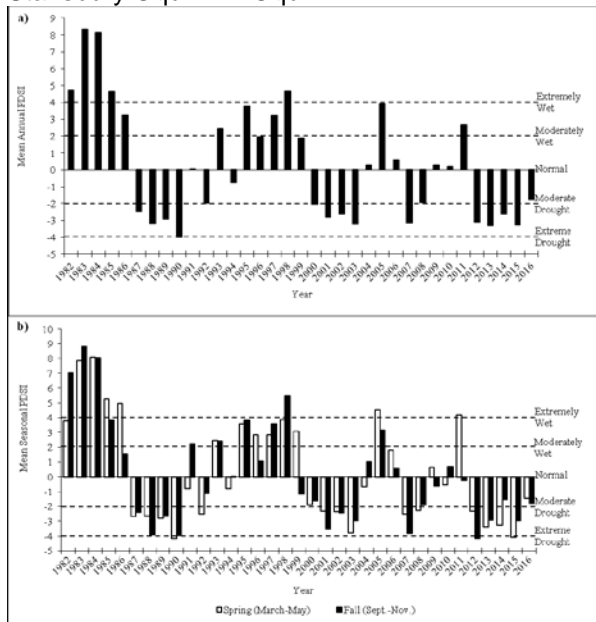


Figure 8.2: The 1982-2016 Palmer Drought Severity Index (PDSI) for the North Central division (Division 3). The PDSI is based on climate data gathered from 1895 to 2016. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is >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 <-4.0 = Extreme Drought. a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2017).

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 # 17
(Wasatch Mountains)
August 2018

BOUNDARY DESCRIPTION

Carbon, Duchesne, Salt Lake, Summit, Utah and Wasatch counties—Boundary begins at the junction of I-15 and I-80 in Salt Lake City; east on I-80 to US-40; south on US-40 to SR-32; east on SR-32 to SR-35; southeast on SR-35 to SR-87; south on SR-87 to Duchesne and US-191; south on US-191 to US-6; northwest on US-6 to I-15; north on I-15 to I-80 in Salt Lake City. **EXCLUDING ALL NATIVE AMERICAN TRUST LAND WITHIN THIS BOUNDARY.**

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

Ownership	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service	17,268	31.6%	687,185	62.0%	104,466	21.7%	808,919
Bureau of Land Management	0	0%	12,105	1.1%	8,768	1.8%	20,873
Utah State Institutional Trust Lands	0	0%	34,450	3.1%	3,939	.8%	38,389
Native American Trust Lands	4,732	8.6%	20,930	1.9%	51,061	10.6%	76,723
Private	28,660	52.4%	297,425	26.8%	240,366	50.0%	566,451
Department of Defense	0	0%	0	0%	0	0%	0
USFWS Refuge	0	0%	0	0%	0	0%	0
National Parks	235	.4%	0	0%	0	0%	235
Utah State Parks	401	.7%	9,153	.8%	13,462	2.8%	23,016
Utah Division of Wildlife Resources	3,433	6.3%	47,363	4.3%	58,330	12.1%	109,126
TOTAL	54,729	100%	1,108,611	100%	480,392	100%	1,643,732

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 22,600 wintering

deer (modeled number).

Unit 17

17a Wasatch West subpopulation: 22,600

Total: 22,600 (no change from previous plan)

- **5 year Winter Herd Size** – Manage for a 5-year target population of 22,600 wintering deer 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** – All Wasatch Mountains subunits are General Season subunits and will be managed to maintain a three year average postseason buck to doe ratio according to the statewide plan (17a is managed for 15-17 bucks per 100 does).
- **Harvest** – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts apply.

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 2017 model estimates the 17a population at 23,500, deer.
- **Buck Age Structure** - Monitor age class structure of the buck population through the use of checking stations, postseason classification, uniform harvest surveys and field bag checks.
- **Harvest** - The primary means of monitoring harvest will be through the statewide uniform harvest survey and the use of checking stations. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons. 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** - Take all steps necessary to minimize 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.

- Highway Mortality - Cooperate with the Utah Dept. Of Transportation in construction of highway fences, passage structures and warning signs etc.
- Illegal Harvest - If illegal harvest is identified as a significant source of mortality, an attempt to develop specific preventive measures within the context of an action plan will be developed 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. The relationship between DCI and the changes in deer carrying capacity is difficult to quantify and is not known.

Habitat Protection 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.

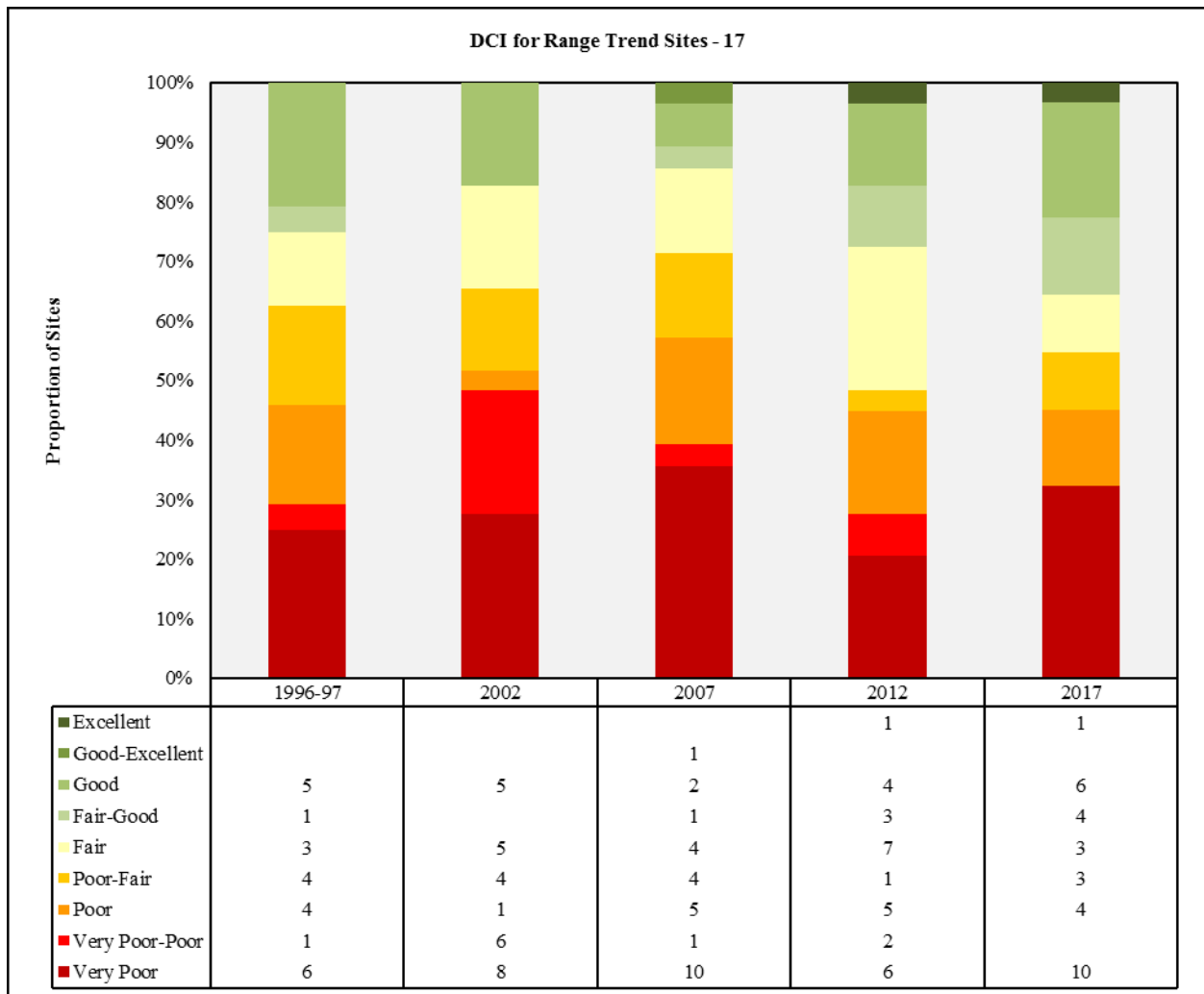
Habitat Improvement

- 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 Cheatgrass with desirable perennial vegetation.
- 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.
- 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.
 - 17a
 - North side of hwy 6 in the Sheep Creek drainage.
 - Wallsburg WMA.
 - North side of Diamond Fork Canyon.
 - Quaking Aspen forests unit wide.
 - Anywhere along the front that would avert deer from entering cities.

Projects Unit 17a 2013-2017	# Projects	Acres
Weed control	3	1,761
Wasatch Front guzzler installation	2	
Sheep Creek Juniper removal	3	2,717
Fire reseeding	4	3,015
Sagebrush treatments	2	335
Total	14	7,864

PERMANENT RANGE TREND SUMMARIES



Deer winter range condition trend summary for subunit 17a, Wasatch Mountains, West, as

indicated by the deer winter range Desirable Components Index (DCI).

There were 29 permanent range trend study sites sampled on subunit 17a in 2017, all of which are considered to be in deer winter range. For summary purposes the subunit was divided into three distinct areas; Heber Valley, Bonneville Shoreline, and Spanish Fork Canyon.

Heber Valley: Much of the winter range in the Heber Valley area (50%) is privately owned and development has been a continuing concern. Since the early 2000's development has accelerated and some of the most critical range is being converted to housing. Division of Wildlife Resources, State Parks, and federal lands will likely be the key to the survival of deer into the future on this portion of the unit. Important vegetation types monitored include antelope bitterbrush, mixed mountain browse, mixed oakbrush/sagebrush, and mountain big sagebrush.

There were 12 range trend study sites sampled around the Heber Valley area in 2017. Sites in the area showed a slight increase in sagebrush density, cover, and health from 2007 to 2012 and a decrease from 2012 to 2017. Summer drought conditions over the last five years is the reason for the decline. The abundance of the weedy annual grass species (namely cheatgrass) and bulbous bluegrass is a particular concern on these sites and may inhibit the recovery of sagebrush in the areas.

Bonneville Shoreline: Winter habitat is limited by quality and quantity in this area of the subunit. A large portion of deer winter range is privately owned making it susceptible to development. Housing developments in recent years have consumed much of this important winter range and will likely continue to do so in the future. Most winter range has been reduced to a narrow bench above the communities of Alpine, Pleasant Grove, Orem, Springville and Mapleton. Important vegetation types monitored include antelope bitterbrush, true mountain mahogany, mixed mountain browse, mixed oakbrush/sagebrush, and Stansbury cliffrose.

There were 7 studies sampled along the Bonneville Shoreline area in 2017. The lack of browse species is a primary concern in this area, and is likely an artifact of historic wildfires on many of these studies. The abundance of weedy annual grass species (namely cheatgrass) and bulbous bluegrass is a particular concern on these sites.

Spanish Fork Canyon: The majority of deer winter range is managed by the US Forest Service in this area. These sites are typically higher elevation winter range and may not be used as heavily in more severe winters. Important vegetation types monitored include mixed mountain browse, mixed oakbrush/sagebrush, and sagebrush.

There was a major fire in the summer of 2017 in Sheep Creek Canyon east to Tie Fork. The fire burned 11,000 acres total and 1500 of those acres were winter range. The winter range portion of the burn was reseeded in the fall of 2017. Because of the loss of winter range in Sheep Creek Canyon a doe hunt was approved by the Wildlife Board to reduce pressure by deer on the newly planted browse. This doe hunt will continue until the browse plants have become established.

There were 9 studies sampled in the Spanish Fork Canyon area in 2017. Browse species does appear to be limited within this area. The primary concern in this area is the abundance of the weedy grass species bulbous bluegrass. A desirable trend is the increase in perennial grass species on many of the studies in this area.

General Assessment: The winter range within the Heber Valley and Spanish Fork Canyon areas of the subunit appear suitable to support planned deer population objectives. Suitable winter range on the Bonneville Shoreline is more limited due primarily to development and poor quality habitat. Deer will likely be forced to winter in an urban setting during more severe winters in this area. The abundance and increase of bulbous bluegrass is a concern in all of the areas of the subunit because this perennial species can form dense mats of cover that may compete with other more desirable herbaceous species and with seedlings and young shrubs, which potentially limits establishment of new plants into the population. The abundance of cheatgrass in the Heber Valley and Bonneville Shoreline areas of the unit is a concern because this annual species can increase fuel loads and increases the chance of a catastrophic fire event.

Unit 17, Wasatch Mountains/Salt Lake County, East Bench Subunit

Range trend studies have not been done on this subunit since 1983. Lack of access to trend study plots that have not been destroyed by development has resulted in these studies being abandoned. Very little winter range is available on this subunit and deer are forced to winter in an urban setting during more severe winters.

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 Northern Mountains division (Division 5). The Northern Mountains division had a historic annual mean precipitation of 19.13 inches from 1895 to 2016. The mean annual PDSI of the Northern Mountains 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 last five years have shown moderate drought conditions on the unit. The deer mortality study has shown deer have been in good condition coming off summer range to winter range. With several mild winters doe and fawn survival has been higher than normal. Summer range for deer on the unit does not appear to be the limiting factor. The loss of winter range is the most limiting factor for deer populations on the unit. Precipitation has the most dramatic effect on deer populations than any other factor. Even with the moderate drought deer the population on the unit is good.

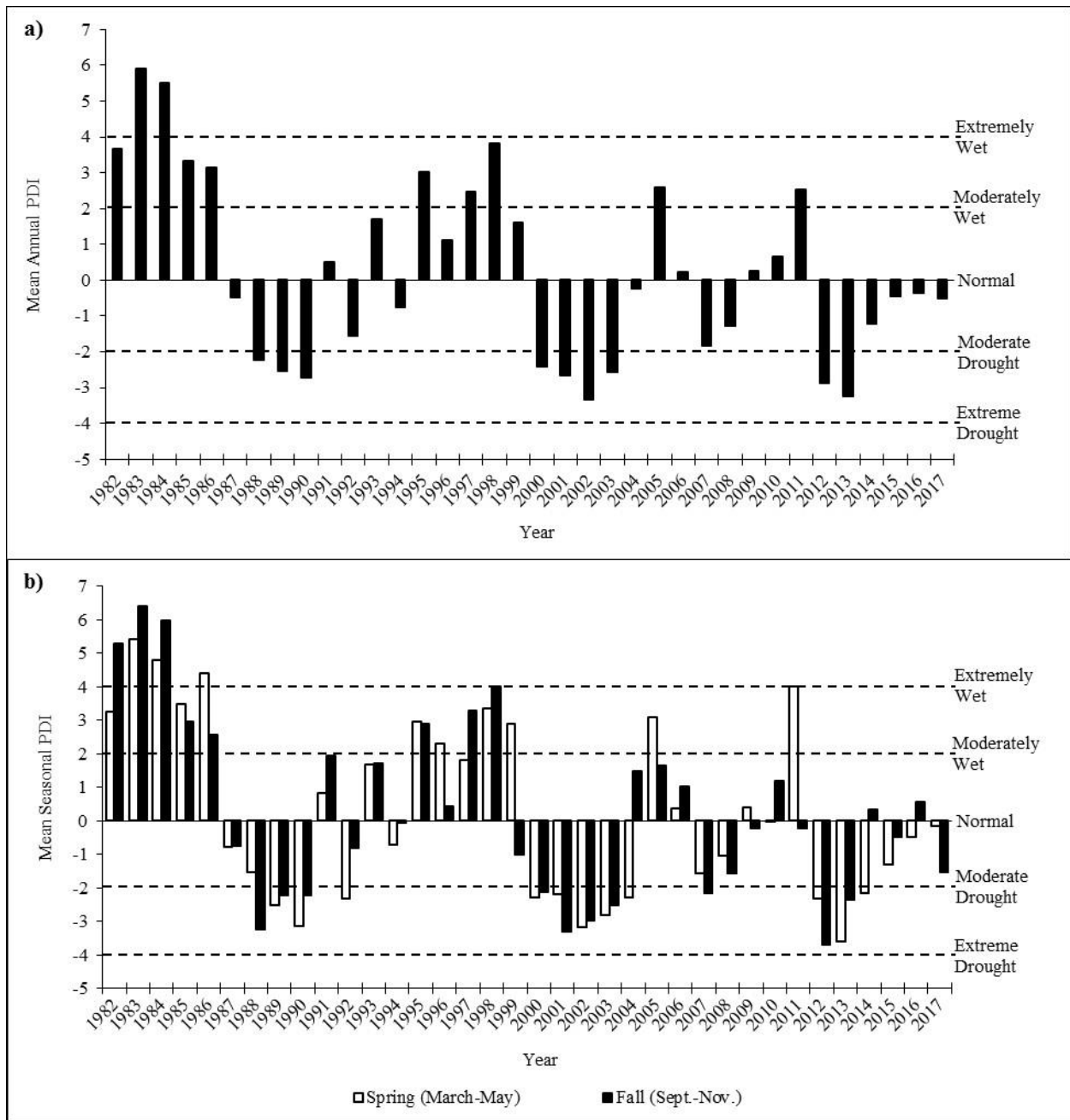


Figure 2.2: The 1982-2017 Palmer Drought Severity Index (PDSI) for the Northern Mountains division (Division 5). The PDSI is based on climate data gathered from 1895 to 2016. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is >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 <-4.0 = Extreme Drought. a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2018).

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 17-Wasatch Mountains, Wasatch West Subunit

Salt Lake, Summit, Utah and Wasatch counties—Boundary begins at I-80 and I-15 in Salt Lake City; east on I-80 to US-40; south on US-40 to the Strawberry Bay Marina road; south on this road to USFS Road 042 (Indian Creek road); south and west on this road to USFS Road 051; south on this road to US-6; west on US-6 to US-89; northwest on US-6 to I-15; north on I-15 to I-80 in Salt Lake City. Excludes all CWMUs.

Unit 17-Wasatch Mountains, Salt Lake Subunit

Davis, Salt Lake, and Summit counties—Boundary begins at I-15 and the Weber/Davis county line; east on this county line to the Davis/Morgan county line; south on this county line to the Morgan/Salt Lake county line; south on this county line to the Salt Lake/Summit county line; south on this county line to I-80; east on I-80 to US-40; south on US-40 to Summit/Wasatch county line; west on this county line to the Wasatch/Salt Lake county line; west on this county line to the Salt Lake/Utah county line; west on this county line Upper Corner Canyon Road; north on this road to Highland Drive; north on this road to Pioneer Road; west on this road to 700 East; north on this road to 12300 South; west on this road to I-15; north on I-15 to the Salt Lake/Davis county line; west on this county line to the 4200ft elevation line; north along this elevation to Weber/Davis county line; east on this county line to I-15. EXCLUDES ALL WATERFOWL MANAGEMENT AREAS.

[Type here]

DEER HERD UNIT MANAGEMENT PLAN
Deer Herd Unit # 19
(West Desert)
August 2018

BOUNDARY DESCRIPTION

Tooele, Utah, Juab and Millard counties - Boundary begins at the Utah-Nevada state line and I-80 in Wendover; east on I-80 to the Dugway road at exit 77, Rowley Junction; south on this road to 14-mile road (Dugway Valley road); south on 14-mile road to the Pony Express Road; east on this road to SR-36; north on SR-36 to SR-73; east on SR-73 to I-15 in Lehi; south on I-15 to Exit 207 and Mills Road; west on this road to the Sevier River; north along this river to SR132; west on 132 to US 6; south on US-6 to its junction with US-50 near Delta; west on US-50 & 6 to the Utah-Nevada state line; north along this state line to I-80 at Wendover.

LAND OWNERSHIP

RANGE AREA AND APPROXIMATE OWNERSHIP

Ownership	YEARLONG RANGE		SUMMER RANGE		WINTER RANGE		TOTAL ACRES
	Area (acres)	%	Area (acres)	%	Area (acres)	%	
Forest Service		0%	48,468	22.2%	21,282	3.9%	69,750
Bureau of Land Management	541,579	87.8%	115,988	54.8%	412,392	75.9%	1,069,959
Utah State Institutional Trust Lands	46,914	7.6%	8,486	4%	32,716	6%	88,116
Native American Trust Lands	0	0%	10,711	5.1%	9,877	1.8%	20,588
Private	5,776	.9%	27,961	13.2%	64,159	11.8%	97,896
Department of Defense	22,299	3.6%	0	0%	2,688	.5%	24,987
USFWS Refuge	0	0%	0	0%	0	0%	0
Bankhead Jones	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%	0	0%	0
TOTAL	616,568	100%	211,614	100%	543114	100%	1,371,296

[Type here]

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 11,200 wintering deer (modeled number)

Unit 19

Target Objective 2012-2017	11,200
<u>Target Objective 2017-2022</u>	<u>11,200</u>
Change	0

- < 5 year Winter Herd Size – Manage for a 5-year target population of 11,200 wintering deer 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 (19a,c) – Maintain a region-wide three year average postseason buck to doe ratio according to the statewide plan
- < Vernon (19b) – (limited entry portion of unit 19); maintain a three year average postseason buck to doe ratio ranging from 25-35:100.
- < Harvest – General Buck Deer hunt regulations, using archery, Rifle, and Muzzleloader hunts apply on the West Desert Mountain Ranges (19a,c). Limited Entry hunt regulation for Archery, Rifle and Muzzleloader apply to Vernon subunit 19b.

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. Because of low deer densities resulting in inadequate classification on (19a,c) harvest data will play a more significant role in characterization of that part of this population. If harvest data proves inadequate the region could request helicopter time for (19a,c). Based on harvest data the population for (19a,c) is approximately 9,000. The 2017 model estimates the 19b population at 2,400 deer.
- < Harvest - The primary means of monitoring harvest will be through the statewide uniform harvest survey. Achieve the target population size by use of antlerless harvest using a variety of harvest methods and seasons.

Limiting Factors (May prevent achieving management objectives)

- < Crop Depredation - Take all steps necessary to minimize depredation as prescribed by state law and DWR policy.
- < Habitat - Deer numbers on unit 19 are primarily limited by the amount and quality of summer range and water distribution. Preservation and even enhancement of the very limited areas of higher altitude good quality summer range is very important. At present, only the Deep Creek range offers any significant expanse of this type of habitat. Condition of winter ranges is a long-term problem. Fire and encroachment by pinyon and juniper trees results in the loss of forage production, diversity and quality. Although it may not be the primary limiting factor pinyon and juniper encroachment on the south slope of the Sheep Rock Range needs to be addressed moving forward to ensure abundance of high quality winter forage.
- < Predation - Refer to DWR predator management policy.
 - If the population estimate is less than 90% of objective and postseason fawn to doe ratio drops below 55 for 2 of the last 3 years or if the fawn survival rate drops below 40% for one year, then a Predator Management Plan targeting coyotes will be implemented on that subunit.
- < Highway Mortality - Cooperate with the Utah Dept. Of Transportation in construction of highway fences, passage structures and warning signs etc.
- < Illegal Harvest - If illegal harvest is identified as a significant source of mortality, an attempt to develop specific preventive measures within the context of an action plan will be developed in cooperation with the Law Enforcement Section.

HABITAT MANAGEMENT OBJECTIVES

- < Maintain and protect existing critical deer ranges sufficient to support the population objectives. Seek cooperative projects to improve the quality and quantity of deer habitat. Promote enhancement of habitat security and escapement areas 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. The relationship between DCI and the changes in deer carrying capacity is difficult to quantify and is not known.

Habitat Protection and Maintenance

- < Work with public land management agencies to develop specific vegetative objectives to maintain the quality of important deer use areas.

[Type here]

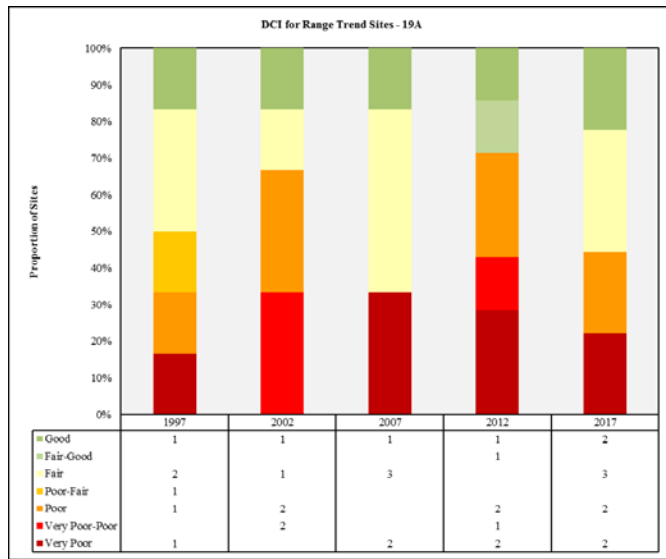
- < Continue to coordinate with land management agencies in planning and evaluating resource uses and developments that could impact habitat quality.
- < Work toward long-term habitat protection and preservation through the use of agreements with land management agencies and local governments, and through the use of conservation easements, etc. on private lands.

Habitat Improvement

- < 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 Cheatgrass with desirable perennial vegetation.
- < 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.
- < 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 pinyon juniper work should be concentrated on the following areas.
 - < The south slope of the Sheep Rock Mountains.
 - < The north and west slope of The Deep Creek Mountains.
- < Future summer range work should be concentrated on the Deep Creek Mountains.

PERMANENT RANGE TREND SUMMARIES

Unit 19A&C



Deer winter range Desirable Components Index (DCI) summary by year of Range Trend sites for WMU 19A, West Desert - Deep Creek

[Type here]

19A&C Palmer Index

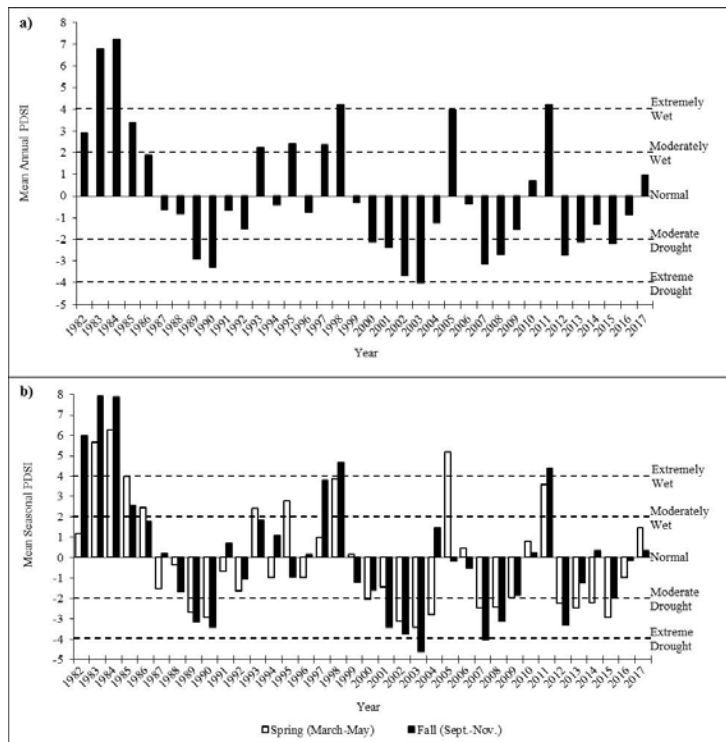


Figure 3.1: The 1982-2017 Palmer Drought Severity Index (PDSI) for the Western division (Division 1). The PDSI is based on climate data gathered from 1895 to 2017. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is >4.0 = Extremely Wet, 3.0 to 2.9 = 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 <-4.0 = Extreme Drought. a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2018).

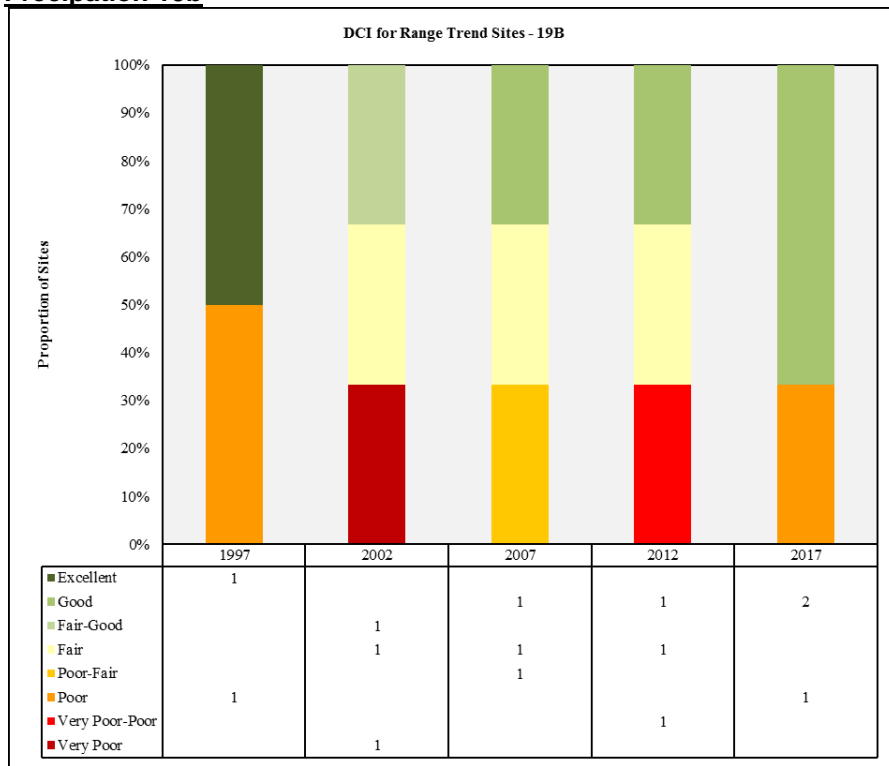
Deer winter range condition trend summary for subunit 19a, West Desert/Deep Creek & Tintic subunits, as indicated by the deer winter range Desirable Components Index (DCI).

The condition of deer winter range within the West Desert - Deep Creek management unit has continually changed on the sites sampled since 1997. The active Range Trend sites sampled within the unit are considered to be in very poor to good condition as of the 2017 sample year. The Basin and Rocky Canyon sites are considered to be in good condition. Wood Canyon, Granite Creek and Durse Canyon are considered to be in fair condition for mule deer winter range. The Ochre Mountain and Ibapah Harrow studies are considered to be in poor condition. Trail Gulch and Rocky Spring are considered to be in very poor condition. The treated sites have generally improved as time since treatment has increased; the exception to this is the East Pasture Harrow study, which went from fair-good to fair. Deep Creek Aerator went from poor to poor-fair, Deep Creek Drill went from fair-good to good, Goshute Chaining went from very poor to fair-good, and Ibapah Harrow went from poor to good. It is possible given more time and continual monitoring that these sites will (continue to) improve.

[Type here]

Unit 19b

Precipitation 19b



Deer winter range Desirable Components Index (DCI) summary by year of Range Trend sites for WMU 19B, West Desert - Vernon.

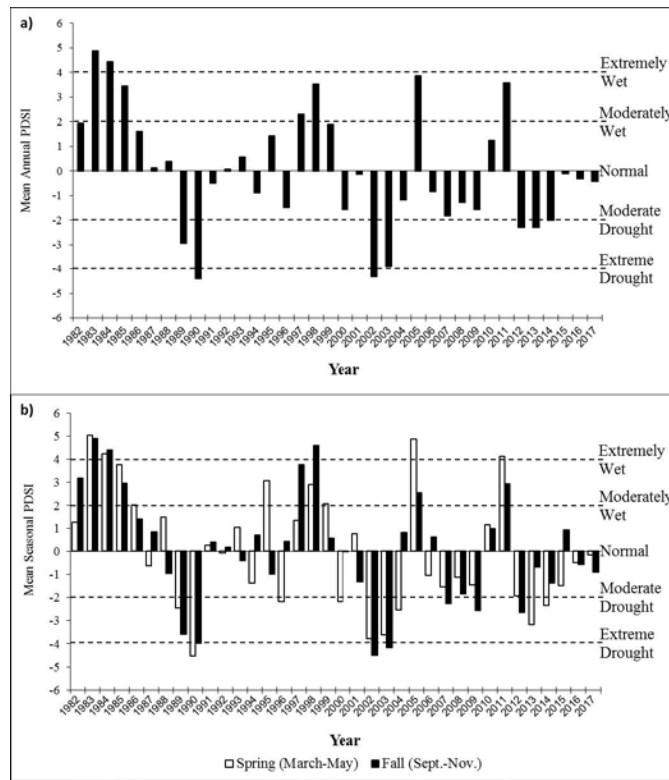
Precipitation 19b

The 30-year (1981-2010) annual precipitation PRISM model shows precipitation ranges on the unit from 8 inches near Delta and Crater Bench Reservoir to 31 inches on the peaks of the Simpson and Sheeprock Mountains. All of the Range Trend and WRI monitoring studies on the unit occur between 9-31 inches of precipitation (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 was compiled from the National Oceanic and Atmospheric Administration (NOAA) Physical Sciences Division (PSD) as part of the Western, North Central, and South Central Mountains divisions (Divisions 1, 3, and 4).

[Type here]

19b Palmer Index



The 1982-2017 Palmer Drought Severity Index (PDSI) for the South Central division (Division 4). The PDSI is based on climate data gathered from 1895 to 2017. The PDSI uses a scale where 0 indicates normal, positive deviations indicate wet and negative deviations indicate drought. Classification of the scale is >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 <-4.0 = Extreme Drought. a) Mean annual PDSI. b) Mean spring (March-May) and fall (Sept.-Nov.) (Time Series Data, 2018).

Deer winter range condition trend summary for subunit 19b, West Desert/Vernon subunit, as indicated by the deer winter range Desirable Components Index (DCI).

The condition of deer winter range within the West Desert - Vernon management unit has continually changed on the sites sampled since 1997. The active Range Trend sites sampled within the unit are considered to be in very poor-poor to good condition as of the 2017 sample year. West Government Creek and Lee's Creek are considered to be in good condition for deer winter range. South Pine Canyon is considered to be in very poor to poor condition. The treated sites have generally improved as time since treatment has increased: the exceptions to this are Sage Valley Dixie, Bennion Sagebrush Chaining, Bennion Spike 1, and Bennion Spike 2, all of which deteriorated in condition. In addition, Tintic Knapweed Control and East Vernon Bullhog remained the same. It is possible given more time and continual monitoring that these sites will (continue to) improve.

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 19a, West Desert Mountain Ranges Subunit

Tooele, Utah, Juab and Millard counties - Boundary begins at the Utah-Nevada state line and I-80 in Wendover; east on I-80 to the Dugway road at exit 77, Rowley Junction; south on this road

[Type here]

to the 14-mile road (Dugway Valley road); south on this road to SR-174; east on SR-174 to US-6; south on to US-6; south on US-6 to US-6/50; west on US-6/50 to the Utah/Nevada state line; North on this state line to I-80 in Wendover. Excludes all native American Trust Lands within This boundary. Excludes all CWMUs. USGS 1:100,000 Maps: Bonneville Salt Flats, Currie, Delta, Ely, Fish Springs, Kern Mountains, Lynddyl, Rush Valley, Tooele, Tule Valley, Wildcat Moutnain. Boundary questions? Call DWR Springville office, (801) 491-5678.

This unit excludes the following limited entry unit.

Tooele, Juab, and Millard counties - Boundary begins at SR-36 and the Pony Express road; southeast on SR-36 to US-6; southwest on US-6 to SR-174 (i.e. the IPP road); northwest on SR-174 to the Dugway Valley road; north on this road to the Pony Express road; northeast on this road to SR-36. USGS 1:100,000 Maps: Lyndyll, Delta, Fish Springs, Rush Valley. Boundary questions? Call DWR Springville office, (801) 491-5678.

Unit 19b, West Desert/Vernon/ Subunit

Tooele, Juab, and Millard counties - Boundary begins at SR-36 and the Pony Express road; southeast on SR-36 to US-6; southwest on US-6 to SR-174 (i.e. the IPP road); northwest on SR-174 to the Dugway Valley road; north on this road to the Pony Express road; northeast on this road to SR-36. USGS 1:100,000 Maps: Lynddyl, Delta, Fish Springs, Rush Valley. Boundary questions? Call DWR Springville office, (801) 491-5678.

Unit 19c, West desert /Subunit

Tooele, Juab, Utah and Millard counties – Boundary begins at I-15 and SR-73 in Lehi; south on I-15 to Exit 207 and Mills road; west on this road to the Sevier River; north along this river to SR-132; west on SR-132 to US-6; north on US-6 to SR-36; north on SR-36 to SR-73; east on SR-73 to I-15 in Lehi. Excludes all CWMUs USGS maps: Delta Lynddyl, Manti, Nephi, Provo, Rush Valley. Boundary questions? Call DWR Springville office, (801) 491-5678.

This unit excludes the following limited entry unit.

Tooele, Juab, and Millard counties - Boundary begins at SR-36 and the Pony Express road; southeast on SR-36 to US-6; southwest on US-6 to SR-174 (i.e. the IPP road); northwest on SR-174 to the Dugway Valley road; north on this road to the Pony Express road; northeast on this road to SR-36. USGS 1:100,000 Maps: Lyndyll, Delta, Fish Springs, Rush Valley. Boundary questions? Call DWR Springville office, (801) 491-5678.