



# Utah Conservation Strategies

## Greater Sage-Grouse

### MEDIA PACKET



---

# Greater Sage-Grouse Coordinated Consulting Team

3rd Quarter Report Addendum - March 23, 2015

---





---

## Introduction

The State of Utah is invested in long-term success of Greater Sage-grouse populations. In fact since 2006, over \$50,000,000 has been spent on projects to improved the resiliency and redundancy of Sage-grouse habitats in the state of Utah. Hundreds of projects to conserve and increase Sage-grouse populations have been completed. Millions of dollars has been spent on studying and improving our scientific understanding of Sage-grouse and methodology to protect and preserve the species.

The benchmark of success will be ongoing implementation of proven solutions that work for Sage-grouse and that protect Utah's education, economic and recreational future. State management is the only way to balance these important responsibilities. Utah's

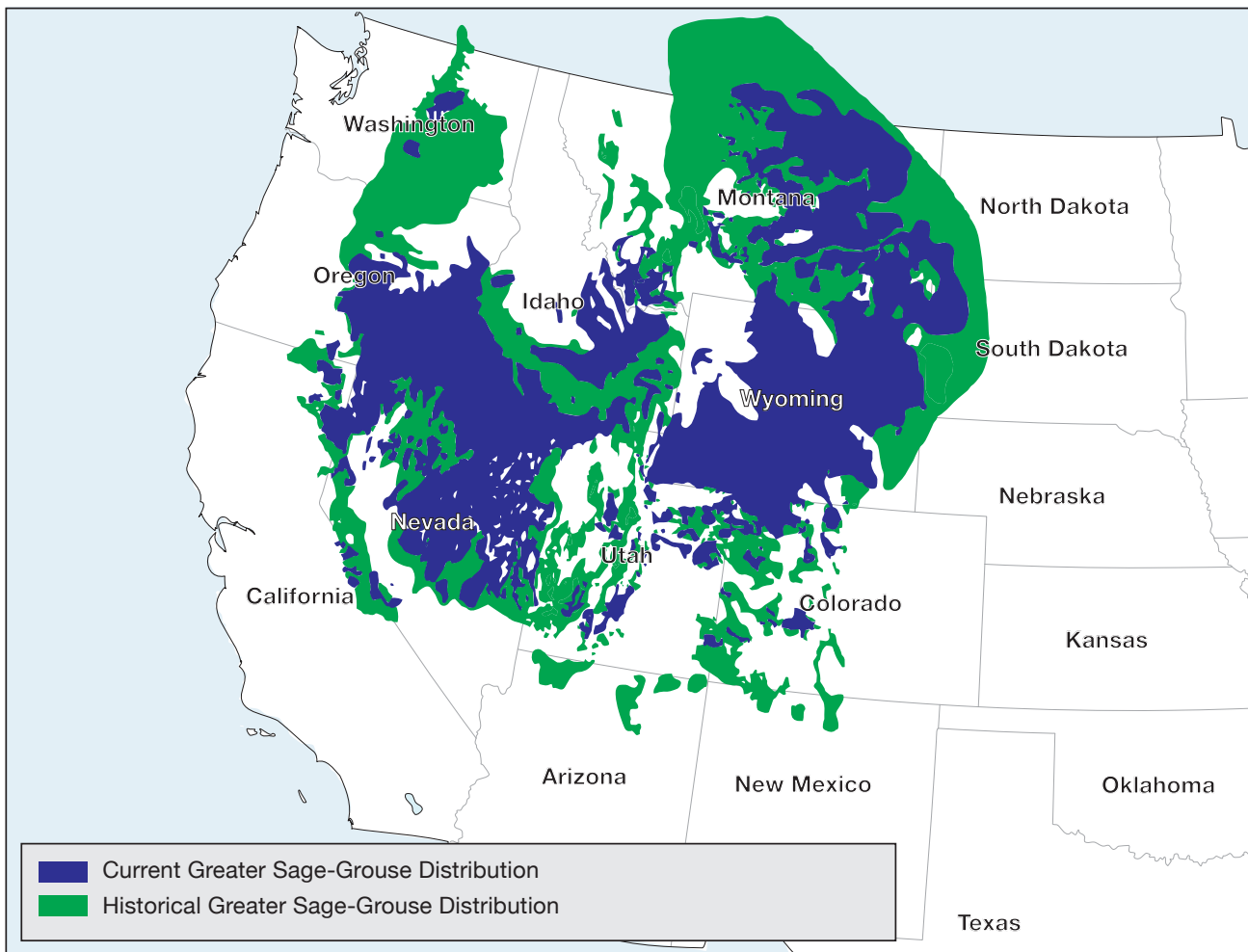


conservation programs are providing a powerful example of how it can be done in a balanced, responsible and sustainable way. Considering that Sage-grouse inhabit landscapes that cover over 8 million acres in the state of Utah, heavy handed federal regulation of these landscapes under the Endangered Species Act could have a major impact on the citizens of the state of Utah. In fact, a listing of Greater Sage-grouse as endangered or threatened substantially impacts foundational components in the state which: (1) provide \$277 million annually in education funding; (2) can create as much as \$52 billion in economic productivity and 250,000 jobs; and (3) could lead to federal control of 2.5 million acres of private property in the state of Utah.

---

## Background

By September 2015, the Obama Administration is scheduled to make a decision on whether to list Greater Sage-grouse as an endangered species in the state of Utah and across 11 Western States. Many Utahns want to know what impact this decision will have on them. Considering that this listing decision affects land-use on over 8 million acres in the state of Utah and could undermine Utah's economic, recreation and educational future for decades, it is clear that Utah's proactive efforts in the areas of conservation, legislation, litigation and administrative process for Greater Sage-grouse are vital to protect Utah's interests.



## Updated Report

During the last several months the Sage-grouse Coordinated Consulting Team has worked closely with the State of Utah and agencies within the state to provide a more



---

complete and transparent understanding of how Utah’s plan is working to ameliorate perceived threats to Greater Sage-grouse and address the needs of the birds across the state. This is helpful to:

- (1) Provide an enhanced level of understanding;
- (2) Increase reliability of information;
- (3) Demonstrate a level of certainty that Utah’s conservation practices utilize science-based solutions that are proven to work for Greater sage-grouse;
- (4) Illustrate how Utah’s investment is addressing other important values in the state of Utah including watershed restoration, wildfire, invasive species concerns, balancing conservation needs with responsible energy production and exurban development.

The objective of this report is to help provide a greater degree of transparency and clarity of how these common-sense state based conservation measures protect conservation of Greater Sage-grouse and allow balanced use of working landscapes in the state of Utah. This report is provided to be additive to previous reports given by the Sage-grouse Coordinated Consulting Team<sup>1</sup>.

We are grateful for the contributions and efforts of the Utah Public Lands Coordinating Office, Utah Department of Natural Resources, Utah Division of Wildlife Resources, Utah Division of Forestry Fire and State Lands, Governor’s Office of Economic Development, Utah Division of Oil, Gas & Mining, Governor’s Office of Energy Development, Utah State University and the University of Utah. This was truly a coordinated and collaborative process. It required analysis of volumes and volumes of information, countless hours and tireless efforts to meet the aggressive deadlines of this project. The years of data accumulation, science, research and extensive subject matter expertise were instrumental in synthesizing these Utah Conservation Strategies documents.

### **Utah’s Plan**

On February 14, 2013, the state of Utah adopted an updated Conservation Plan for Greater Sage-Grouse in Utah (“Utah’s Plan”). Utah’s plan stated goal was “to protect high-quality habitat, enhance impaired habitat and restore converted habitat to support, in Utah, a

---

<sup>1</sup> The second quarterly report was provided to Utah Department of Natural Resources in January 2015. Many of the aspects of the January 2015 report covered key conservation strategies in the state of Utah that are also covered in the exhibits to this quarterly report. Because these conservation strategies documents had not been reviewed by legal counsel for the State of Utah, these documents remained confidential during the past several weeks. This quarterly report incorporates the official version of the revised conservation strategy documents in their entirety originally submitted as part of the January 2015 reports. To avoid the potential for confusion, the January 2015 is thus incorporated herein and will not be separately published.

---

portion of the range-wide population of great sage-grouse (*Centrocercus urophasianus*) necessary to eliminate threats to the species and negate the need for the listing of the species under the provisions of the federal Endangered Species Act (ESA).” See page 2 Exhibit A. The 2013 Utah Plan was not the first Conservation Plan for Greater Sage-grouse, but rather built upon previous statewide conservation plans and decades of experience managing for Greater Sage-grouse. Utah’s plan also adopts important conservation objectives and measures to ensure long-term conservation success of Greater Sage-grouse including:

1. Protection of 90% of habitat and 94% of Sage-grouse in Sage-grouse Management Areas (SGMAs).
2. Maintaining an average of 4,100 male sage-grouse on a minimum of 200 leks (breeding areas).
3. Increasing habitat by 50,000 acres per year and improving an average of 25,000 acres of habitat each year.
4. Protecting 10,000 acres of habitat on private and School and Trust Lands (SITLA) lands.

State management of Sage-grouse allows for implementation of common-sense conservation measures that not only protect balanced use of our working landscapes, but also long-term conservation of species like Greater Sage-grouse. These conservation measures are paying dividends for Utah’s Sage-grouse populations. Utah’s Sage-grouse populations have been increasing over the last 15 years, with a 40% increase in the past year. This demonstrates the Utah’s Sage-grouse populations remain resilient and can respond with strong population growth in favorable years. Additionally, 10- year population averages which help control for annual population fluctuations demonstrate the population trends in the state’s Sage-grouse populations continue to grow. In fact, 10-year rolling average number of males counted shows increasing population trends since the mid-1990’s.

A complete copy of Utah’s Conservation Plan is provided at [http://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater\\_sage\\_grouse\\_plan.pdf](http://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater_sage_grouse_plan.pdf). For more information on Utah’s Conservation Plan for Greater Sage-grouse and to learn more about Utah’s track record of success visit: <http://wildlife.utah.gov/learn-more/greater-sage-grouse.html>

### **Reaffirming Utah’s Commitment to Long-term Sage-grouse Conservation**

During the 2015 Utah Legislative Session, the Utah Legislature passed Senate Concurrent Resolution 3 (SCR 3), reaffirming its commitment to long-term Sage-grouse conservation, funding for Utah’s plan and requesting Congressional action to provide

---

additional time for implementation of Utah's Conservation Plan. For a complete copy of SCR 3 please refer to Exhibit B.

### **Utah Demonstrating that State and Local Solutions Work**

Implementation of Utah's plan utilizes science-based strategies and proven conservation solutions for Greater Sage-grouse. Utah's adaptive management strategies are vitally important as additional science is developed on Greater Sage-grouse conservation. State management of Sage-grouse under the Utah model provides significant benefits not only to Sage-grouse, but also helps address other critical issues facing Western landscapes.

Sage-grouse experts acknowledge that Sage-grouse conservation should be possible given the current numbers and distribution of Sage-grouse. Perhaps this is the reason why efforts to force an endangered species act listing focus instead on long-term threats to Sage-grouse populations and their habitats.

Utah's conservation strategies focus on the most important threats in a ways that augment Sage-grouse populations and increase the redundancy and resilience of habitats in areas where Sage-grouse populations can grow and thrive. Just as important, these solutions protect the rights and needs of Utahns and bring together diverse stakeholders to invest in on-the-ground Sage-grouse conservation efforts in their own communities. A complete analysis of Sage-grouse habitats in Utah, developed as a part of this project, includes a spatially in Utah's SGMAs and planning to address these "threats." Developing a more complete understanding of the scope and nature of each threat allowed for a meaningful level of certainty pursuant to detailed conservation strategies. This project challenged many of our assumptions about threats, where they occurred and the degree to which these threats could impact Greater Sage-grouse and their habitats. For example, we found that 77% of habitats within Utah's SGMAs were not affected by these potential threats. Just as surprisingly, we found that conifer encroachment, wildfire and post wildfire effects were substantially more likely to create long-term impacts to Sage-grouse habitats and populations than oil and gas development and exurban development within the 7.5 million acres comprising Utah's SGMAs.

Utah's Plan and Utah's Detailed Conservation Strategies provide a comprehensive model that can work for Sage-grouse and other important conservation needs within the state of Utah. The following sections provide an overview of how Utah conservation strategies work for Greater Sage-grouse, Greater Sage-grouse habitats and provide common sense



---

solutions that work for Utah’s economy, education funding and that protect the rights of Utah landowners.

**Utah’ Conservation Strategies for Pinyon/Juniper Encroachment and Watershed Restoration: Overview**

The state of Utah has invested, and will continue to invest millions of dollars into enhancing and restoring habitat for Sage-grouse through targeted removal of encroaching pinyon/juniper species into Sage-grouse habitats. Recent peer-reviewed scientific research demonstrates that conifer removal is an important conservation practice for Sage-grouse. The study found that even a small percentage of encroachment by pinyon and juniper trees can lead Greater Sage-grouse to abandon nesting and brood rearing habitats. Since 2006, Utah has completed conservation projects on over 560,000 acres of Sage-grouse habitat through Utah’s Watershed Restoration Initiative and its partners. The program leads the country in addressing habitat loss from conifer encroachment into Sage-grouse habitats.

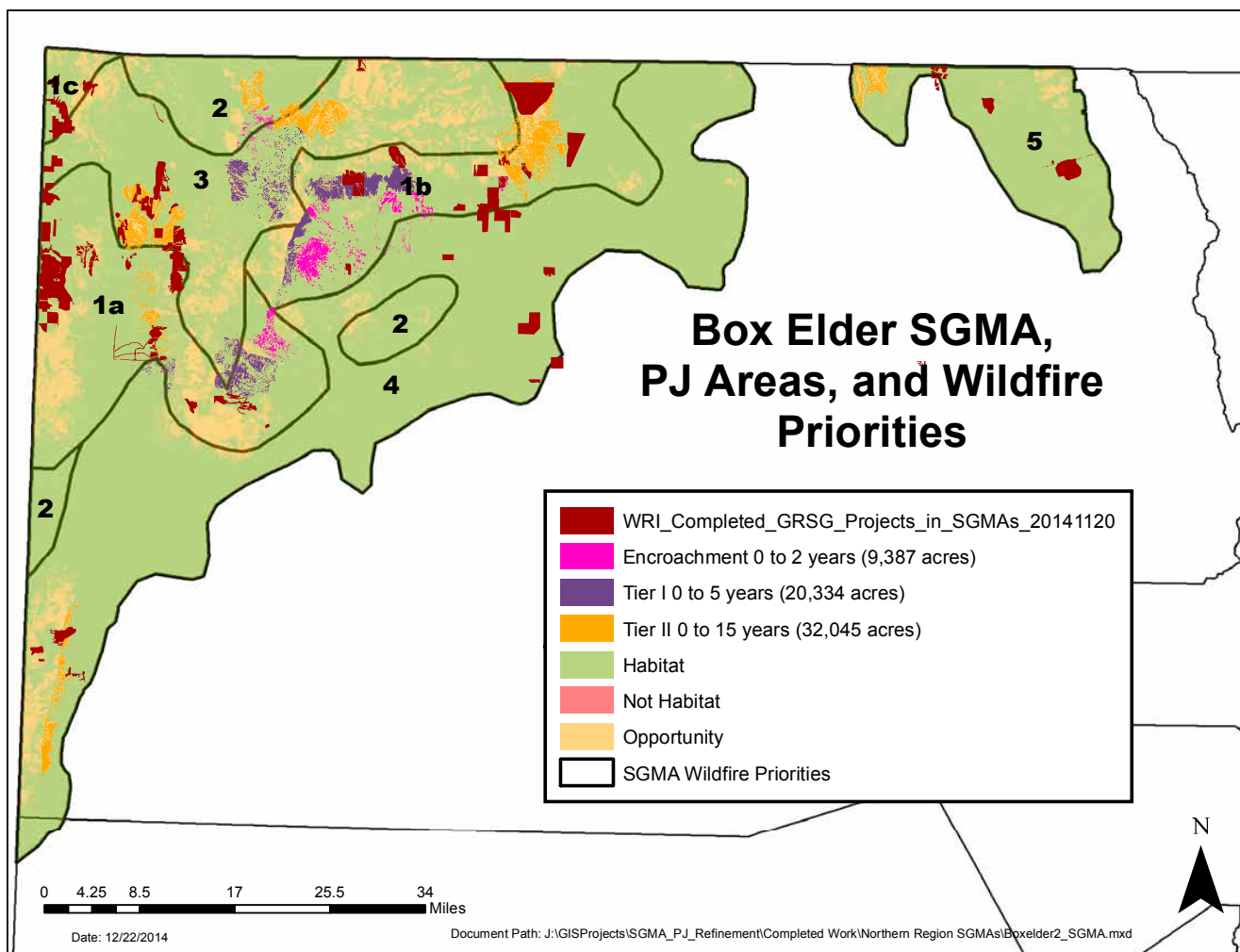


For a more complete explanation of the importance of addressing conifer encroachment, please refer to the National Sage-grouse Technical Team's of the USDA Natural Resource Conservation Service handout by visiting <http://www.sagegrouseinitiative.com/wp-content/uploads/2013/07/Science-to-Solutions-Conifer-Removal-Restores-Sage-Grouse-Habitat.pdf>.

For a more complete explanation of the state of Utah's program to address pinyon/juniper encroachment in Sage-grouse habitat and the role of this program in restoring and improving Utah's watersheds, please refer to the Utah Conservation Strategies document entitled, "Pinyon/Juniper Removal for Proactive Habitat Restoration" in Exhibit B.

### Utah Conservation Strategies for Wildfire Management and Restoration: Overview

Wildfire is a natural occurrence on Utah's landscapes. Many plants and animal species, including Greater Sage-grouse, evolved in an environment having cycles punctuated by

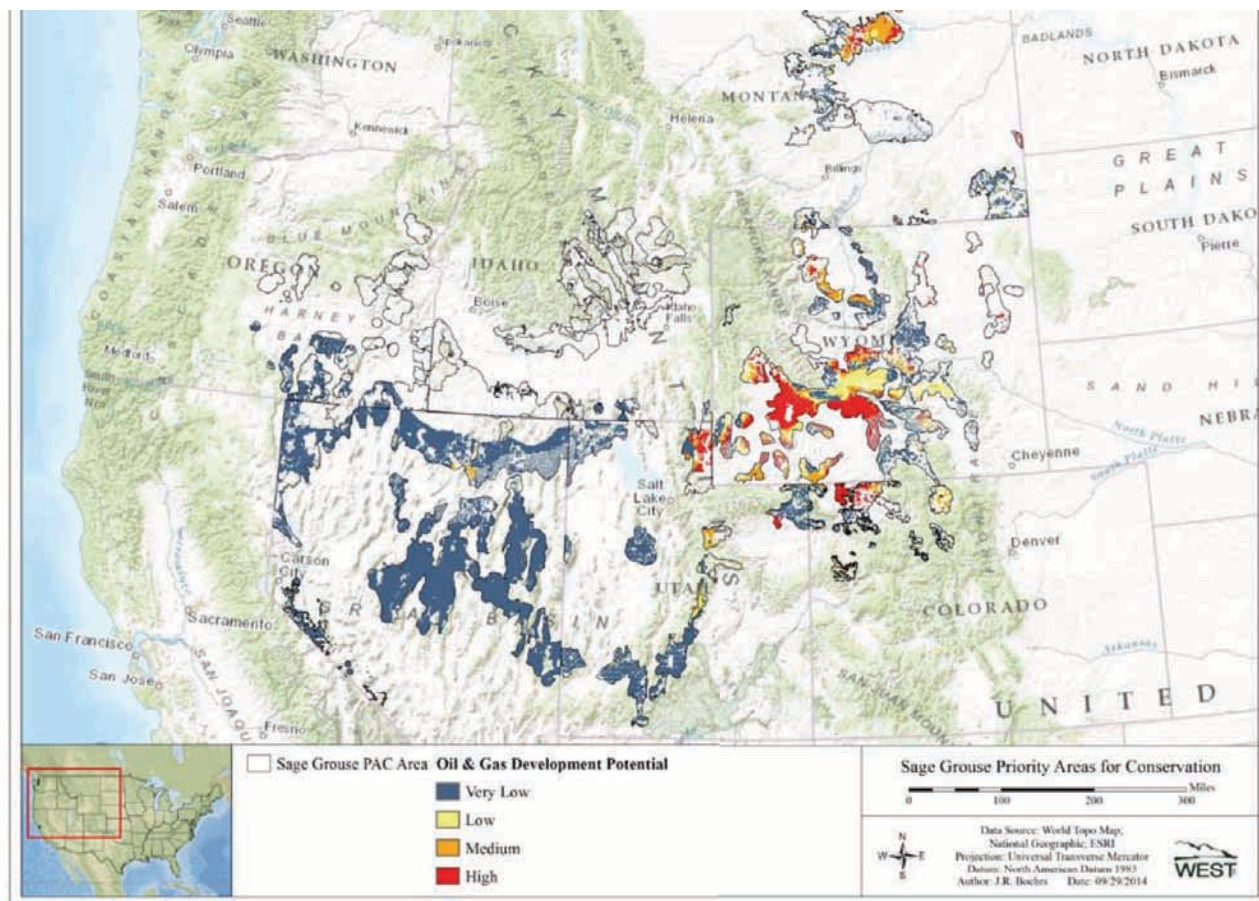


natural wildfire. While Sage-grouse can adapt and even benefit from some fires, disruptions in the natural fire cycle, encroachment of conifers and the presence of exotic annual grasses such as cheatgrass have presented new challenges. Changes in wildfire frequency and intensity are raising concerns about the cumulative impact of fires within some the state's Sage-grouse Management Areas (SGMAs). The state of Utah invests millions of dollars into programs to proactively address wildfire concerns including: (1) prevention; (2) suppression (including rapid response to wildfire in SGMAs); and (3) rehabilitation/restoration to areas affected by wildfire. Utah's Conservation Plan for Greater Sage-grouse uses the best available science to ameliorate the threat of wildfire on Greater Sage-grouse habitats.

For a more complete explanation of the state of Utah's program to wildfire and post wildfire affects in Sage-grouse habitat, please refer to the Utah Conservation Strategies document entitled, "Wildfire Management and Restoration" in Exhibit C.

### Utah Conservation Strategies for Oil and Gas Development: Overview

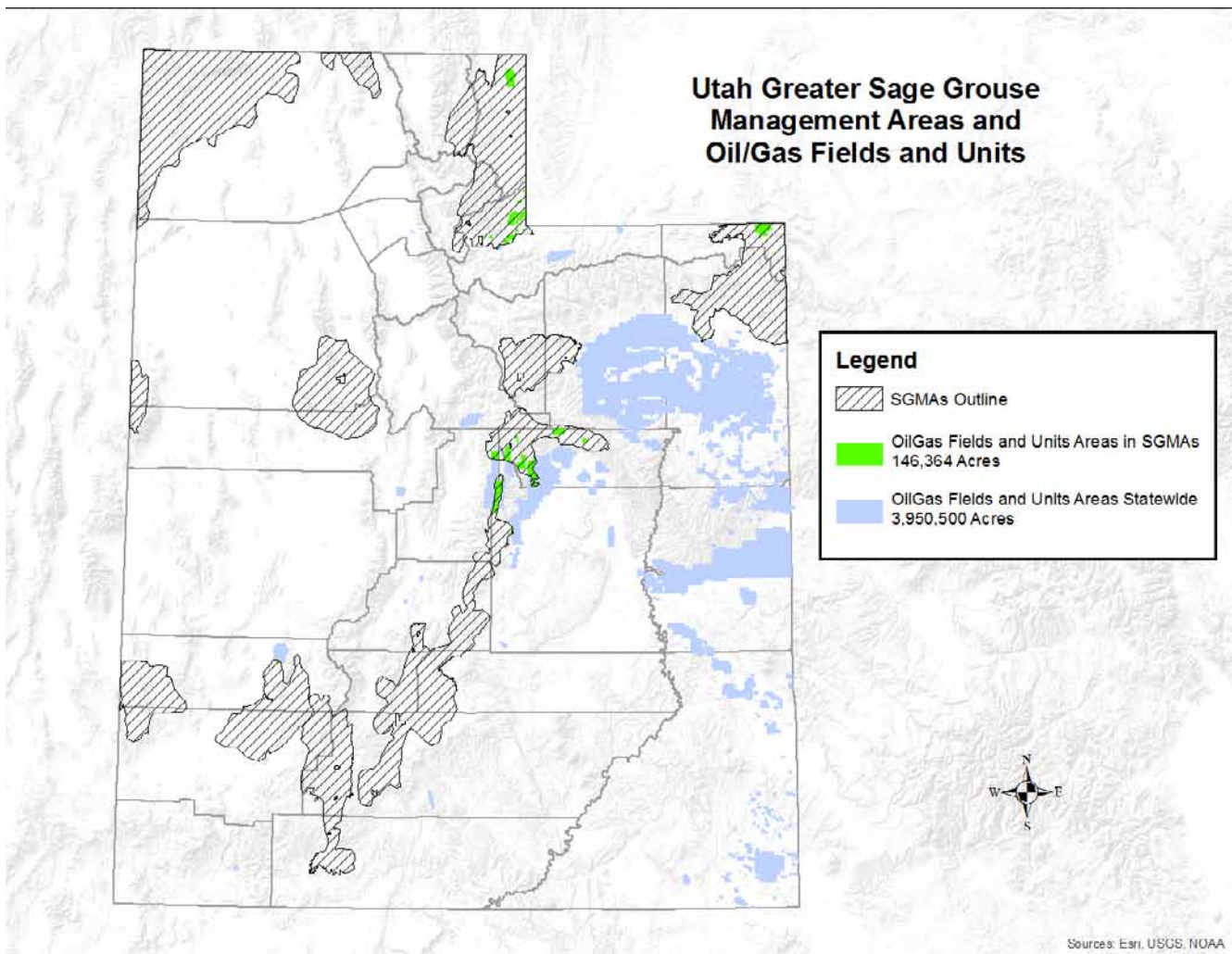
Oil and Gas wells are not a threat within Utah's Sage-grouse Management Areas. 98% of Utah's SGMAs, or 7.29 million acres does not correspond with oil and gas fields/units.



See Figure 3 at <http://westernvaluesproject.org/wp-content/uploads/2014/10/Greater-Sage-Grouse-Priority-Habitats-and-Energy-Development.pdf>



There are approximately 189 known oil and gas wells located on these 7.29 million acres. The Conservation Plan for Greater Sage-grouse in Utah provides a framework for balancing the need for long-term protection of Sage-grouse populations with responsible energy development. Utah Governor Gary Herbert signed an executive order on February 25, 2015 addressing the state’s regulatory mechanisms for oil and gas development in Sage-grouse habitat. Given the limited and localized nature of existing oil and gas development within Utah’s SGMAs, Utah’s plan is more than sufficient to ensure long-term conservation of Greater Sage-grouse in the state of Utah.

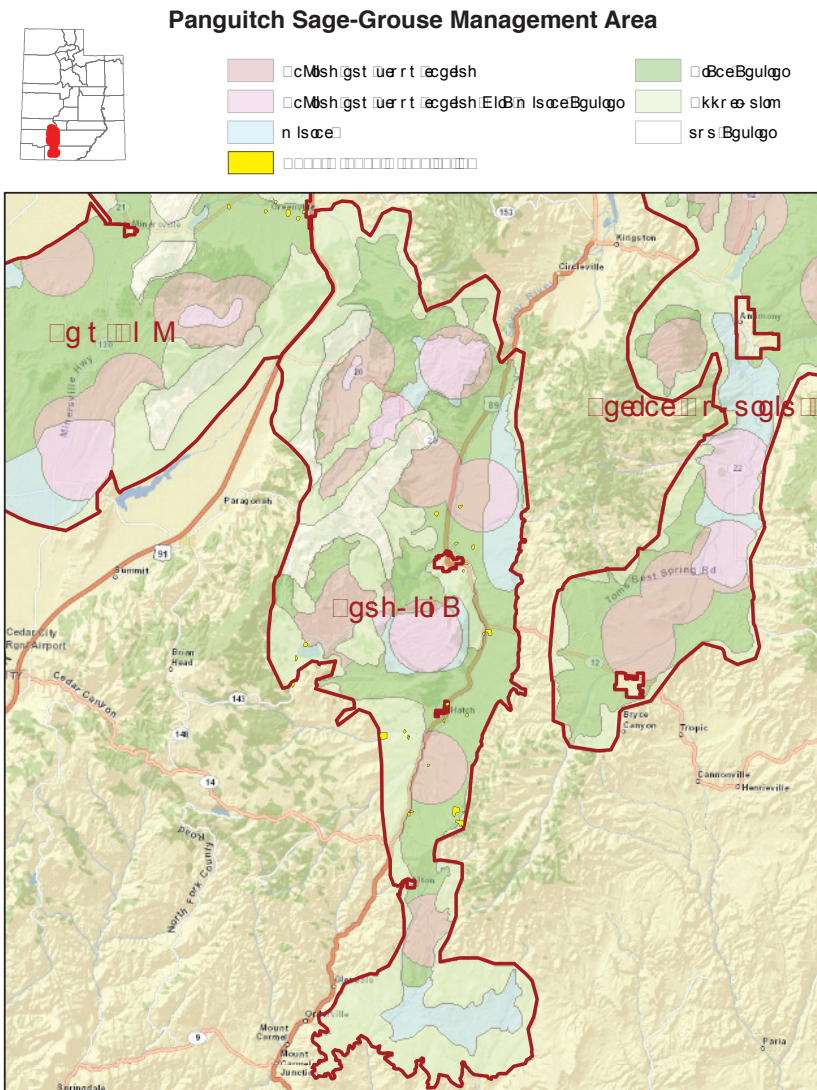


For a more complete explanation of the state of Utah’s program for Oil and Gas Development and Sage-grouse conservation, please refer to the Utah Conservation Strategies document entitled, “Oil and Gas Development” in Exhibit D.

## Utah Conservation Strategies for Low Density Development in Sage-grouse Management Areas: Overview

Only three Sage-grouse Management Areas (SGMAs) in the state of Utah are projected to have more than 1,000 acres of new development by the year 2030. A detailed analysis of acreage projected to be developed within these SGMAs illustrate that only the Rich-Morgan-Summit SGMA has more than 200 acres of expected conflict within nesting-brood rearing habitats. The conclusion is that low density development (sometimes referred to as exurban development) is not a threat to Sage-grouse populations in the state of Utah. Millions of dollars available through state, private and federal funding sources are available to protect the interests of private landowners, incentivize protection of lands that are important to Utah’s rural communities, sage-grouse populations and to resolve imminent development

threats in areas of priority habitat. Localized impacts in the Rich-Morgan-Summit and other SGMAs will be addressed through processes explained in Utah’s Sage-Grouse Conservation Plan.



Projected Development to SGMA's		
	Total SGMA Acres	Projected New Development
Bald Hills	527,665	997
Box Elder	1,519,567	977
Carbon	354,559	702
Hamlin Valley	341,087	0
Ibapah	98,229	16
Panguitch	605,444	1,704
Parker Mtn	1,084,276	361
Rich-Morgan	1,183,844	3,188
Sheeprock	609,781	166
Strawberry	322,040	147
Uintah	792,839	3,466
<b>TOTAL</b>	<b>7,439,331</b>	<b>11,725</b>

---

For a more complete explanation of the state of Utah's program for exurban development and Sage-grouse conservation, please refer to the Utah Conservation Strategies document entitled, "Low Density Development" in Exhibit E.

### **ESA Listing and Control of Utah Working Landscapes**

For the past decade, powerful special interest groups have been working tirelessly to replace state management authority of Greater Sage-grouse and their habitats with heavy-handed federal regulation under the Endangered Species Act. Early decisions affirming state management of the species have been overturned. A 2011 settlement between landscape control activist organizations and the Obama Administration is forcing a decision on whether the species and its habitats will continue to be managed by the states or are placed under control of powerful federal agencies.

Listing of Greater Sage-grouse creates a federal nexus on all 8+ million acres of Sage-grouse habitat in the state, allowing litigation by activist organizations on all land-use decisions whether the property is federally managed, state owned or private property. This would likely open the floodgates of litigation and further limit use of working landscapes in the state of Utah. Utahns access to and decision making authority with respect to working landscapes in the state has dramatically declined in the last few decades. Legitimate questions are being raised about the staggering level of federal control over decisions which detrimentally impact the ability of Utahns to use, work and enjoy these lands. Listing of Greater Sage-grouse would substantially and likely permanently restrict access to and productivity of these landscapes.

### **Utah's Management Plan Unlikely to be Given Full Consideration**

Unfortunately, it has become increasingly clear that Utah's Plan will not be given full consideration if a decision is made in September 2015 as required by the 2011 settlement between environmental activists and the Obama Administration. This is because of the US Fish and Wildlife Service's Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE Policy). It may seem counterintuitive, but the PECE Policy actually does not allow consideration of updated state plans, even when those changes were made at the encouragement of U.S. Fish and Wildlife Service:



---

“While the [Endangered Species] Act requires us to take into account all conservation efforts being made to protect a species, the policy identifies criteria we will use in determining whether formalized conservation efforts that have yet to be implemented or to show effectiveness contribute to making listing a species as threatened or endangered unnecessary.”

In follow-up meetings with Fish and Wildlife Service, senior officials have indicated that updated conservation plans will be treated as “yet to be implemented” or “yet...to show effectiveness.” Moreover, that the bar for consideration under PECE will likely mean that many updated management plans, including those in Utah, will likely not be given full consideration.

So what does this mean for a range wide determination of whether Greater Sage-grouse are warranted for listing? Considering that the 2010 determination on the status of Greater Sage-grouse found a “lack of adequate regulatory mechanisms” and that states failed to adequately address threats, failure to give credit for updated state management plans may lead to a threatened or endangered listing of Greater Sage-grouse. This has come to as a surprise to many states who have implemented state management plans. In part, this is because of commitments from the Department of the Interior encouraging states to implement updated management plans to “avoid the need to list Greater Sage-grouse.”

### **Why Congressional Action is Important**

It is become clear, that Congressional action to extend the listing decision date is likely the only way for Utah’s Plan and other state’s Sage-grouse conservation plans to given full consideration. In light of Utah’s ongoing commitment for Greater Sage-grouse conservation and on-the-ground conservation efforts, not only will Sage-grouse populations be well cared for during this extension period, but this additional time will allow the state of Utah to continue to demonstrate that Greater Sage-grouse are not threatened with extinction. More importantly, implementation of Utah Conservation Strategies for Greater Sage-grouse pursuant to Utah’s Plan is working to address the most important threats to Sage-grouse in the state of Utah.



# Utah Conservation Strategies

- Pinyon and Juniper Encroachment



# PINYON/JUNIPER REMOVAL FOR PROACTIVE HABITAT RESTORATION

---

**Overview:** *The state of Utah has, and continues to invest millions of dollars into enhancing and restoring habitat for Sage-grouse through targeted removal of conifers. Recent peer-reviewed scientific research demonstrates that conifer removal is an important conservation practice for Sage-grouse. The study found that even a small percentage of encroachment by pinyon and juniper trees can lead Greater Sage-grouse to abandon an area that has provided suitable habitat. Since 2006, Utah has completed conservation projects on over 560,000 acres of Sage-grouse habitat through Utah's Watershed Restoration Initiative and its partners. This program leads the country in addressing habitat loss from conifer encroachment.*



## Restoring Sage-Grouse Habitat Matters

Conifer encroachment, primarily of pinyon and juniper species, is an area of emphasis in conservation planning within the state of Utah and other Western states. There is a good reason why this is so important. Pinyon and juniper trees have expanded into hundreds of thousands of acres of Utah Sage-grouse habitat in the last 150 years. This is estimated to be an increase of 300-400% from pre-settlement landscapes (Tausch and Hood 2007).

Currently, there is sufficient habitat to support healthy Sage-grouse populations. However, the

U.S. Fish and Wildlife Service has determined that one of the primary threats which may support a listing under the Endangered Species Act is habitat fragmentation and wildfire, both of which are largely impacted by conifer encroachment into suitable habitat. To ameliorate the threats posed by encroachment of conifers, the state of Utah has developed a comprehensive science-based strategy to remove conifers that are beginning to encroach into existing habitat. Utah's plans also have a more ambitious goal: to increase the amount of suitable habitat and the quality of those habitats within each of the state's Sage-Grouse Management Areas (SGMAs).





Figure 1 - Biologists work with landowners to implement conifer removal on private property. This program not only helps Sage-grouse populations, it can improve desirability of habitat for grazing.

### How Conifer Woodlands Impact Greater Sage-Grouse

To develop comprehensive strategies and implement conifer removal projects in ways that ensure maximum benefit for Greater Sage-grouse, it is important to understand how conifers impact Sage-grouse populations. Pinyon/juniper encroachment hurts Sage-grouse and Sage-grouse habitats in four fundamental ways:

1. Creating an inhospitable environment for Sage-grouse populations;
2. Crowding out sagebrush, grasses and forbs;
3. Increasing the frequency and severity of wildfires; and
4. Altering landscapes in other ways that diminish the value of habitat for Sage-grouse.

A recent study conducted by The Nature Conservancy, University of Idaho and Natural Resources Conservation Service (NRCS) Sage-Grouse Initiative demonstrates that Sage-grouse may avoid areas of even low-density conifer encroachment.

The study found that Sage-grouse leks were not active in areas where conifers covered more than

4% of the land area (Figure 2). The study also demonstrated that even small trees widely scattered across a landscape resulted in avoidance by Sage-grouse. While these early encroachment stands are less impactful on the understory vegetation than higher density conifer stands, these areas still did not contain active Sage-grouse leks.

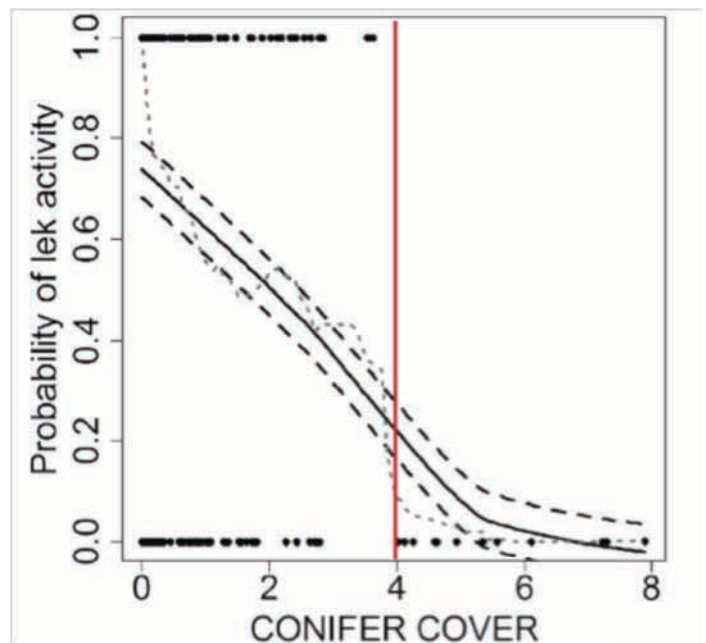
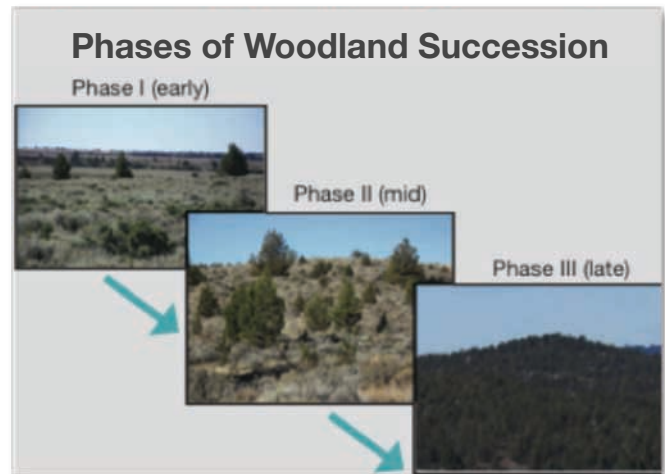


Figure 2 - Recent research underscores the importance of using science-based solutions and proven methodologies in planning and implementing conifer treatment programs.

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

Avoidance is not the only way that conifers affect Sage-grouse. Jeremy Maestas from the NRCS Sage-Grouse Initiative Technical Team explains how conifers directly impact Sage-grouse habitats, “They act like millions of tiny little straws sucking up what little moisture we get...it eventually dries up the springs and streams that are so critical to this desert environment.” Conifers can also affect soil acidity, compete with understory grasses, forbs and other plants that Sage-grouse rely on for food. Additionally, larger trees can serve as roosts for hawks, ravens, crows and other birds that prey on Sage-grouse eggs and nestlings. Just as important, conifer woodlands increase fuel loads that can, in turn, dramatically increase the risk of catastrophic wildfire. These wildfires can alter the suitability of Sage-grouse habitat for years.

Not only do conifers increase the risk of wildfire, but the density of conifer stands can increase with the passage of time. Twenty years from now, phase I and phase II conifer stands (low density) may progress to higher density phase III conifer stands (Figure 3). This is one major concern because rehabilitation of phase III conifer stands and areas burned by catastrophic wildfires is more expensive and takes much longer than restoration



**Figure 3 – Progression of conifer stands is an important focus of researchers and land managers.**

projects on phase I and phase II stands. Utah’s Conservation Plan for Greater Sage-Grouse (the “Conservation Plan”) directs the investment in solutions to address those challenges. In fact, the state anticipates budgeting millions of dollars to complete up to 75,000 acres of habitat work annually.

### Proven Strategies for Conifer Removal and Grouse

Scientists and other experts utilize specific criteria to prioritize treatments of the tens of thousands of acres of pinyon/juniper encroachment. These criteria not only ensure proper implementation of



**Figure 4 - Lop and scatter provides cost effective long-term treatment for phase-I conifer encroachment.**

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

removal projects, but also help improve utilization by Sage-grouse of treatment areas after projects are completed. Criteria for prioritization include, but are not limited to (1) wildfire frequency and intensity, (2) cheat grass dominance, (3) Sage-grouse carrying capacity in the SGMA, (4) habitat restoration capacity, (5) proximity of Sage-grouse populations, (6) seasonal importance of habitat to Sage-grouse, (7) proximity to mesic areas, (8) land ownership, (9) availability of funding for projects, and (10) regulatory obstacles to conservation projects.

State and federal agencies have identified several practical guidelines which dramatically improve the likely success of these treatments:

1. Targeting stands in early stages of encroachment with still intact sagebrush or areas which are important transition corridors;



**Figure 5 - Higher density encroachment areas can be managed using brush hog treatment methodology.**

2. Removing all conifer trees to reduce conifer cover to <4%; and
3. Using treatment methods that maintain sagebrush and understory cover.

This methodology is explained by the Natural Resource Conservation Service's Sage-Grouse Initiative:

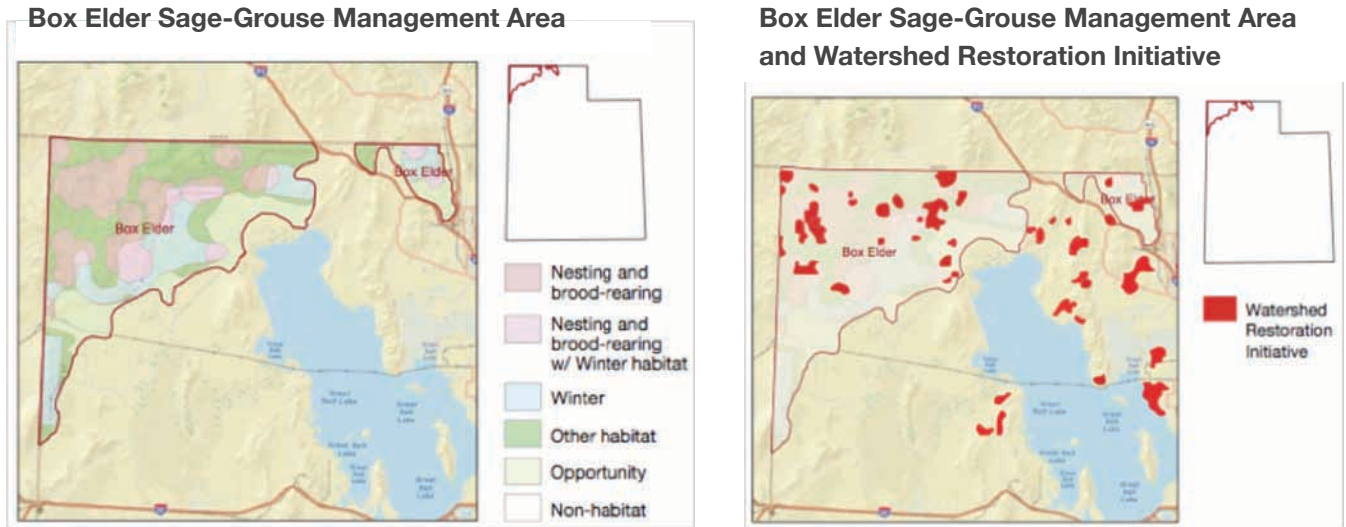
“Managers can get the most bang for their buck by focusing conifer removal treatments on early encroachment stands in and around landscapes that are already pretty good for grouse. Prioritizing Phase I stands (those with young scattered trees, <10% conifer canopy cover and intact sagebrush and understory vegetation) for complete removal of conifers will likely prove the most effective for restoring and sustaining habitat. Treating early Phase II stands can also prevent conversion to conifer woodlands and help functionally restore sagebrush habitat for several decades. (Baruch-Mordo et al. 2013).”

### Utah's Investment in Sage-Grouse Habitats

The state of Utah has a track record not only of investing in conifer removal, but also in recording the subsequent use of the treatment area by Sage-grouse. Since the year 2006, the Utah Watershed Restoration Initiative state of Utah has done projects on at least 560,000 acres of Sage-grouse habitat (Figure 6). A large percentage of these projects involve conifer removal. Utilizing the information gleaned from these efforts (best available science), experts in the state of Utah are able to better assess areas where conifer removal will provide the greatest conservation lift.

This ongoing comprehensive planning effort continues. The state of Utah has systematically



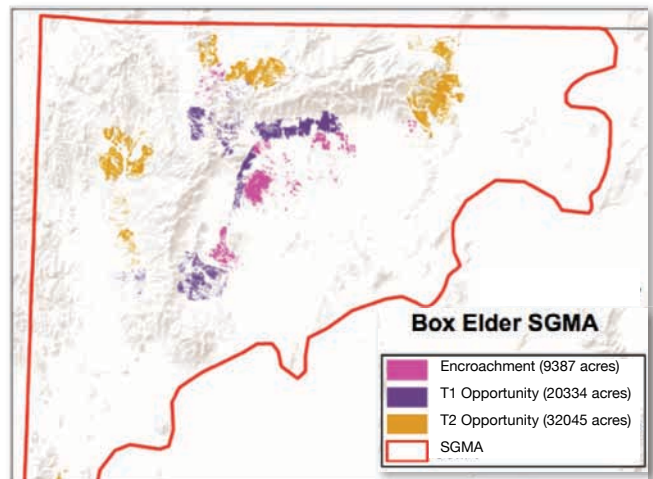


**Figure 6 - Understanding Sage-grouse utilization of habitat is a fundamental part of habitat treatment projects within Sage-grouse Management Areas.**

identified areas in each of its SGMAs where conifer woodlands are encroaching into Sage-grouse habitat. In the summer of 2014, the state of Utah completed an extensive project that created fine-scale mapping (Figure 7) of pinyon pine and juniper coverage for all eleven SGMAs. This data is employed by the Sage-grouse biologists and ecologists who have a working knowledge of the habitats and Sage-grouse utilization patterns within Utah’s SGMAs. Using this information, these experts have developed a comprehensive conifer removal strategy covering the next 0-15 years. Coordinating with local working groups, the state has completed detailed plans for implementing conifer removal projects for each SGMA.

Utilizing scientifically established benchmarks for successful implementation, ecologists and Sage-grouse experts are targeting removal in areas that will immediately benefit Sage-grouse. These programs identify areas of treatment according to the following criteria:

1. Encroachment Areas: stands of early phase encroachment in habitats currently utilized by Sage-grouse.
2. Tier I Opportunity Areas: phase I and phase II conifer stands with healthy understory but minimal or no utilization by Sage-grouse. Nearby bird populations are likely to use post-treatment.



**Figure 7 - Implementation of the Conservation Plan proactively protects existing habitat and restores habitats in T1 and TII opportunity areas not adequately utilized by birds due to conifer canopy thresholds.**





**Figure 8 - Removal of encroaching pinyon/juniper ensures the health of watersheds in sage grouse habitats. This mesic area is an important source of food and moisture during summer brood rearing.**

3. Tier II Opportunity Areas: conifer stands with healthy understory and adjacent to encroachment areas. Less important to short-term strategies but providing longer-term opportunities for habitat restoration and enhancement.

By implementing proven conservation practices in these treatment areas, Utah is not only reducing the threat of fragmentation of Sage-grouse habitat, the state is increasing usable space by eliminating existing conifer stands and expanding and enhancing habitats in areas where sage grouse can thrive. These projects also increase

the productivity of habitat for Greater Sage-grouse by improving stream flows, wet-meadows and the quality and quantity of food sources. Research in the state of Utah demonstrates that pinyon/juniper removal improves utilization rates by Greater Sage-grouse. Conifer removal also helps improve the quality of habitats by improving watersheds, enhancing the value of habitat for other game and non-game species, addressing the threat of wildfires and invasive plant species, and limiting the future encroachment of conifers.

## Detailed Conservation Strategy for Long-Term Success

The Conservation Plan, as part of the identified goals and objectives, calls for the enhancement and improvement of habitat. To accomplish these

---

**Figure 9 - Projects that restore active corridors can help improve hatchlings survival success. These programs also provide valuable firebreaks and contribute to healthy watersheds.**

---



UTAH SAGE-GROUSE CONSERVATION STRATEGIES

goals, the state has developed detailed plans to target pinyon/juniper removal in SGMAs. These finalized implementation plans clarify the general habitat definitions and expectations contained within the Conservation Plan. Habitat areas mapped for the Conservation Plan have been found to contain areas of conifer encroachment which are prime targets for treatment. Additional acreage has been identified for subsequent treatment, labeled Tier I and Tier II Opportunity Areas.

Over the course of the next two years, the state will treat Encroachment Areas totaling 60,139 acres. Tier I Opportunity Areas totaling 100,320 acres will be treated during the next 5 years. Tier II Opportunity Areas totaling 184,811 will be treated during the next 15 years. Cumulatively, these projects will treat almost 350,000 acres of conifer. Not only will these projects ameliorate the threats

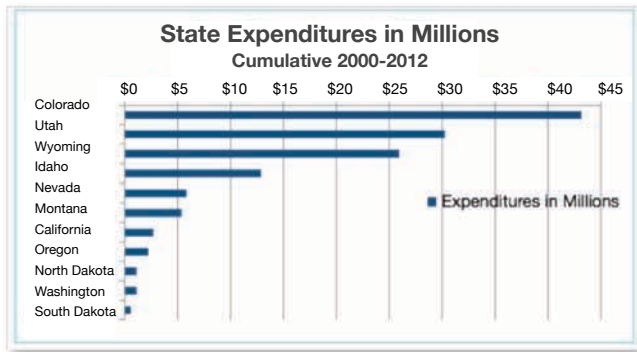


Figure 10 - Utah invests tens of millions of dollars on Sage-grouse conservation efforts.

posed by pinyon/juniper encroachment, it will actually significantly reduce habitat fragmentation by expanding the overall acreage of contiguous suitable Sage-grouse habitat within the Utah’s SGMAs.

The key to these projects is consistency. “Pinyon and Juniper encroachment happens at a very slow rate over a period of decades. Steady

implementation of targeted conifer removal in Sage-grouse habitat is the best mechanism to stop the loss of nesting and breeding areas and restore habitat where sagebrush remains but conifers have displaced the Sage-grouse,” explains Alan Clark, who oversees key aspects of Utah’s Watershed Restoration Initiative. “As a result, we are now removing more acres of conifers in our SGMAs than the encroachment

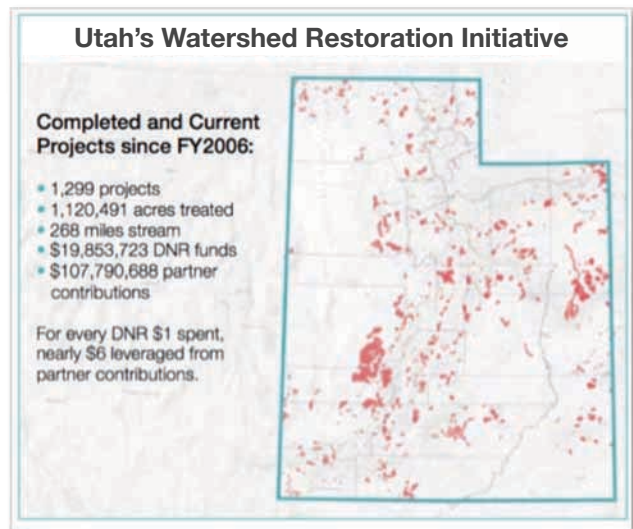


Figure 11 - Utah’s Watershed Restoration Initiative is proactively implementing landscape scale habitat improvements for Greater Sage-grouse.

that is occurring, resulting in a net gain in contiguous Greater Sage-grouse habitat.” While pinyon/juniper encroachment is not considered a threat in all of the state’s SGMAs, some amount of work is planned in each SGMA. The scale of this statewide program is impressive.

Breakdown of Utah’s strategic plan for each SGMA:

1. Box Elder		
Past Treatments:	91,185	acres
Encroachment Treatments 0-2 years:	9,387	acres
Tier I Opportunity Treatments 0-5 years:	20,334	acres
Tier II Opportunity Treatments 0-15 years:	<u>32,045</u>	<u>acres</u>
<b>Box Elder Total:</b>	<b>152,951</b>	<b>acres</b>

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

2. Parker Mountain		
Past Treatments:	30,474	acres
Encroachment Treatments 0-2 years:	10,795	acres
Tier I Opportunity Treatments 0-5 years:	8,923	acres
Tier II Opportunity Treatments 0-15 years:	<u>27,760</u>	<u>acres</u>
<b>Parker Mountain Total:</b>	<b>77,952</b>	<b>acres</b>

3. Panguitch		
Past Treatments:	53,086	acres
Encroachment Treatments 0-2 years:	11,995	acres
Tier I Opportunity Treatments 0-5 years:	10,315	acres
Tier II Opportunity Treatments 0-15 years:	<u>32,356</u>	<u>acres</u>
<b>Panguitch Total:</b>	<b>102,752</b>	<b>acres</b>

4. Rich/Morgan/Summit		
Past Treatments:	29,852	acres
Encroachment Treatments 0-2 years:	3,202	acres
Tier I Opportunity Treatments 0-5 years:	20,334	acres
Tier II Opportunity Treatments 0-15 years:	<u>32,045</u>	<u>acres</u>
<b>Rich/Morgan/Summit Total:</b>	<b>85,433</b>	<b>acres</b>

5. Hamlin Valley		
Past Treatments:	9,839	acres
Encroachment Treatments 0-2 years:	8,720	acres
Tier I Opportunity Treatments 0-5 years:	28,246	acres
Tier II Opportunity Treatments 0-15 years:	<u>36,219</u>	<u>acres</u>
<b>Hamlin Valley Total:</b>	<b>83,024</b>	<b>acres</b>

6. Sheep Rock Mountains		
Past Treatments:	22,515	acres
Encroachment Treatments 0-2 years:	7,981	acres
Tier I Opportunity Treatments 0-5 years:	4,341	acres
Tier II Opportunity Treatments 0-15 years:	<u>18,113</u>	<u>acres</u>
<b>Sheep Rock Mountains Total:</b>	<b>52,950</b>	<b>acres</b>

7. Carbon		
Past Treatments:	661	acres
Encroachment Treatments 0-2 years:	4,091	acres
Tier I Opportunity Treatments 0-5 years:	4,203	acres
Tier II Opportunity Treatments 0-15 years:	<u>221</u>	<u>acres</u>
<b>Carbon Total:</b>	<b>9,176</b>	<b>acres</b>

8. Bald Hills		
Past Treatments:	68,799	acres
Encroachment Treatments 0-2 years:	2,577	acres
Tier I Opportunity Treatments 0-5 years:	1,466	acres
Tier II Opportunity Treatments 0-15 years:	<u>4,841</u>	<u>acres</u>
<b>Bald Hills Total:</b>	<b>77,683</b>	<b>acres</b>

9. Uintah		
Past Treatments:	128,153	acres
Encroachment Treatments 0-2 years:	1,063	acres
Tier I Opportunity Treatments 0-5 years:	1,383	acres
Tier II Opportunity Treatments 0-15 years:	<u>2,718</u>	<u>acres</u>
<b>Uintah Total:</b>	<b>133,317</b>	<b>acres</b>

10. Ibapah		
Past Treatments:	7,413	acres
Encroachment Treatments 0-2 years:	139	acres
Tier I Opportunity Treatments 0-5 years:	476	acres
Tier II Opportunity Treatments 0-15 years:	<u>3,266</u>	<u>acres</u>
<b>Ibapah Total:</b>	<b>11,294</b>	<b>acres</b>

11. Strawberry		
Past Treatments:	8,473	acres
Encroachment Treatments 0-2 years:	189	acres
Tier I Opportunity Treatments 0-5 years:	299	acres
Tier II Opportunity Treatments 0-15 years:	<u>227</u>	<u>acres</u>
<b>Strawberry Total:</b>	<b>9,188</b>	<b>acres</b>

## Conclusion

Research in the state of Utah is demonstrating that with the removal of trees in encroachment and opportunity areas, Sage-grouse can begin to immediately occupy these newly restored areas. “Our research has demonstrated that Sage-grouse may respond quickly to restored habitats such as conifer removal, and will occupy treated areas within one year after treatment. The Utah plan, with its bold objectives to create or enhance 75,000 acres of habitat annually, are designed to increase the state’s habitat base,” explains Terry

**Figure 12 - Sage-grouse chick in restoration area.**





Mesmer, PhD, a Sage-grouse range biologist who has been studying the birds for over 20 years. “Our studies are also showing that where we have increased late brood-rearing habitats, both individual bird use and overall population production has increased because of increased chick survival.”

Conifer treatments will be critically important in the next 10-15 years. Approximately 80% of the identified pinyon/juniper occupied areas in the state are categorized as phase I or II, meaning

---

***“Our research has demonstrated that Sage-grouse may respond quickly to habitats improvements such as conifer removal, and will occupy treated areas within one year after treatment.”***

— TERRY MESMER, PHD SAGE-GROUSE RANGE BIOLOGIST

---

these areas still have a healthy understory. These will eventually evolve into phase III conifer stands without treatment. Utah’s fine-scale mapping of pinyon-juniper encroachment into Sage-grouse core areas is informing a state-wide conservation strategy to address conifer encroachment. With 560,000 acres of Sage-grouse treated since 2006 and an additional 340,000 acres planned in the next 10-15 years, the state of Utah is ameliorating the threat posed by conifer encroachment into Greater Sage-grouse habitat. These programs also help restore healthy watersheds, address the threat of wildfire and improve working landscapes for range, productivity and wildlife.

## Sources and Additional Reading

Sage Grouse Initiative. 2014. Conifer removal restores sage grouse habitat. Science to Solutions Series Number 2. Sage Grouse Initiative. 4pp. <http://www.sagegrouseinitiative.com/wp-content/uploads/2014/09/Conifer-Encroachment-HIGH-RES-FINAL-091614.pdf>

Baruch-Mordo, S., J.S. Evans, J.P. Severson, D.E. Naugle, J.D. Maestas, J.M. Kiesecker, M.J. Falkowski, C.A. Hagan, and K.P. Reese. 2013. Saving Sage-grouse from the trees: a proactive solution to reducing a key threat to a candidate species. *Biological Conservation* 167:233-241.

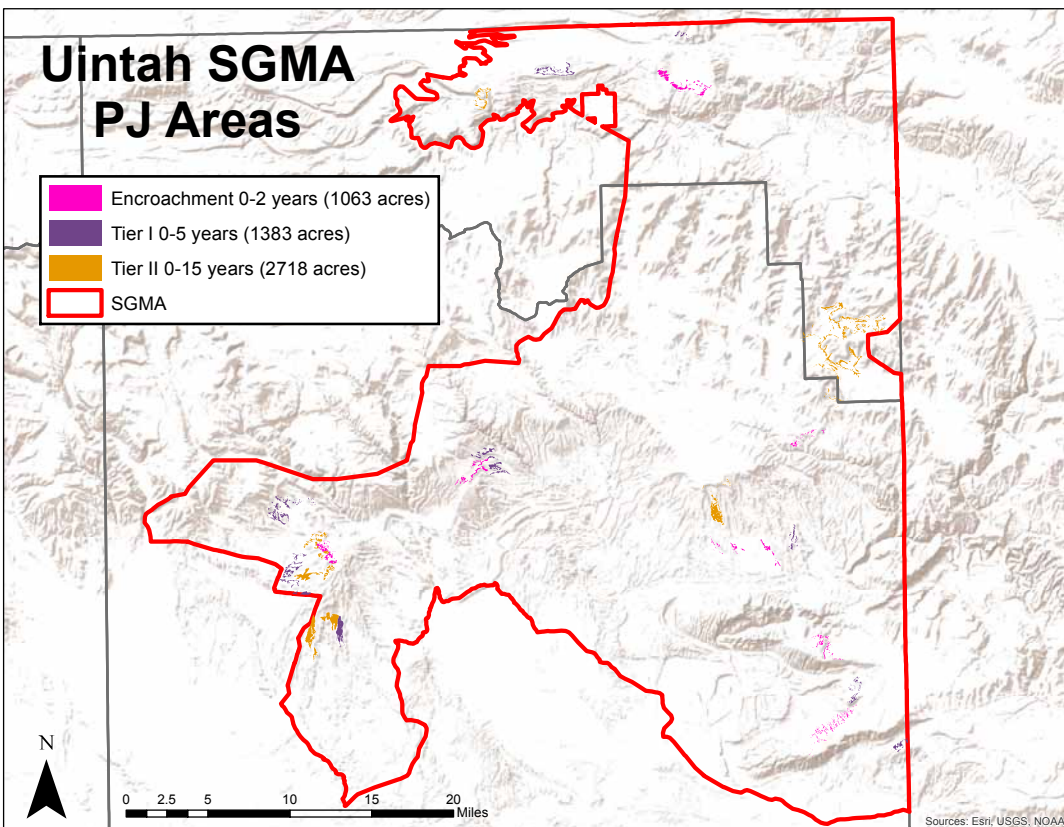
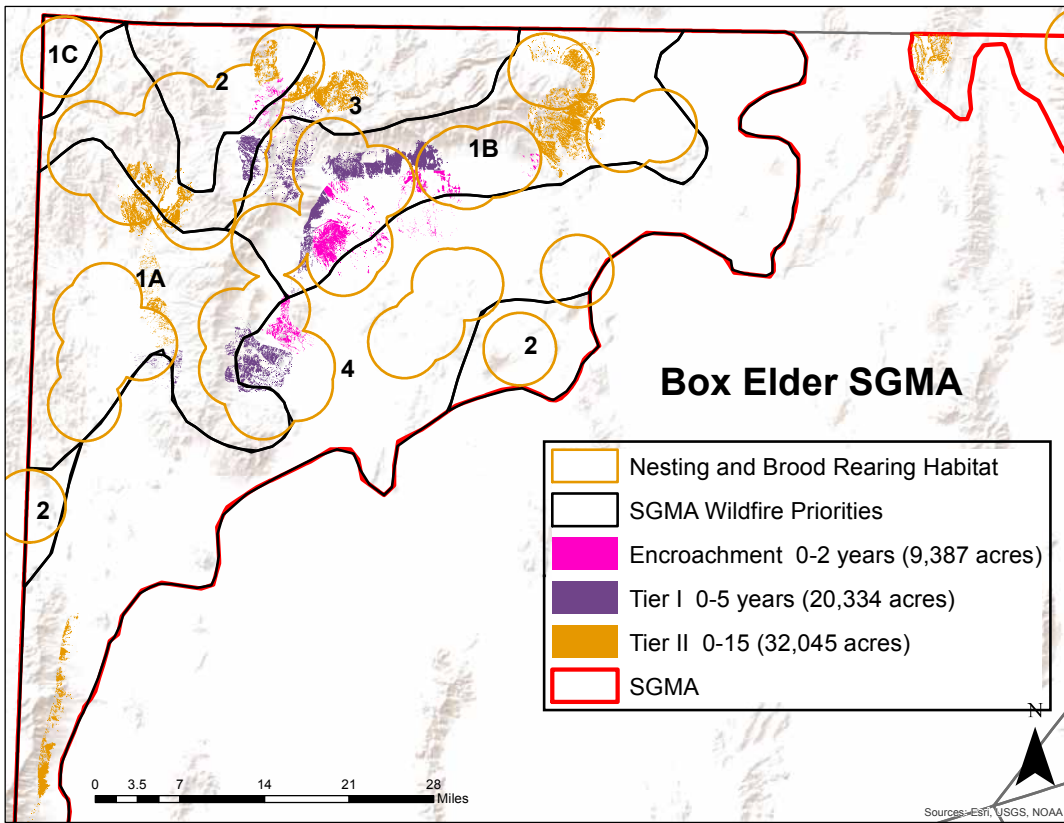
Knick, S., S.E. Hanser, and M. Leu. In press. Ecological scale of bird community response to pinyon-juniper removal. *Rangeland Ecology & Management*.

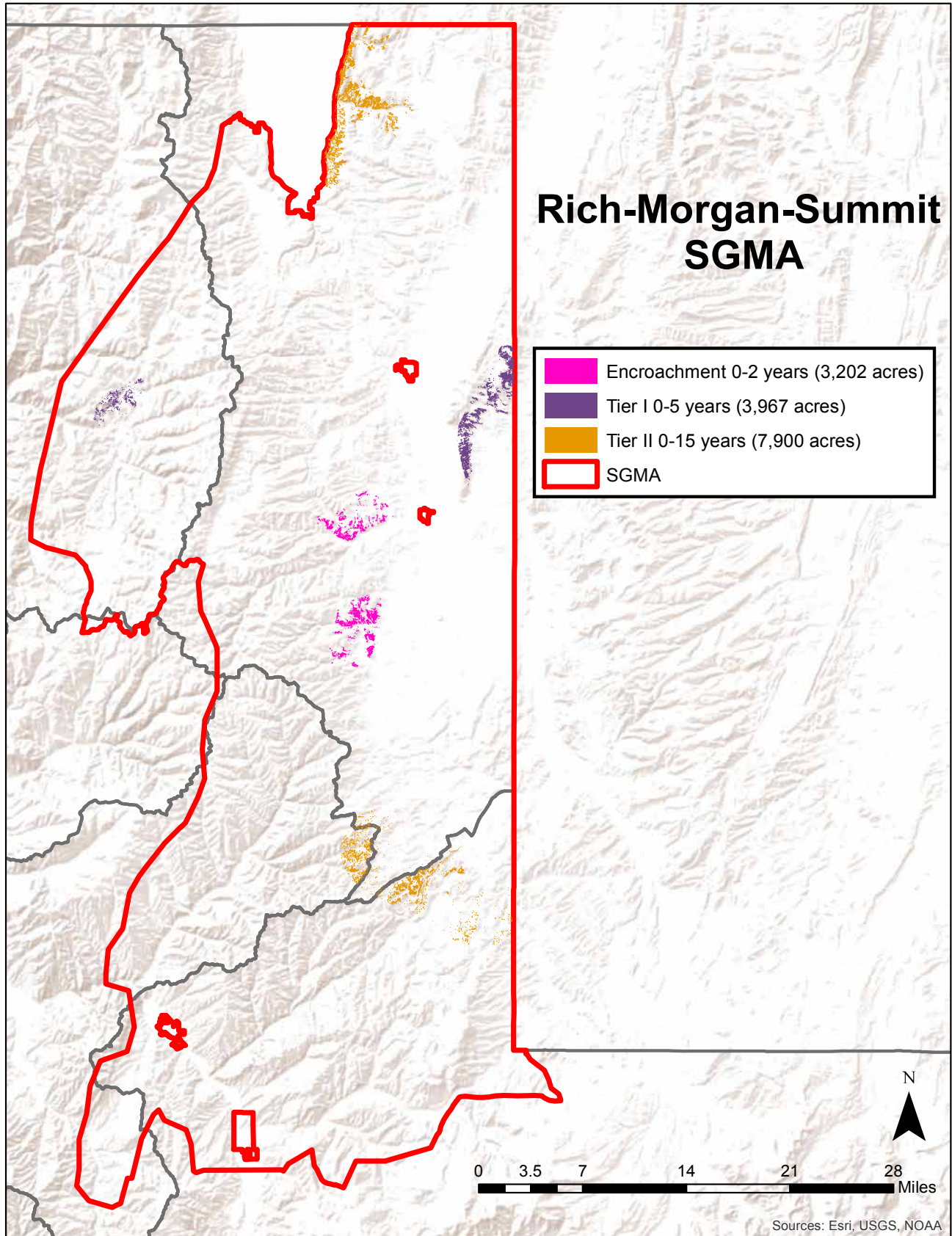
Miller, R.F., J.D. Bates, T.J. Svejcar, F.B. Pierson, and L.E. Eddleman. 2005. *Biology, Ecology, and Management of Western Juniper*. Oregon State University, Agricultural Experiment Station Technical Bulletin 152.

SGI. 2013. Tackling conifer encroachment. Produced by Conservation Media. Sage Grouse Initiative. Video available at: <http://www.sagegrouseinitiative.com/news-media/photo-video-gallery/>. Miller, R. F., J. D. Bates, T. J. Svejcar, F. B. Pierson, L. E. Eddleman. 2007. *Western juniper field guide: asking the right questions to select appropriate management actions*. U.S. Geological Survey, Circular 1321.

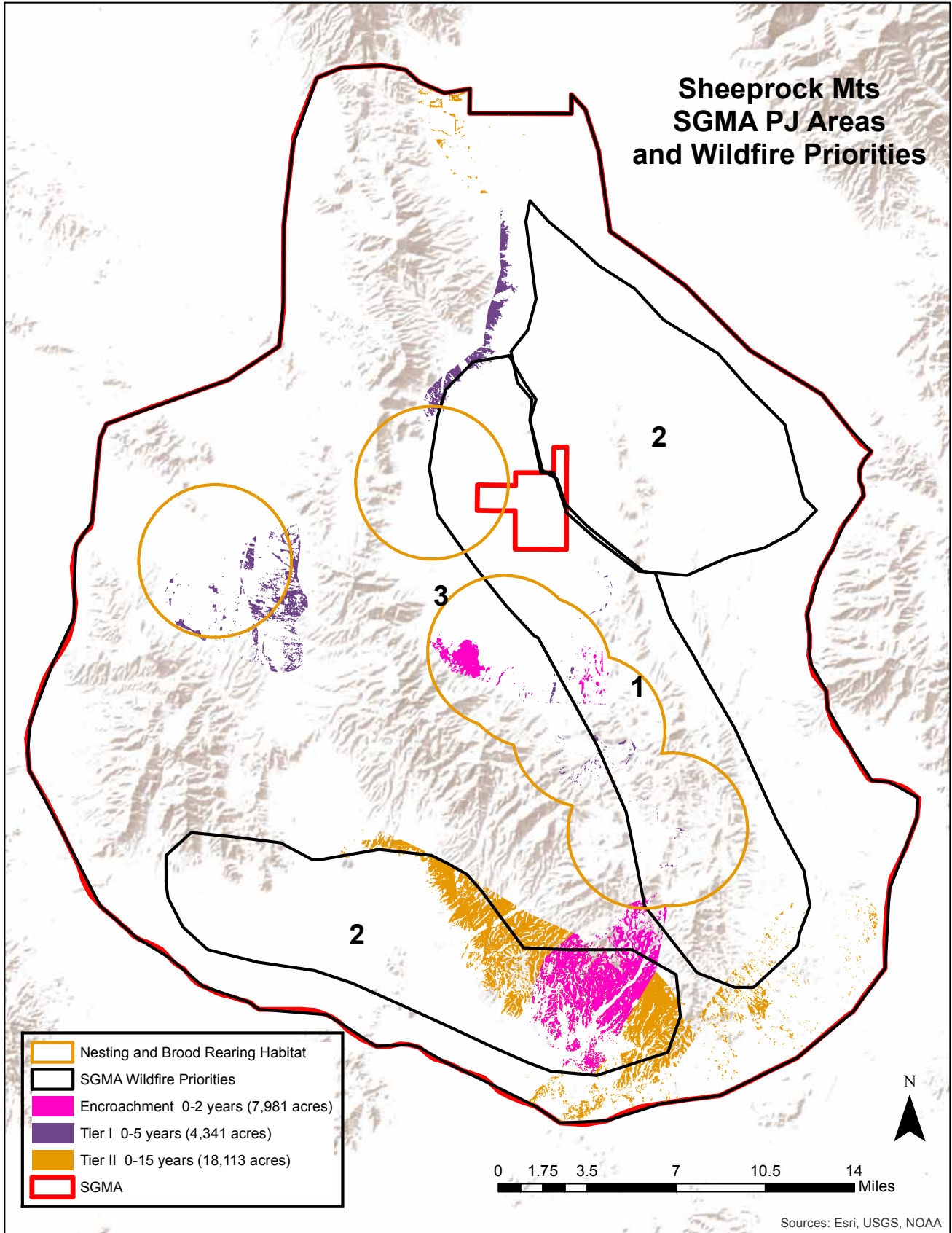
Tausch, Robin J.; Hood, Sharon 2007. Pinyon/juniper woodlands [Chapter 4]. In: Hood, Sharon M.; Miller, Melanie, editors. *Fire ecology and management of the major ecosystems of Southern Utah*. Gen. Tech. Rep. RMRS-GTR-202. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. p. 57-71.

**Pinyon Juniper Removal Maps**

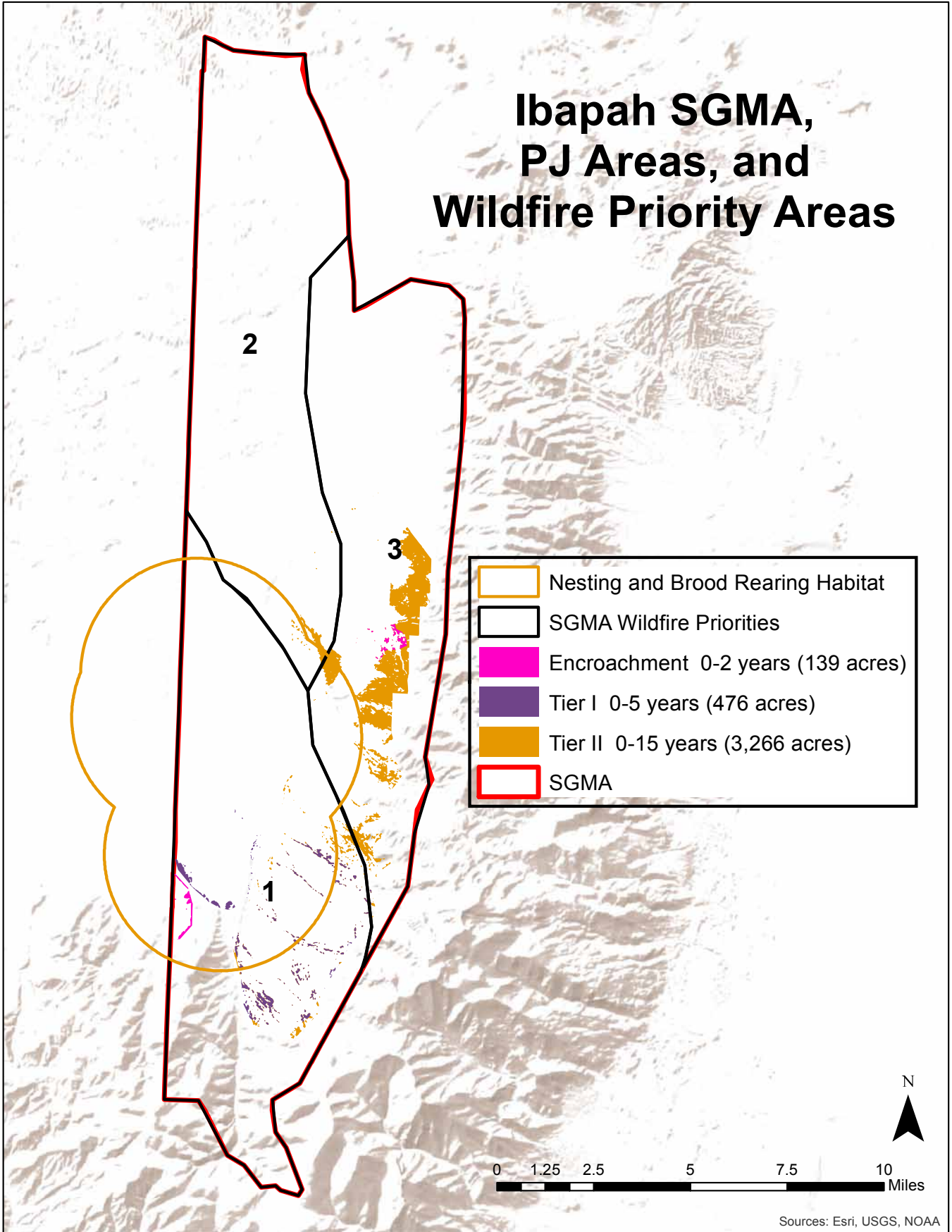




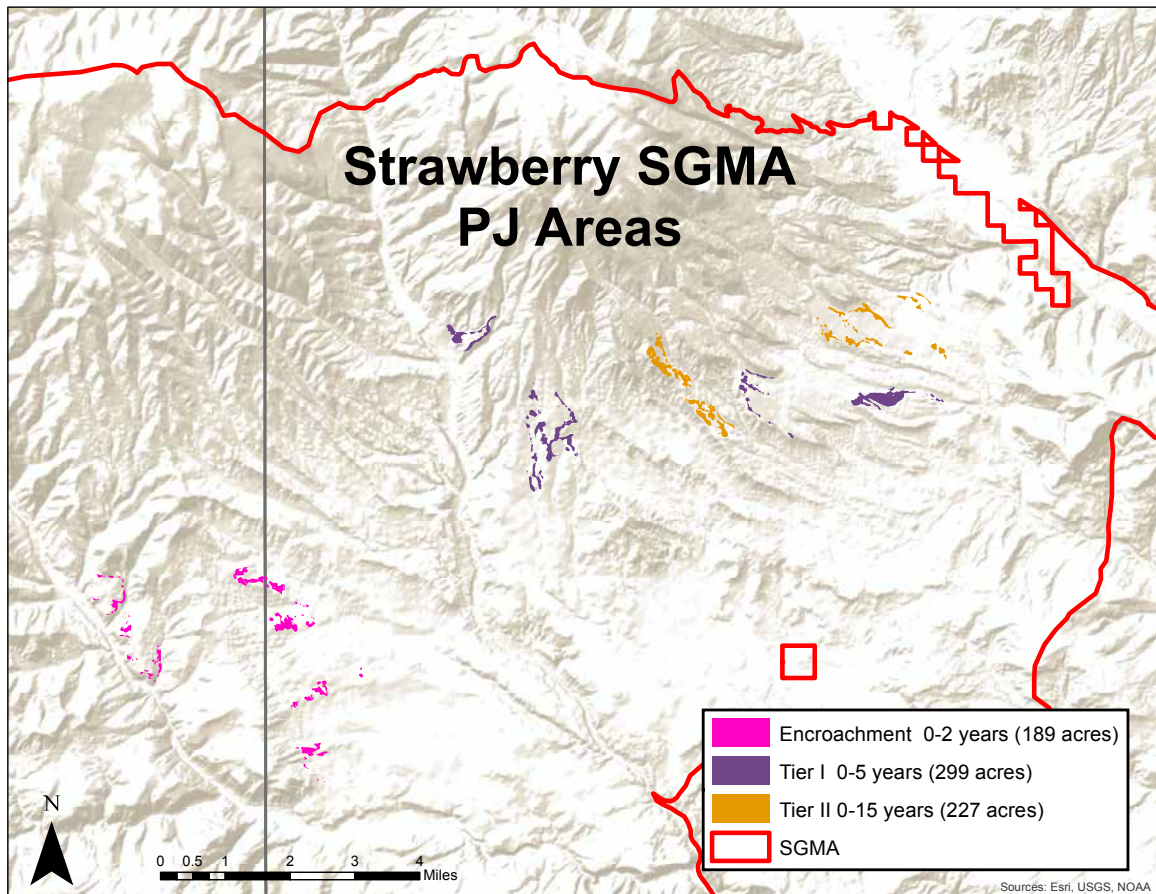
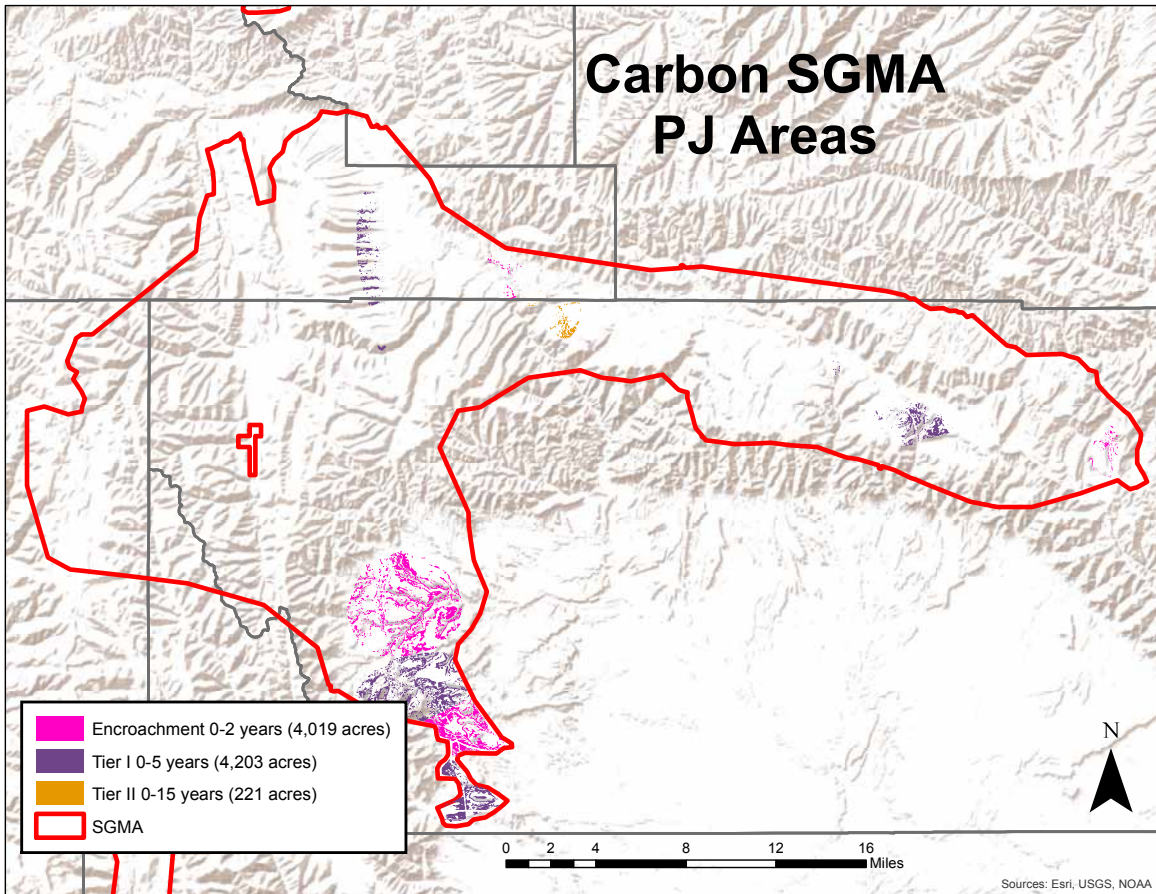




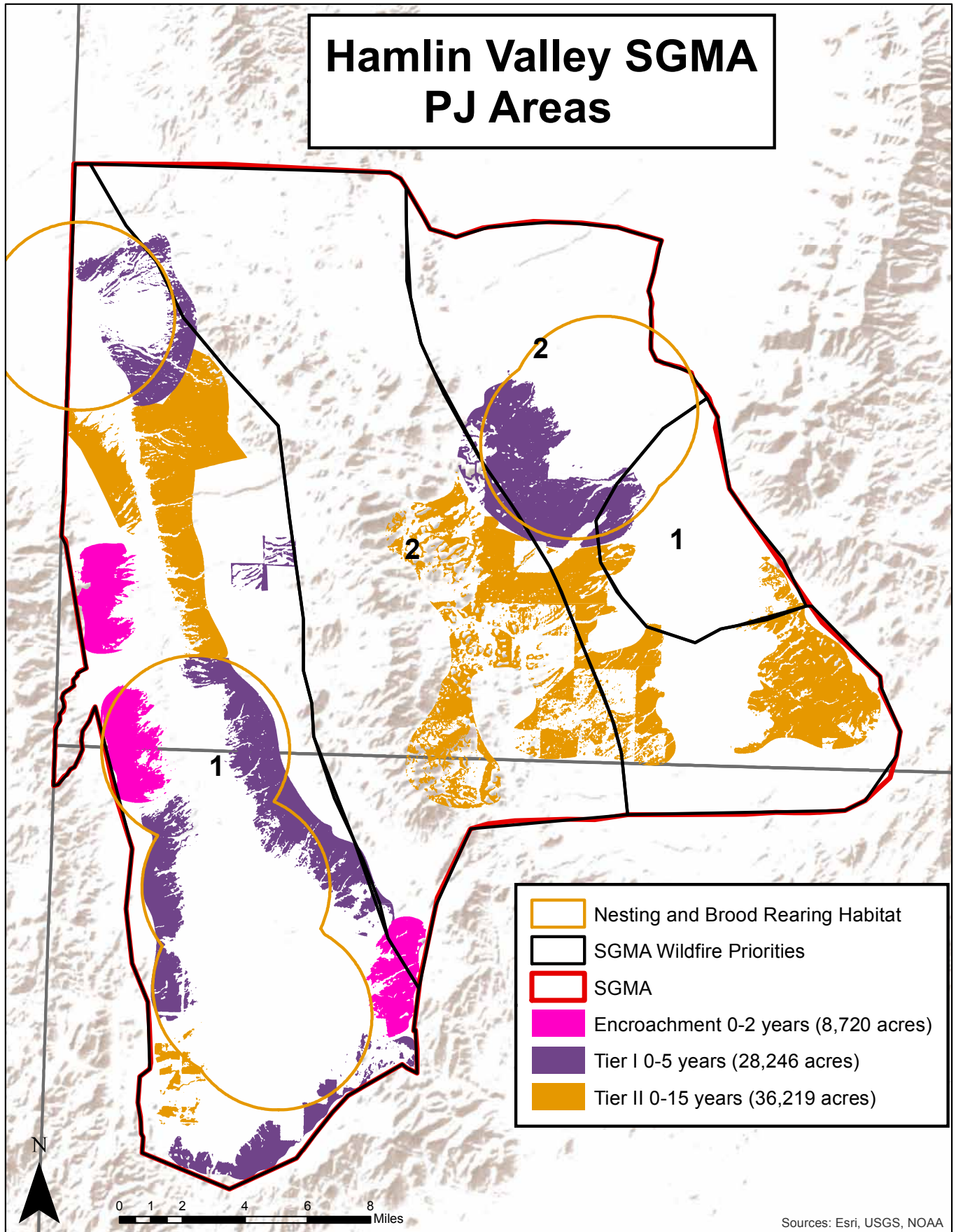
# Ibapah SGMA, PJ Areas, and Wildfire Priority Areas



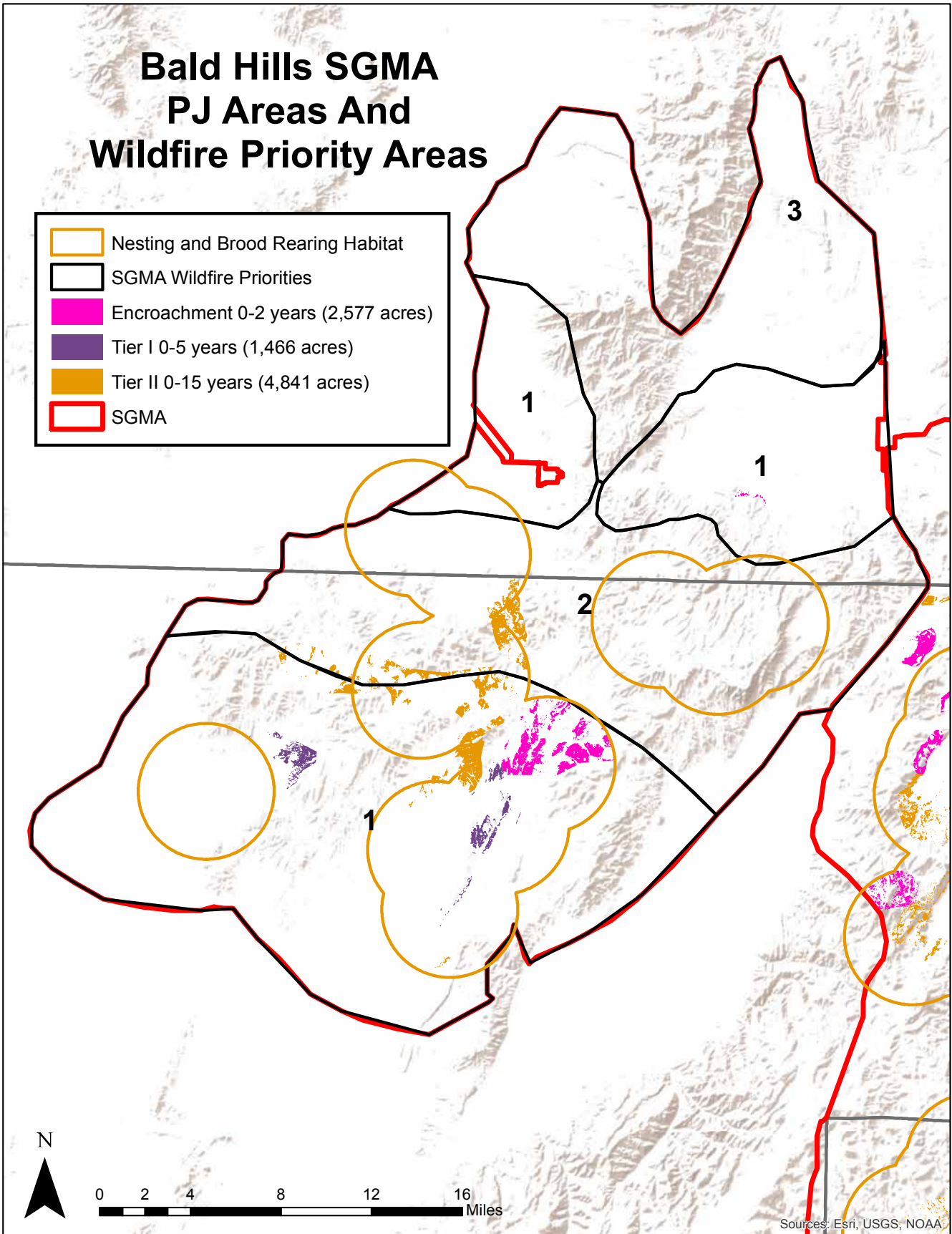
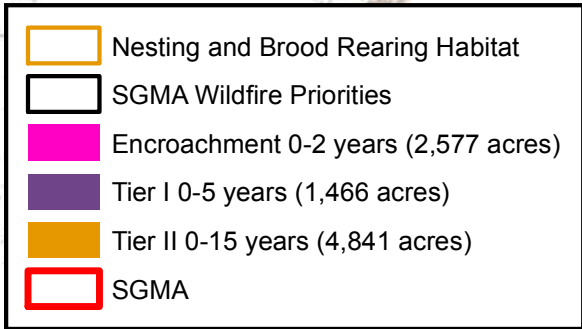






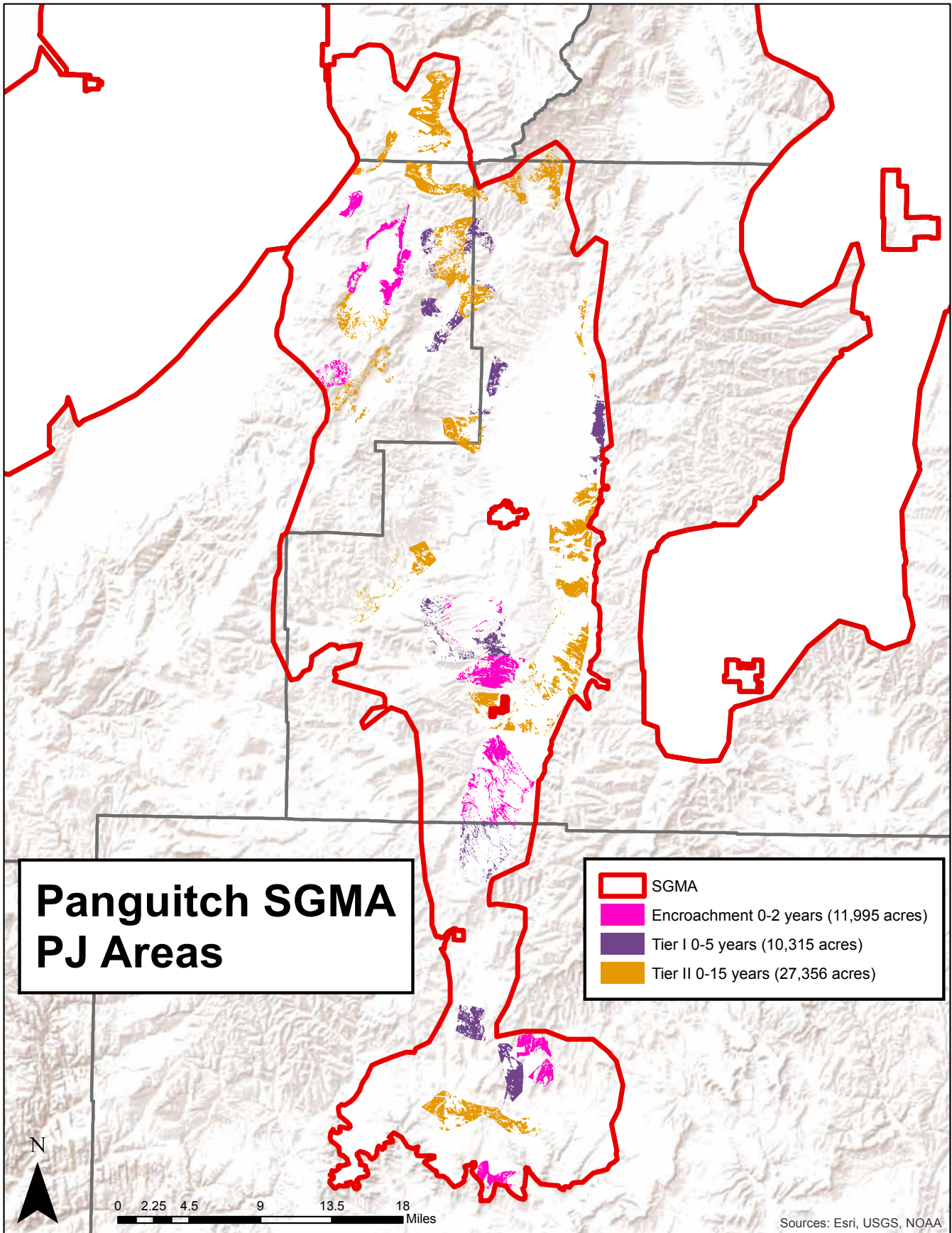


# Bald Hills SGMA PJ Areas And Wildfire Priority Areas

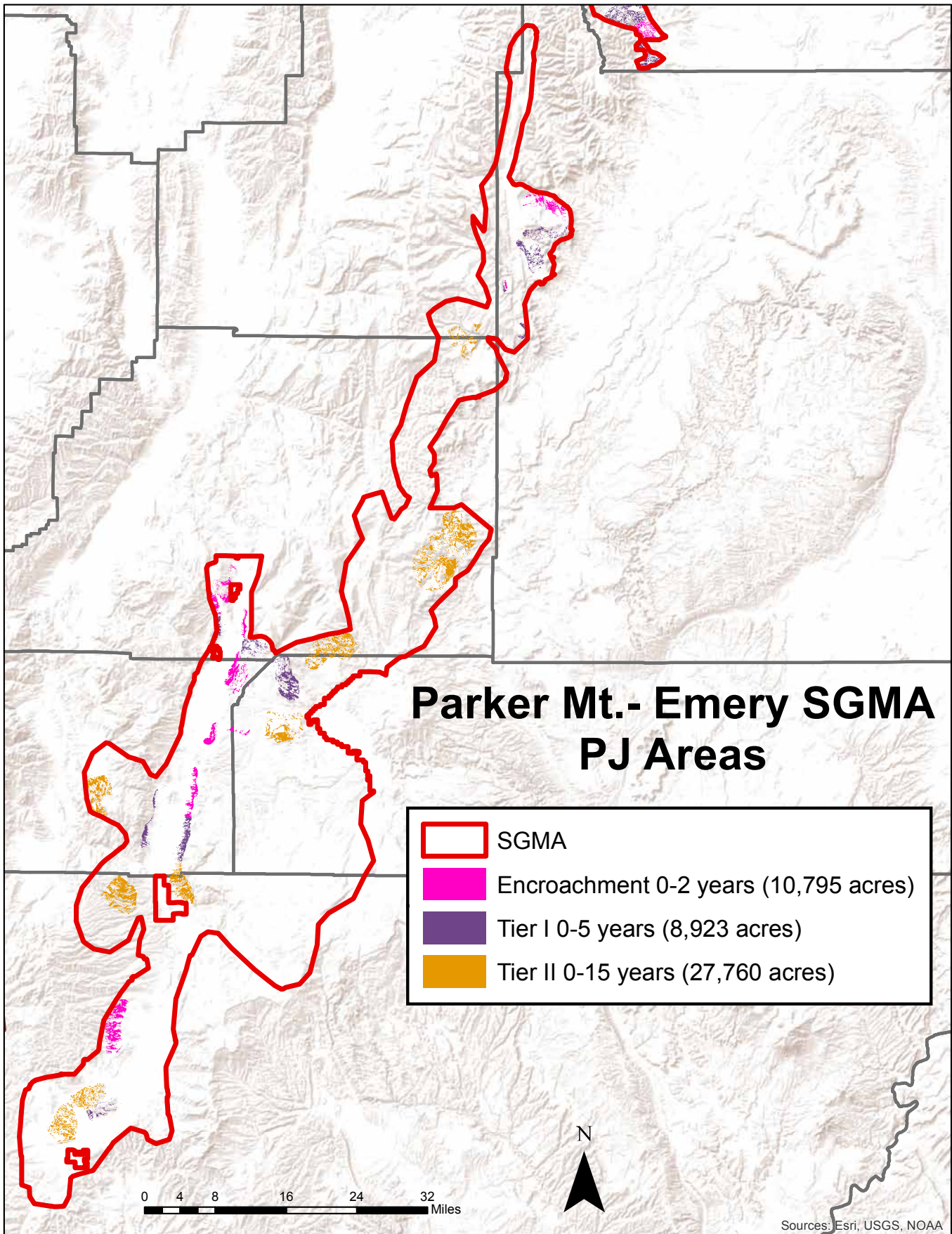


Sources: Esri, USGS, NOAA











# Utah Conservation Strategies

Wildfire – Prevention, Supression, Restoration





## WILDFIRE MANAGEMENT AND RESTORATION

**Overview:** *Wildfire is a natural occurrence on Utah’s landscapes. Many plant and animal species, including Greater Sage-grouse, evolved in areas where cyclical wildfires were routine events. While Sage-grouse can adapt and even benefit from some fires, disruptions in the natural fire cycle, encroachment of conifers and the presence of exotic annual grasses such as cheatgrass have presented new challenges. Changes in wildfire frequency and intensity are raising concerns about the cumulative impact of these fires within some of the state’s Sage-Grouse Management Areas (SGMAs). The state of Utah invests millions of dollars into programs to proactively address wildfire concerns including: (1) prevention; (2) suppression (which includes rapid response to wildfire in SGMAs); and (3) rehabilitation/restoration in areas affected by wildfire. Utah’s Conservation Plan for Greater Sage-Grouse uses the best available science to reduce the threat of wildfire on Greater Sage-grouse habitats.*



**Affected SGMAs: Box Elder, Bald Hills, Sheep Rock Mountains, Hamlin Valley and Ibapah.**

### Wildfire Management Strategies for Sage-Grouse

In Utah, wildfire is an important area of emphasis for Greater Sage-grouse conservation. Utah’s Conservation Plan for Greater Sage-Grouse (the Conservation Plan) indicates, “Habitat loss due to fire and replacement of (burned) native vegetation by invasive plants is the single greatest threat to Greater Sage-grouse in Utah. Immediate, proactive means to reduce or eliminate the spread of invasive species, particularly cheatgrass

(*Bromus tectorum*) after a wildfire, is a high priority.”

These concerns also appear in the U.S. Fish and Wildlife Service 2010 Rule, which found that Greater Sage-grouse was “warranted but precluded” from listing. The rule specifically addressed the threat of wildfire:

“Many of the native vegetative species of the sagebrush-steppe ecosystem are killed by wildfires, and recovery requires many years. As a





**Figure 1 - An airtanker drops retardant in Utah pinyon/juniper wildfire.**

result of this loss of habitat, fire has been identified as a primary factor associated with Greater Sage-grouse population declines (citations omitted)...In nesting and wintering sites, fire causes direct loss of habitat due to reduced cover and forage (citation omitted)."

Suppression costs in the western United States have exceeded one billion dollars in each year since 2000 and reached \$1.7 billion in 2013<sup>1</sup>. Western wildfires are not only costly to suppress, but they also can degrade the value of vegetative communities and working landscapes. These impacts can substantially affect Greater Sage-grouse. Research suggests that changes in wildfire frequency are directly linked to conifer encroachment and the proliferation of exotic annual grasses such as cheatgrass (*Bromus Tectorum*) in sagebrush ecosystems. The U.S.

<sup>1</sup><http://www.usatoday.com/story/weather/2014/07/23/western-wildfires-climate-change/13054603/>

<sup>2</sup> "Using resistance and resilience concepts to reduce impacts of invasive annual grasses and altered fire regimes on the sagebrush ecosystem and Greater Sage-grouse: A strategic multi-scale approach"

Department of Agriculture's Rocky Mountain Research Station explains how high-density conifer stands can lead to catastrophic wildfires:

"Extreme burning conditions (high winds, high temperatures, and relatively low humidity) in high density (Phase III) stands are resulting in large and severe fires that result in significant

losses of above- and below-ground organic matter (*Sensu Keeley 2009*) and have detrimental ecosystem effects (Miller et al. 2013). Strategic and targeted treatments to reduce these risks can help land managers protect key habitats and preserve underlying Sage-grouse population dynamics to reduce the risks of wildfire."<sup>2</sup>

Invasive exotic annual grasses, like cheatgrass in the Great Basin, provide fine-scale fuels that increase the propensity for fires, even from natural sources such as lightning. The presence of these grasses not only shortens the intervals between fires, but also increases the overall acreage burned in a typical fire. When combined with increased fuel loads from encroaching conifer woodlands, the risk of catastrophic wildfire in Sage-brush ecosystems has increased substantially.

## How Wildfire Affects Sage-Grouse

To effectively address the threat posed by wildfires, it is important to understand how they impact Greater Sage-grouse populations. Wildfire affects Sage-grouse in four fundamental ways:

- Destruction of sagebrush and other desirable food sources
- Proliferation of exotic annual grasses that compete with desirable food sources including forbs, native grasses and sagebrush
- Increased frequency and severity of wildfires fueled by cheatgrass or other exotic annual grasses.
- Fragmentation of habitat by creating areas which are less suitable for Sage-grouse populations.

In 2013, a team of representatives from the U.S. Fish and Wildlife Service and various Sage-grouse states met to develop recommendations for reducing threats to Greater Sage-grouse and their habitats. The Greater Sage-Grouse Conservation Objectives: Final Report, which resulted from those meetings in February 2013, addresses concerns related to wildfire and post-wildfire effects:

“Fire (both lightning-caused and human-caused) in sagebrush ecosystems is one of the primary risks to the Greater Sage-grouse, especially as part of the positive feedback loop between exotic annual grasses and fire frequency.”



**Figure 2 – Sage-grouse chicks take advantage of a restoration area during summer brood-rearing period. Insects form an important part of the Sage-grouse diet during this important growth period.**

In other words, these experts reiterate the nexus between exotic annual grasses and the increased frequency of wildfires.

Cheatgrass proliferation after a wildfire is a concern, particularly in lower elevation areas which correspond with warm and dry soil regimes (xeric areas.) Unlike higher elevation, cool and moist areas, areas with xeric soil regimes areas are: (1) more prone to repeated wildfire; and (2) less responsive to restoration of native forbs, grasses and brush species. These areas also tend to include some nesting, brood-rearing and winter habitat.

The Conservation Plan is investing in solutions to address these challenges. In fact, the Utah Watershed Restoration Initiative and its partners have spent tens of millions of dollars to restore hundreds of thousands of acres affected by

wildfires, both inside and outside of Utah's SGMAs.

## Proven Strategies for Wildfire

Utah wildfire experts and Sage-grouse biologists are working together on strategies to address the threat of wildfire. The primary objective of these strategies is to protect sagebrush habitats from wildfire. It is much easier to increase the resiliency of Sage-grouse habitat by proactively managing sagebrush ecosystems before sagebrush is burned in a wildfire. After sagebrush is burned in a wildfire, restoring or rehabilitating areas post-wildfire can be difficult and expensive. This is particularly true of Sage-grouse breeding and winter range.

If sagebrush is destroyed by wildfire, the process of natural vegetative succession may take years before healthy native sagebrush plant communities are fully restored. The moisture and temperature conditions needed for successful reseeding of sagebrush restoration may not be available every year. This is why money spent on prevention and suppression strategies makes

good economic sense. Prevention not only protects sagebrush by reducing the number and frequency of new fires, but it can also help reduce the size of fires that do start. This saves millions of dollars that would otherwise be spent on controlling wildfires and restoring habitats after a wildfire.

Using specific criteria and the best-available science, Utah has developed a comprehensive strategy and detailed plan to address threats of wildfire and post-wildfire effects. Utah's approach focuses on reducing wildfire threats to habitats while ensuring that the habitat continues to work for Greater Sage-grouse.

This methodology is explained by the Sage-grouse National Technical Team (NTT) publication "A Report on National Greater Sage-grouse Conservation Measures," dated Dec. 21, 2011:

"These programs address the threats resulting from wildfires and post-wildfire effects along with a program (fuels management) designed to try to reduce these impacts. Together these programs provide a significant opportunity to influence

Figure 3 – When healthy landscapes are combined with fuels reduction and greenstripping (as shown below), sagebrush ecosystems are more resistant to wildfire.





## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

sagebrush habitats that benefit Sage-grouse...it is critical not only to conduct management actions that reduce the long-term loss of sagebrush but also to restore and recover burned areas to habitats that will be used by Sage-grouse (Pyke 2011).”

Utah’s Conservation Plan focuses on a three-pronged approach to address the threat of wildfire:

1. Prevention, including:
  - a. Fuels management/reduction strategies and
  - b. Fire-zone buffers such as greenstripping and firebreaks.
2. Suppression strategies, including:
  - a. Prioritizing at-risk habitats,
  - b. Providing rapid response strategies and
  - c. Fire control resource allocation.
3. Post-fire habitat restoration and rehabilitation efforts to:
  - a. Restore desirable vegetation and

- b. Control undesirable species such as cheatgrass.

### Prevention

Money spent on prevention results in significant cost savings when compared with fire-suppression and rehabilitation efforts. Additionally, prevention is the best way to preserve sagebrush and keep habitats from fragmentation. Prevention is one of the most important parts of Utah’s Sage-grouse conservation strategy for wildfire. Prevention involves both the reduction of fuels and the creation of buffers to help control wildfires that occur. The use of fuels-reduction strategies and natural buffers are proven solutions that help increase the resiliency of sagebrush habitats.

Fuels reduction, has become increasingly important in light of pinyon/juniper encroachment and the proliferation of exotic annual grasses. Removing pinyon/juniper and exotic annual grasses can help control both the frequency and severity of wildfires. The state of Utah invests millions of dollars into pinyon/juniper removal projects every year. Utah’s Sage-grouse conservation strategy includes detailed plans for

**Figure 4 - Conifer removal projects allows the sagebrush understory to flourish and strengthen the ecosystem’s resilience to wildfire.**



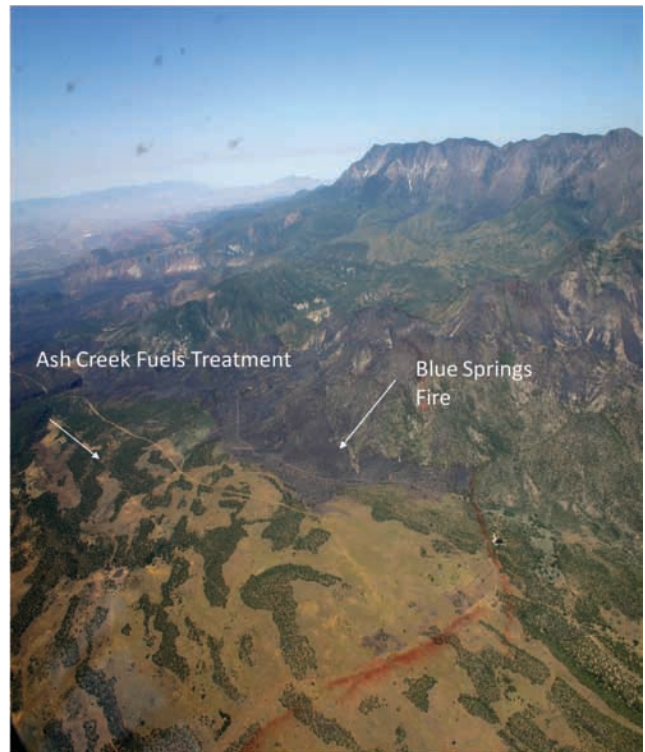
removing encroaching pinyon/juniper from sagebrush habitats. Conifer removal plays an essential role in addressing the threat of catastrophic wildfires. For more information on Utah’s conifer-removal efforts, see the Utah Sage-grouse Conservation Strategies report on Pinyon/Juniper Removal for Proactive Habitat Restoration.

Most strategies for the direct removal of exotic annual grasses are either unproven or experimental in nature. However, grazing and post-fire reclamation efforts are proven methodologies to help control exotic annual grasses, particularly cheatgrass. Grazing can help immediately reduce the volume and contiguous nature of exotic annual grasses. Post-wildfire reclamation efforts are also vitally important to control the proliferation of cheatgrass. The treatments Utah uses to control the spread of cheatgrass will be discussed more detail on pages 7 and 8 of this report.

## Suppression

Utah has a strong-track record of wildfire suppression. Ninety-eight percent of wildfires are stopped before they burn 1,000 acres. Small sporadic fires have minimal impacts on Sage-grouse habitats. Moreover, some research has found that when the cumulative impact of smaller fires is not excessive, they can actually be helpful to Greater Sage-grouse:

“Small fires may maintain suitable habitat mosaic by reducing shrub encroachment and encouraging understory growth...Sage-grouse using burned areas...may preferentially use the burned and unburned edge habitat.”<sup>3</sup>

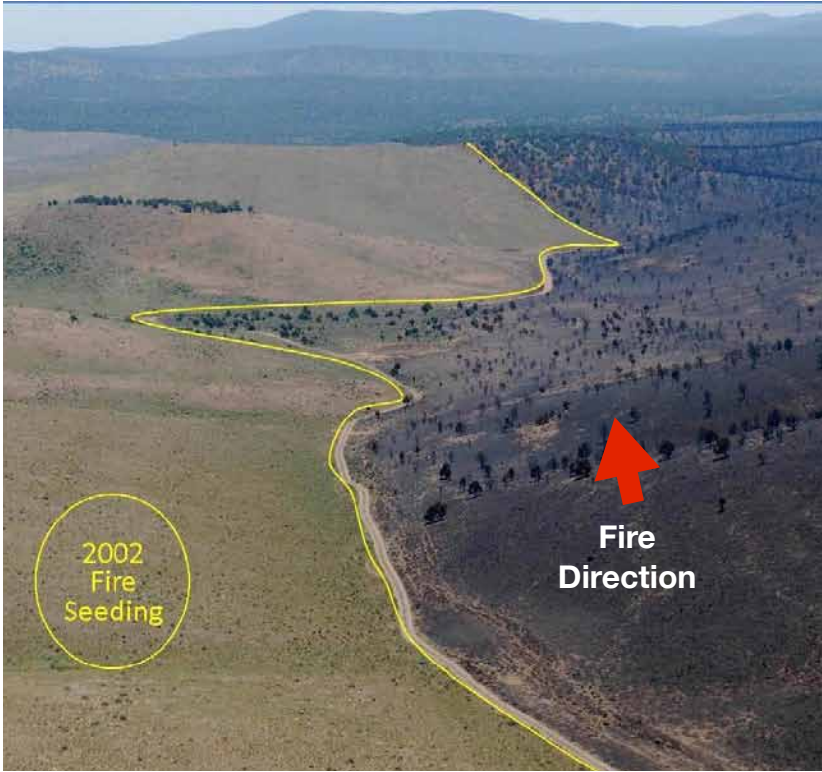


**Figure 5 - Conifer removal projects provided important fire breaks which allowed crews to stop progression on blue Springs Fire saving thousands of acres of habitat.**

Utah’s fire-suppression strategy objective is to suppress all wildfires within SGMAs, with the goal of restricting or containing wildfires in these areas to the normal range of fire activity. Suppression of wildfires within Sage-grouse habitat is prioritized in Utah’s fire plan immediately after human life and protecting communities. Utah’s wildfire response strategies are evolving as additional information is learned about wildfire within key Sage-grouse habitats.

Utah’s rapid response strategy involves ongoing cooperation between federal, state and county fire suppression entities. It also prioritizes resource allocation based on the threat potential inside and outside of at-risk SGMAs. Where resources are limited, Utah’s wildfire suppression strategy provides the following degrees of prioritization:

<sup>3</sup>[U.S. Fish and Wildlife Service 2010 Rule]



## Restoration and Rehabilitation

There is a growing concern about the post-wildfire effects in Sage-grouse habitat. This is one of the reasons it is extremely important to prioritize prevention and suppression strategies for SGMAs which are most susceptible to wildfires and cheatgrass proliferation. It also means that restoration and rehabilitation after a wildfire is helpful. Post-fire strategies for cheatgrass may involve chemical or biological pre-emergents which actively suppress cheatgrass growth. Suppression of cheatgrass, when combined with reseeded of desired

grasses, forbs and shrubs is a key part of Utah's restoration strategies after wildfires. Not only can these efforts promote the restoration of desirable vegetation, but they can also help control cheatgrass proliferation after a wildfire.

**Figure 6- During critical drought conditions thousands of acres were saved from the fast moving Black Mountain Fire by a previous reseeding project of the Utah Watershed Restoration Initiative.**

1. Highest priority areas within highest priority SGMAs
2. Prioritization among at-risk SGMAs
3. All SGMAs
4. Any identified connectivity corridors between SGMAs
5. All sagebrush habitats

Utah's conservation strategies stress the importance of using mechanical removal of pinyon and juniper trees within sagebrush ecosystems to eliminate the need for prescribed burns on Sage-grouse breeding and winter habitats. This not only protects sagebrush from unnecessary long-term removal, it ensures that treatment areas are suitable for utilization by Greater Sage-grouse after treatments are completed.

Utah's conservation strategies stress the importance of using mechanical removal of pinyon and juniper trees within sagebrush ecosystems to eliminate the need for prescribed burns on Sage-grouse breeding and winter habitats. This not only protects sagebrush from unnecessary long-term removal, it ensures that treatment areas are suitable for utilization by Greater Sage-grouse after treatments are completed.

— PAUL BRIGGS, DISTRICT FUELS PROGRAM MANAGER

Before a wildfire, cheatgrass is approximately 1% of the understory vegetation in areas that have not previously burned. In the absence of wildfire, the presence of native grasses, forbs and brush help



## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

limit the infiltration of cheatgrass. When wildfire occurs, cheatgrass is often the first plant to emerge, often at much higher densities than before the fire. In this way, the biology of cheatgrass is designed to compete with other plant species in response to wildfire.

Utah's strategy is proving to be very effective in controlling the spread of cheatgrass. After a wildfire, a chemical pre-emergent, which is specific to cheatgrass, is applied to the burned area. The area is then reseeded with native (and in some situations non-native) forbs, grasses and brush. Additionally, multiple reseeded of these areas can be utilized to take advantage of intermittent years where soil temperatures and moisture are favorable for sagebrush restoration. The pre-emergent artificially suppresses cheatgrass growth, which gives the newly reseeded area's forbs, grasses and brush a head-start. In most cases, a second application of the cheatgrass specific pre-emergent is unnecessary. Although a temporary increase in cheatgrass density may occur in the second year, the early-establishment allows desirable plants to more effectively compete with cheatgrass. In many instances, by the third year cheatgrass will return to lower densities within the understory vegetation.

The data shows that this strategy not only helps control cheatgrass proliferation, but it also helps keep cheatgrass densities at levels that minimize the impact on Sage-grouse habitat use. Just as important, by re-establishing desired vegetative communities, the natural processes of plant succession can be restored. This helps ensure that desired forbs, grasses and sagebrush will be restored in ways that will support Greater Sage-grouse populations long-term.



**Figure 7 – Sage-grouse actively use winter habitats that have healthy sagebrush populations.**

The Report on National Greater Sage-grouse Conservation Measures is consistent with Utah's approach on these post-wildfire restoration strategies:

“Use of native plant seeds for [Emergency Stabilization and Rehabilitation] seedings is required based on availability, adaptation (site potential), and probability of success (Richards et al. 1998). Where probability of success or native seed availability is low, non-native seeds may be used as long as they meet Sage-grouse habitat conservation objectives (Pyke 2011). Re-establishment of appropriate sagebrush species/subspecies and important understory plants, relative to site potential, shall be the highest priority for rehabilitation efforts.”

By implementing proven prevention, suppression and rehabilitation strategies, the state of Utah is effectively addressing challenges presented by wildfire and post-wildfire effects, including cheatgrass proliferation and dominance.

## Utah's Investment to Address Wildfire

The state of Utah has a track record of investing in prevention, suppression and rehabilitation projects, as well as ensuring that those treatment areas work for Greater Sage-grouse. Since 2006, approximately 560,000 acres of habitat has been treated through Utah's Watershed Restoration Initiative. Many of these projects directly address threats of wildfire to Sage-grouse habitats. Utah's methodology for assessing treatment areas relies on years of experience and application of the best available science. Factors considered includes:

1. Characteristics of sagebrush habitats
2. Sage-grouse utilization of those habitats
3. Soil temperature and moisture regimes
4. Likelihood of rehabilitation/restoration success

Using these and other criteria, experts in the state of Utah are able to assess areas where additional pre-suppression projects would provide the most benefit. This information also helps inform

prioritization of suppression and rehabilitation efforts.

Utah's systematic approach follows the suggested management practices of the Natural Resource Conservation Service (NRCS) Sage-grouse team, which encourages criteria-based methodology, "Natural Resource managers are seeking coordinated approaches that focus appropriate management actions in the right places to maximize conservation effectiveness (Wisdom and Chambers 2009; Murphy et al. 2013)."

The state of Utah has systematically identified the SGMA's where there is a heightened risk of wildfire and post-wildfire effects. Fortunately, many of Utah's SGMA's are not at a heightened risk. A comparatively small percentage of the acreage within these areas have been burned by wildfires during the last 20 years.

Other SGMA's are not only impacted by wildfire, but they are also at a heightened risk of post-wildfire effects. These areas have a higher overall percentage of land that has been burned by wildfire. Additionally, these SGMA's have large

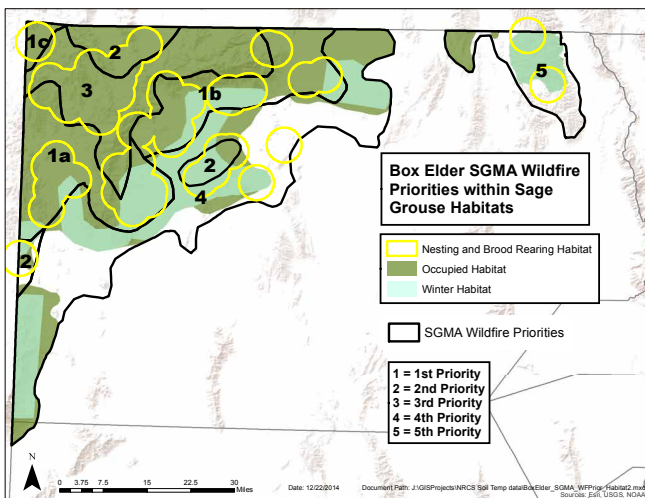


Figure 8 - Wildfire prioritization overlaid with Sage-grouse habitat utilization demonstrates importance of a multi-criteria approach in developing detailed wildfire strategies.

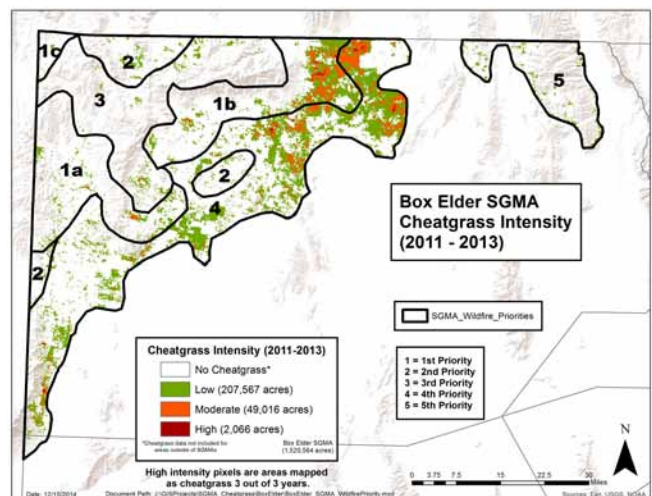
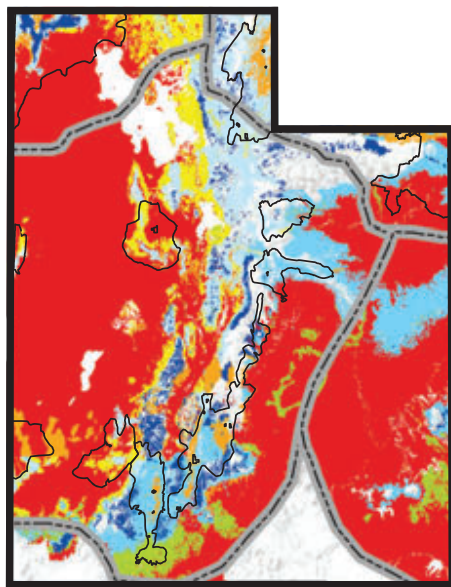


Figure 9 - Cheatgrass intensity is strongly considered when developing wildfire priority strategies within SGMA's.

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

areas with soil temperature and moisture regimes that are more susceptible to cheatgrass proliferation. These areas may also contain habitats where it is more difficult to successfully reestablish native forbs, grasses and brush. This is particularly true of the five SGMAs that lie within Utah's Great Basin. Language in the U.S. Fish and Wildlife Service's 2010 "Warranted but Precluded" finding confirms that areas within the Great Basin are at the greatest risk of wildfire, "Although fire alters sagebrush habitats throughout the greater Sage-grouse range, fire disproportionately affects the Great Basin (Baker et al. in press, p. 20)...and will likely influence the persistence of Greater Sage-grouse populations in the area."

The five Utah SGMAs that lie within the Great Basin include Box Elder, Bald Hills, Sheeprock Mountains, Hamlin Valley and Ibapah. These five



**Soil Moisture & Temperature Regime**

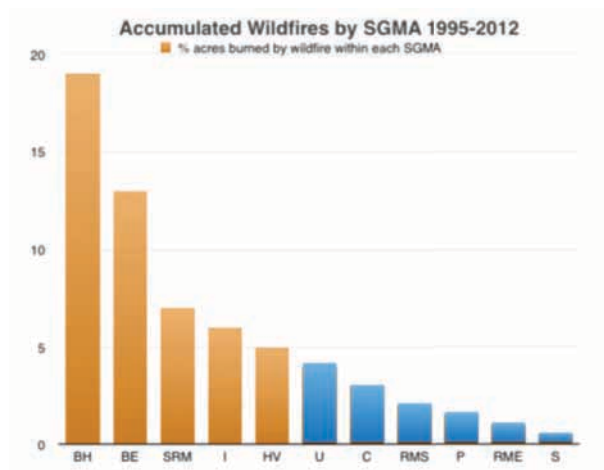
- Cold (Cyric)
- Cool and Moist (Frigid/Ustic)
- Cool and Moist (Frigid/Xeric)
- Warm and Moist (Mesic/Ustic)
- Warm and Moist (Mesic/Xeric)
- Cool and Dry (Frigid/Aridic)
- Warm and Dry (Mesic/Aridic)
- Omitted or No Data
- Sage-Grouse Management Areas

**Figure 10 - Five SGMAs within the Great Basin have a high correlation with warm and dry soil regimes. Soil moisture and temperature are a primary indicator of wildfire propensity and post-fire effects.**

areas hold 26% of the Sage-grouse in the state of Utah. A comparison of these five SGMAs and the 6 SGMAs outside of the Great Basin is helpful. Accumulated acreage affected by wildfire in Utah's SGMAs was closely tracked from 1995-2012.

Utah's five SGMAs within the Great Basin have had an average of approximately 10% of the overall habitat burned by wildfire since 1995. In contrast, the average for Utah's six SGMAs outside the Great Basin is much lower. They have only had approximately 1.8% of their habitat burned by wildfire since 1995. By focusing pre-suppression treatment efforts within the Great Basin SGMAs that are more prone to large acreage wildfires, Utah is proactively working to protect suitable habitat in areas with soil types that are more prone to the infiltration and persistence of cheatgrass and other exotic annual grasses.

Utah's proactive strategies are protecting Greater Sage-grouse habitats. In particular, the state's strategy of prioritizing prevention, suppression and rehabilitation efforts are proactively addressing challenges presented by wildfire and post wildfire effects in areas that are at the greatest risk.



**Figure 11- The contrast between acres burned by wildfires within Great Basin SGMAs and SGMAs in other parts of the state helps illustrate the benefits of prioritizing at risk SGMAs.**



## Detailed Conservation Strategy for SGMA Priorities



### Box Elder

#### Overview

Detailed conservation strategies demonstrate that protecting Sage-grouse from the threat of wildfire in Box Elder SGMA is achievable. Spatial threat analysis illustrates that utilizing a priority system for prevention treatments and rapid-response strategies in difficult fire years can reduce the acreage burned by wildfire by up to 75% in the areas which are key to survival of 98% of the birds in the Box Elder SGMA. Considering that the Box Elder SGMA holds approximately twice as many sage-grouse as the combined populations of the Ibapah, Sheeprock Mountains, Hamlin Valley and



**Figure 12 - Chambers et al wildfire map. Red and black polygons represent acreage burned by wildfire from 1995-2012 in Box Elder SGMA.**

Bald Hills SGMAs, a detailed conservation strategy for the Box Elder SGMA is important for protecting Sage-grouse from the threat of wildfire in the state of Utah.

#### Detailed Analysis

##### Every Fire Every Year

In most years, every fire within the Box Elder SGMA can be suppressed before it grows too large. In fact, analysis of wildfires from 1995-2012 in Utah's SGMAs shows that 98 percent of wildfires are extinguished in less than 1,000 acres and 99.7 percent of wildfires are extinguished in less than 10,000 acres. In 16 out of 18 years, no wildfire exceeded 10,000 acres and relatively few overall acres burned in the Box Elder SGMA. However, in two years, 2005 and 2007 several large fires burned extensive acreage in the Box Elder SGMA. In 2008, the state of Utah responded with increased funding to enhance prevention and suppression efforts to address the threat of wildfire in Box Elder and other portions of the state.

##### Difficult Fire Years

Utah uses a three-pronged approach to address the challenge that wildfires pose to Sage-grouse in extreme conditions:

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

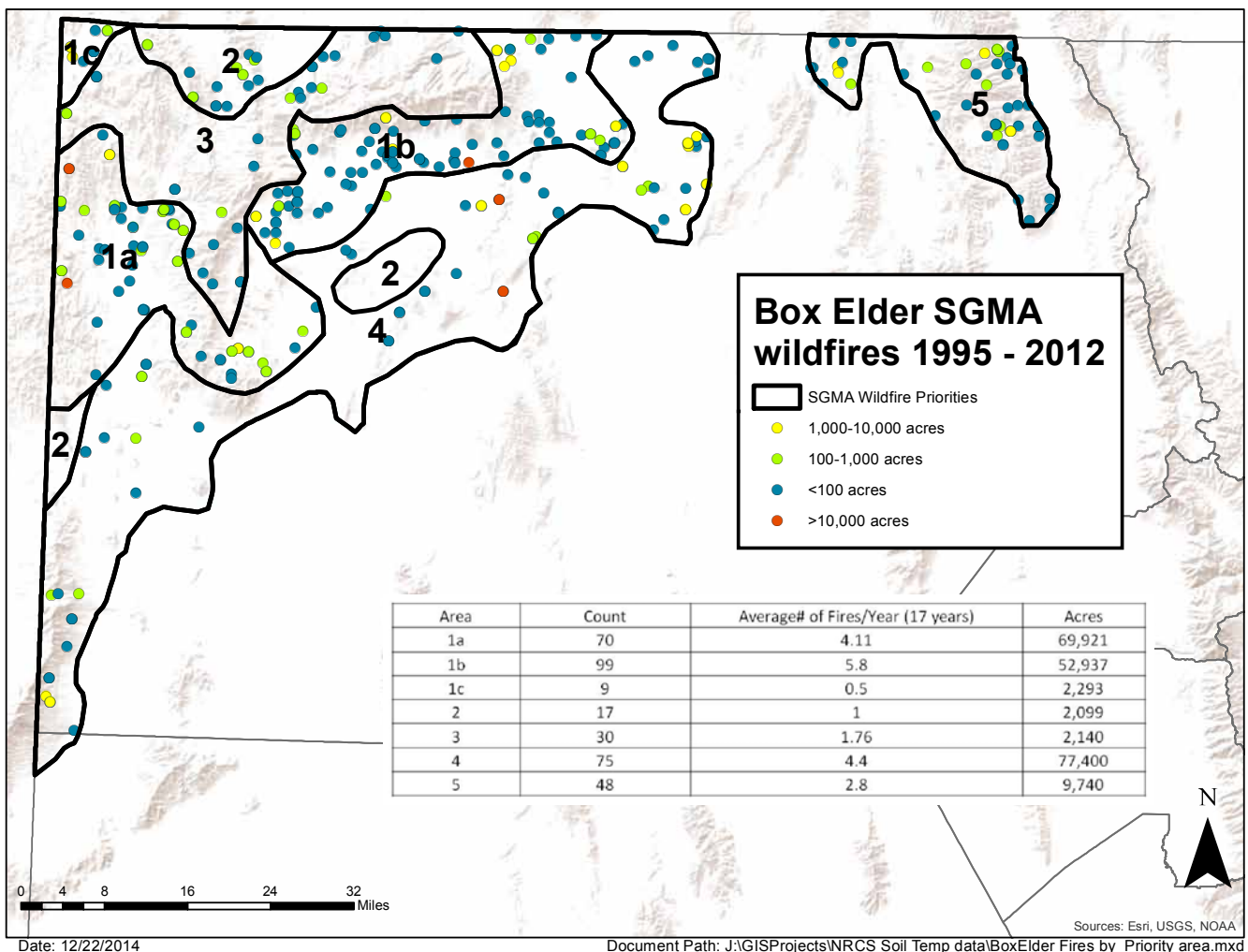
- (1) Prevention: Improving the resiliency of the habitat through conifer removal and control of invasive annual grass before fires start.
- (2) Suppression: Rapid-response strategies that use a priority system for triage situations.
- (3) Rehabilitation: Restoring burned habitat through reseeding and cheat-grass suppression to ensure burned acreage is returned to productive Sage-grouse habitat.

In the Box Elder SGMA, priority zones 1-5 were developed using historic fire data, soil/temperature regimes, sage-grouse distribution and key habitat

types. Zones 1a and 1b have been designated the top priority areas to accelerate prevention and improve rapid response in the most severe wildfire conditions.

### **Protecting Key Habitat**

While the Box Elder SGMA covers 1.5 million acres, population metrics indicate that nesting/brood-rearing habitat and priority winter range for 98% of the birds in this area occurs within zones 1a-c, 2 and 3. However, the majority of the acreage burned by wildfires in these areas occurs within zones 1a and 1b.

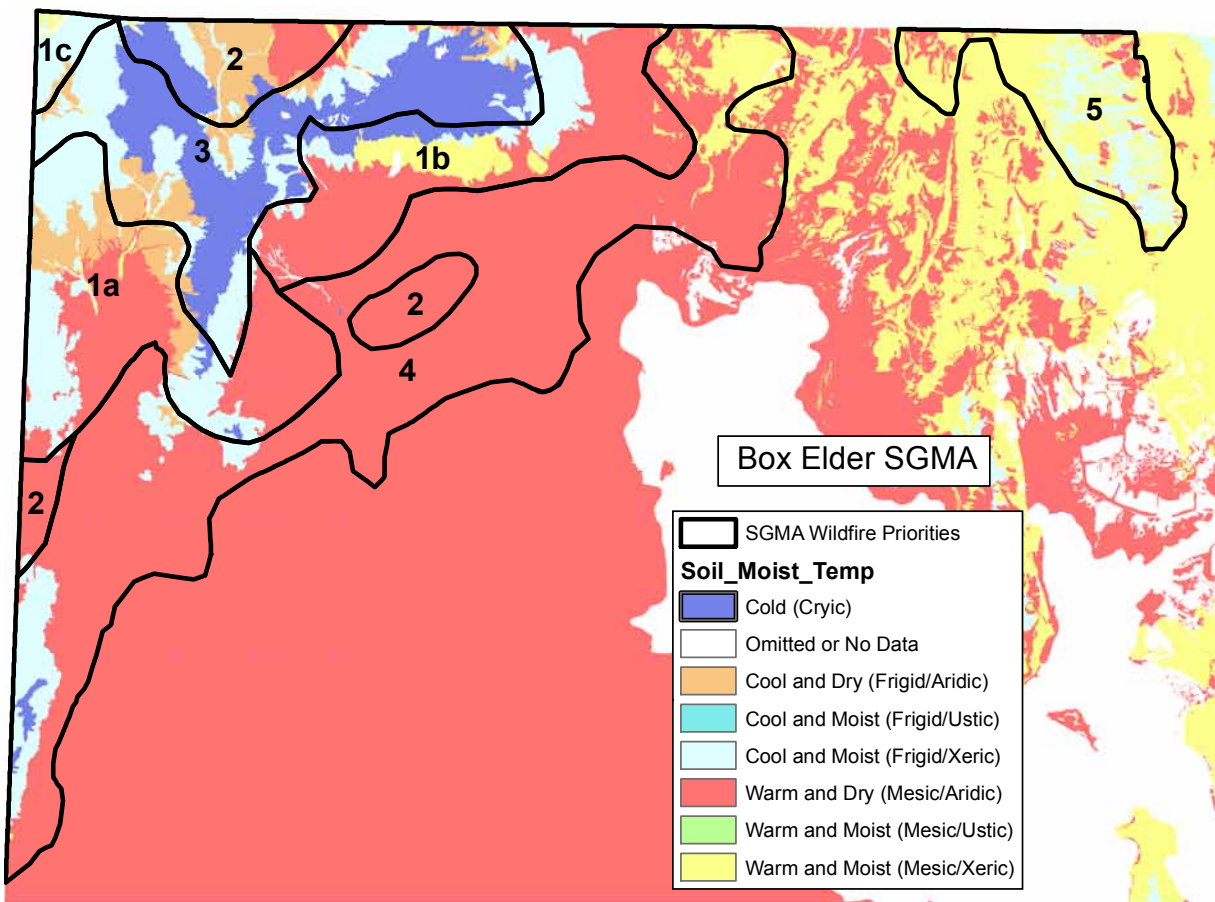


**Figure 13 - Ensuring fire control in priority zones 1a and 1b during difficult fire years presents an opportunity to reduce acreage burned by up to 75% in critical habitat for 98% of sage-grouse.**

**Wildfire not a threat in zones 1c, 2 and 3**

Wildfire is not a significant threat in zones 1c, 2 and 3. Soil temperature and moisture conditions combined with existing wildfire-prevention and control strategies are currently sufficient to control wildfires in these areas. Although zones 1c, 2 and 3 encompass more than 440,000 acres, on average only a collective 363 acres burn in these areas per year. This is likely equal to or less than historical totals. In other words, any threat of wildfire in areas 1c, 2 and 3 is already being controlled to acceptable thresholds. Because zones 1c, 2 and 3 provide nesting/brood rearing habitat for 55% of the Sage-grouse in the Box Elder SGMA it remains an important priority for wildfire prevention and suppression efforts.

Cheatgrass favors warm-dry soils (which are classified as xeric or aridic soils by soils experts.) However, most of the soils in zones 1c, 2 and 3 comprise cool and wet soil types (cryic, frigid-xeric and frigid-aridic soils). This means that cheatgrass and other annual grasses are much less likely to become problematic within these zones. Soil moisture and temperature conditions in zone 3 and portions of zones 1c and 2, also allow restoration of healthy vegetation. Using soil moisture, temperature, elevation and other quantified variables, restoration specialists determine whether reseeding or other restoration activities will be helpful. Restoration activities after wildfire in these areas are often highly successful, and revegetation of desirable forbs, grasses and brush occurs in just a few short years.



Date: 12/22/2014 Document Path: J:\GISProjects\NRCS Soil Temp data\Box Elder wf priority.mxd

**Figure 14 - Soil temperature and soil conditions and existing fire management efforts means wildfire is not a threat in zones 1c, 2 and 3. With less than 365 acres per year burning on average in these areas, sage-grouse populations are not at risk.**



**Few Birds in Zone 4**

Zone 4 provides nesting/brood-rearing habitat for just 2% of Sage-grouse in the Box Elder SGMA. Nevertheless, because zone 4 includes general winter range, it is helpful for it to be included in the prioritization system. While there are less wildfires which start in zone 4 than zones 1a and 1b, the total acreage burned by wildfires from 1995-2012 in zone 4 was relatively high. Nevertheless, because of the large amount of winter habitat in the Box Elder SGMA, the amount of acreage impacted by wildfires in zone 4 is not considered limiting for sage-grouse populations. This does not mean that wildfire suppression is not important in zone 4. Instead, it reflects the reality that in triage situations, where multiple fires may be

burning, prioritizing wildfire control in nesting/brood rearing areas and critical winter range in zones 1-3 is a higher priority than general winter range in zone 4. This is because winter range in zone 4 is in more abundant, and the impact of a large wildfire in zone 4 is less likely to directly impact sage-grouse populations than a large wildfire in zones 1-3. It is also important to point out that zones 1-3 contain important winter range for Sage-grouse in the Box Elder SGMA.

Analysis of historical wildfire trends suggests that controlling wildfires in zone 4 will not typically interfere with wildfire-control efforts in zones 1-3. For example, the two largest fires in zone 4 occurred in 2005 and 2006, while two largest fires

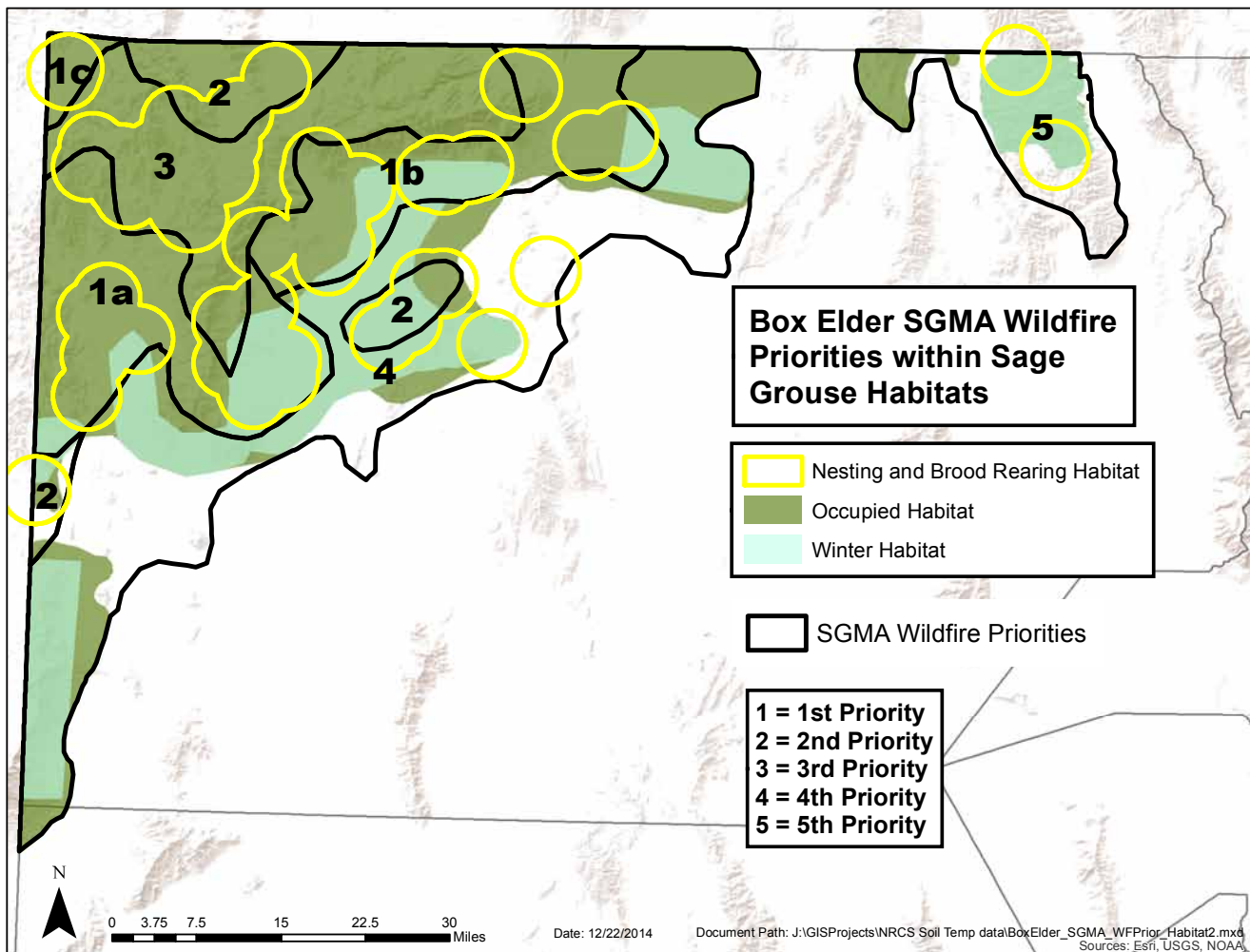


Figure 15 - shows that the majority of nesting brood rearing habitat occurs within zones 1-3. Zones 1-3 also contain winter habitat.

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

in zones 1a and 1b were in 2007. This demonstrates that the priority system can provide protection of general winter range, even in difficult fire years.

### **Detailed Wildfire Strategies for Zones 1a and 1b**

Prioritization of zones 1a and 1b is important to inform improved rapid response and suppression strategies in the Box Elder SGMA. While there are few large wildfires in zones 1a and 1b, large wildfires account for most of the acreage burned in these areas. In some respects, this is a function of the soil temperature and moisture regimes, elevation and plant communities, but is also informed by historic wildfire trends. Prioritization reflects the fact that wildfires are not only more likely to occur in zones 1a and 1b, but they are also more likely to burn large amounts of acreage.

By prioritizing zones 1a and 1b, Utah can focus its enhanced prevention and suppression efforts on at-risk areas and habitats within the Box Elder SGMA that are important to Sage-grouse survival. There are multiple ways prioritization can be

helpful to suppression efforts in the Box Elder SGMA. For example, if multiple fires start in a single night and resources become limited, it is helpful to recognize that a wildfire in zone 1a is more likely to become large than a wildfire in zone 3. Similarly, it is helpful to recognize that a wildfire in zone 1b is more likely to detrimentally impact Sage-grouse populations than a wildfire in zone 4.

Most years, all wildfires within the Box Elder SGMA are extinguished before they become very large. In fact, from 1995 to 2012, there were no wildfires in zones 1a and 1b that exceeded 10,000 acres in 16 out of 18 years. During those 16 years, wildfires burned just a combined 1,434 acres annually on average within zones 1a and 1b. However, in 2005 and 2007, large wildfires far exceeded these annual averages. For example, in 2005 one fire burned 18,420 acres in zone 1a. In 2007 two fires burned 59,296 acres in zone 1b and four fires burned 12,484 acres in zone 1a. Controlling these fires can reduce acreage impacted by wildfire by up to 75%.

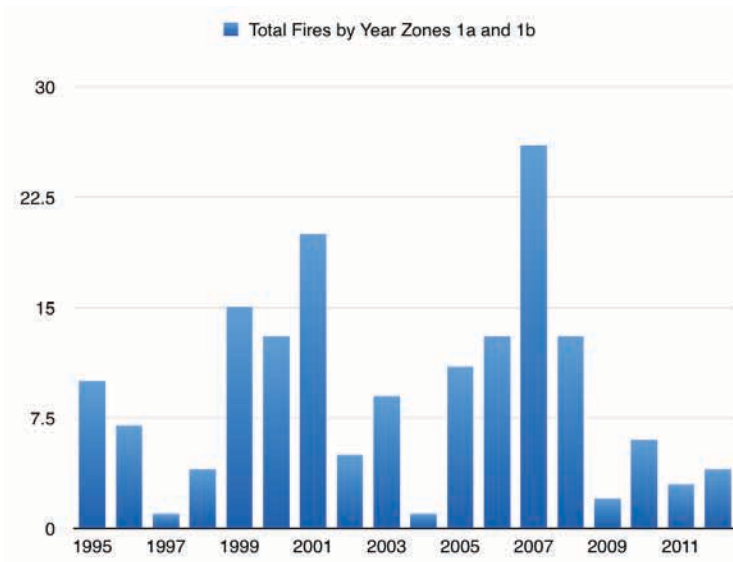


Figure 16 - The number of wildfires within zones 1a and 1b can vary considerably from year-to-year.

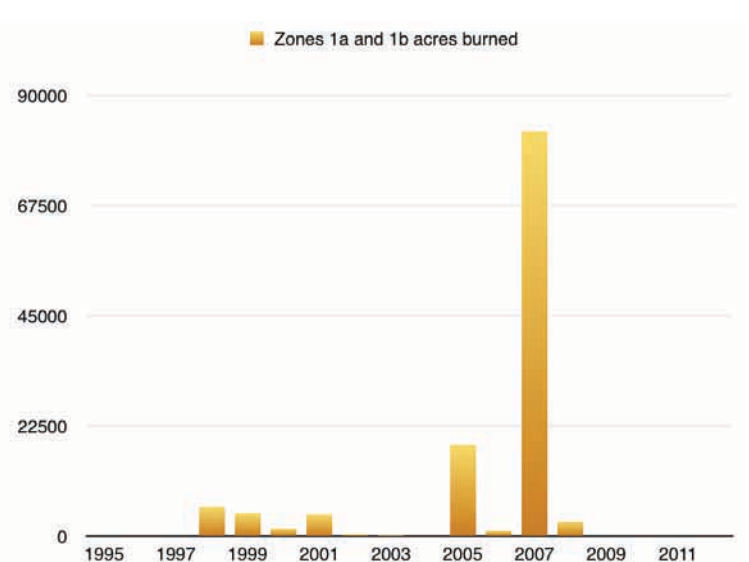


Figure 17 - Severe fire conditions in certain years (particularly 2005 and 2007) account for most of the acreage burned in key areas of the Box Elder SGMA.

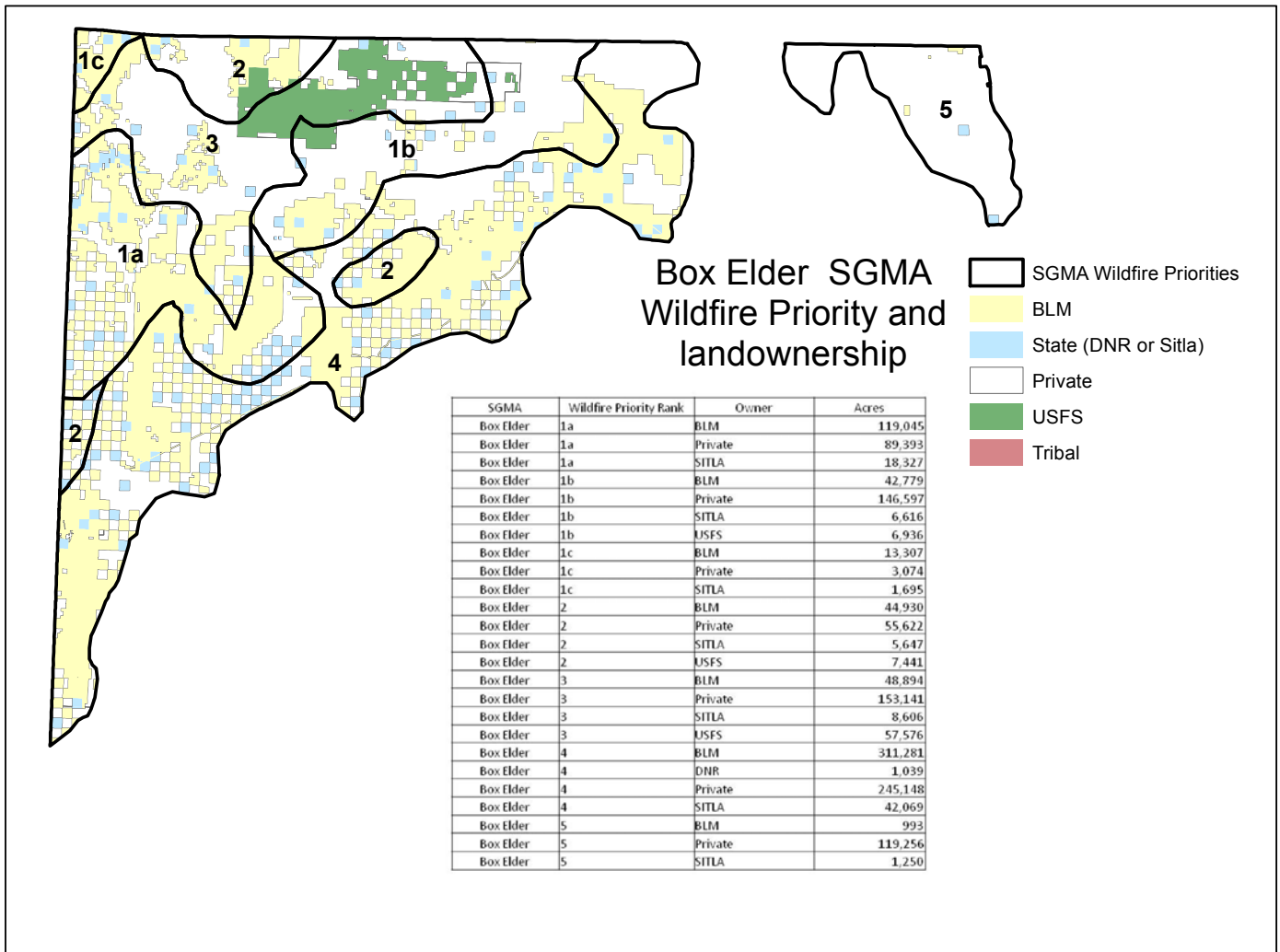
## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

Enhanced wildfire control in zones 1a and 1b protects nesting/brood-rearing areas and winter habitats for Greater Sage-grouse in the Box Elder SGMA. Zones 1a and 1b provide nesting/brood rearing habitat for 43% of the Sage-grouse in the Box Elder SGMA. Zones 1a and 1b are also important for protecting the habitat in areas 1c, 2 and 3 from catastrophic wildfire. In other words, controlling wildfires in zones 1a and 1b protects not only 43% of Sage-grouse in zones 1a and 1b, but also the 55% of Sage-grouse in zones 1c, 2 and 3. What this means is that protecting 98% of the birds can be achieved by reducing the number of large fires within the 226,765 acres designated as zone 1a and the 202,928 acres designated as zone 1b. Managing wildfires on the combined

429,693 acres of zones 1a and 1b is a much more manageable task than attempting to control every fire on 1.5 million acres in the most extreme fire conditions. Considering the fact that a small handful of fires in zones 1a and 1b in 2007 accounted for approximately half of the acreage burned in an 18-year period in the Box Elder SGMA, the priority system provides invaluable insight for improving rapid-response strategies and enhanced suppression efforts in future fire seasons.

### **Conifer Removal and Prevention Strategies for Zones 1a and 1b**

Prevention is an important tool to reduce the incidence of large wildfires. Pre-suppression



Date: 12/29/2014 Document Path: j:\GISProjects\NRCS Soil Temp data\SGMA Wildfire Priorities\Landownership\_WP\Box Elder.mxd

**Figure 18 - Ownership of land can affect suppression efforts as well as the timing, funding and regulatory hurdles for conifer removal and other habitat restoration efforts.**

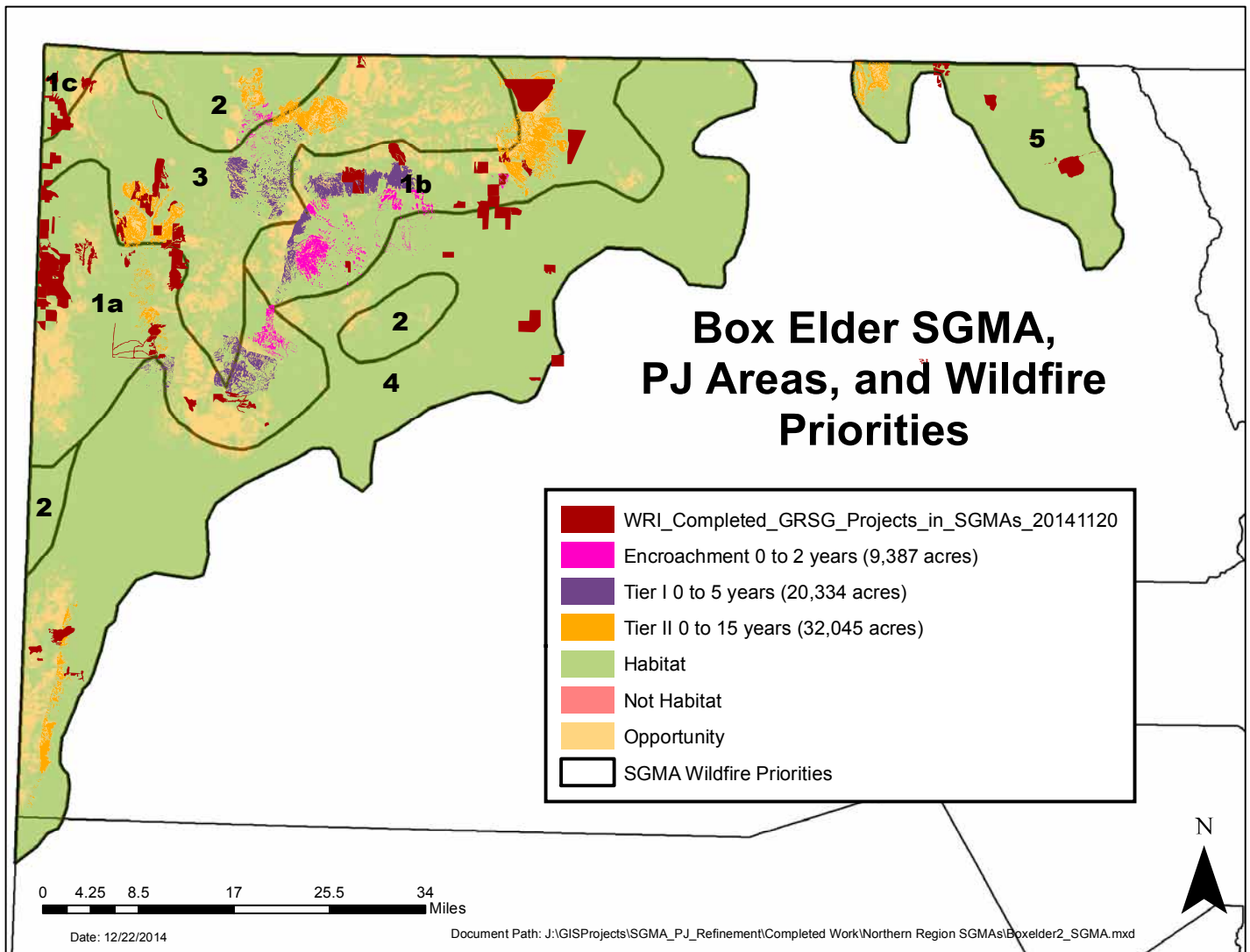


## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

strategies can dramatically reduce the incidence of large wildfires and can enhance the ability to suppress fires that do start in severe conditions. In 2008, the state of Utah responded to the wildfires of 2007 with funding for an ongoing prevention and restoration program. Prevention is a critical part of the detailed wildfire-reduction strategy in zones 1a and 1b. Pinyon-juniper removal, restoration and other prevention work in zones 1a and 1b can also help address the threat of wildfire by:

- (1) Reducing the fuel loads which that can increase the likelihood of catastrophic wildfires.
- (2) Enhancing habitats to improve the success of suppression of wildfires in severe conditions.
- (3) Reducing the size and intensity of fires that do occur.

These programs have been extremely successful. Since 2007, almost 100,000 acres of conifer removal, invasive plant control and Sage-grouse



**Figure 19-Watershed Restoration Initiative Projects totaling over 100,000 acres have been completed in Box Elder SGMA since 2006. Over 60,000 acres of conifer removal projects are planned in coming years to enhance grouse habitat and reduce the threat of catastrophic wildfire.**

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

habitat restoration efforts have been implemented in the Box Elder SGMA. An additional 60,000+ acres of conifer removal is planned in Box Elder SGMA in the next few years. These projects increase the resiliency and redundancy of sage-grouse habitats, improve watersheds and mesic areas, remove vertical plant structures and reduce the threat of catastrophic wildfires. Many of these projects are planned adjacent to existing Sage-grouse populations or in areas of important winter range. Since 2008, wildfire totals in Box Elder have dramatically improved. Between 2008 and 2014, no wildfire burned over 2,500 acres in the Box Elder SGMA. In that same period, just 4 fires were larger than 1,000 acres.

For more information on the science behind conifer removal and the benefits to Sage-grouse and their habitats, refer to the state of Utah's

Sage-Grouse Conservation Strategies document on pinyon/juniper removal.

Most of the habitat restoration efforts in the Box Elder SGMA occurs in zones 1a and 1b. Ownership of land in pinyon-juniper removal areas affects whether funding availability, regulatory restrictions and NEPA assessments may delay or restrict conifer removal projects. For example, the fact that a large percentage of zone 1b is private land makes it much more likely that pinyon/juniper removal will implemented in the next few years. In contrast, zone 1a includes large portions of public lands managed by the Bureau of Land Management (BLM). Though BLM is an important partner in Utah's Watershed Restoration Initiative, NEPA requirements and availability of funding can delay pinyon/juniper removal projects by several months or even years on BLM managed lands.



## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

### **Box Elder Conclusion**

Existing wildfire prevention, suppression and rehabilitation strategies have successfully addressed the threat of wildfire in most years within the Box Elder SGMA. However, in extreme fire conditions, such as those experienced during the 2007 wildfire season, large fires can burn large amounts of acreage. These fires account for most of the acreage burned within important sage-grouse habitats within the Box Elder SGMA. To reduce the threat of wildfire in extreme fire conditions, the state of Utah has developed a priority system to inform prevention projects and rapid-response/suppression strategies. By utilizing a priority system, heightened protections are focused on key nesting/brood rearing and critical winter range. The priority system protects 98% of Sage-grouse in the Box Elder SGMA within the areas designated as priority zones 1-3.

Prioritization is helpful to focus wildfire prevention and suppression strategies in at-risk areas within the Box Elder SGMA. For example, while the Box Elder SGMA covers 1.5 Million acres, protecting 98% of the birds can be achieved by reducing the number of large fires within the 226,765 acres designated as zone 1a and 202,928 acres designated as zone 1b. Quantification and spatially explicit threat analyses illustrate that Utah's priority system for preventive treatments and rapid response strategies in Box Elder SGMA can reduce the acreage burned by wildfire by up to 75% in areas which are key to survival of 98% of the birds in the Box Elder SGMA. By utilizing priority areas, the science and data inform wildfire suppression strategies in a manner that not only reflects likely conditions on the ground, but also informs strategies for significantly reducing the threat of wildfire to greater sage-grouse populations.



## Hamlin Valley

encompasses 158,065 acres. Between 0 and 22



### Overview

Detailed conservation strategies for the Hamlin Valley SGMA are much more straightforward than for the Box Elder SGMA. Priority zone 1 contains 100% of the nesting/brood-rearing and key winter habitat in the Hamlin Valley SGMA. While Hamlin Valley covers 341,523 acres, priority zone 1

wildfires occur annually within priority area 1. However, most of these fires are quite small. In fact, less than 100 acres burns in zone 1 of Hamlin Valley in a typical year. However, in 2002, one fire burned 4,550 acres. In 2012, another fire

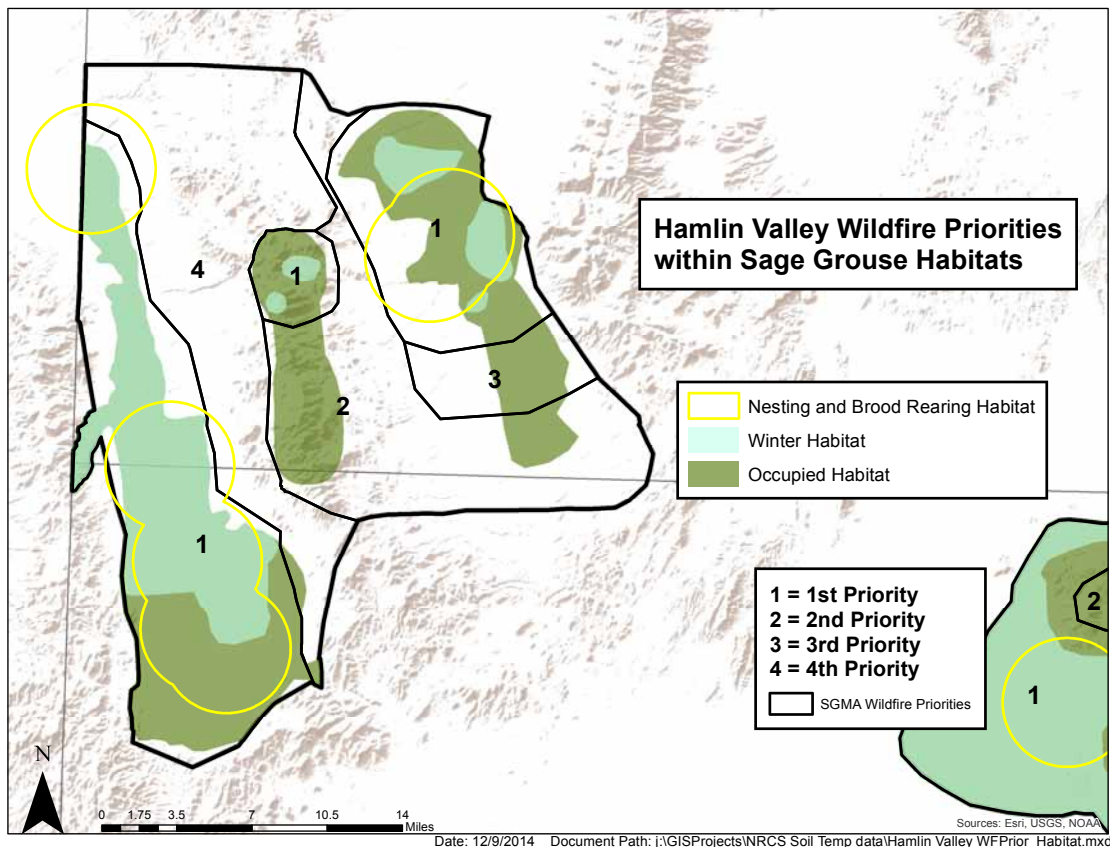


Figure 20 - One-hundred percent of leks, nesting/brood-rearing habitat and most key winter ranges are located in zone 1. Zones 2 and 3 contain some general habitat as well as opportunity areas. Zone 4 is primarily non-habitat.

UTAH SAGE-GROUSE CONSERVATION STRATEGIES

burned approximately 8,500 acres. These two fires account for over 96% of the acreage burned in priority area 1 of Hamlin Valley from 1995-2012. While wildfire is not a major concern within zone 1, prioritization of zone 1 protects key habitat areas and provides an opportunity to reduce the incidence of large fires and overall acreage-burned within Sage-grouse habitat in Hamlin Valley.

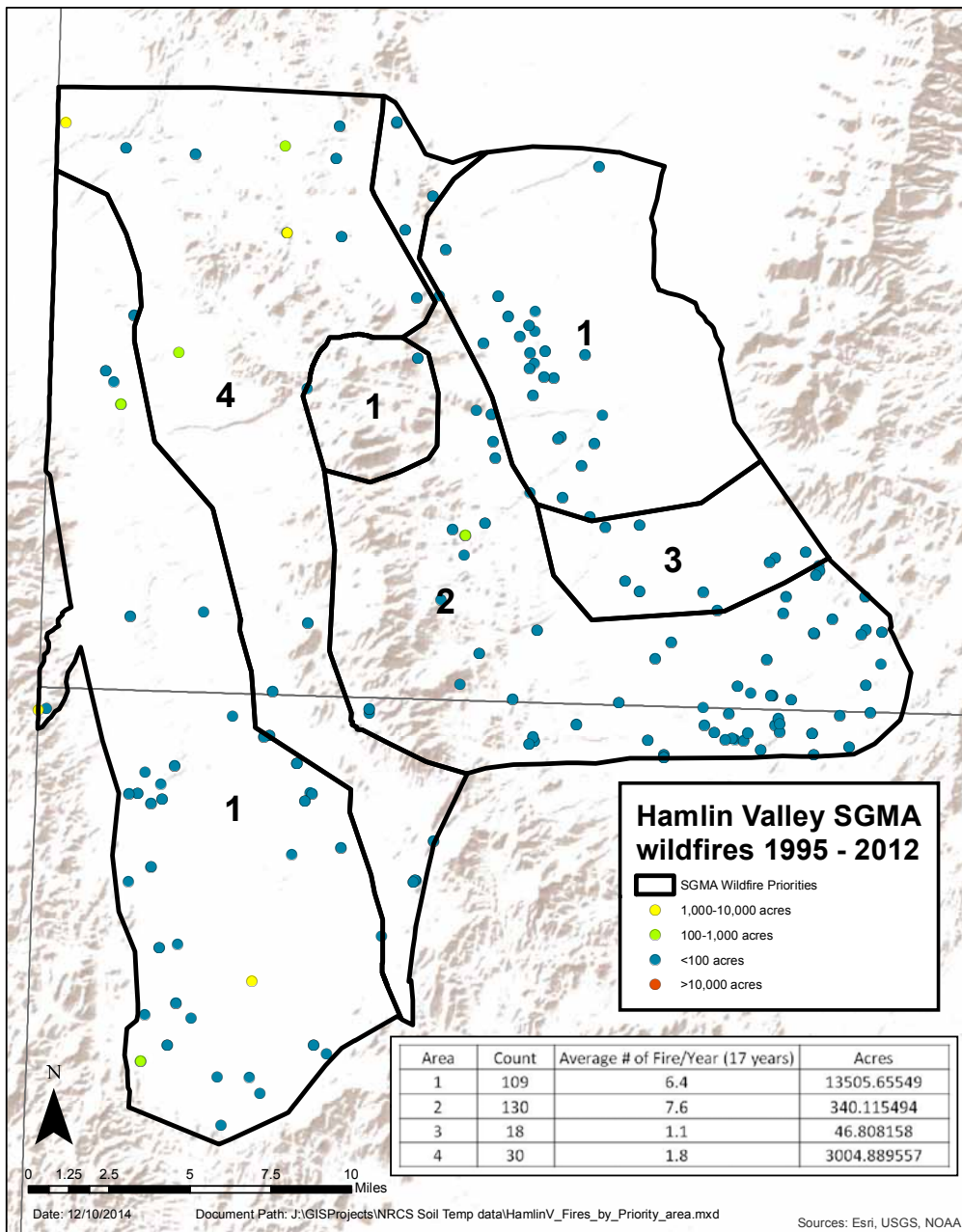
Zone 2 encompasses an area of general habitat between the populations on the eastern and

western portions of the Hamlin Valley SGMA. In an 18 year period (from 1995-2012), there were 131 fires in zone 2. However, soil temperature and moisture regimes and existing wildfire-suppression efforts resulted in just 340 acres burned during this 18-year period. While this area contains some seasonal habitat, it primarily consists of conifer stands that do not provide important habitat for Sage-grouse. It is important to control fires in zone 2 to prevent catastrophic wildfires which could burn into zone 1. Zone 2

also includes opportunity areas of possible habitat. Removal of conifers in these areas can increase the amount of available habitat for Sage-grouse as long as projects are conducted in areas adjacent to existing Sage-grouse populations, with adequate water and other habitat characteristics. Similar areas in other parts of Utah are being utilized by Sage-grouse within months of the completion of those restoration projects.

Zone 3 and zone 4 have very few wildfires. Zone 3 has had virtually no large fires in an 18-year period. Zone 4 represents non-habitat because of its geophysical characteristics.

Conifer removal strategies can provide additional protections for Sage-grouse habitat in Hamlin Valley. Areas planned for conifer removal are adjacent



**Figure 21 - By reducing the incidence of large fires in zones 1, acreage burned can be improved by more than 90% in areas that hold leks and the nesting/brood rearing habitat for 100% of Sage-grouse in the Hamlin Valley SGMA.**

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

to Sage-grouse leks, nesting/brood-rearing and important winter range. Typical of desert shrub habitats, the areas suitable for Sage-grouse tend to be fairly localized. Removing conifers from areas adjacent to these habitats helps provide

buffers that further insulate Sage-grouse populations from the threat of wildfire. Conifer removal and other habitat-restoration efforts can also improve the quality of the habitat for Sage-grouse and its resiliency to wildfire. A total of

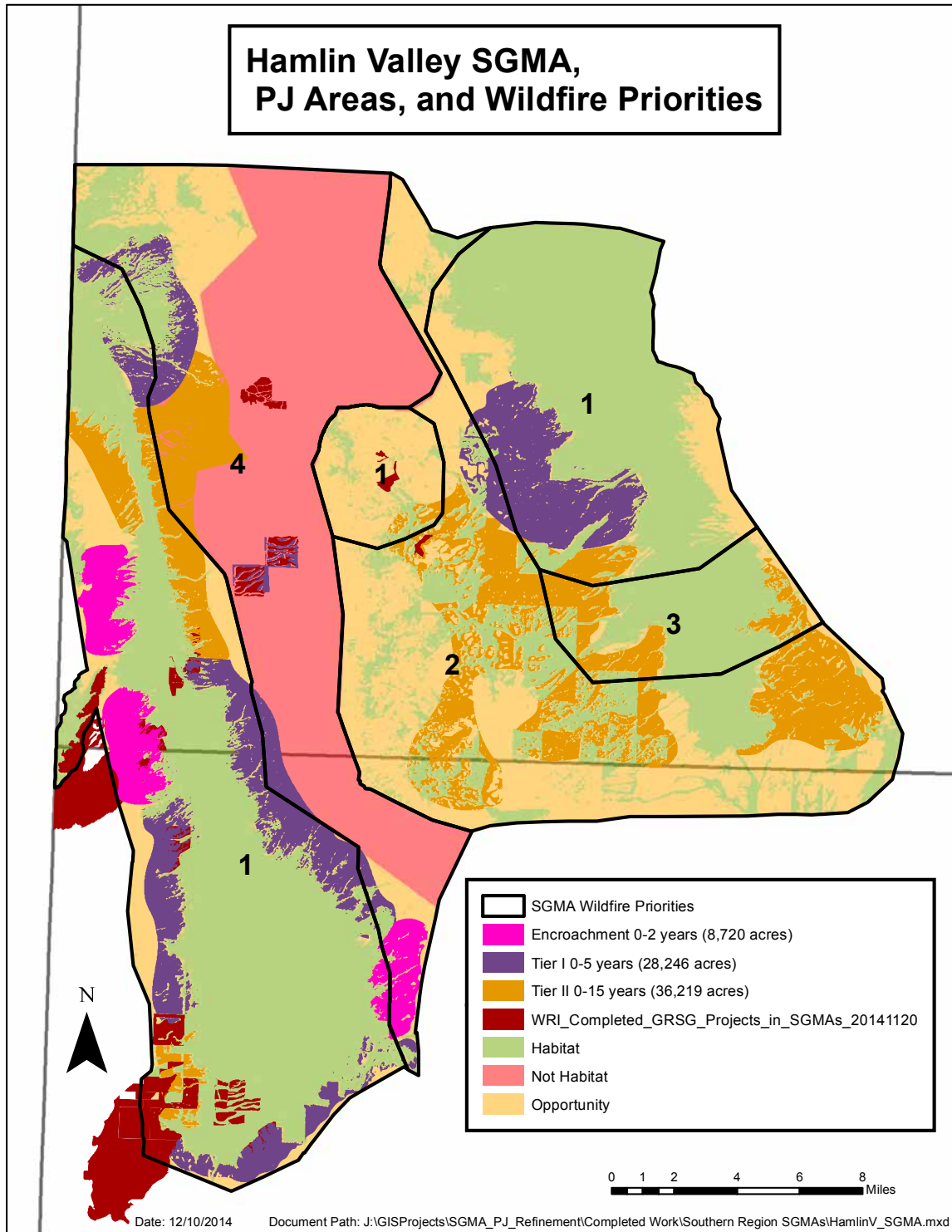


Figure 22 - Conifer removal in areas of leks, nesting/brood rearing habitat and key winter range are a priority in Hamlin Valley.



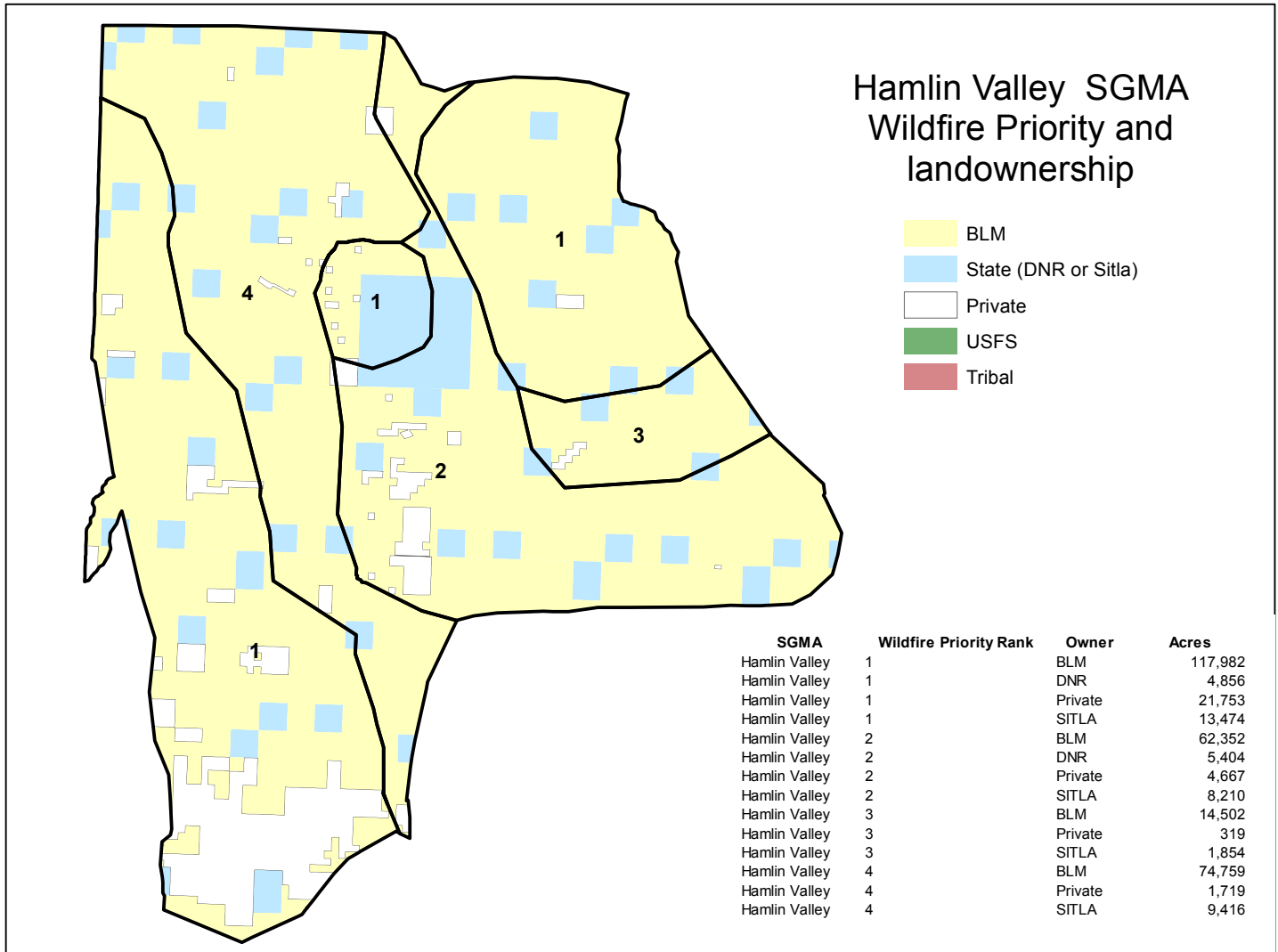
## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

269,595 acres (roughly 79% of the Hamlin Valley SGMA) are managed by the BLM. This means that NEPA, funding and regulatory restrictions will need to be addressed as part of these pinyon-juniper removal efforts.

95% in the areas that are key to survival of 100% of Sage-grouse in the Hamlin Valley SGMA. Proactive conifer removal and habitat-restoration efforts will also help reduce the threat of wildfire in the Hamlin Valley SGMA.

### **Hamlin Valley Conclusion**

Spatial threat analysis illustrates that using a priority system for prevention treatments and rapid response strategies in difficult fire years can reduce the acreage burned by wildfire by up to



**Figure 23 - Lands managed by the BLM comprise the majority of the Hamlin Valley SGMA.**

## Bald Hills

### Overview

In 2007, the Milford Flats Fire burned 357,000 acres in the area adjacent to the Bald Hills SGMA. This was one of the largest recorded fires in Utah history. The Milford Flat Fire underscores the importance of fire prevention, suppression and rehabilitation. Like other SGMA's in which Sage-grouse live, Bald Hills SGMA is primarily a desert shrub ecosystems. In these desert shrub ecosystems Sage-grouse populations are fairly localized in areas of suitable habitat. In the Bald Hills SGMA, 100% of the leks, nesting/brood-rearing and the key winter habitat are located in zones 1 and 2. Zone 1 contains most of the

important winter range, the leks, and nesting/ brood-rearing habitat for most of the Sage-grouse in Bald Hills. Zone 2 contains nesting/brood-rearing habitat for the remainder of the Sage-grouse in the SGMA. For this reason, fire suppression is prioritized for both zones 1 and 2, with a higher priority on zone 1 in difficult triage situations. This does not mean that zone 2 is not important, but it reflects the reality that a large fire in zone 1 is more likely to impact Sage-grouse populations than a wildfire in zone 2.

Zone 3 also contains some general Sage-grouse habitat, along with areas of non-habitat. Zone 4 is predominantly marginal habitat or non-habitat for Sage-grouse. While zones 3 and 4 are prioritized for wildfire treatment, they are assigned a lower

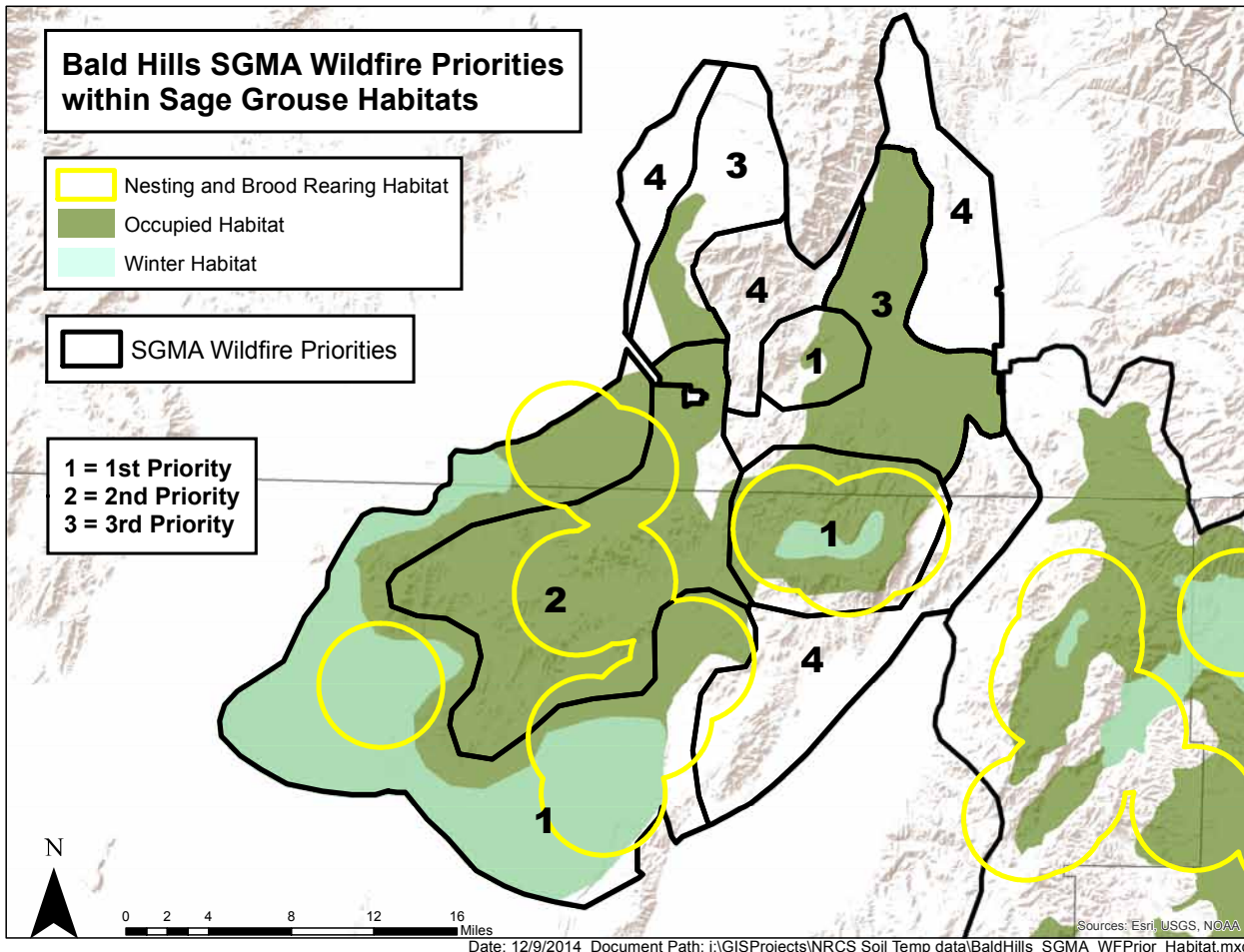


Figure 24 - One-hundred percent of leks, nesting/brood-rearing habitat and most key winter range are located in zones 1 and 2. A greater percentage of leks are found in zone 1 than in zone 2 along with key winter habitat. Zones 3 contains no leks but has some general habitat. Zone 4 is primarily marginal habitat or non-habitat.

priority than zones 1 and 2 due to the lack of leks, nesting/brood rearing and key winter habitat.

**Detailed Analysis**

The average number of wildfires is higher in the Bald Hills SGMA than in any other SGMA in Utah. In most years, these fires do not become a

problem. Even in difficult wildfire years, most of the fires are suppressed without burning large acreage. However, a handful of large fires account for most of the acreage burned in zones 1 and 2. Six fires in zone 1 and five fires in zone 2 account for more than 87% of the acreage burned by wildfire in zones 1 and 2 over the 18-year period

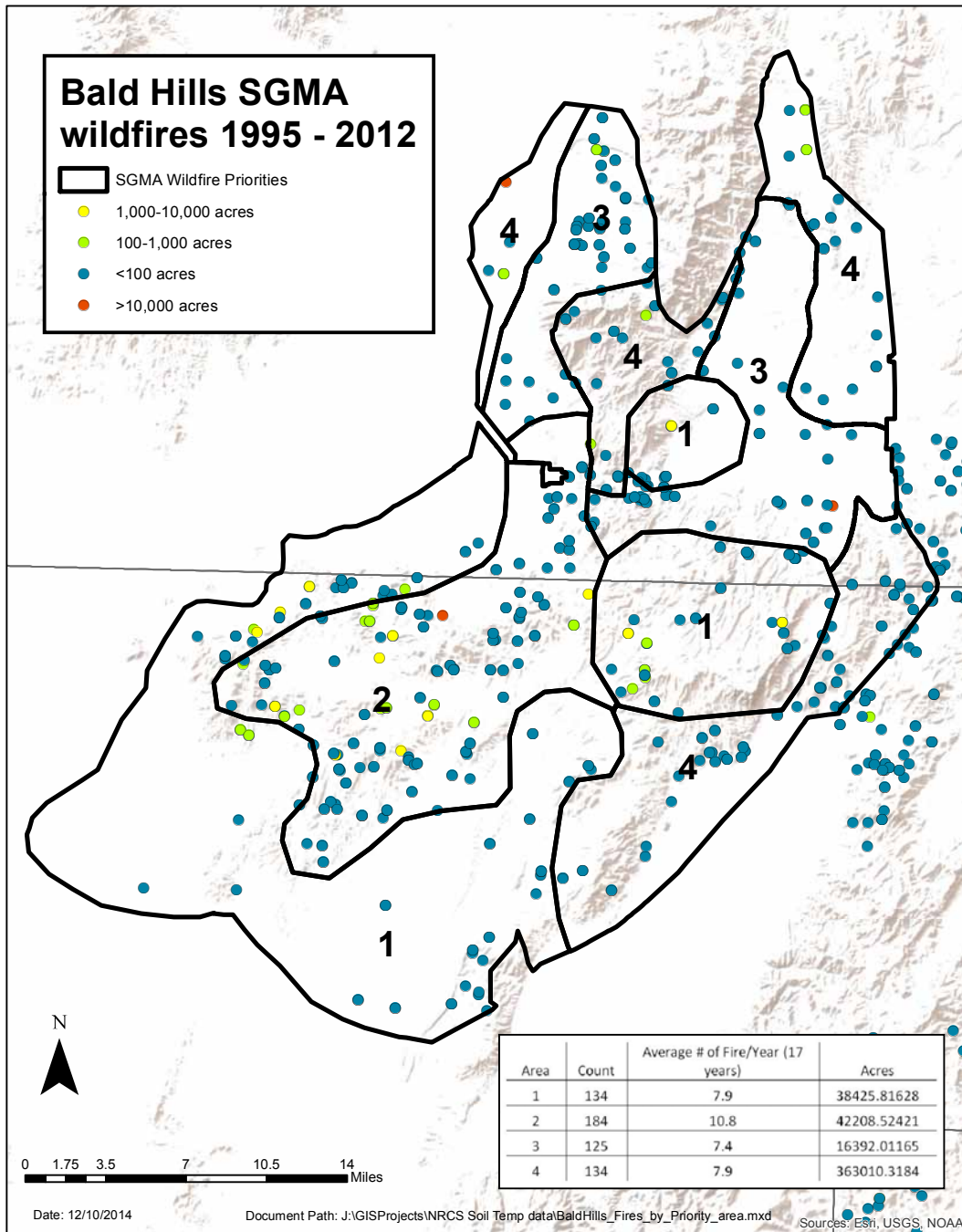


Figure 25 - By reducing the incidence of large fires in zones 1 and 2, the acreage burned can be improved by up to 85% in areas that hold leks and the nesting/brood rearing habitat for 100% of the Sage-grouse in the Bald Hills SGMA.



UTAH SAGE-GROUSE CONSERVATION STRATEGIES

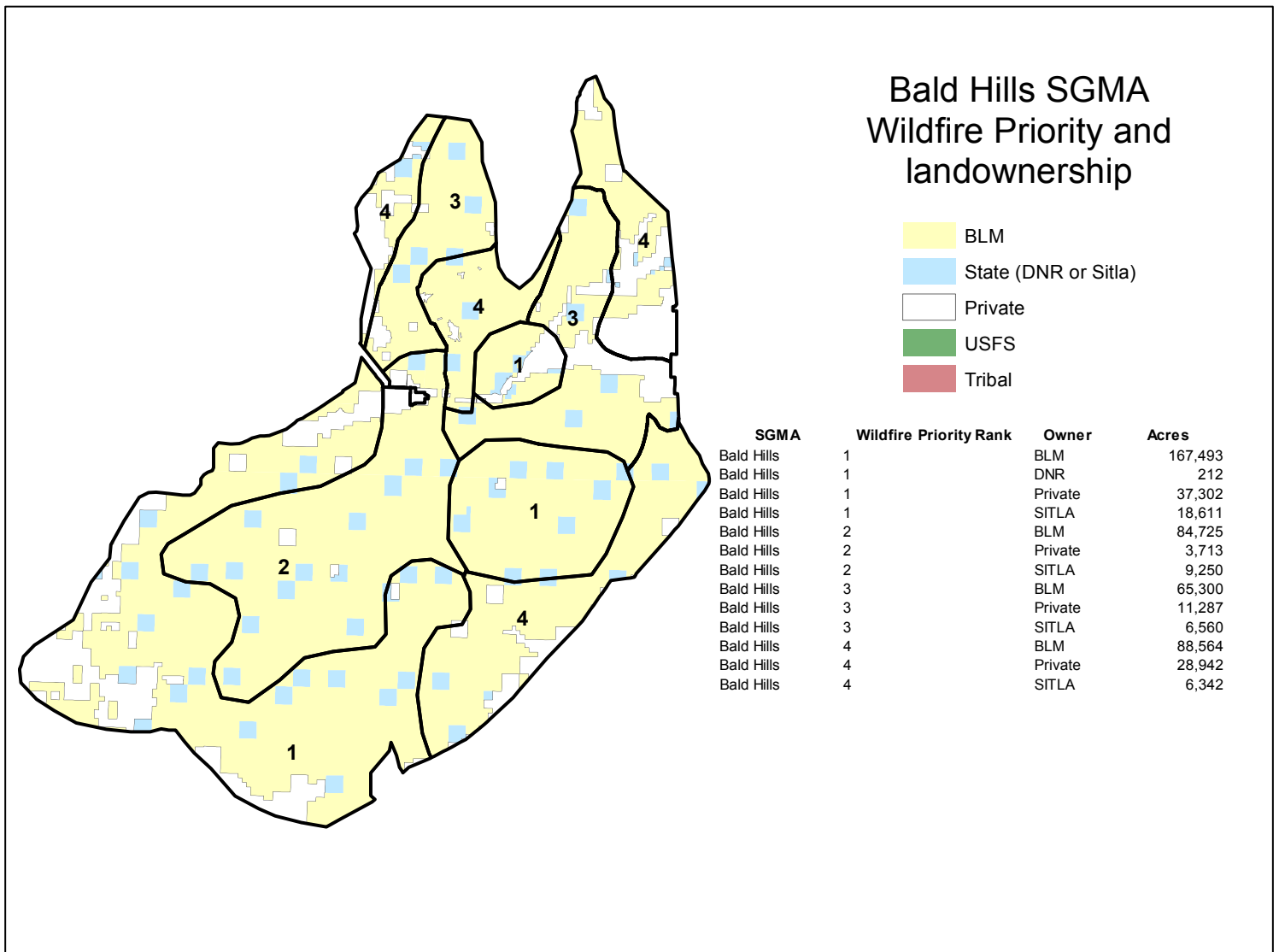
from 1995-2012. What this means is that by reducing the incidence of large fires in zones 1 and 2, the threat of wildfire can be reduced by up to 85% in areas that contain leks and nesting/brood rearing habitat for 100% of Sage-grouse in the Bald Hills SGMA. This will also protect the key winter habitat in the Bald Hills SGMA.

**Land Ownership**

Most of the large fires within the Bald Hills SGMA occur on land managed by the BLM. This is likely the result of a variety of factors. First, the BLM

manages 77% of the acreage within the Bald Hills SGMA. the state land is landlocked by BLM controlled land. Additionally, the higher elevation areas are largely BLM controlled, and these are places where there may be a higher number of lightning strikes.

Because much of the Bald Hills SGMA is managed by the BLM, coordination on pinyon/juniper removal, fire-breaks, greenstripping and suppression efforts will be important. While past wildfires have already removed large swaths of



Date: 12/10/2014 Document Path: J:\GISProjects\NRCS Soil Temp data\SGMA Wildfire Priorities\Landownership\_WP\Bald Hills.mxd

Figure 26 - The majority of the Bald Hills SGMA is managed by the Bureau of Land Management (BLM). State land is landlocked within BLM acreage. Because most of the acreage burned occurs in these areas, coordination will be needed to address the threat of wildfire within the Bald Hills SGMA.

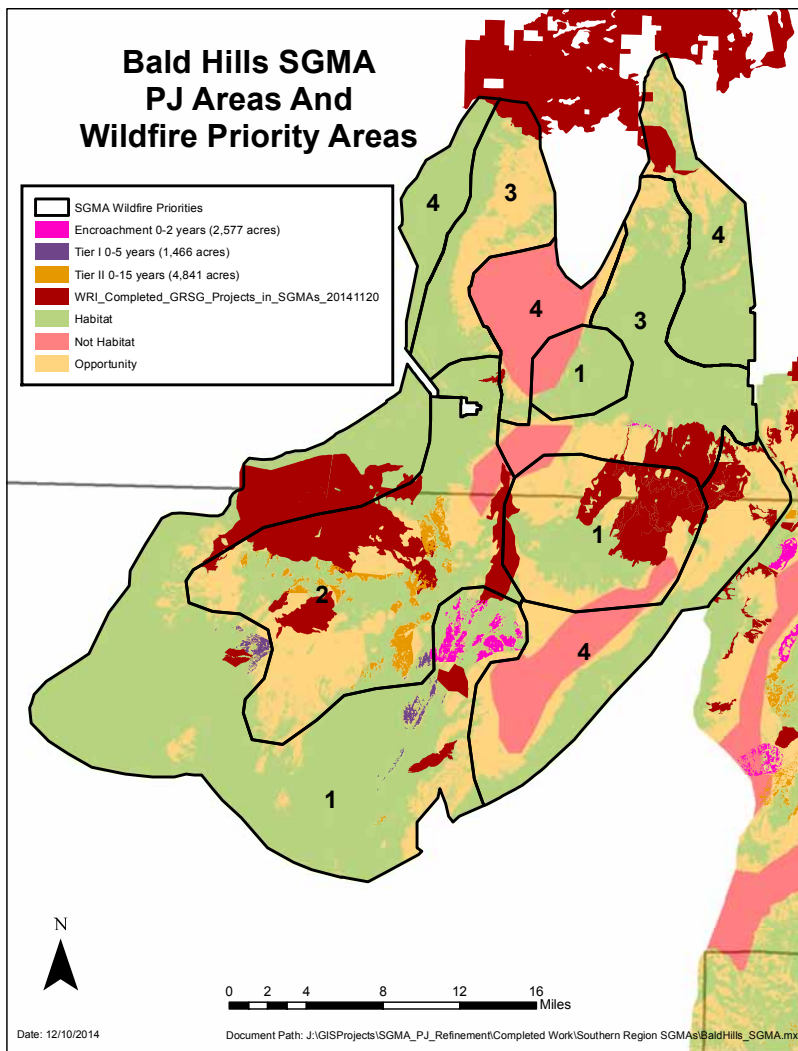
## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

pinyon/juniper growth, mechanical removals in areas adjacent to key leks, nesting/brood-rearing habitats and winter range is still needed to protect Sage-grouse within the SGMA.

### **Prevention**

Because of the large number of fires and the fact that difficult wildfire conditions are not uncommon, key pre-suppression strategies can be helpful. Conifer removal strategies, firebreaks and greenstripping are not only useful to aid in suppression efforts, they can also help prevent fires from affecting the most important habitats for

Sage-grouse in the Bald Hills SGMA. As previously discussed, regulatory hurdles (such as NEPA assessments and other approvals) can delay the timing and possibility of pre-suppression treatment projects. The BLM has been implementing firebreaks and greenstripping over the past several years. A map showing conifer removal strategies is depicted below (Figure 27). A comparison with leks and nesting/brood-rearing habitat shows the importance of conifer removal to reduce the frequency and intensity of large fires in these areas.



**Figure 27 - conifer removal in areas of leks and nesting/brood rearing habitat are helpful to protect Sage-grouse populations in the Bald Hills SGMA.**

**Sheeprock Mountains**

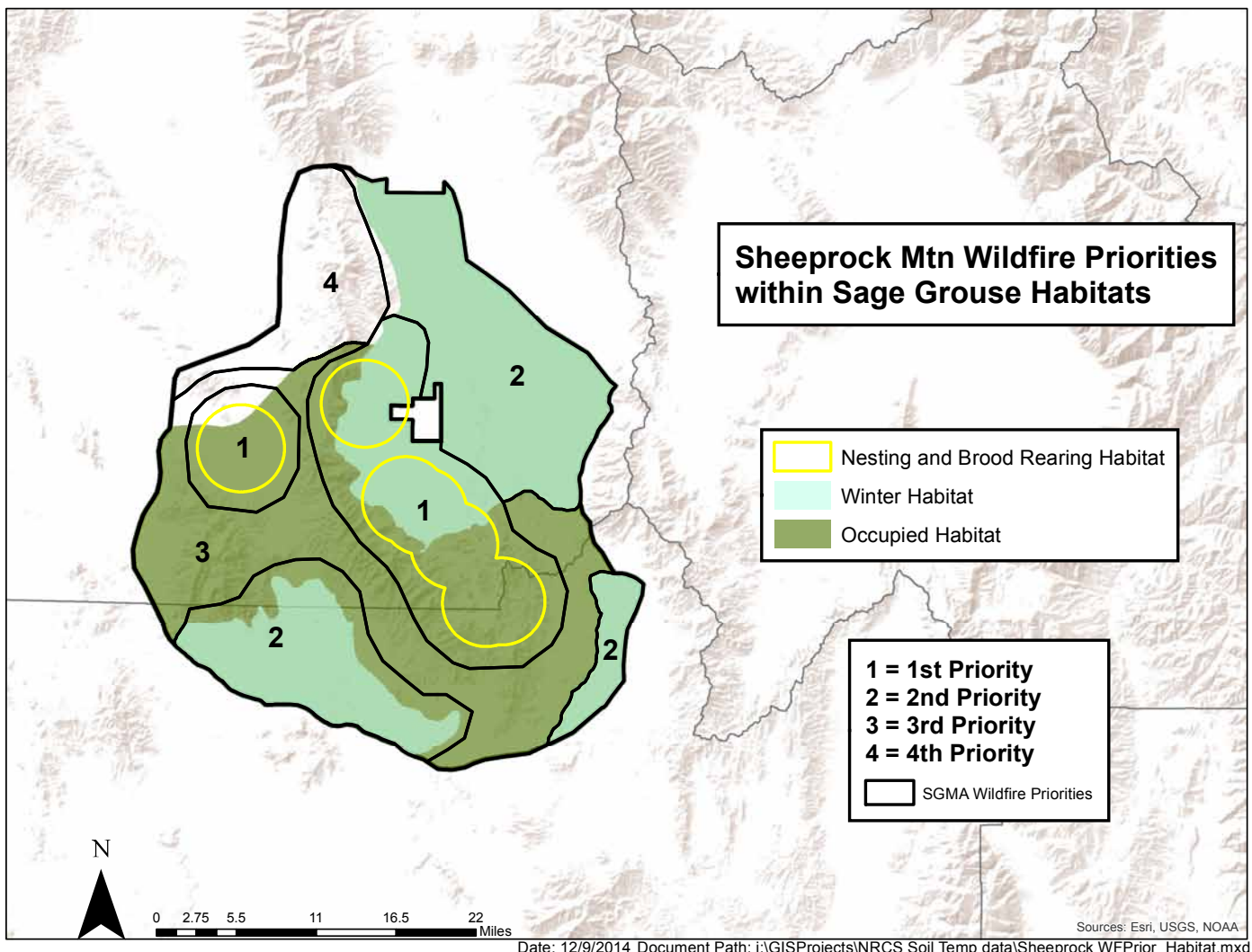
**Overview**

Wildfire is not a major threat to Sage-grouse populations and core habitat within the Sheeprock Mountains SGMA. All leks, nesting/brood-rearing habitats and key winter range are located within the 172,459 acres comprising zone 1. The remainder of the general winter habitat is found in zone 2.

From 1995-2012, wildfires burned 1,598 acres in zone 1. This is an average of less than 100 acres per year. This is not unexpected given the soil/temperature moisture types, elevation and vegetation within zone 1. Existing wildfire control

efforts within zone 1 are sufficient to maintain wildfires within acceptable thresholds.

While wildfires burned quite a few acres within zone 2, the large amount of general winter habitat within zone 2 suggests that the existing level of wildfire should not be limiting. Nevertheless, by prioritizing wildfire control in zone 2, enhanced prevention and suppression strategies could substantially decrease the number of acres burned. While 31,250 acres burned in zone 2 from 1995-2015, two fires in 1998 (of 12,894 acres and 13,927 acres, respectively) accounted for 86% of acres burned. These fires were not in areas that would have a substantial impact on Sage-grouse



**Figure 28 - 100% of Sage-grouse leks and nesting/brood rearing habitat are located within the priority zone 1 within the Sheep Rocks SGMA. The low incidence of wildfire and lack of large wildfires illustrate that existing habitat should be sufficient to protect Sage-grouse populations in this SGMA.**



UTAH SAGE-GROUSE CONSERVATION STRATEGIES

populations. Nevertheless, prevention efforts including conifer removal and enhanced suppression strategies should be able to reduce the impact of wildfires within the Sheeprock Mountain SGMA. An additional 30,435 acres of conifer-removal work is planned in the Sheeprock Mountains SGMA over the next few years.

Wildfire is not a major threat in zones 3 and 4. Between 1995 and 2012, 3,093 acres burned in zone 3, while 2,892 burned in zone 4. Because these areas contain general habitat, opportunity areas and non-habitat, it makes sense to prioritize these areas behind zones 1 and 2.

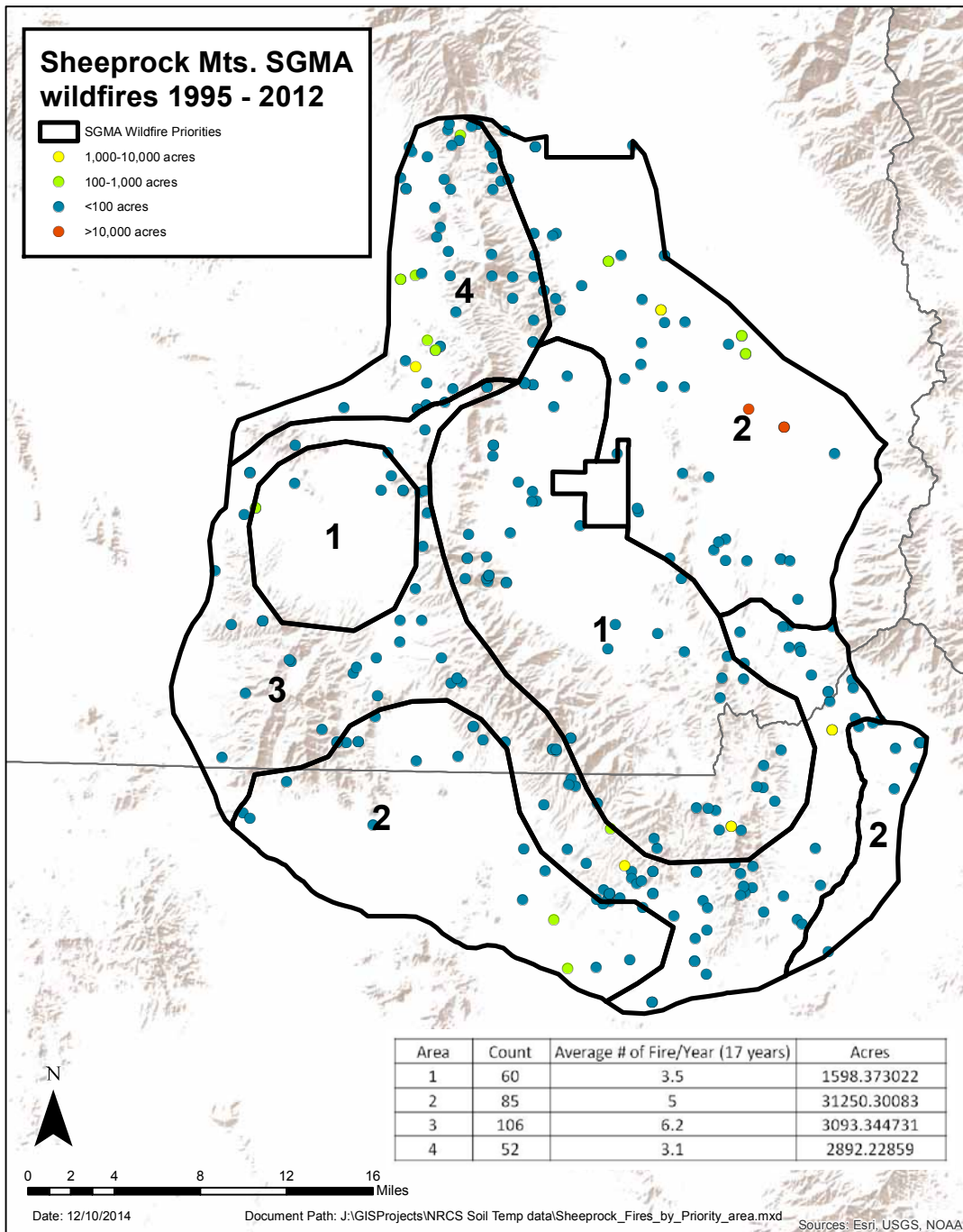


Figure 29 - Existing wildfire control efforts are effectively controlling wildfires within priority zone 1 which contains 100% of the leks and nesting/brood rearing habitat for the Sheeprock Mountains SGMA. Only 1,598 acres burned from 1995-2012 in zone 1, primarily during one fire.

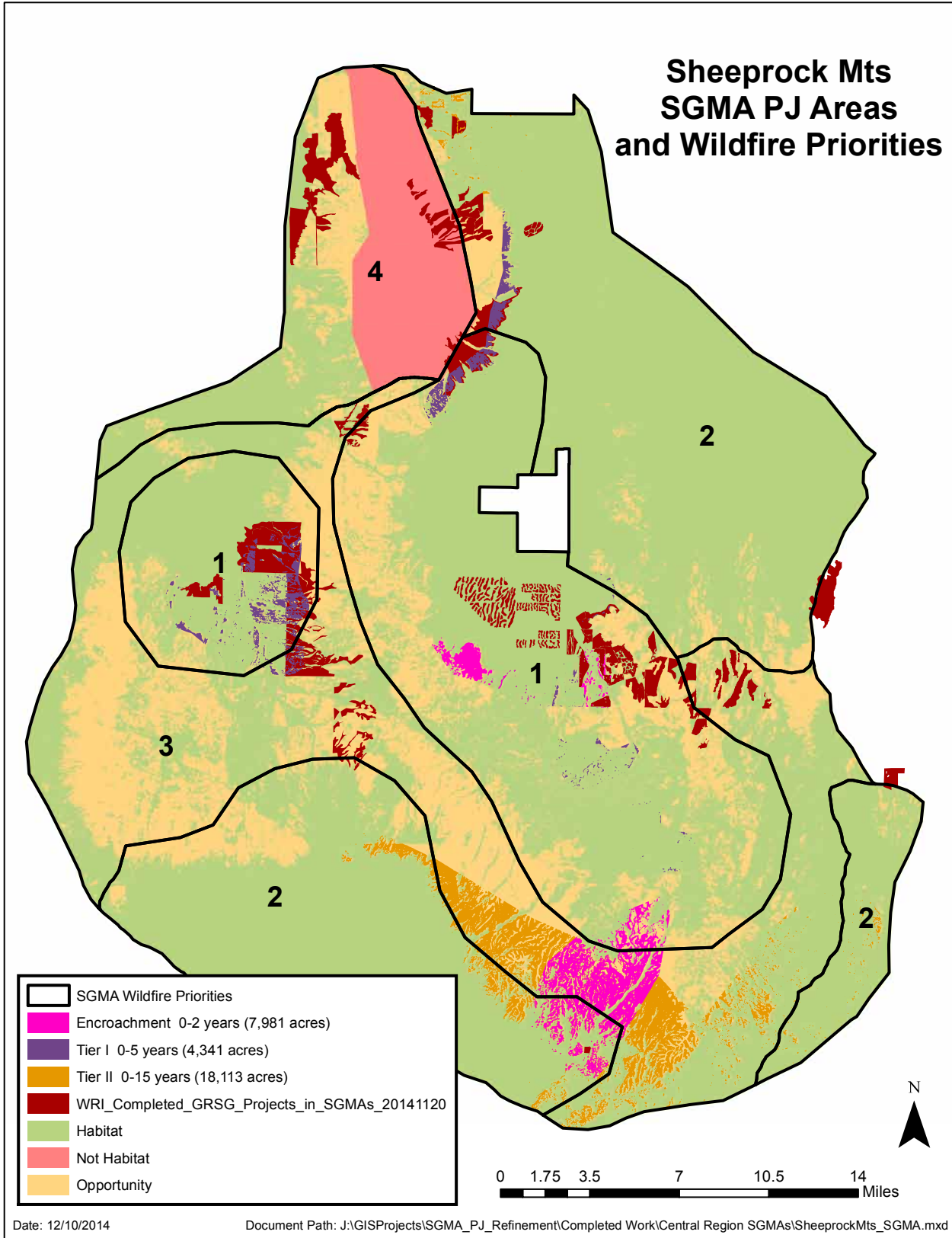
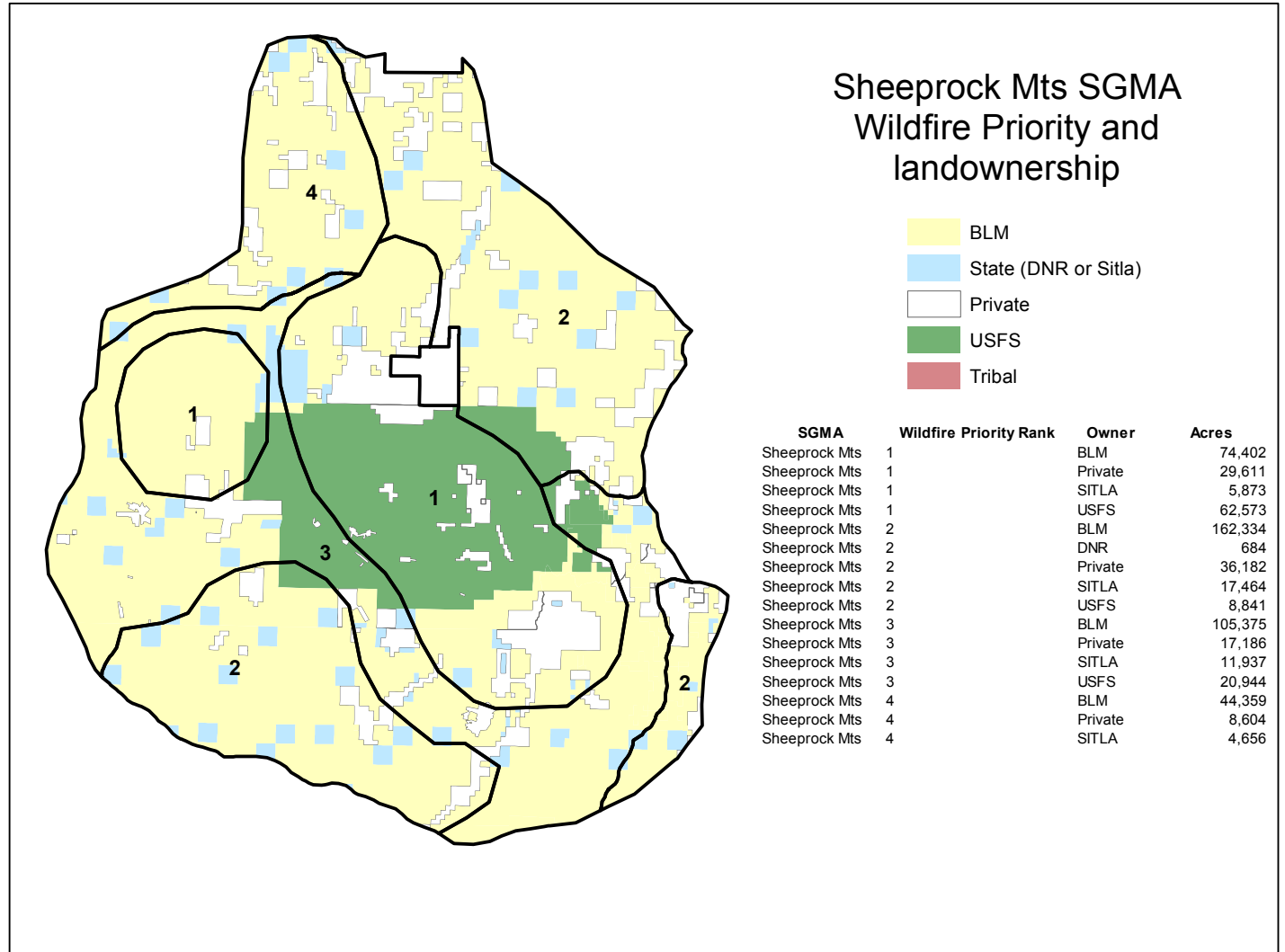


Figure 30 - conifer removal in areas of leks and nesting/brood rearing habitat are helpful to protect Sage-grouse populations in the Sheeprock SGMA. These projects also increase available habitat in key areas.



Date: 12/10/2014 Document Path: J:\GISProjects\NRCS Soil Temp data\SGMA Wildfire Priorities\Landownership\_WP\Sheeprock.mxd

**Figure 31 - land managed by the Bureau of Land Management and forest service comprise the majority of the Sheeprock SGMA.**



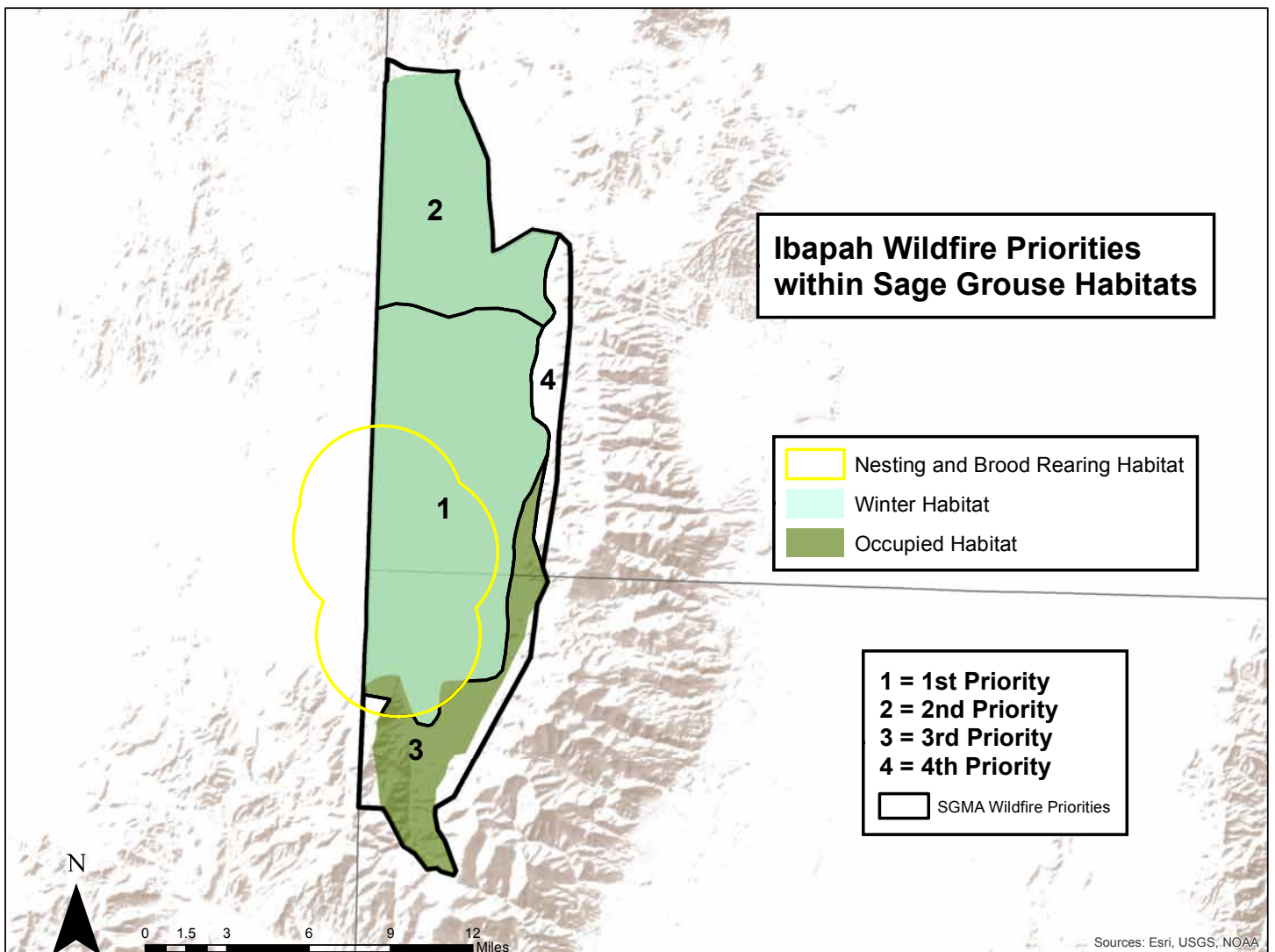
**Ibapah**

**Overview**

Wildfire is not a major threat within the Ibapah SGMA. In fact, Ibapah averages less than one fire per year across the entire SGMA. Like other SGMA's that contain primarily desert shrub habitat, Ibapah has Sage-grouse populations and core sage-grouse habitat that are quite localized. In fact, 100% of leks, nesting/brood-rearing and key winter range is contained within the 51,299 acres in zone 1. Soil and temperature regimes within portions of the Ibapah SGMA suggest that

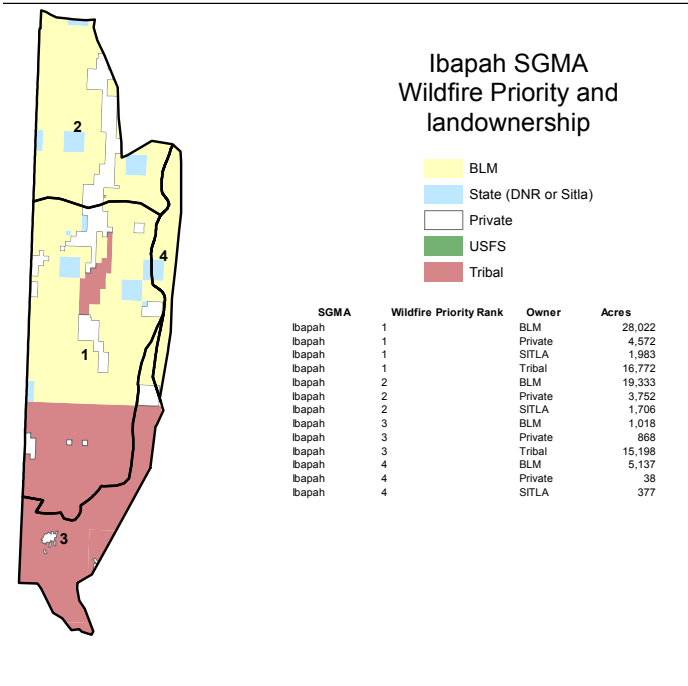
providing enhanced prioritization of Ibapah SGMA makes sense.

Conifer removal is an important strategy for further reducing the threat of large wildfires within the Ibapah SGMA. Nearly 3,900 acres of pinyon-juniper removal are planned in coming years, and much of this will occur in zone 1. Upon completion of these pinyon-juniper removal projects very few conifers will remain within zone 1. This should further reduce the likelihood of large fires, while also making fires easier to suppress when they do occur.



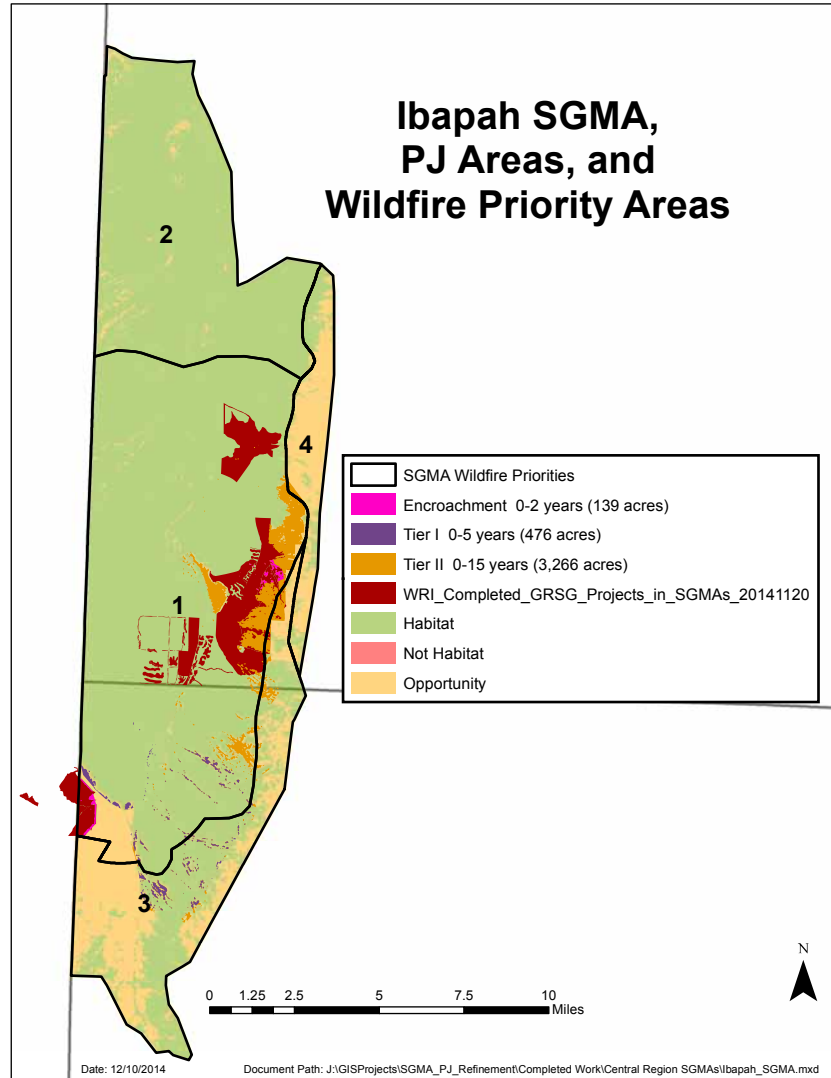
Date: 12/9/2014 Document Path: j:\GISProjects\NRCS Soil Temp data\Ibapah WFPrior\_Habitat.mxd

**Figure 32 - One-hundred percent of Sage-grouse leks and nesting/brood-rearing habitats are located in the priority zone 1 of the Ibapah SGMA. The low incidence of wildfire and lack of large wildfires illustrate that existing habit should be sufficient to protect Sage-grouse populations in this SGMA.**



Document Path: J:\GISProjects\NRCS Soil Temp data\SGMA Wildfire Priorities\Landownership\_WP\Ibabah.mxd

**Figure 343** - The majority of the Ibabah SGMA is managed by the BLM while acreage in the southern portion is Tribal Land. Coordination will be helpful in implementation of conifer-treatment and fire-control projects within the Ibabah SGMA.

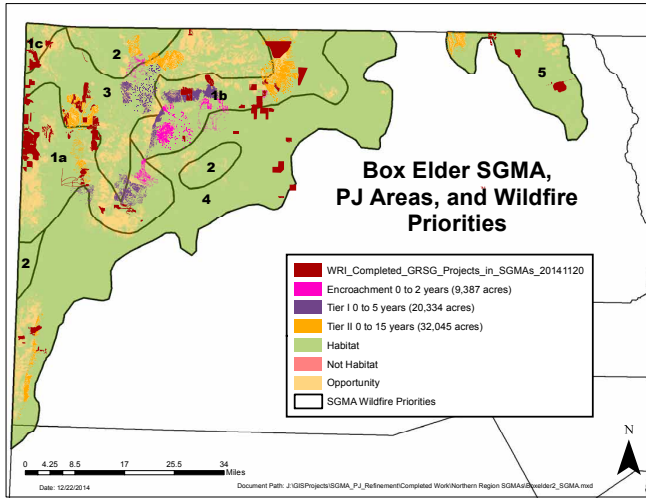


**Figure 34** - Conifer removal near leks and nesting/brood rearing habitat will help protect Sage-grouse populations in the Ibabah SGMA. These projects also increase available habitat in key areas.

## Conclusion Conservation for Long-Term

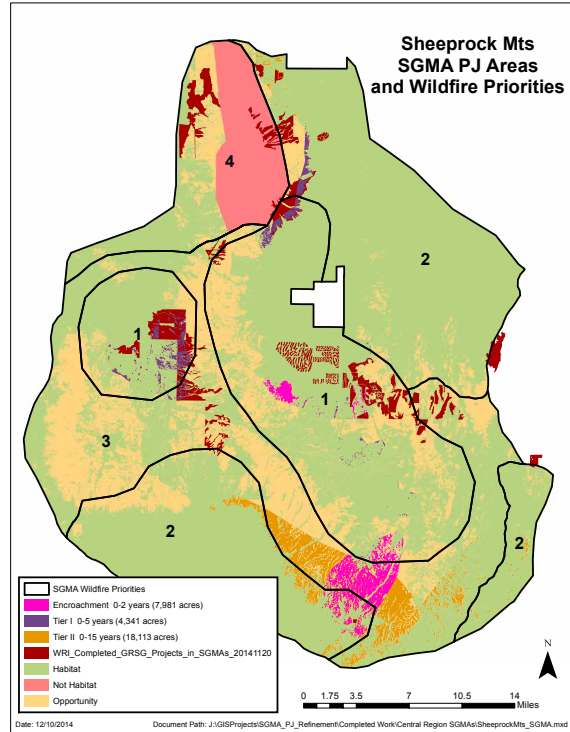
The following is a brief overview of habitat enhancement and wildfire prevention strategies for each Utah SGMA:

### Box Elder - Highest Priority



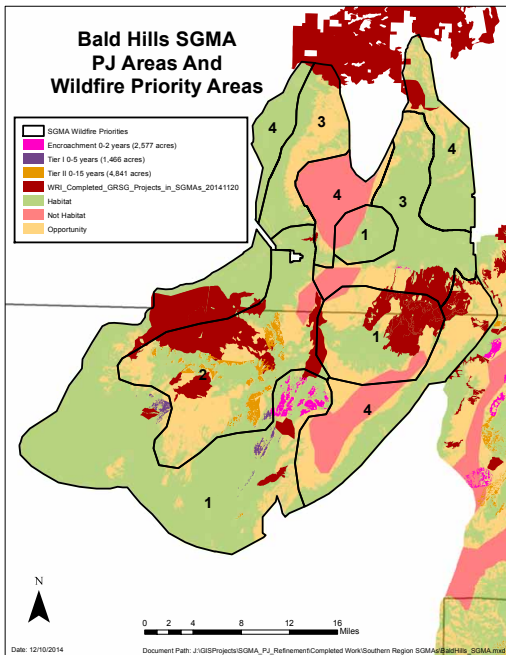
Past habitat work/conifer removal: 91,185 acres  
 Projected work to be completed in next 10-15 years: 61,766 acres  
 Total habitat restoration: 152,951 acres

### Sheep Rock Mountains - Elevated Priority



Past habitat work/conifer removal: 22,515 acres  
 Projected work to be completed in next 10-15 years: 30,435 acres  
 Total habitat restoration: 52,950 acres

### Bald Hills - Highest Priority

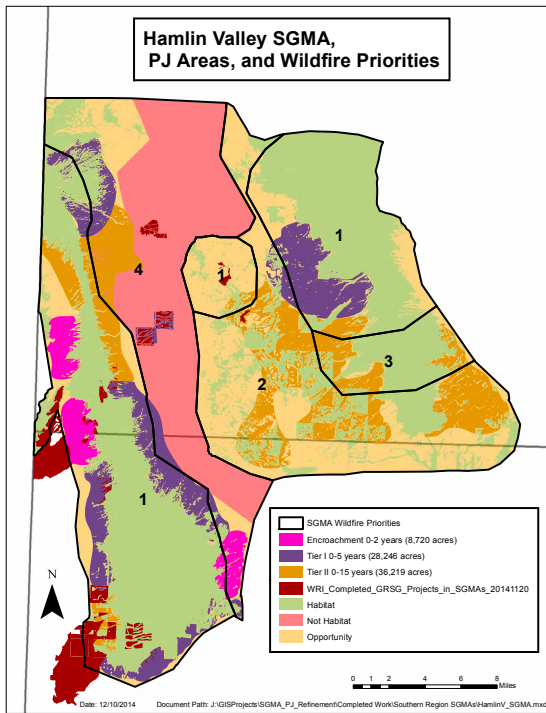


### (Bald Hills Continued)

Past Habitat work/conifer removal: 68,799 acres  
 Projected work to be completed in next 10-15 years: 8,884 acres  
 Total habitat restoration: 77,683 acres



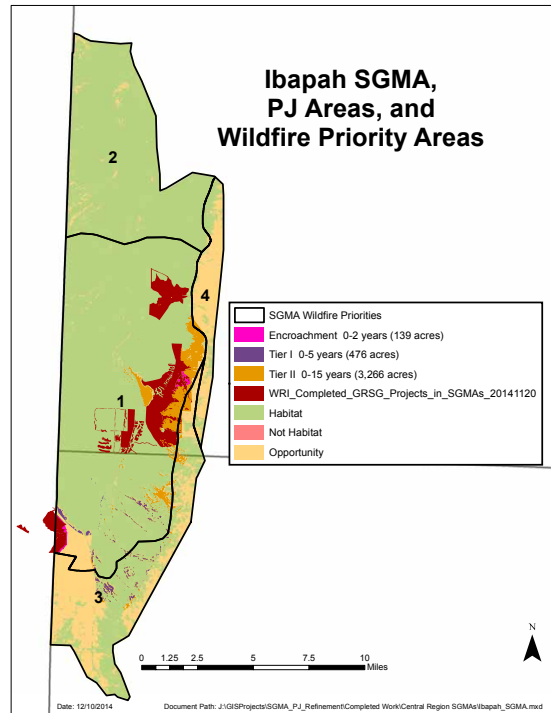
**Hamlin Valley - Elevated Priority**



Past habitat work/conifer removal: 9,839 acres  
 Projected work to be completed in next 10-15 years:  
 73,185 acres  
 Total habitat restoration: 83,024 acres

**Conclusion**

While wildfire is a natural occurrence in Western landscapes, changes in wildfire frequency and severity are a concern for Greater Sage-grouse. In Utah, wildfire impacts are primarily seen on five of Utah’s SGMAs. These areas contain 26% of the state’s Sage-grouse. In other words, most of the Utah’s Sage-grouse populations are not in high-risk wildfire areas. In the SGMA’s that have an elevated priority, Utah’s addresses wildfire threats by implementing proven proven prevention, suppression and rehabilitation solutions. State and federal partners have a track record of cooperation, working together on landscape-scale



**Ibapah - Elevated Priority**

Past Habitat Work/Conifer Removal: 7,413 acres  
 Projected work to be completed in next 10-15 years:  
 3,881  
 Total habitat restoration: 11,294 acres

prevention and rehabilitation projects to reduce the threat of wildfire in the state of Utah. Since 2006, more than 560,000 acres of Sage-grouse habitat restoration projects have been completed. Enhanced suppression strategies can further reduce the threat of wildfires in these higher-risk SGMAs. This will be an area of focus particularly in Box Elder and Bald Hills SGMAs where protection from wildfires is a top priority. It will also be a priority in the Ibapah, Hamlin Valley and Sheeprock Mountain SGMAs.

**Sources:** [NRCS, UT DWR]



# Utah Conservation Strategies

## Urbanization



# URBANIZATION

**Overview:** Only three Sage-Grouse Management Areas (SGMAs) in the state of Utah are projected to have more than 1,000 acres of new development by the year 2030. A detailed analysis of acreage projected to be developed in these SGMAs illustrates that only the Rich-Morgan-Summit SGMA has more than 200 acres of expected conflict with priority habitat. The conclusion is that urbanization is not a threat in the state of Utah. Localized impacts in Rich-Morgan-Summit will be ameliorated through Utah’s Sage-Grouse Conservation Plan.



**Affected SGMAs: Rich-Morgan-Summit, Uintah and Panguitch.**

## Rich-Morgan-Summit

Total acres in SGMA	1,227,830 acres
Projected development by 2030	3,467 acres
New acres as % of total	0 .026%
Nesting/brood rearing	1,213 acres
Winter habitat	2,254 acres
Northern - projected development	2,105 acres
Nesting/brood rearing	53%
Winter habitat	47%
Middle - projected development	97 acres
Southern - projected development	1,265 acres
Winter habitat	94%

**Detailed Assessment:** The estimated residential and commercial development is approximately one quarter of one percent on 1.2 million acres in the Rich-Morgan-Summit SGMA. Urbanization is not a threat to long-term survival of Sage-grouse populations in Rich-Morgan-Summit SGMA. Localized conflicts exist on both the northern end and southern end of the SGMA. Development on the northern end is projected to occur around existing development adjacent to Bear Lake and in the Bear River Valley near Randolph and Woodruff. Development on the southern end is projected to occur near Wanship and Kamas.<sup>1</sup>

<sup>1</sup>Map Source: [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2\\_034122](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2_034122)



**Projected Development to SGMA's**

	Total SGMA Acres	Projected New Development
Bald Hills	527,665	997
Box Elder	1,519,567	977
Carbon	354,559	702
Hamlin Valley	341,087	0
Ibapah	98,229	16
Panguitch	605,444	1,704
Parker Mtn	1,084,276	361
Rich-Morgan	1,183,844	3,188
Sheeprock	609,781	166
Strawberry	322,040	147
Uintah	792,839	3,466
<b>TOTAL</b>	<b>7,439,331</b>	<b>11,725</b>

Figure 1 - Three SGMA's are projected to have more than 1,000 acres of new development by 2030. Actual acreage within priority habitat is much less than 10,000 acres.

## Uintah

Total acres in SGMA: 811,835 acres  
 Projected development by 2030: 3,466 acres  
 New Acres as % of total: 0 .43%  
 Nesting/brood rearing: 0 acres  
 Winter habitat: 0 acres

**Detailed Assessment:** Urbanization is not a threat to long-term survival of Sage-grouse populations in Uintah County. Additional analysis suggest there is no projected residential and commercial development in critical habitat. Most development in the county is projected near existing development which is outside of the Uintah SGMA.<sup>2</sup>

<sup>2</sup>Map Source: [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2\\_034122](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2_034122)

<sup>3</sup>Map Source: [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2\\_034122](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2_034122)

## Panguitch

Total acres in SGMA: 645,557 acres  
 Projected development by 2030: 1,704 acres  
 New acres as % of total: 0 .26%  
 Breeding/brood rearing: <200 acres  
 Winter habitat: 0 acres

**Detailed Assessment:** Urbanization is not a threat to long-term survival of Sage-grouse populations in Panguitch SGMA. Less than 200 acres of development coincides with critical habitat.<sup>3</sup>

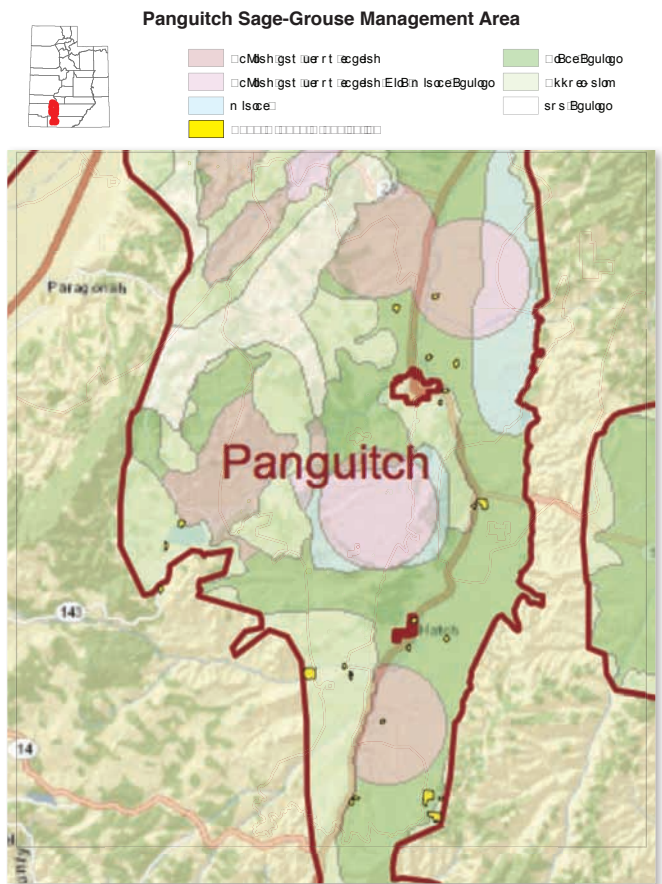
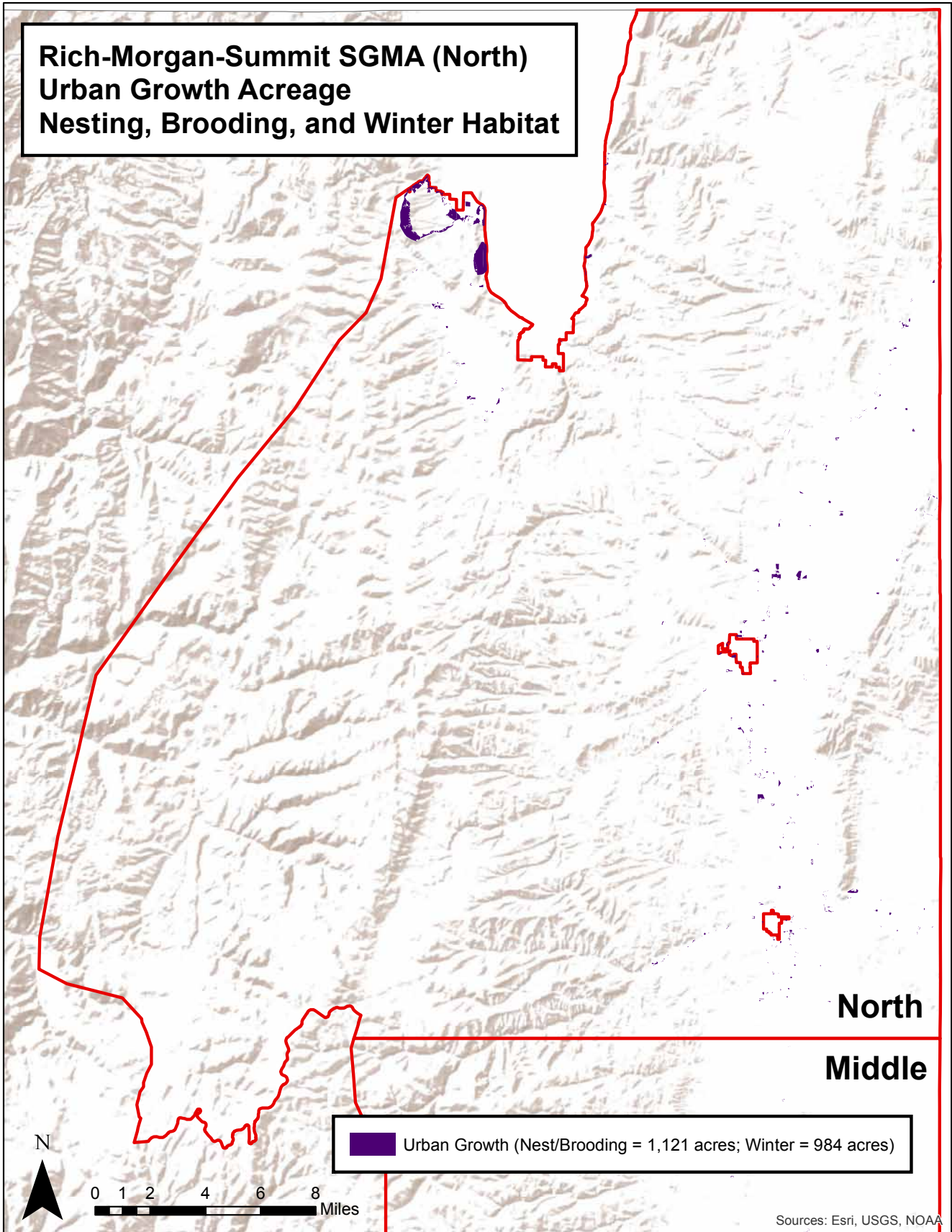


Figure 2 - Development in Panguitch SGMA is projected to occur primarily outside of wintering, nesting and brood rearing habitat.







# Utah Conservation Strategies

## ● Oil and Gas Exploration





---

## OIL AND GAS DEVELOPMENT

---

**Overview:** Oil and gas wells are not a major threat to Sage-grouse in the state of Utah. Ninety-eight percent of the acreage within Utah's SGMAs, or 7.29 million acres, does not correspond with oil and gas fields/units. There are approximately 189 known oil and gas wells located on these 7.29 million acres. The Conservation Plan for Greater Sage-Grouse in Utah provides a framework for balancing the long-term protection of Sage-grouse populations with responsible energy development. Given the limited and localized nature of existing oil and gas development within Utah's SGMAs, Utah's plan is more than sufficient to protect 94% of Utah's Greater Sage-grouse from the effects of oil and gas development.

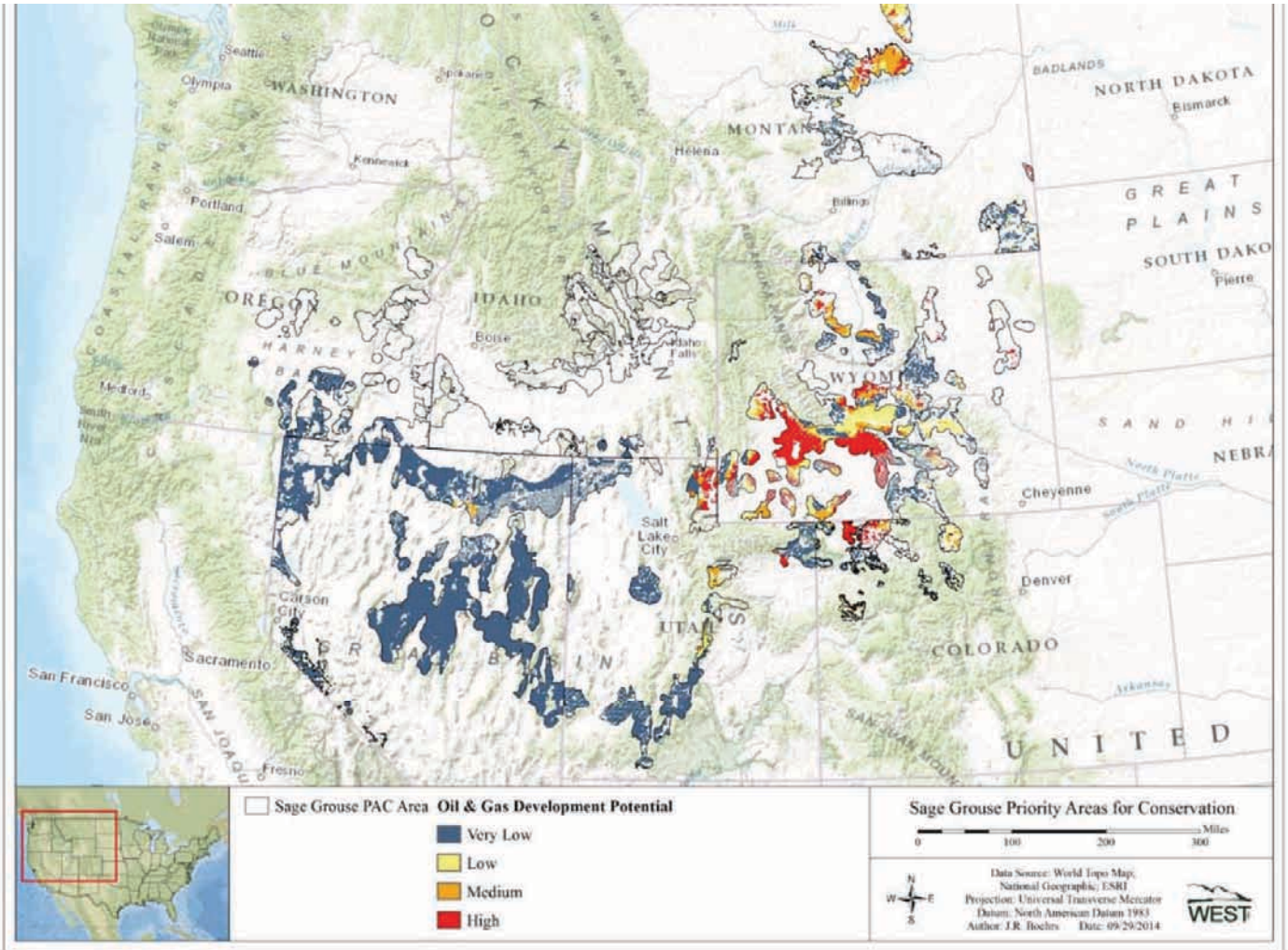


**Affected SGMAs: Rich-Morgan-Summit, Uintah and Carbon.**

### Oil and Gas Development in Sage-Grouse Habitat

Utah has robust industries for oil and gas in several regions of the state. Ensuring that oil and gas development does not unnecessarily impact healthy Sage-grouse populations is an area of focus for the Conservation Plan for Greater Sage-Grouse in Utah (the Conservation Plan), adopted in February 2013. The best Sage-grouse habitat in the State of Utah is located within eleven Sage-Grouse Management Areas (SGMAs) established in the Conservation Plan. There is very little current

oil and gas development within these SGMAs. In fact, most of the oil and gas wells are found on oil and gas fields that comprise just 2% of the acreage within Utah's SGMAs. There are just 189 known oil and gas wells on the remaining 98% of the acreage. Considering that the SGMAs hold 94% of the state's Sage-grouse on 7.4 million acres, the Conservation Plan properly balances responsible energy development with long-term conservation of Greater Sage-grouse. Existing oil and gas development has had little or no impact on the vast majority of Sage-grouse populations within Utah's SGMAs. Moreover, a detailed analysis of historic oil and gas development



**Figure 1: Most of Utah’s SGMA’s are categorized as “very low” development potential for oil and gas. See Figure 3 at <http://westernvaluesproject.org/wp-content/uploads/2014/10/Greater-Sage-Grouse-Priority-Habitats-and-Energy-Development.pdf>**

trends, combined with an understanding of the geology of Utah’s SGMA’s, suggests that, within the foreseeable future, oil and gas development will not become a significant issue within the SGMA’s. Nevertheless, the Conservation Plan, includes important provisions to ensure protections for Greater Sage-grouse, now and in the future. It provides a framework for ensuring responsible energy development in Utah’s SGMA’s through the application of buffers, avoidance, minimization stipulations and mitigation, if necessary, due to valid existing rights.

**Conservation Objectives Team Report**

Representatives from federal and state agencies joined together to develop recommendations for addressing threats to Sage-grouse through updated state management plans. The Conservation Objectives Team Report (COT Report), released in March 2013, includes topics addressing the establishment of Priority Areas for Conservation (PACs) and recommendations regarding oil and gas development. While the recommendations are non-binding, most Sage-grouse states developed some variation of the



recommendations as part of their state Sage-grouse conservation plans. Utah was no exception.

**Priority Areas for Conservation and SGMAs**

One of the important acknowledgements of the COT Report is that current Sage-grouse numbers and distribution are sufficient to ensure robust Sage-grouse populations. The COT Report’s focus on Priority Areas of Conservation (PACs) as areas where short-term and long-term efforts should be focused to ensure the conservation of Sage-grouse. PACs use the same core area philosophy that underlies Utah’s SGMAs.

The core areas philosophy does not preclude all development, but rather seeks to achieve balance between development and conservation: “Landscape planning to balance wildlife

conservation with resource development...must embrace the social and political realities of the region...Core regions represent a proactive attempt to identify a set of conservation targets to maintain a viable and connected set of populations.” (Knick and Connelly, Studies in Avian Biology, No. 38, page 513, 515) Utah’s SGMA’s were adopted within the COT Report as the PACs in the state of Utah.

**Valid Pre-existing Rights**

An important acknowledgement in the COT Report is the constitutionally mandated protection for “Valid Pre-existing Rights.” Utah’s SGMAs include several oil and gas fields and approximately 2.5 million acres of private property. These fields include not only oil and gas wells, but also active leases for additional future development. It is also important to note that private property can be leased for future mineral development. These are valid existing rights.

Existing oil and gas fields within Utah’s SGMAs cover 146,364 acres, or 2% of the 7.4 million acres within Utah’s SGMAs. A more in-depth analysis of several oil and gas fields is included on pages 8, 9 and 10 of this document. Several oil and gas fields (and oil and gas units) were included in Utah’s SGMAs primarily because the areas can again serve as unencumbered habitat once wells are no longer in use. Additionally, these areas can be useful for connectivity between SGMAs.

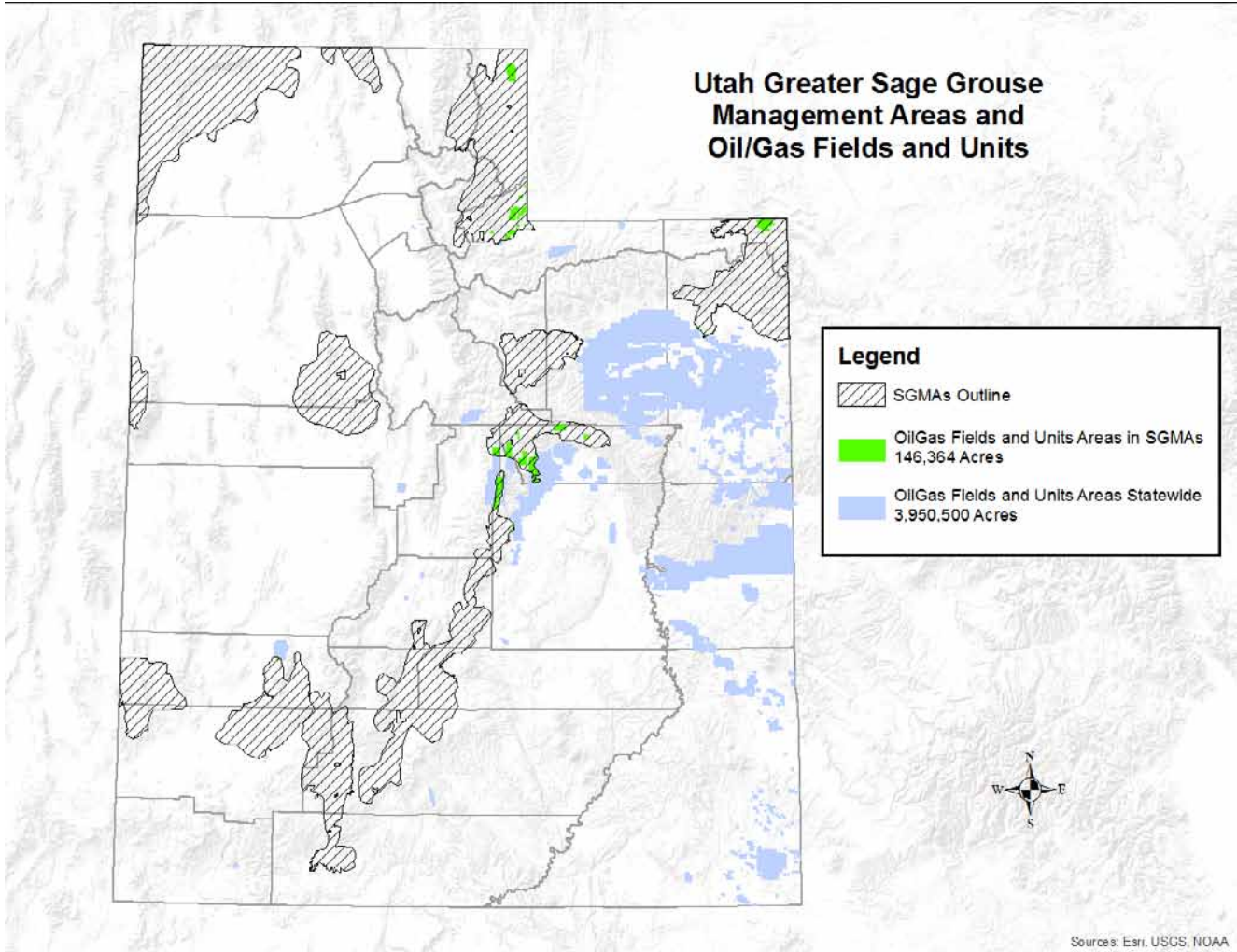
There are just 97 known oil wells and 92 known gas wells within the 7.29 million acres outside of established fields/units within Utah’s SGMAs. However, areas of higher well density among these outliers tend to be localized, and largely correlate with existing fields and units. This limited and localized nature of high well density is not surprising when one understands the nature of the oil and gas reservoirs within Utah’s SGMAs.

**Oil and Gas Development in SGMAs**

	<b>Nesting/ Brood Rearing Habitat</b>	<b>General Habitat, Opportunity Areas and Non-Habitat</b>
<b>Oil and Gas Fields Units</b>	43,713 acres	102,651 acres
<b>Areas inside SGMAs not having oil and Gas Fields/Units</b>	2,802,034 acres	4,490,933 acres

**Figure 2: Approximately 98% of the acreage within Utah’s SGMAs does not correspond with oil and gas fields/units. Very little development occurs on the 7.29 million acres outside of oil and gas fields/units within SGMAs.**





**Figure 3: Just 3.7% of Utah’s oil and gas fields and units lie within Utah’s SGMAs. Ninety-eight percent of the acreage within Utah’s SGMAs does not coincide with oil and gas fields.**

Of the lands within SGMAs that are also within established fields/units, just 43,713 acres coincides with nesting/brood rearing habitats. This amounts to only 1.5% of nesting/brood rearing habitat statewide. More importantly, 2,802,034 acres of nesting/brood-rearing habitat does not coincide with oil and gas fields/units.

**Leks and Nesting/Brood-Rearing Habitat**

The COT Report discusses proposed general regulatory structures for oil and gas development in core areas with respect to leks, nesting and brood rearing habitat. Leks are areas where

Sage-grouse congregate in early spring for mating rituals. Research has demonstrated that 90% of nesting occurs within three miles of active leks. What this means is that during the important spring mating and nesting/brood-rearing season, oil and gas activity in areas adjacent to leks could potentially have an impact of some level upon the birds’ ability to successfully hatch and raise a brood of chicks.

For this reason, the Conservation Plan calls for no development within one mile of active leks, in order to support the spring mating season. Additionally, to avoid conflicts in nesting/brood-rearing areas, a three pronged approach of “Avoid,



Minimize and Mitigate” is prescribed in areas that lie between one and three miles from leks<sup>1</sup>. In addition, the Conservation Plan provides similar protections for vital winter habitat.

**Regulatory Structure for Areas Outside of Nesting and Brood Rearing Habitat**

Generalized federal recommendations suggest that oil and gas development be limited to no more than one disturbance per section for areas that are outside of nesting/brood rearing habitat. Under these recommendations, each well pad (a disturbance) can be up to 32 acres in size and can include multiple wells. Advances in directional drilling technology allow multiple well-bores to be drilled in all directions from one surface location in order to access the entire fluid reservoir within the 640-acre limitation.

However, while directional-drilling advancements are encouraging, there are some limitations that must be considered. For example, the surface topography of the land may dictate particular

locations for surface facilities. Some of these locations may not allow directional drilling to access all subsurface mineral resources. If this occurs in an area of valid, existing rights, the Conservation Plan allows multiple pads to avoid waste of oil and gas resources, subject to strict mitigation requirements. In these cases, siting of well pads is conducted pursuant to the Governor’s Executive Order, in consultation with the Utah Division of Wildlife Resources to satisfy the requirements of the Conservation Plan. In this manner, energy development can proceed with maximum consideration given to long-term Sage-grouse conservation.

**The Foreseeable Future of Oil and Gas Development in SGMAs**

Oil and gas activity is not a major threat to Sage-grouse in Utah, primarily because 98% of the acreage within Utah’s SGMAs, or 7,292,967 acres does not coincide with oil and gas fields or with oil and gas units.

---

<sup>1</sup> The Conservation Plan defines “Avoidance” as overt action that eliminates disturbance to Greater Sage-grouse and its habitat. Examples include (a) purposefully siting activities in non-habitat or opportunity areas rather than habitat areas, or siting a project outside the SGMA. “Minimization” means actions that reduce the amount, duration, or impact of disturbance within habitat. Examples include (a) using a smaller development footprint; (b) the reduction of noise levels below identified thresholds, or (c) the reduction of traffic volume on a road. Minimization does not preclude the need to mitigate (compensate) for the disturbance which occurs within habitat. “Mitigation” means actions that are designed to create new habitat or to reduce disturbances by the creation of or protection of other habitat for birds. For more information see page 20 at [http://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater\\_sage\\_grouse\\_plan.pdf](http://wildlife.utah.gov/uplandgame/sage-grouse/pdf/greater_sage_grouse_plan.pdf). Required mitigation can be between 1:1 and as much as 4:1 compensation, depending upon disturbance and habitat type.

## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

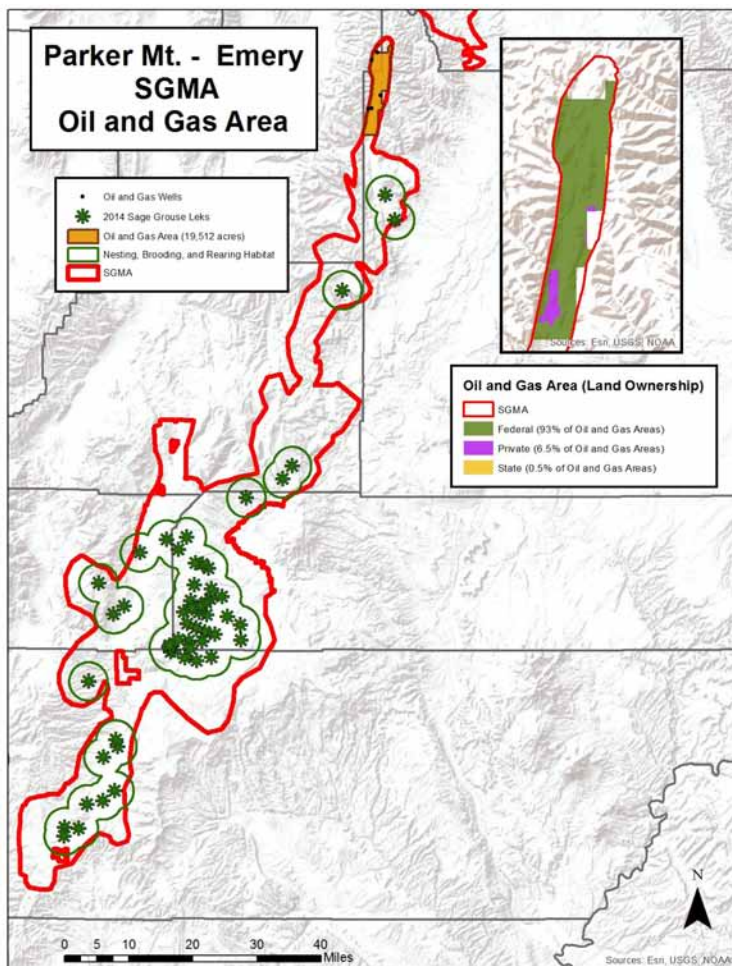
Some oil and gas wells can be found in areas designated as nesting/brood-rearing habitat but outside of existing fields/units. However, the total number of wells in these areas is extremely low and will have little or no impact on long-term conservation of Greater Sage-grouse. There are 2,802,034 acres of nesting/brood-rearing habitat in Utah's SGMAs which are outside of oil and gas fields/units. There are currently 26 oil wells and 29 gas wells on these 2,802,034 acres. Outside of one area in the Rich/Morgan/Summit SGMA, very little development potential coincides with nesting brood rearing areas in Utah's SGMAs.

The historic low level of development within SGMAs specifically within nesting/brood-rearing habitats and other important areas, and the recent

studies of geological potential suggest that oil and gas development is not a major threat to the species in Utah.

The Conservation Plan is designed to ensure that any future development in nesting/brood-rearing habitat is conducted in ways that avoid and minimize impacts on Greater Sage-grouse. This is consistent with the recommendations of the COT report, "If development must occur in Sage-grouse habitats due to existing rights and lack of reasonable alternative avoidance measures, the development should occur in the least suitable habitat for Sage-grouse and be designed to ensure at a minimum that there are no detectable declines in Sage-grouse population trends..."

Utah's conservation strategies for responsible energy development in SGMAs incorporate: (1) a fine-scale knowledge of Sage-grouse needs and habitats, (2) analysis of historical development patterns, and (3) an understanding of the likelihood of future development. Considering the low number of existing oil and gas wells in Utah's SGMAs and the fact that few areas have high-density development potential, Utah's balanced approach is more than adequate to protect Greater Sage-grouse nesting/brood-rearing habitats within SGMAs. Utah's balanced approach is also sufficient to protect private property rights and minimize unnecessary impacts on responsible energy development for many of the same reasons.



**Figure 4: With just one oil well and three gas wells on 19,512 acres, there is very little development in the oil and gas field/unit located on the northern end of the Parker Mountain SGMA.**

### Oil/Gas Fields in SGMAs Outside of Nesting/Brood Rearing Habitat

There are three oil and gas fields/units within Utah's SGMAs where valid existing rights coincide with nesting/brood-rearing habitat. The first area is in the southeastern corner of the Rich-Morgan-Summit SGMA. The second area is in the southeastern corner of the Carbon SGMA. These fields/units cover 15,706 acres in the Rich-Morgan-Summit SGMA, 9,981 acres in the



## UTAH SAGE-GROUSE CONSERVATION STRATEGIES

Carbon SGMA and 18,026 acres in the Uintah SGMA. It is notable that just one oil well and five gas wells are currently found in this particular field/unit in the Rich-Morgan-Summit SGMA (see Figure 4).

Because these fields contain valid existing rights, and have the potential for future development, these areas are treated by the state as long-term opportunity areas. They were included within the SGMAs in order to anticipate future growth needs for the individual populations. What this means is that when the oil and gas wells reach the end of their productivity, these areas will be reclaimed for

use by Sage-grouse. Some of these areas are still utilized by birds despite development.

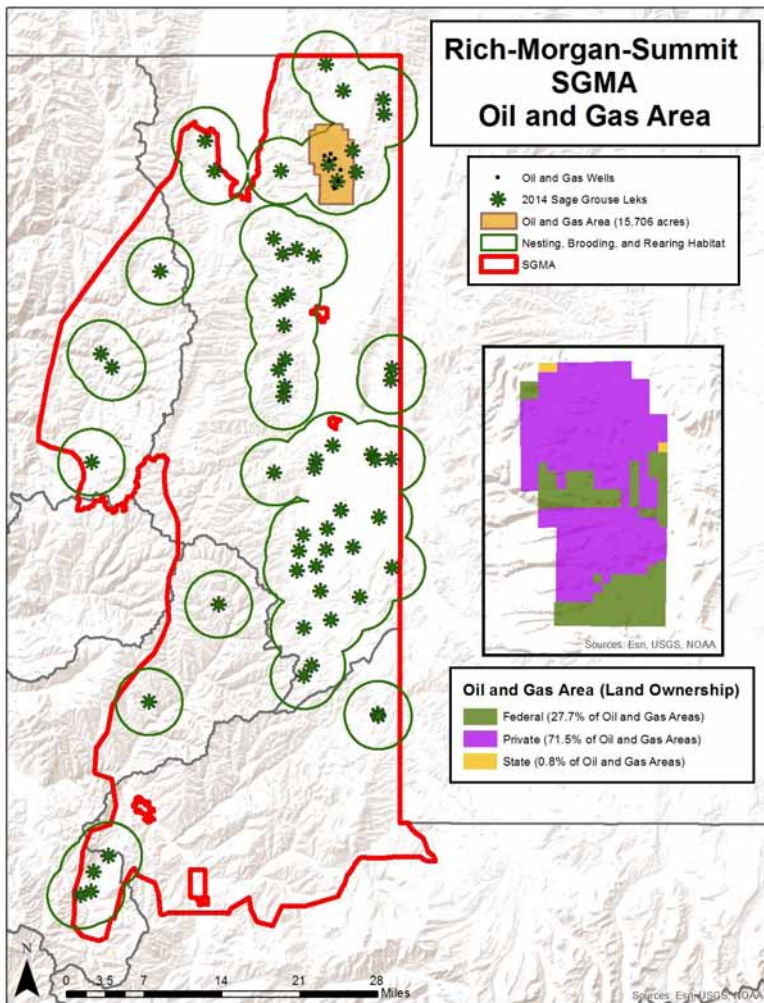
Given the level of existing development, these areas do not currently meet the criteria for priority habitat, but, in time, can contribute to long-term conservation of Sage-grouse in Utah.

### Areas in SGMAs outside of Nesting/Brood Rearing Habitat and Outside of Fields/Units

There are 4,490,933 acres within SGMAs outside of nesting/brood-rearing habitats that do not contain oil and gas fields/units. These areas currently have a combined total of just 63 known gas wells and 71 known oil wells. Given the low level of historic development, combined with an understanding of the geology in these areas, very little new oil and gas development is expected in the foreseeable future.

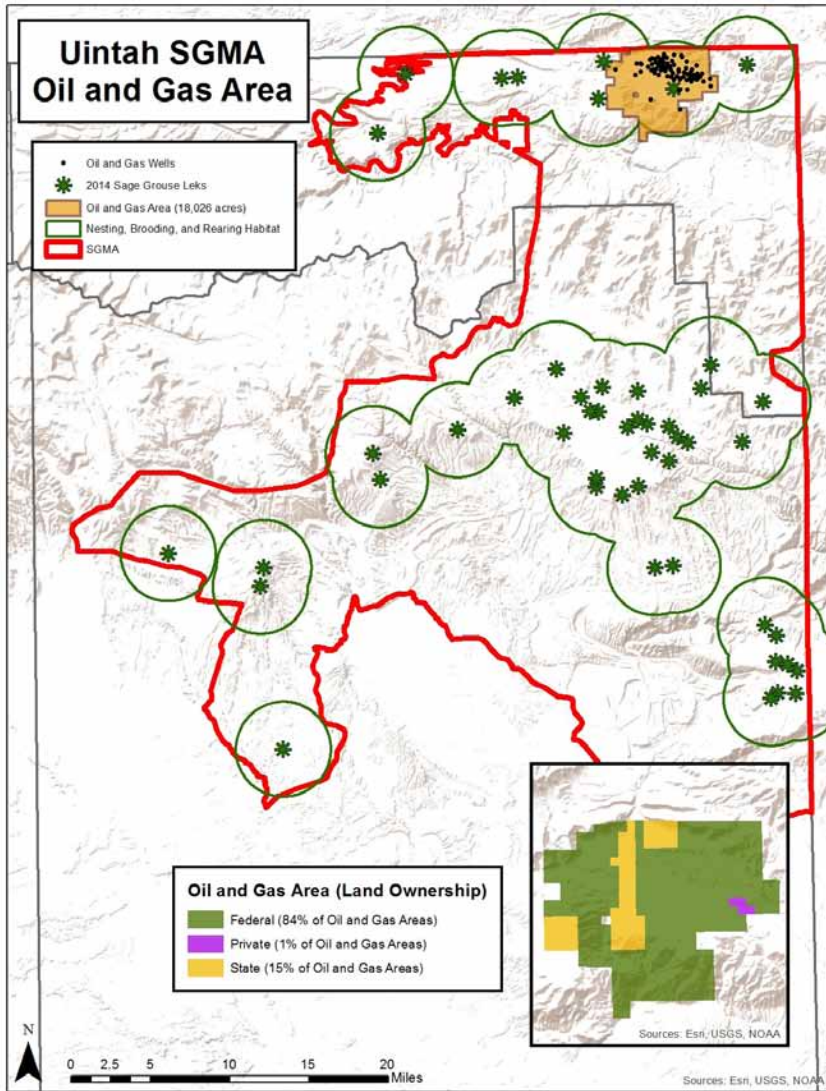
Maintaining well densities below one pad per section should not be a problem in these areas. Wells that do occur will continue to be sited using the “avoid, minimize and mitigate” three-pronged approach to ensure minimal impact to the Sage-grouse populations that use these areas.

Given the high level of natural fragmentation, the presence of conifer stands and the topography in these areas, efforts to site future oil and gas development in cooperation with the Sage-grouse experts from the Utah Division of Wildlife Resources will be an effective mechanism to protect Greater Sage-grouse and their habitats. In other words, important provisions the Conservation Plan related to oil and gas development are amply designed to ensure protections for Greater Sage-grouse now and in the future by ensuring responsible energy development in Utah’s SGMAs.



**Figure 4: Not all oil and gas fields/units in Utah’s SGMAs have high level of development. One field of 15,706 acres in the Rich-Morgan-Summit SGMA includes just 1 oil well and 5 gas wells.**

## Uintah



Oil gas fields/units in priority habitat:

Acres 18,026

Gas wells 24

(40 underground storage wells)

Ownership of fields/units:

Federal land 84%

State land 15%

Private land 1%

Oil and gas wells outside of fields/units in nesting/brood-rearing habitats :

Acres 386,199

Oil wells 14

Gas wells 0

Oil and gas wells within SGMA outside of nesting/ brood rearing habitats :

Acres 388,614

Oil well 8

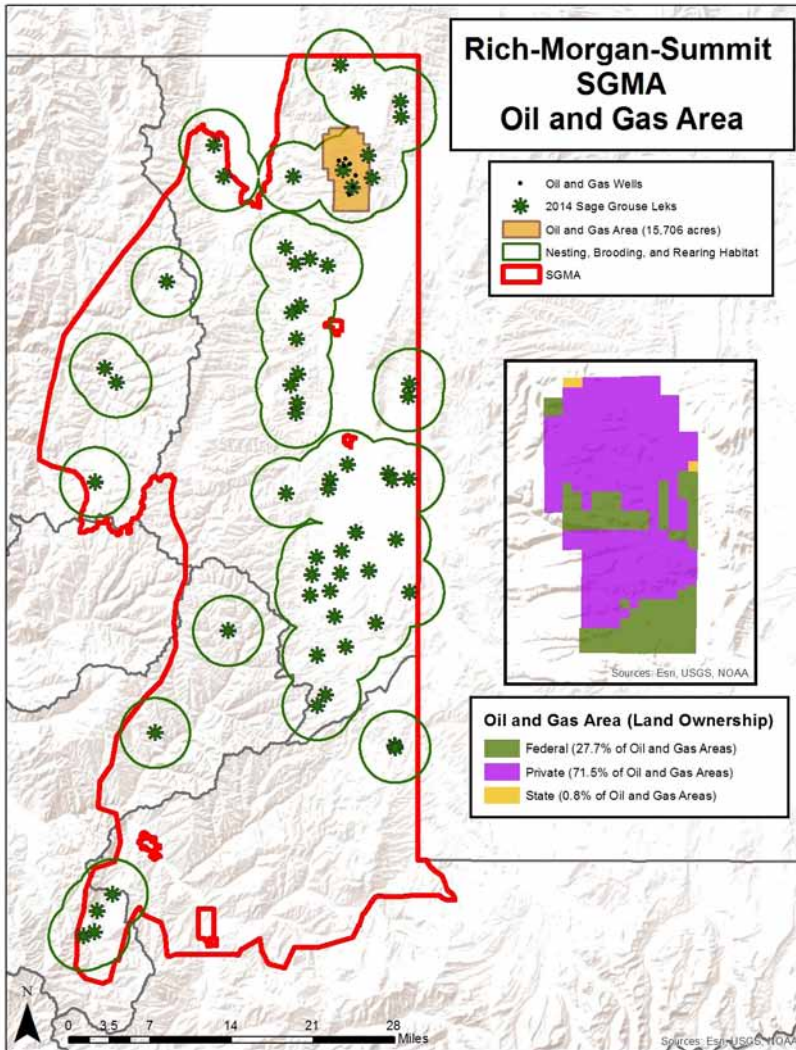
Gas wells 2

**Detailed Assessment:** Oil and gas development is not a threat in the Uintah SGMA. Valid pre-existing rights within the Clay Basin underground storage facility in the northern portion of the Uintah SGMA encompasses one active lek. This field includes approximately 24 active gas wells in addition to 40 underground storage wells. The COT Report suggests that all valid existing development rights, such those in the Clay Basin field, should be protected.

In the far southwestern portion of the Uintah SGMA, there are 14 oil wells adjacent to one lek. This is an area where additional development could be expected in the future. Pursuant to the Conservation Plan, no development will be permitted within one mile of a lek in the future. The plan also calls for avoiding, minimizing and mitigating any disturbance within three miles of a lek to help reduce any conflicts with Sage-grouse in these nesting/brood rearing areas. Implementation of the Conservation Plan is sufficient to protect these priority habitats within the Uintah SGMA.



## Rich-Morgan-Summit



Oil gas fields/units in nesting/brood-rearing habitat

Acres 15,706

Oil well 1

Gas wells 5

Ownership of fields/units:

Federal land 27.7%

State land 0.8%

Private land 71.5 %

Oil and gas wells outside of fields/units in nesting/brood-rearing habitats :

Acres 548,790

Oil wells 14

Gas wells 6

Oil and gas wells outside of nesting/brood rearing habitats and outside of fields/units:

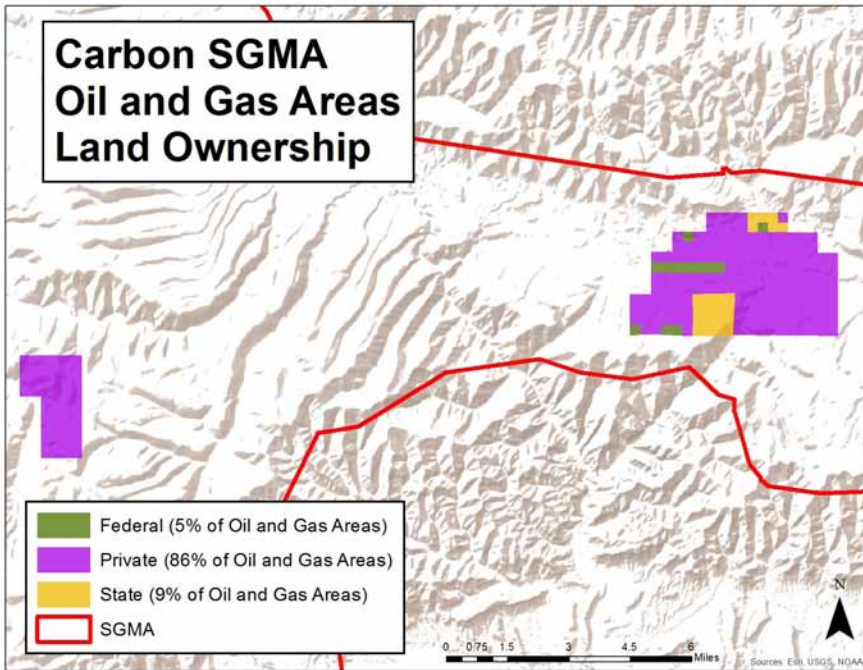
Oil wells 21

Gas wells 15

**Detailed Assessment:** There is relatively little oil and gas development in nesting/brood rearing habitats within the Rich-Morgan-Summit SGMA. There are two localized areas where most of the development occurs. In the northern portion of the Rich-Morgan-Summit SGMA there is one oil/gas field that includes two leks. With just six total wells in these fields, well density is far below thresholds that could impact Sage-grouse in the area. This is not an area where exploration and development is expected in the foreseeable future. (Figure 1)

A second localized area occurs in south/central portion of the Rich-Morgan SGMA on the border of Wyoming. This area currently has 14 oil wells and 6 gas wells and it is a place where additional development could be expected in the future. Pursuant to the Conservation Plan for Greater Sage-grouse in Utah, no development will be permitted within one mile of a lek in the future. The plan also calls for avoiding, minimizing and mitigating any disturbance between one and three miles of a lek to help reduce any conflicts with Sage-grouse in these nesting/brood-rearing areas. Implementation of the Conservation plan is sufficient to protect these priority habitats within the Rich-Morgan-Summit SGMA.





## Carbon

Oil gas fields/units in priority habitat:  
9,981 acres

Existing oil and gas wells :

Field #1 - Gas wells 3

Oil wells 2  
(shared with gas wells)

Field #2 - Gas wells 100

**Detailed Assessment: Detailed Assessment:** Field #1 has just five pads on 2,000 acres. Field #2 has valid existing rights and approximately 100 wells, which is considerably above the established threshold for priority habitat. Field #2 corresponds with one lek and the buffer of another lek. Field #2 is designated as a long-term opportunity area that will eventually be reclaimed for Sage-grouse habitat.

## Conclusion

Very little oil and gas development coincides with Utah’s SGMAs. Ninety-eight percent of the acreage within Utah’s SGMAs, or 7.29 million acres, does not correspond with oil and gas fields/units. Utah’s plan utilizes the “avoid, minimize and mitigate” approach, which accounts for valid existing rights. This is consistent with the Conservation Objectives Team Final Report:

“If development must occur in Sage-grouse habitats due to existing rights and lack of reasonable alternative avoidance measures, the development should occur in the least suitable habitat for Sage-grouse and be designed to ensure at a minimum that there are no detectable declines in Sage-grouse population trends...”

While future development is foreseeable on only a small amount of acreage within the SGMAs, implementation of the Conservation Plan and the Governor’s Executive Order will balance existing and possible future development (including valid pre-existing rights) with robust long-term conservation of Greater Sage-grouse. The Conservation Plan establishes provisions that aggressively meet the fundamental goal of protecting usable space for and ensuring long-term conservation of Greater Sage-grouse in the state of Utah.