

Sage Grouse Initiative

Oregon Implementation Strategy (2014 - 2019)



A strategic approach to conserving sage grouse, sagebrush ecosystems, and working landscapes



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Conservation Need

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Greater sage-grouse (*Centrocercus urophasianus*; sage-grouse) populations have suffered long-term population declines in Oregon and throughout the West due primarily to habitat loss and fragmentation, resulting in multiple petitions to protect the species under the Endangered Species Act (ESA). On March 23, 2010, the U.S. Fish and Wildlife Service (FWS) released its finding that the sage-grouse warranted ESA protection but the listing was precluded due to higher priority actions, thereby making it a “candidate” species remaining under state jurisdiction but awaiting future consideration for federal protection.

Subsequently, the FWS was litigated on the status of over 200 candidate species nationwide,

including sage-grouse. FWS will make a final determination on whether or not to provide ESA protections for sage-grouse by September 2015.

Sage-grouse occupy more than 186 million acres of sagebrush rangelands across 11 western states (CA, CO, ID, MT, NV, ND, OR, SD, UT, WA, and WY) and two Canadian provinces. With such a broad distribution, threats to sage-grouse also negatively impact many other iconic species and landscapes that define the American West. However, regulatory protections seeking to curtail these threats would have unprecedented, broad-scale ramifications for western agricultural communities and economies. Placing sage-grouse on the candidate species list, though, provides a rare window of opportunity to proactively improve conditions for sage-grouse and other species dependent upon sagebrush ecosystems and potentially avoid the need for federal listing.

Should sufficient conservation actions to ameliorate threats to grouse and their habitats be implemented, the FWS could determine that protection under the ESA is no longer required.

Private landowners not only have a significant stake in the outcome of this decision, but they also have an important role to play in reducing threats to sage-grouse with roughly 40% of sage-grouse habitat in private ownership rangewide (Doherty et al. 2010a). Many landowners and land management agencies have already been actively involved in improving lands to benefit grouse, but the scale and pace of action has not been sufficient to adequately reduce threats. The Farm Bill offers a number of conservation programs that provide technical and financial resources needed to help expand and accelerate sage-grouse habitat improvement efforts. Harnessing the power of the Farm Bill is vital for achieving proactive sage-grouse conservation at scales that matter.

Sage Grouse Initiative (SGI)

A Strategic Approach to Conservation

In March 2010, NRCS and conservation partners launched an aggressive campaign west-wide called the Sage Grouse Initiative (SGI) designed to enable ranchers to lead the way on improving the fate of sage-grouse. SGI is a strategic and science-based approach to landscape-scale conservation that seeks to deliver enough of the right conservation practices in the right places to elicit positive responses in sage-grouse populations. SGI marshals existing federal Farm Bill incentive programs to assist private landowners in proactively removing threats to sage-grouse while improving the sustainability of working ranches. From 2010-2012, NRCS dedicated about \$145 million in financial assistance through SGI for on-the-ground conservation rangewide.



SGI capitalizes on the strong link between conditions required to support sustainable ranching operations and habitat characteristics that support healthy sage-grouse populations. Several large-scale threats facing sage-grouse also undermine the sustainability and productivity of grazing lands throughout the West. Examples of threats that negatively affect both sage-grouse and ranching include exotic species invasions, conifer encroachment, unsustainable grazing systems, conversion of rangeland to cropland, development, and wildfire. Fragmentation of sagebrush rangelands due to factors such as these has been identified by western state wildlife agencies and the FWS as the primary cause of sage-grouse population declines (Stiver 2006; USFWS 2010a; Hagen 2011). SGI aims to remove or reduce many of these fragmentation threats to enhance the viability of sage-grouse populations and ranching.

Since threats and conservation opportunities vary across the West, NRCS has worked in close consultation with stakeholders at state and local levels to develop a state-specific implementation strategy to guide SGI delivery. The Greater Sage-Grouse Conservation Assessment and Strategy for Oregon serves as the foundation for the Oregon SGI Implementation Strategy, providing critical information on sage-grouse populations, key stressors, and measures needed to conserve the species (Hagen 2011). This strategy is also consistent with the Greater Sage-Grouse Conservation Objectives Team (COT) Report which delineates the degree to which threats need to be reduced in order to reverse population declines and avoid the need for federal listing (USFWS 2013)

Priority Areas for Conservation

The occupied range of sage-grouse currently covers most of southeast Oregon, over 18 million acres across Crook, Deschutes, Lake, Harney, Malheur, Baker Counties, as well as, small portions of Grant and Union Counties. From a rangewide perspective, Oregon sage-grouse are considered part of Management Zones IV and V and have been categorized into 5 sub-populations based upon probable natural and human-caused habitat barriers: Baker, Central Oregon, Northern Great Basin, Western Great Basin, and Klamath (considered extirpated in Oregon) (USFWS 2013). However, recent ‘core area’ analyses have revealed that most birds are concentrated in just a fraction of the occupied range in the state. In Oregon, core areas capture over 90% of birds on 38% of the occupied range (Fig. 1; Hagen 2011). 1,729,556 acres of core habitat are privately-owned (Hagen 2011).

Core areas represent landscapes of greatest biological importance to the long-term persistence of sage-grouse (Hagen 2011). The FWS COT Report considers these areas to be “Priority Areas for Conservation (PACs)” and recommends they be the primary focus of conservation efforts (USFWS 2013). Low

density habitat areas outside core habitat have also been mapped showing landscapes of lower conservation priority, yet potentially important for long-term population connectivity.

This initiative will strategically target conservation actions in and around sage-grouse

core areas (i.e., PACs) to help maintain large and intact working landscapes and maximize biological benefits to sage-grouse populations. Where resources allow, low density areas outside core may also be treated to expand, secure, and connect priority habitat.

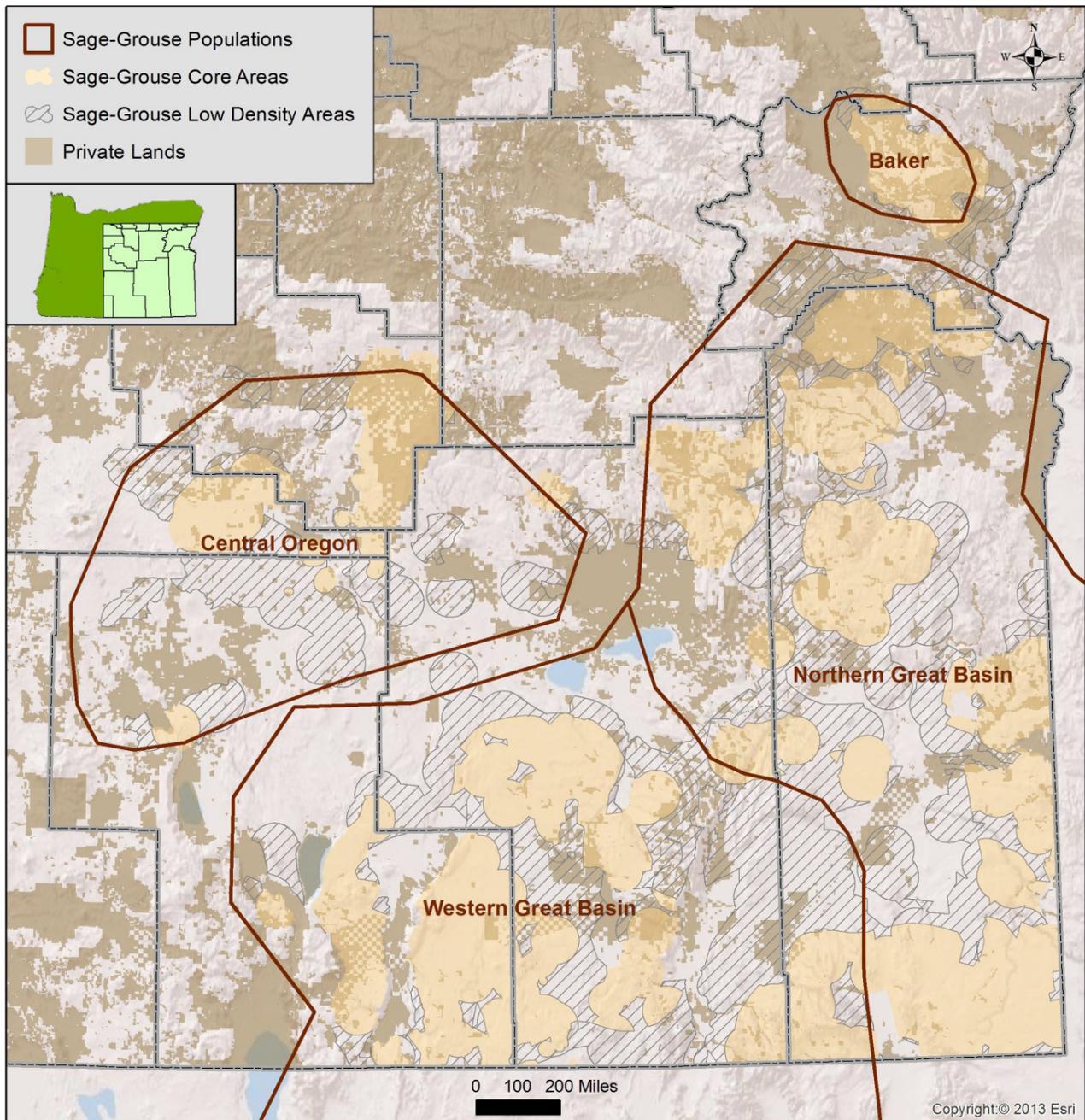


Figure1.
Sage-grouse sub-populations and ODFW core and low density habitats in Oregon.

Threats

In its 2010 finding of “warranted but precluded,” the FWS identified 2 of 5 possible listing factors, A-habitat loss and fragmentation and D-inadequate regulatory mechanisms, as overarching reasons why sage-grouse merited protection under ESA. In Oregon, a variety of both natural and human-caused stressors contribute to these listing factors including wildfire, inappropriate use of prescribed fire, improper livestock grazing, juniper expansion, invasive vegetation, inappropriate vegetation treatments, energy development/transmission, realty, and climate change (Hagen 2011). ODFW’s Sage-Grouse Local

Implementation Teams have delineated 32 Action Areas to better prioritize threat reduction efforts.

The FWS COT Report provides a range-wide threats analysis by sage-grouse population based on the threat factors considered in the 2010 listing decision (Table 1). These rankings provide a qualitative assessment of the extent of each specific threat by population. Furthermore, the Report recommends resources be prioritized to ensure all threats to PACs are reduced to the maximum extent practicable. The scope, severity, and immediacy of threats vary widely across the range and locally.

The Oregon SGI Strategy provides a description of all threats NRCS can help address directly or indirectly and conservation actions that will be supported to reduce those threats.

Table 1. Threats to sage-grouse populations as identified by the FWS COT Report (USFWS 2013). Threats that NRCS can help address directly or indirectly with this strategy are marked with an asterisk (*).

Population	Threat												
	Isolated/Small Size	Sagebrush Elimination*	Agricultural Conversion*	Fire*	Conifers*	Weeds/Annual Grasses*	Energy	Mining	Infrastructure*	Grazing*	Feral Horses	Recreation	Urbanization*
Baker	Y	Y	Y	Y	L	Y	L	Y	L	U	N	L	L
Northern Great Basin	N	L	L	Y	Y	Y	L	L	Y	Y	L	Y	Y
Western Great Basin	N	L	L	Y	Y	Y	L	L	L	Y	Y	U	N
Central Oregon	N	L	L	Y	Y	Y	L	Y	L	Y	U	L	L

Y = threat is present and widespread, L = threat is present but localized, N = threat is not known to be present, U = Unknown

Oregon's Implementation Strategy

The overriding goal of this strategy is: To remove threats to sage-grouse and their habitats and improve sustainability of working ranches. The strategy seeks to make measurable and significant progress toward reducing certain threats to sage-grouse by focusing conservation programs on the right practices in the right places. Consistent with the COT Report, the desired outcome of this strategy is to contribute to the collective efforts of all stakeholders to produce stable or increasing sage-grouse population trends within core habitats.

In 2009, Oregon NRCS worked collaboratively with Oregon Department of Fish and Wildlife (ODFW) and other partners to develop a highly targeted, strategic approach to focus Farm Bill programs to help ranchers tackle juniper encroachment. In 3 short years, over \$10.1 million in Farm Bill financial assistance was invested to help ranchers remove juniper from over 102,000 acres of priority habitats, nearly doubling our objective of treating 53,000 acres.

In the summer of 2012, NRCS hosted a SGI Partners Forum that gathered key state and local partners engaged in on-the-ground sage-grouse conservation to discuss priorities and explore opportunities for future collaboration to reduce threats to sage-grouse across ownership boundaries. Recommendations from that

meeting, NRCS local staff, and ODFW's Sage-Grouse Local Implementation Teams have helped shape this updated strategy.

Our approach prioritizes Farm Bill program funding towards tackling key threats, while also supporting more holistic and long-term commitments to sage-grouse conservation:

1. Strategically reduce priority threats:

- *Conifer encroachment*—Continue scaling up conifer removal by sustaining action on private lands and supporting partnerships to treat adjacent public lands to achieve landscape-scale effects.
- *Exotic annual grasses*—Prevent the spread of invasive annual grasses through early detection and eradication of small infestations in otherwise healthy rangelands.

Conifers and annuals represent two of the most significant threats to sagebrush ecosystems in Oregon (Appendix A). Although not targeted specifically, other threats may be addressed to a lesser extent as needed in conjunction with efforts to reduce priority threats.

2. Facilitate implementation of CCAAs: Assist ranchers who make long-term commitments to sage-grouse conservation with implementation of site-specific plans to reduce threats.

3. Protect what's already good:

Utilize long-term rental agreements or easements to protect intact, core habitats not in need of significant restoration or management from fragmenting threats.

The bulk of SGI financial assistance (~75%) will be targeted towards addressing conifer encroachment since we have a high degree of confidence in this action producing desired outcomes. The remaining funding will be invested in targeted efforts to prevent further

SGI Priorities 2014 - 2019

1. Strategically reduce priority threats
2. Facilitate implementation of CCAA's
3. Protect what's already good

spread of annual grasses and in accelerating implementation of CCAA site-specific plans. Easement programs provide an additional source of funding to assist with land protection.

A theme embedded throughout this strategy is that prevention of further habitat degradation or loss on relatively intact sites is prioritized over restoration of lands where undesirable shifts in vegetation have already occurred. Taking action to prevent damaging ecological thresholds from being crossed is more likely to succeed, and less costly, than restoring degraded sites (Davies et al. 2011).

Priority Threats

CONIFER ENCROACHMENT

Encroachment of conifer trees, primarily western juniper (*Juniperus occidentalis*) but also ponderosa pine (*Pinus ponderosa*), into sagebrush ecosystems has been identified as a threat to every sage-grouse population in the state (Table 1). In the Great Basin, there are over 12 million acres affected by conifer encroachment with 90% of those lands historically supporting sagebrush steppe (Miller et al. 2008). This threat is primarily occurring on mid-to-higher elevations (4,000-7,000 ft) typically characterized by mountain big sagebrush and low/early sagebrush.



Since the late 1800's, western juniper in particular has subtly been expanding its range across eastern Oregon into sites previously dominated by grasses, forbs, and shrubs. Although juniper is a native plant, a combination of conditions, including fire suppression and historic overgrazing, allowed this species to spread dramatically beyond the fuel-limited sites it historically occupied. Juniper can generally be categorized as pre-settlement (old-growth) or post-settlement (expansion) communities (Miller et al. 2005). Post-settlement expansion of juniper into habitats formerly dominated by sagebrush has been pervasive. Many areas have experienced a 10-fold increase in juniper over the last 150 years (Miller et al. 2005).

Conifer encroachment in sagebrush communities poses a number of problems for sagebrush-obligate species, such as sage-grouse, which have been documented to avoid areas with trees (Doherty et al. 2008, 2010b; Casazza et al. 2011). Sage-grouse are dependent on vast, open landscapes with sagebrush for survival and reproduction. As conifers invade, sagebrush declines and the plant community transitions to woodland that becomes increasingly unsuitable for grouse. Ultimately, this transition results in habitat loss for a species that depends upon sagebrush for food and cover and that evolved in landscapes relatively free of tall vertical structure. Even at low densities, the presence of trees in shrublands may be problematic for grouse. The ability to maintain active leks is severely compromised when conifer canopy exceeds 4 percent in the immediate vicinity of the lek (Baruch-Mordo et al. 2013), and most active leks average less than 1 percent conifer woodland in the landscape (Knick et al. 2013).

Conifer encroachment has other ecological and economic repercussions as well. As woodland expansion occurs, fuel loads increase

dramatically and elevate risk of high severity fires. As sagebrush ecosystems transition to mid-tree-dominance, fuel loads double. As trees become completely dominant, fuel loads double again such that fuel loads are 8 times higher in woodlands than in native sagebrush steppe (Chambers 2008). Rangeland productivity and livestock ranch viability are also severely undermined as herbaceous vegetation declines. In fact, ranchers can expect a 60% reduction in available Animal Unit Months (AUMs) forage as sagebrush steppe converts to conifer woodlands (McLain 2012).

Targeted Approach

Understanding the nuances of the conifer encroachment process is key to developing a targeted approach to tackling this problem. Miller et al. (2005) characterized three stages of woodland succession:

- Phase I (early) – trees are present but shrubs and herbs are the dominant vegetation that influence ecological processes (hydrologic, nutrient, and energy cycles) on the site;
- Phase II (mid) – trees are codominant with shrubs and herbs and all three vegetation layers influence ecological processes on the site;
- Phase III (late) – trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site.

Sites in Phase I or II successional stages often retain a significant understory of sagebrush, grasses, and forbs compared to Phase III stage sites where understory plant layers are reduced or absent. Removal of juniper on sites in Phase I or II can prevent loss of key plants and produce immediate habitat benefits for grouse. Treatment

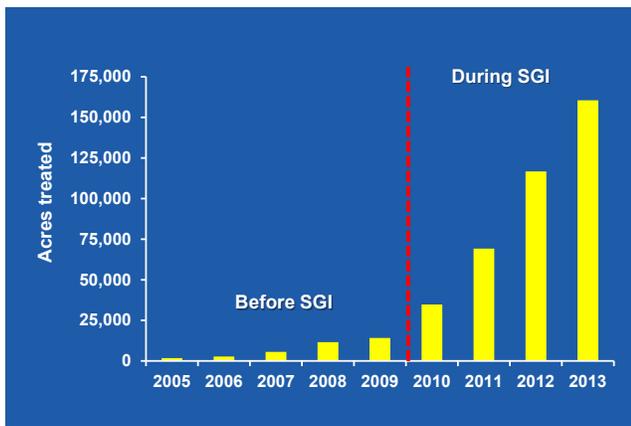


Figure 2: Cumulative amount of NRCS-funded conifer removal in sage grouse range in Oregon before and during the Sage Grouse Initiative.

of Phase III sites, although beneficial, can take significantly more resources and time to recover the understory vegetation required to support sage-grouse.

Most encroached sites are still in a state of transition. It is estimated that 80% of juniper encroachment is still in Phase I or II, but the amount of Phase III woodland is expected to increase to 75% of the total encroachment over the next 30-50 years (Miller et al. 2008), which emphasizes the urgency of action today. Fortunately, efforts to restore sites in the early stages of encroachment are frequently successful and can produce immediate benefits for sage-grouse (Commons et al. 1999; Davies et al. 2011), so the primary concern is implementing treatments at large enough scales to match the problem.

Oregon SGI has focused resources almost exclusively on reducing conifer encroachment to achieve landscape-scale effects. This approach prioritized removal of early stage juniper encroachment within 3 miles of leks because telemetry data suggested that 80% of nesting occurred in those landscapes in Oregon (ODFW 2005). With the release of new core area analyses in 2011, NRCS increasingly prioritized treatment

in and around core habitat. Through 2013, SGI has helped landowners remove conifers from 146,348 acres using this targeted approach (Appendix B). Importantly, SGI accelerated the annual rate of NRCS-funded conifer removal ten-fold while also focusing treatments in priority landscapes to maximize benefits for sage-grouse (Fig. 2).

Oregon's strategy for reducing conifers will continue to prioritize removal of Phase I and II encroachment in and around core habitat, with particular emphasis on breeding habitats around leks, to prevent further habitat loss and promote re-colonization former habitats.

Scope of the Problem

With an estimated 2.4 million acres of current sage-grouse habitat affected by juniper in Oregon (Hagen 2011), removal efforts must be targeted in the right places. We utilized two recently developed high-resolution spatial data sets to gain a better understanding of the conifer encroachment problem in priority areas for sage-grouse conservation (Falkowski and Evans 2012; Noone et al., In progress). While these spatial products did not provide complete rangewide coverage, they provide a close approximation of the scale of the problem.

According to these analyses, early phase conifer encroachment (<10% canopy cover) occurs across roughly 1,066,096 acres (10%) of sage-grouse Action Areas; 394,261 acres of which is on private lands (Table 2; Appendix C). These estimates are based on 2009 imagery and do not account for conifer removal that has occurred since then. Significant treatment has already occurred in several areas. While ODFW is beginning to track threat reductions by Action Area, we are still unable to account for the full extent to which the problem has been reduced at this time. However,

just accounting for SGI activities through 2013, approximately 37 percent of the problem on private lands has already been addressed.

Conservation Actions

- 1. Action:** Remove Phase I and II conifer encroachment (<10% canopy cover) within, adjacent to, and connecting core area habitats.

While most NRCS efforts will focus on private lands, collaboration with public land management agencies to treat whole landscapes will also be pursued. Partners are already working together in the Warners, Paulina/12 Mile, and Drewsey Action Areas to significantly reduce conifer encroachment seamlessly across private and public lands.

Although treatment of later stage conifer encroachment (>10% canopy cover) is not the main focus of this strategy, it may be necessary to treat small areas in this condition to improve connec-

tivity of sage-grouse habitat. This may be done in conjunction with treatment of Phase I and II sites or where dense trees present a known barrier to movement between seasonal habitats.

- 2. Action:** Quantify biological outcomes of conifer removal on sage-grouse habitat selection, demographics, and populations.

Support completion of a landscape-scale study currently underway by the University of Idaho in south-central Oregon and submit results for publication in peer-reviewed literature by 2015.

NRCS Conservation Practices

Brush Management (314), Woody Residue Treatment (384), Range Planting (550), Prescribed Grazing (528), Upland Wildlife Habitat Management (645):

Juniper will be mechanically removed and



Before (top) and after (bottom) conifer removal to maintain healthy sagebrush steppe. Photos by Andy Gallagher.



Table 2. Estimated amount of early phase conifer encroachment (<10% canopy cover). This does not account for acres treated since 2009.

Population	Action Area	Private Land (ac)	Public Land (ac)	Total (ac)	% of AA
Baker	Baker	13,435	4,413	17,848	4%
Northern Great Basin	Unity	19,033	5,914	24,947	24%
	Cow Lakes	7,576	14,204	21,780	5%
	Cow Valley	39,742	9,943	49,685	13%
	Bully Creek	42,060	78,069	120,129	21%
	Crowley	12,613	54,330	66,943	7%
	Drewsey	45,795	105,353	151,148	27%
	Folly Farm	7,710	31,962	39,672	12%
	Soldier Creek	3,414	11,544	14,958	3%
	Bowden Hill	negligible	negligible	negligible	negligible
	Louse Canyon	NA	NA	NA	NA
	Pueblos	NA	NA	NA	NA
	Saddle Butte	negligible	negligible	negligible	negligible
	Subtotal		177,944	311,318	489,262
Western Great Basin	Beaty	2,688	26,634	29,322	3%
	North Steens	11,208	18,714	29,382	18%
	South Steens	31,692	59,575	91,267	27%
	Tucker Hill	4,376	2,647	7,022	16%
	Warners	17,329	33,501	50,830	14%
	Coglan Buttes	negligible	negligible	negligible	negligible
	Dry Valley/Jack Mtn	938	5,621	6,559	1%
	Trout Creeks	NA	NA	NA	NA
	Subtotal		68,231	146,152	214,382
Central Oregon	12 Mile	43,231	21,100	64,331	27%
	Brothers	24,783	41,177	65,960	15%
	Misery Flat	2,392	7,188	9,579	9%
	Paulina	32,571	19,993	52,564	18%
	Tackman	7,038	7,321	14,359	45%
	Cabin Lake	183	1,942	2,125	4%
	Post	5,124	697	5,821	17%
	Picture Book	967	6,864	7,831	6%
	Glass Buttes	1,144	14,182	15,326	8%
	North Wagontire	3,583	61,538	65,121	14%
	Subtotal		134,652	209,951	344,603
TOTAL		394,261	671,835	1,066,096	10%

*Note: NA = No data coverage available although the expected amount of conifer is low in these areas. Negligible = Area mapped but amount of conifer negligible or non-existent. Incomplete data coverage available for Baker, Cow Lakes, Bully Creek, Soldier Creek, and Beaty.

downed tree slash will be treated through lop-and-scatter, single tree burn, pile-and-burn, or hauled off-site. If downed trees are left on-site, they will be reduced to less than four feet tall to the extent feasible. Existing sagebrush will be retained. Any slash burning will be conducted carefully in the winter to minimize effects on soil and vegetation.

Prescriptions for juniper removal on any given site will be based on a field investigation that utilizes Ecological Site information and guidance provided in USGS Circular 1321 (Miller et al. 2007). Pre-settlement (old growth) juniper will not be removed. Seeding and post-treatment grazing deferment will be promoted if slash burning is conducted or where enhanced perennial grass cover is desired.

Estimated Cost

- **Action 1:** Average practice cost: Juniper removal = \$100/ac, Slash treatment = \$100/ac
- **Action 2:** NRCS-CEAP has committed \$100,000/yr for 3 years to fund the juniper removal study.
- Anticipated NRCS funding sources: EQIP, CEAP

EXOTIC ANNUAL GRASSES

Exotic annual grasses present perhaps the most widespread and significant challenge to the maintenance of healthy sagebrush ecosystems in the Great Basin. This threat is interrelated with, and exacerbated by, other threats like improper livestock grazing and wildfire. Introduced around the 1890's, exotic grasses from Eurasia have now invaded many lower elevation sagebrush communities and continue to expand their distribution and abundance in new environments.

Cheatgrass (*Bromus tectorum*) is by far the most pervasive of all the annual grasses and is a threat primarily impacting warm and dry lower elevation sites characterized by Wyoming big sagebrush. Two other annual grasses, medusahead (*Taeniatherum caput-medusae*) and ventenata (*Ventenata dubia*), occur on a much smaller scale but are rapidly increasing in sage-grouse habitat. These annual grasses are menacing because of their detrimental effects on native plant productivity and health, as well as, their role in accelerating the number and frequency of fires.

Perhaps of greatest concern is the detrimental impacts caused by the self-perpetuating annual grass-wildfire cycle. Fueled by repeated disturbance, vast native shrub-steppe communities are now being completely converted to annual grasslands. This undesirable vegetation



shift severely reduces the capacity of rangelands to provide food and cover for wildlife (e.g., sage-grouse nesting and brood-rearing habitat) and livestock. Unfortunately, our ability to successfully restore sites dominated by annual grasses is very limited at this time.

Annual grasses are especially successful at invading disturbed sites where perennial plants are absent or depleted. Davies (2008) demonstrated the ability of annual grasses to invade native plant communities is inversely correlated to perennial grass density. Management actions, such as livestock grazing, can have a substantial impact on the amount and condition of perennial plants. Native, cool-season perennial grasses common in sagebrush systems can tolerate moderate grazing (40-60% utilization) with periodic growing season rest. Heavy, repeated livestock use without at least some growing season deferment depletes root reserves and seed sources which ultimately reduces perennial plant abundance and facilitates annual grass invasion.

Targeted Approach

Because of the ecological and economic values being undermined by annual grasses, action must be taken to reverse losses and prevent further degradation. Unfortunately, wholesale restoration of plant communities with large infestations of annual grasses is expensive and has a high risk of failure (Davies et al. 2011). Active management of large annual grasslands requires significant investment of capital inputs (e.g., herbicide application, seeding) across large landscapes where the low precipitation further adds to the challenge of restoration success. Sites with abundant annual grasses and low perennial plants may have already crossed thresholds that may not be feasible to fix at a broad scale with current technology.

A targeted approach to addressing this threat is to identify rangelands that are still relatively healthy (>20% composition of desired vegetation) but are at-risk of being invaded and direct conservation actions towards preventing further spread and increasing ecosystem resilience and resistance to invasion (Pellant 1996; Pyke 2011; Smith et al. 2011). Prevention strategies include a combination of: 1) limiting seed dispersal, 2) reducing site availability, and 3) eradicating new infestations while still small (Davies and Sheley 2007; Davies et al. 2010; Johnson and Davies 2012).

Prioritizing early detection and prevention measures is a relatively cost-effective strategy that could potentially protect vast acreages from being invaded. Since most annual grass seeds only disperse short distances (e.g., <2 m for medusahead) from the source population, the key to reducing long-distance dispersal is limiting plant contact with vectors, such as vehicles and animals (Johnson and Davies 2012). Focusing weed inventory and control efforts towards eradicating small infestations along roads, trails, disturbed areas, or in the vicinity of large infestations strategically effectively limits dispersal opportunities.

Sagebrush communities are more susceptible to invasion when suitable sites (space and resources) are available for plants to become established. Since invasion risk is largely driven by perennial bunchgrass density, the only practical way to reduce site availability is to promote perennial grass health and abundance. Proper grazing management that incorporates periodic growing season rest is critical for maintaining perennial bunchgrasses and a competitive environment to resist invasion. Ensuring proper grazing not only helps prevent annual grass conversion but would also increase herbaceous cover required by sage-grouse for hiding and nesting.

Table 3. Estimated extent of lands where annual grasses are predicted to be the dominant or subdominant herbaceous vegetation in 2000.

Population	Action Area	Private Land (ac)	Public Land (ac)	Total (ac)	% of AA
Baker	Baker	71,303	36,273	107,576	23%
Northern Great Basin	Unity	110,362	3,571	13,933	13%
	Cow Lakes	18,715	107,823	126,538	27%
	Cow Valley	56,440	28,127	84,567	21%
	Bully Creek	28,552	71,506	100,058	17%
	Crowley	48,771	209,375	258,146	27%
	Drewsey	20,146	64,281	94,427	17%
	Folly Farm	6,412	50,326	56,738	17%
	Soldier Creek	14,290	100,629	114,919	24%
	Bowden Hill	14,635	54,061	68,696	57%
	Louse Canyon	11,002	104,466	115,468	13%
	Pueblos	2,947	68,087	71,033	23%
	Saddle Butte	525	75,122	75,648	47%
	Subtotal	242,796	937,373	1,180,170	22%
Western Great Basin	Beaty	14,086	173,327	187,413	20%
	North Steens	4,712	18,705	23,417	14%
	South Steens	9,525	16,180	25,706	8%
	Tucker Hill	14,341	10,961	25,302	58%
	Warners	8,996	40,573	49,570	14%
	Coglan Buttes	1,954	43,969	45,923	70%
	Dry Valley/Jack Mtn	9,587	97,545	107,132	14%
	Trout Creeks	8,724	78,970	87,694	20%
	Subtotal	71,924	480,231	552,156	18%
Central Oregon	12 Mile	12,495	5,838	18,333	8%
	Brothers	4,160	8,249	12,410	3%
	Burns	5,173	7,491	12,663	6%
	Misery Flat	2,413	13,145	15,558	14%
	Paulina	19,485	8,932	28,417	15%
	Tackman	2,000	1,375	3,375	10%
	Cabin Lake	20	237	257	<1%
	Post	8,040	797	8,837	25%
	Picture Rock	3,975	15,522	19,497	14%
	Glass Buttes	4,260	14,809	19,069	10%
	North Wagontire	1,567	7,502	9,069	2%
	Subtotal	63,590	83,897	147,486	7%
TOTAL		449,613	1,537,775	1,987,387	18%

Oregon's SGI strategy will focus on prevention strategies in areas that are still relatively intact but at-risk of invasion. Areas with an adequate understory (>20% composition) of desired vegetation will be prioritized for treatment since they have a higher likelihood of successful rehabilitation than areas where desired species are completely displaced. Addressing core habitats most at risk will further help maximize benefits for sage-grouse by reducing the probability that the best habitat left will be lost to exotic annuals (Hagen 2011). Efforts will also be prioritized where partners assisting with weed inventories and are working across ownership boundaries to treat the problem. The overarching goal is to increase sagebrush ecosystem resilience to disturbance and resistance to invasion.

Scope of the Problem

While we currently do not have a good method to measure the extent of at-risk lands, models from the Integrated Landscape Assessment Project (ILAP) provide a coarse estimate of the extent of annual grass dominance (Halofsky et al., In Review). In 2000, annual grasses were estimated to be the dominant or subdominant herbaceous vegetation across 1.9 million acres (18%) of sage-grouse Action Areas in Oregon (Table 3; Appendix D). While the actual extent of annual grasses is likely much larger, this estimate illustrates the relative distribution of the problem and areas with potential opportunities for additional invasion. Site inventories will be needed to assess the actual extent of annuals, adequacy of desired vegetation, and identify opportunities to implement prevention measures.

Conservation Actions

3. Action: Find and eradicate small

infestations of annual grasses, limit spread from large infestations, and enhance perennial bunchgrasses on at-risk rangelands through improved grazing management.

4. Action: Support on-going research evaluating annual grass prevention and control techniques and precision restoration technologies seeking to improve the likelihood of seeding success when actively restoring sagebrush sites.

NRCS is supporting the Eastern Oregon Agricultural Research Center (USDA-ARS) to develop a Medusahead Management and Revegetation Guide. Conservation partners, such as the Eastern Oregon Agricultural Research Center and The Nature Conservancy, are also implementing applied research to help provide more effective technologies and tools for active management and restoration of areas affected by annual grasses and wildfire. Additional opportunities may arise for NRCS to provide support for this work.

NRCS Conservation Practices

Herbaceous Weed Control (315), Integrated Pest Management (595), Range Planting (550), Critical Area Planting (342), Prescribed Grazing (528), Access Control (472), Upland Wildlife Habitat Management (645), and Firebreak (394):

Rangeland inventories will be conducted to identify the extent of annuals, with particular emphasis placed along roads, trails, recently disturbed areas, and near large infestations. An integrated pest management plan will then be developed to eradicate small infestations and improve grazing management as-needed to promote desired perennial bunchgrasses. Seeding of desired vegetation may be needed in spots to reduce site availability post-treatment. Firebreaks, consisting of

competitive perennial vegetation, may be needed on a limited basis adjacent to existing annual grasslands to contain large infestations. Any firebreaks created will be placed in a manner that minimizes impacts on intact sagebrush sites.

Estimated Cost

- **Action 4:** Average practice costs: Prescribed Grazing = \$15/ac, Herbaceous Weed Control = \$100/ac, seeding practices = \$100-200/ac
- **Action 5:** NRCS-EQIP has committed \$47,000 to support the Medusahead Management and Revegetation Guide. Partners have secured significant funding for additional applied research work already but may seek NRCS support for field implementation.
- Anticipated NRCS funding sources: EQIP, CIG, CEAP

SECONDARY THREATS

RANGE MANAGEMENT INFRASTRUCTURE (FENCES, WATERING FACILITIES)

Infrastructure, such as livestock fences and watering facilities, are important tools for achieving proper grazing management but are among a myriad of human infrastructure in sagebrush habitats with potential adverse impacts on sage-grouse (Hagen 2011, USFWS 2010a, b).

The primary concern with fences is associated with direct mortality caused by bird collisions with fence wires. Sage-grouse often fly low to the ground, just above shrubs, in low light

conditions at dawn and dusk when fence wires may be difficult to detect. Bird strikes with fence wires have been especially noted in breeding habitats near leks and in winter concentration areas. Terrain ruggedness and distance from the lek are two important factors associated with fence collision risk across the landscape, where relatively flat topography near leks present the greatest risk (Stevens et al. 2012b).

While much less of an issue for sage-grouse, accidental drowning in watering facilities without adequate escape structures has been identified as a concern for a variety of wildlife. Small-to-medium sized wildlife regularly fall into troughs while using them and swim around the inner edge until intersecting something that allows them to crawl out, or until they drown. Furthermore, generator and windmill powered pumps used to supply water can also indirectly fragment sage-grouse habitat by causing noise disturbance. This noise can cause birds to leave leks or abandon nests or important habitats, resulting in decreased reproductive success.

In the 2010 SGI Conference Report, the FWS provided recommendations for NRCS to mitigate potential adverse effects of livestock fences and watering facilities and those measures are being applied to all SGI participants (USFWS 2010b). From 2010-2012, no new fences were installed through SGI in Oregon but NRCS did help ranchers mark 10.6 miles of existing high-risk fences and installed escape ramps in 55 troughs.

Conservation Actions

5. **Action:** Avoid placement of new fences in high-risk areas where possible.

On any new fences involving federal technical or financial assistance, NRCS will first recommend avoiding placement



of fences in high-risk areas. If not practicable to avoid, then marking will be required to reduce impacts.

6. Action: Remove, relocate, or mark fences in high-risk areas.

SGI participants will be required to address fences located in high-risk areas. Fortunately, effective practices and targeting tools exist to reduce strike risk significantly. Vinyl fence markers affixed to fence wires have been found to reduce collisions by 83%, or six-fold, over unmarked fences (Stevens et al. 2012a). A new Fence Collision Risk Tool is now available that maps relative collision risk near leks to help steer efforts to reduce this threat (Stevens et al., 2013; NRCS 2012). This tool will be used with site-specific evaluations to determine the need to address fences.

Partners are also working to alleviate this threat throughout the state. The USFWS Partners for Fish and Wildlife (PFW) is working with Soil and Water Conservation Districts (SWCD) to help

private landowners. The Nature Conservancy (TNC), working in conjunction with the Bureau of Land Management (BLM), will help target efforts to address fences on public lands.

7. Action: Install escape ramps in all new and existing watering facilities in sage-grouse habitat.

Properly designed escape ramps can be easily fitted to new or existing troughs to completely resolve this issue, reducing wildlife mortality and improving water quality.

8. Action: Utilize solar powered pumps for new water developments and convert existing generator or windmill powered pumps to solar. (This will only be considered for funding on a very limited basis when determined to be essential to implementing a CCAA site-specific plan)

NRCS Conservation Practices

Structures for Wildlife (649), Obstruction Removal (500), Fence (382), Pumping Plant (533): Structures for Wildlife, Obstruction Removal, and Fence practices may be used when removing, relocating, or marking fences to reduce risks to sage-grouse. Proven fence marking techniques will be applied (NRCS 2011a) and NRCS specifications followed on escape ramps. It is recommended that any new fences be built according to wildlife-friendly specifications. Pumping Plant may be used to convert to solar power.

Estimated Cost

- **Action 6:** This action will be accomplished through internal policies and procedures and will not require additional resources.
- **Action 7:** Average practice costs: Marking = \$500/mi, Fence Removal = \$3,800/mi, Fence Relocation = \$12,600/mi
- **Action 8:** Average practice costs: Escape Ramp = \$50/ea
- **Action 9:** Average practice costs: Pumping Plant = \$7,000/hp
- Anticipated NRCS funding sources: EQIP

OTHER EXOTIC INVASIVE VEGETATION

While exotic annual grasses are far and away the greatest weed threat to sage-grouse habitat in Oregon, other weeds also occur in localized patches and have the potential to degrade sage-grouse habitat as well as forage production and overall rangeland health. These weed species should be aggressively controlled where they are encountered. Chemical, biological, and mechanical control methods are available,

depending on the weed species, and should be applied as appropriate, in consultation with County Weed Control departments, OSU Extension Service, and Cooperative Weed Management Areas.

Conservation Actions

9. **Action:** Spot treat exotic invasive plants found in sage-grouse habitat.

NRCS Conservation Practices

Herbaceous Weed Control (315), Integrated Pest Management (595), Range Planting (550), Critical Area Planting (342), Prescribed Grazing (528), Access Control (472), and Upland Wildlife Habitat Management (645):

Herbaceous Weed Control and Integrated Pest Management will be used to control weeds identified in sage-grouse habitat. Seeding of desired vegetation may be needed in spots to reduce site availability post-treatment. Grazing deferment will be used when needed to allow recovery of existing desirable vegetation or establishment of seeded vegetation.

Estimated Cost

- **Action 9:** Average practice costs: Herbaceous Weed Control = \$100/ac, seeding practices = \$100-200/ac, Prescribed Grazing = \$6/ac/yr
- Anticipated NRCS funding sources: EQIP

IMPROPER GRAZING

Appropriate livestock grazing regimes are compatible with sage-grouse habitat needs. However, improper grazing management

and certain activities associated with grazing management can have detrimental impacts.

Improper livestock grazing can have a substantial impact on the amount and condition of perennial plants. Native, cool-season perennial grasses common in sagebrush systems can tolerate moderate grazing (40-60% utilization) with periodic growing season rest. Heavy, repeated livestock use without at least some growing season deferment depletes root reserves and seed sources which ultimately reduces perennial plant abundance. Sage-grouse rely upon perennial grasses to provide screening cover in nesting habitat. Sustained improper grazing in riparian areas can indirectly alter the hydrology of the system, resulting in loss of riparian habitat which serves as important brood-rearing habitat for sage-grouse.

Livestock, humans, and vehicles can physically disturb and cause birds to leave leks or abandon nests, resulting in decreased reproductive success. This activity is often highly localized and associated with watering, supplement, and livestock handling facilities. This disturbance can often be reduced or eliminated by relocating these facilities away from sensitive sites.

Conservation Actions

10. Action: Where needed, implement prescribed grazing systems that ensure sustainable use.

11. Action: Relocate or avoid placing watering facilities, mineral supplements, or livestock handling facilities within 0.6 miles of the perimeter of an occupied lek. (This will only be considered for funding on a very limited basis when determined to be essential to implementing a CCAA

site-specific plan)

12. Action: Change salting and watering locations and/or develop additional water sources to improve livestock distribution, reduce impacts to riparian, wetland, playa, and wet meadow areas, and maintain or enhance sage-grouse habitat quality. (This will only be considered for funding on a very limited basis when determined to be essential to implementing a CCAA site-specific plan)

NRCS Conservation Practices

Prescribed Grazing (528), Upland Wildlife Habitat Management (645), Spring Development (574), Water Well (642), Pumping Plant (533), Pipeline (516), Watering Facility (614), Fence (382):

Prescribed grazing will be used to adjust improper grazing regimes in order to promote improved sage-grouse habitat quality and rangeland health. Relocation of mineral supplement and other temporary, portable facilities and placement of new facilities can be addressed through technical assistance provided under the Upland Wildlife Habitat Management specification.

Any new water development will only be done on a very limited basis where essential to implementing a prescribed grazing system. Spring developments will be constructed to maintain their free-flowing and wet meadow characteristics.

Estimated Cost

- **Action 10:** Average practice cost: Prescribed Grazing = \$10-15/ac
- **Actions 11-12:** Average practice costs: Spring

Development = \$2,600/ea, Well = \$12,500/ea, Pumping Plant = \$7,000/hp, Pipeline = \$2.30/ft, Watering Facility = \$2,500/ea

- Anticipated NRCS funding sources: EQIP

WILDFIRE

Wildfires can significantly reduce sage-grouse habitat quality and quantity, especially on warm and dry lower elevation sagebrush sites. The impacts of fire on sage-grouse habitat will vary greatly, depending on the soil temperature-moisture regime of the site, the size and intensity of the fire, the condition of the plant community prior to the fire, and the presence of invasive species in the vicinity.

While landowners and NRCS have limited ability to address this threat directly, it is expected that efforts to address other threats will indirectly reduce negative impacts from wildfires. For example, removing conifers can greatly reduce fuel loads. Additionally, controlling annual grasses and other weeds while ensuring sustainable grazing practices will help promote rangelands that are more resilient to fire and resistant to conversion to annual grasslands.

Conservation Actions

- 13. Action:** Work with BLM, RFPAs, and other partners to identify high-risk landscapes where proactive measures, such as firebreaks, can be strategically applied across ownership boundaries to reduce fire impacts.

NRCS Conservation Practices

Fire Break (394), Prescribed Grazing (528): Firebreaks may be recommended when intact sagebrush plant communities are threatened by exotic annual grass invasion or when the fire-break is identified as a conservation measure in a

CCAA site-specific plan. Any firebreaks created will be placed in a manner that minimizes impacts on intact sagebrush sites.

Estimated Cost

- **Action 13:** Average practice cost: Firebreak = \$2,000/mile
- Anticipated NRCS funding sources: EQIP

URBANIZATION, SAGE-BRUSH ELIMINATION, AND AGRICULTURAL CONVERSION

Urbanization, sagebrush elimination, and agricultural conversion (change from rangeland to crop, pasture, hayland) have been identified as locally significant threats to certain sage-grouse populations in Oregon (Table 1). The scope of these threats in Oregon is relatively small, but they do contribute to direct habitat loss and fragmentation for sage-grouse.

Sage-grouse and other wildlife species require vast, intact sagebrush landscapes in order to maintain viable populations. The checkerboard ownership of the West is such that public and private lands, both primarily used for livestock grazing, are inextricably linked in their ability to support ecological functions and values. Most wildlife species cannot be sustained at desired levels on public lands alone, especially considering that the majority of private lands are more productive and better watered due historic settlement patterns. Activities that result in private land fragmentation, intensification, or land use conversion can undermine efforts to sustain wildlife populations.

One way to help keep private ranchlands in grazing and out of more intensive land uses is to support profitable, yet sustainable, working ranches. Several SGI practices, like conifer removal and weed control, not only benefit sage-grouse but also help the rancher's bottom-line by improving the rangeland health and productivity. Furthermore, all SGI participants in Oregon also agree not to eliminate sagebrush or otherwise change land uses while participating in the initiative. Farm Bill easement and stewardship programs are an important tool for conserving intact sagebrush rangelands. For example, in 2012, NRCS enrolled about 9,700 acres of core habitat in long-term agreements under the Grassland Reserve Program (GRP) which ensures sustainable grazing management of native sagebrush rangelands continues as the prevailing land use.

Conservation Actions

- 14. Action:** Secure permanent conservation easements and/or long-term agreements in priority habitats to maintain intact sagebrush rangelands.

Easement and stewardship programs will be focused in and around sage-grouse core areas to maintain working landscapes. Ranches that contain intact sagebrush communities, that have addressed all other threats to sage-grouse, and that are no longer in need of significant restoration will be a priority for protection. Easement management plans include strict provisions for ensuring appropriate grazing use, reducing threats to grouse, and prohibit sagebrush removal or other land use conversion.

NRCS Conservation Practices

Prescribed Grazing (528) and Upland Wildlife

Habitat Management (645) will be the basis for management plans.

Estimated Cost

- **Action 14:** Average easement cost for rangeland = \$140-170/ac
- Anticipated NRCS funding source: ACEP-ALE, CSP

Regulatory Predictability

NRCS and partners work one-on-one with landowners who choose to participate in SGI to assess threats.

Site-specific conservation plans are then developed identifying practices needed to reduce threats to sage-grouse and improve or maintain ranch sustainability.

In 2010, NRCS proactively sought the advice of the FWS on 40 conservation practices to ensure that they would benefit sage-grouse. Using the conferencing procedures under Section 7 of the ESA, FWS issued a national Conference Report that identifies conservation measures associated with each practice to achieve the desired benefits for grouse (USFWS 2010b). This Conference Report provides regulatory predictability for up to 30 years to cooperators who voluntarily implement and maintain SGI practices and conservation measures that they will be exempted from any "incidental take" of the species, should it be listed, that may be inadvertently caused by the

practices (Ashe 2012). All practices implemented through our strategy incorporate the measures outlined in the Conference Report.

The Harney SWCD and FWS have developed a Greater Sage-Grouse Programmatic Candidate Conservation Agreement with Assurances for Private Rangelands in Harney County (CCAA). A CCAA is a voluntary agreement in which non-federal landowners agree to adopt conservation measures which reduce threats to a candidate species and maintain or enhance habitat in exchange for assurances from FWS that no additional conservation measures will be required of the landowner should the species become listed under ESA in the future. In the event that the species is listed, FWS will issue an Enhancement of Survival permit for incidental take that may occur as a result of activities covered in the CCAA. Following the Harney County model, CCAs for other counties in sage-grouse country in Oregon are also being developed.

Voluntary enrollment in a CCAA represents a strong, long-term commitment by landowners to benefit sage-grouse. NRCS technical and financial assistance will be prioritized to help landowners implement conservation measures in site-specific plans associated with CCAs that address threats described in this strategy.

Conservation Outcomes & Effectiveness Monitoring

Expected Outcomes

Short Term:

- Averted loss of desired sagebrush and understory vegetation
- More suitable habitat for sage-grouse
- Fewer accidental sage-grouse mortalities due to fences and watering facilities

Long Term:

- More resistant and resilient sagebrush communities
- Improved sage-grouse demographic performance (e.g., higher survival, nest success)
- Stable-to-increasing sage-grouse populations

Monitoring

Across the West, SGI takes a three-tiered approach to monitoring outcomes of conservation actions to inform adaptive management:

- 1. Ranch-level monitoring**—NRCS conducts practice certification and compliance monitoring on its agreements and easements. Program protocols will be followed to ensure contract terms and conditions are not violated over time. Monitoring may include permanent photo points and vegetation transects.

Both annual and periodic trend monitoring will be required for all lands enrolled in CCAAs. The monitoring protocols to be used will be identified in the CCAA documents and site specific plans. Under the Harney County CCAA, Harney SWCD will have responsibility for annual and trend monitoring and reporting to USFWS. The monitoring methodologies set forth in the Harney County CCAA include ground cover, basal cover of perennial herbaceous plants, foliar cover of woody species, perennial plant composition, foliar cover of herbaceous species, total foliar cover, species composition by cover, density of perennial vegetation by species, photo point monitoring, grazing utilization and distribution, Proper Functioning

Condition, and Multiple Indicator Monitoring.

- 2. Outcome-based evaluations**—SGI invests heavily in building the science foundation on practice effectiveness by supporting large scale outcome-based evaluations of practice effects on birds. Evaluation findings are being published in peer-reviewed literature to document expected practice effectiveness.

SGI-sponsored research is underway in the southern portion of the Warner Action Area east of Lakeview, Oregon, to assess sage-grouse response following conifer removal. NRCS is collaborating with the Bureau of Land Management (BLM), University of Idaho, and Oregon

Photo by Jeremy Roberts, Conservation Media.



Department of Fish and Wildlife to implement a landscape-scale, before-after control-impact study to assess how sage-grouse habitat use, demographics, and population trends are affected by juniper removal. Pre-treatment data were collected 2010-2011 and BLM and private landowners with SGI funding are currently removing about 47,000 acres of early phase juniper encroachment in the treatment area. Roughly 80 radio-marked birds will be followed for at least 3 years post-treatment. Results of this assessment will be published in peer-reviewed literature to document practice effectiveness for sage-grouse, thereby providing a mechanism for predicting future biological outcomes from applying this practice.

- 3. Rangewide monitoring**—NRCS is boosting the scope of its Natural Resources Inventory (NRI) program across private and public lands to track long-term trends (10-30 years) in land use/cover in sage-grouse habitat across the West. In Oregon, lek trend data are also being gathered across the state by ODFW and partners to gauge population-level responses over time.

Partnerships & Coordination

Partnerships are essential to achieving conservation at ecologically relevant scales and are the cornerstone of SGI. Oregon's Strategy is the result of close coordination with local, state, and federal agencies, livestock producer groups, universities, and non-government organizations to identify targeted approaches for reducing threats. ODFW, the agency charged with sage-grouse management in the state, is a key partner helping to guide SGI priorities. NRCS coordinates sage-grouse conservation efforts with partners through ODFW's State and Local Sage-Grouse Implementation Teams, SGI Partner Forums, and local working group meetings. Public land management agencies are engaged on the state and local level to coordinate conservation actions to maximize habitat benefits across ownership boundaries whenever feasible.

Partner contributions to the initiative so far have included:

- **Expanded Outreach and Communications** – Partners have helped inform landowners in high priority habitat areas of available assistance and increased awareness of sage-grouse conservation issues.
- **Targeted Funding** – Partners with financial assistance programs and public land management agencies have begun focusing their resources in areas of SGI investment to increase cumulative impact of the treatments and leverage benefits.



Photo by Jeremy Roberts, Conservation Media.

- **Monitoring** – Partners are collaborating to measure biological responses to conservation actions.
- **Planning Assistance** – Partners are providing rangewide planning assistance to help prioritize efforts. They are also providing direct technical assistance at the ranch level, working with prospective landowners to aid conservation delivery.
- **Conservation Agreements and Regulatory Predictability** – Partners are working to develop agreements which will secure long-term conservation commitments while providing landowners with increased regulatory certainty (e.g., CCAAs, CCA, Conference Report).

Recognizing the bottleneck for conservation implementation is often technical assistance capacity, partners are also helping put ‘boots-on-the-ground’ through the Strategic Watershed Action Team (SWAT). SGI-SWAT is a partnership effort between NRCS, Intermountain West Joint Venture (IWJV), and more than 30 partners across the West to expand field delivery, science,

and communications capacity for SGI. In Oregon, SWAT funds three additional habitat conservationists that are located in NRCS field offices to work one-on-one with landowners to accelerate conservation implementation. ODFW has partnered on two positions, located in Lakeview and Ontario, and the Baker Valley SWCD has partnered on another in Baker City. These SWAT partner positions, combined with NRCS staff, have helped ensure the 5 NRCS field offices in sage-grouse country have adequate human capital to deliver technical and financial assistance.

Conservation partners in Oregon to date have included: Oregon Department of Fish and Wildlife, The Nature Conservancy, Soil and Water Conservation Districts, Oregon Cattleman’s Association, Watershed Councils, U.S. Fish and Wildlife Service, Oregon Habitat Joint Venture, Intermountain West Joint Venture, Agricultural Research Service-Eastern Oregon Agricultural Research Center, Bureau of Land Management,

Oregon Watershed Enhancement Board, Oregon State University, Oregon Department of State Lands, U.S. Forest Service, county governments, the Harney County Sage-Grouse CCAA Steering Committee, and private landowners.

Marketing & Communication

SGI operates under the shared vision of ‘achieving wildlife conservation through sustainable ranching.’ Promoting that vision is critical to garnering broad landowner participation, partner support, and societal buy-in for achieving desired outcomes. NRCS public affairs specialists and technical staff at national and state levels work collaboratively with partners to achieve this. The SGI-SWAT partnership is also playing a vital role in expanding communications and marketing capabilities.

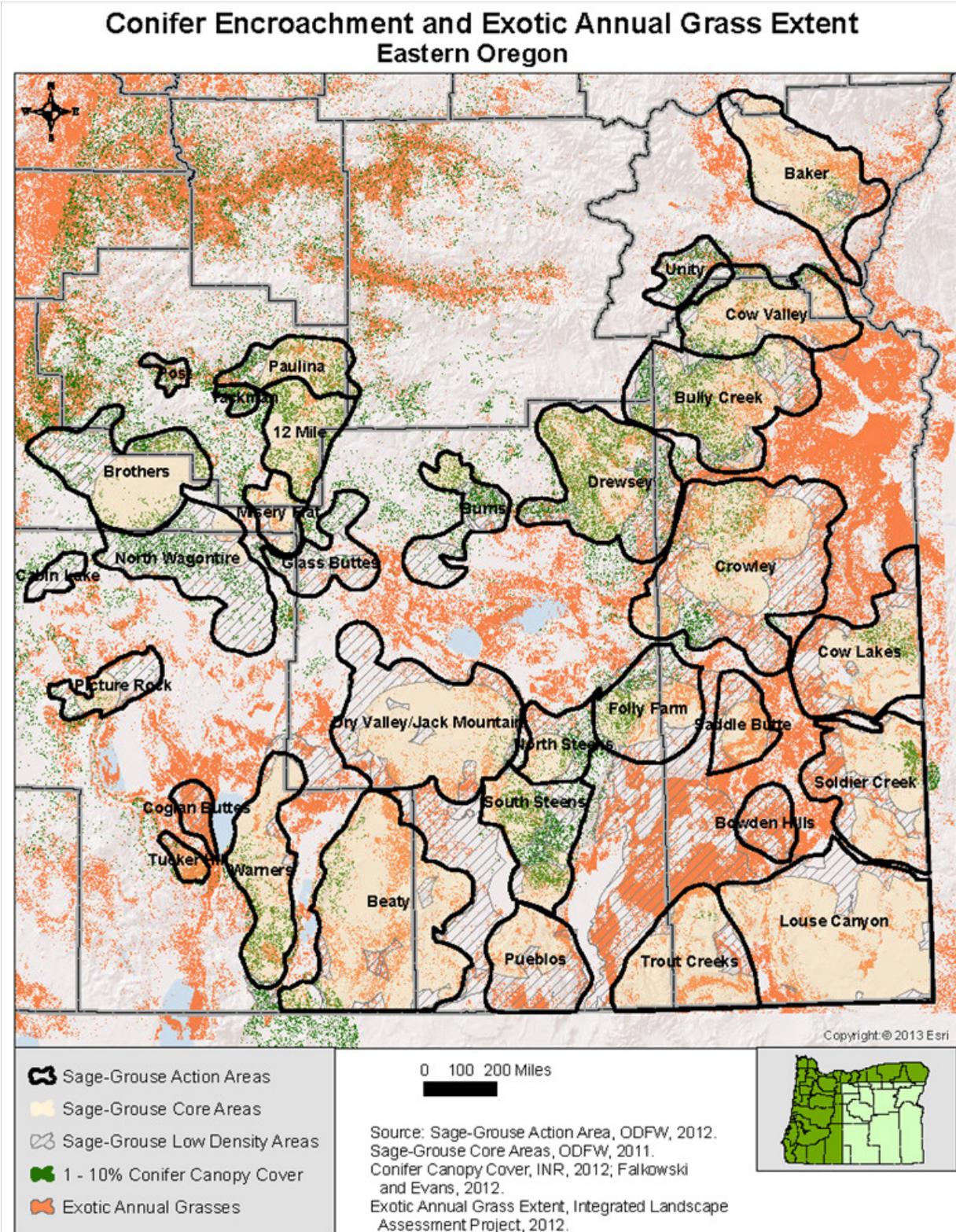
NRCS public affairs specialists work with field staff to develop specific outreach plans to help promote SGI among targeted landowners in priority habitats. They also facilitate production of informational materials, press releases, tours, and media events. These efforts are critical to ensuring landowners are aware of program opportunities and timelines, as well as, informing the public about conservation benefits. NRCS technical staff roll-up SGI actions annually and report them to both ODFW and FWS to inform sage-grouse management decisions. Progress towards threat

reduction is tracked and reported by Action Area and conveyed to ODFW through State and Local Implementation Teams. Oregon contributes data to a rangewide report summarizing all SGI investments for the FWS during their annual status review of the species so that conservation actions are counted in listing considerations.

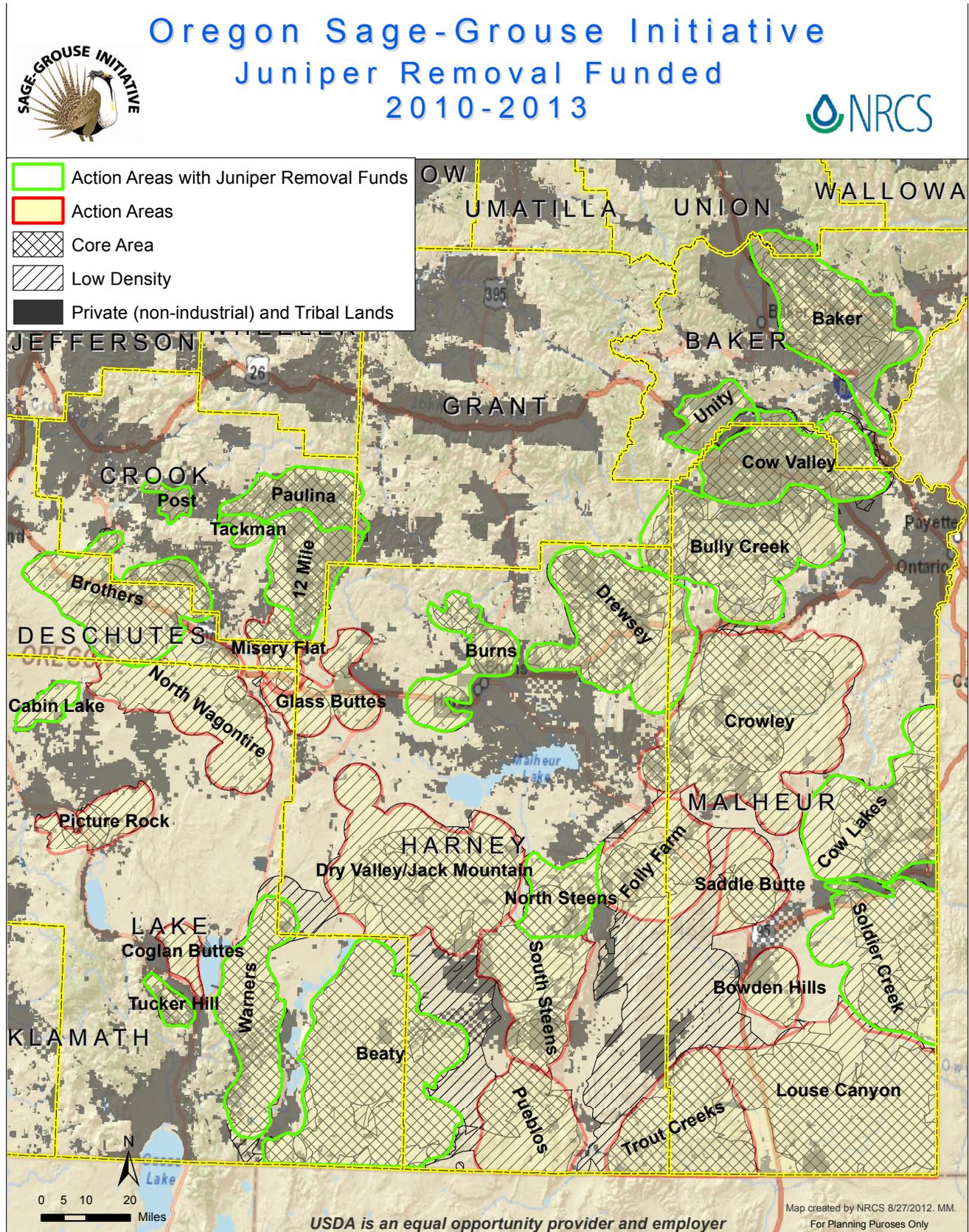
Communicating the SGI story to broad audiences is essential to continued success. Through the SWAT partnership, SGI has been able to greatly expand its reach by establishing a dedicated website (sagegrouseinitiative.com) and engage in social media (e.g., Facebook) that provide forums to share collective partner efforts rangewide. A series of informational videos have been created to facilitate marketing of major SGI conservation actions. Finally, the IWJV has hired a full-time communications specialist to help tell the SGI story with diverse media outlets including agricultural producer publications, conservation member magazines, newspapers, radio, and other venues.

Learn more at
www.sagegrouseinitiative.com

APPENDIX A: Conifer encroachment occurring at upper elevations and annual grasses threatening lower elevations create the ‘big squeeze’ on sagebrush ecosystems.



APPENDIX B: Amount of juniper removal funded through SGI by Sage-Grouse Action Area from 2010-2013.



APPENDIX B Continued: Amount of juniper removal funded through SGI by Sage-Grouse Action Area from 2010-2013.

Total Juniper Removal Funded = 146,348 acres

Juniper Removal Funded by Action Area (2010, 2011, 2012, 2013)	
Action Areas	Action Area Total
12 Mile	27,127
Baker	6,451
Beaty	641
Brothers	4,752
Bully Creek	8,651
Burns	3,723
Cabin Lake	861
Cow Lakes	3,439
Cow Valley	8,471
Drewsey	16,250
North Steens	1,054
Paulina	25,259
Post	100
Soldier Creek	2,676
Tackman	276
Tucker Hill	7,523
Unity	12,117
Warners	6,845
Total	136,216

Acres that do not fall in Action Areas	
County	County Total
BAKER	528
CROOK	4,382
DESCHUTES	0
HARNEY	583
LAKE	4,640
MALHEUR	0
Total	10,133

Juniper Removal Funded by Fiscal Year and County							
Fiscal Year	BAKER	CROOK	DESCHUTES	HARNEY	LAKE	MALHEUR	Total
2010	4,716	10,873	-	3,443	1,625		20,656
2011		16,637	-	5,968	4,415	7,332	34,352
2012	12,725	19,840	-	7,915	7,091		47,571
2013	6,451	13,415	1,130	4,870	7,379	10,524	43,769
Total	23,892	60,765	1,130	22,195	20,509	17,857	146,348

Contact: Jeremy Maestas - NRCS Technical Lead, Sage-Grouse Initiative

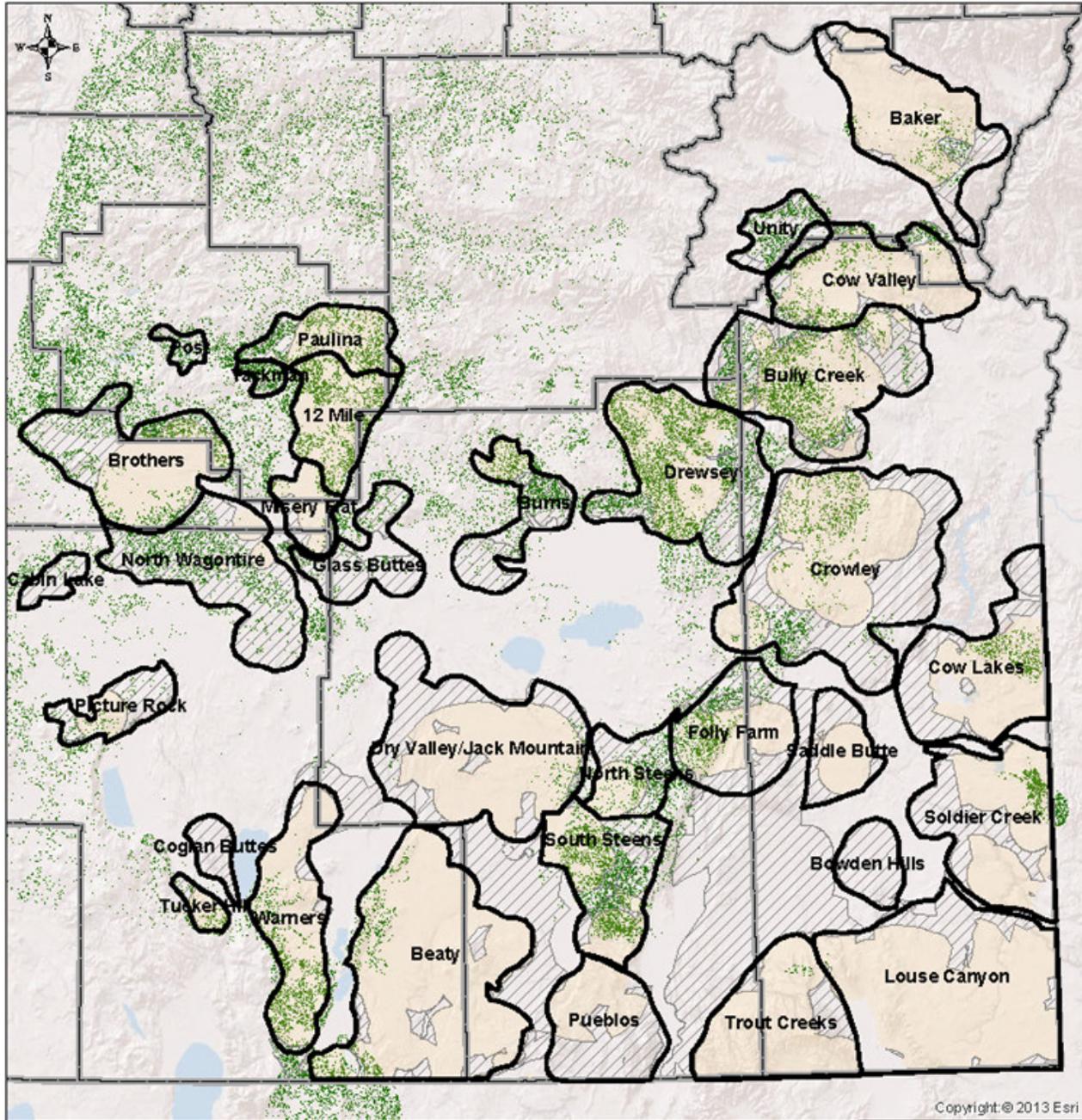
(541) 923-4358 x109 / Redmond, OR

Contact: Zola Ryan - NRCS District Conservationist

(541) 573-6446 x107 / Hines, OR

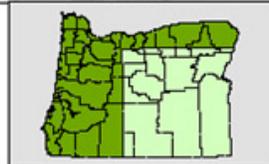
APPENDIX C: Estimated extent of early phase conifer encroachment (1-10% canopy cover).

**Conifer Encroachment (1-10% Canopy Cover)
Eastern Oregon**



-  1- 10% Conifer Canopy Cover
-  Sage-Grouse Action Areas
-  Sage-Grouse Core Areas
-  Sage-Grouse Low Density Areas

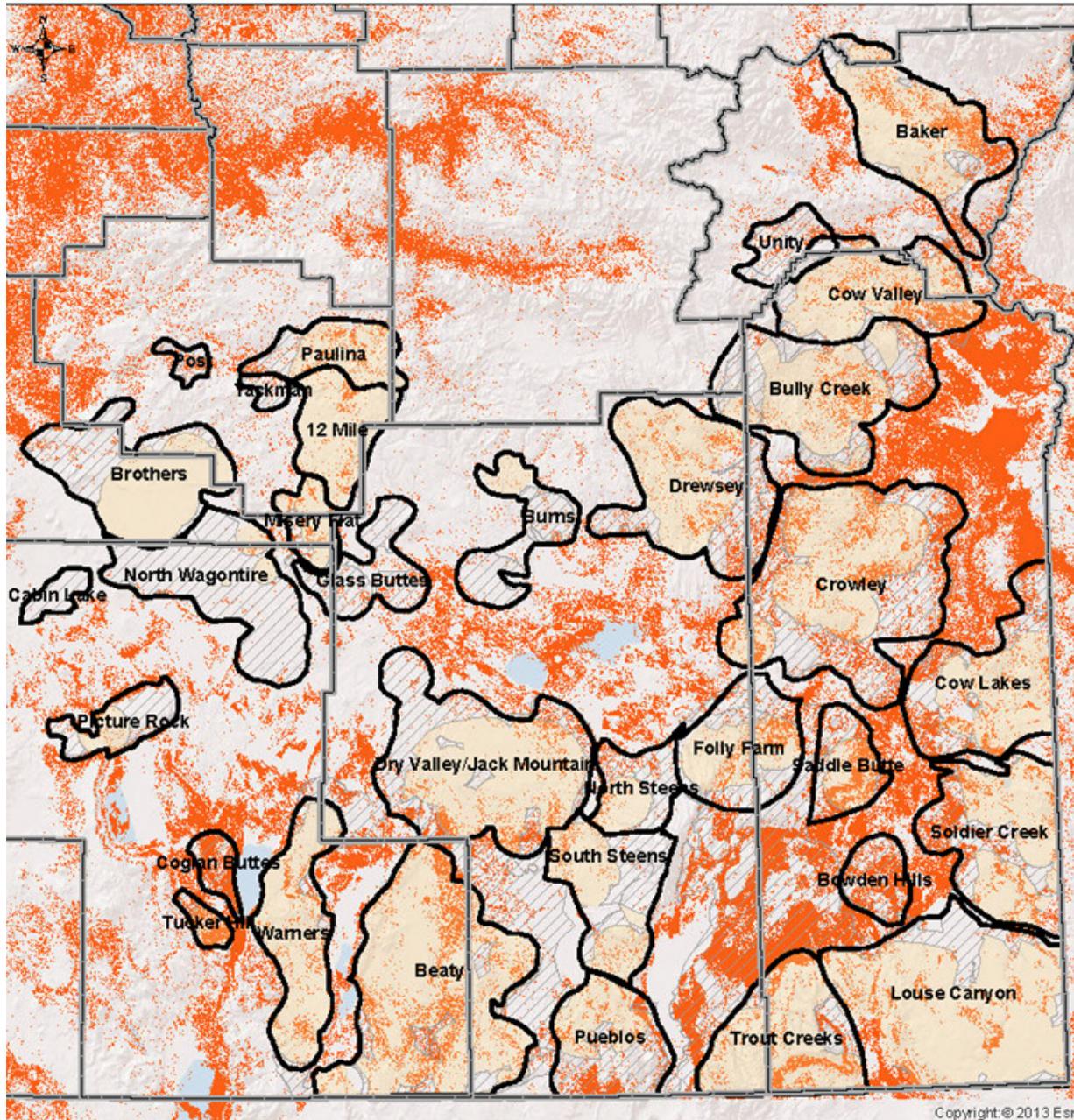
0 100 200 Miles



Source: Sage-Grouse Action Area, ODFW, 2012.
Sage-Grouse Core Areas, ODFW, 2011.
Conifer Canopy Cover, INR, 2012; Falkowski
and Evans, 2012.

APPENDIX D: Estimated area where exotic annual grasses are the dominant or subdominant herbaceous vegetation, 2000.

**Exotic Annual Grass Extent
Eastern Oregon, 2000**



-  Sage-Grouse Action Areas
-  Sage-Grouse Core Areas
-  Sage-Grouse Low Density Areas
-  Exotic Annual Grasses

0 100 200 Miles



Source: Sage-Grouse Action Area, ODFW, 2012.
 Sage-Grouse Core Areas, ODFW, 2011.
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