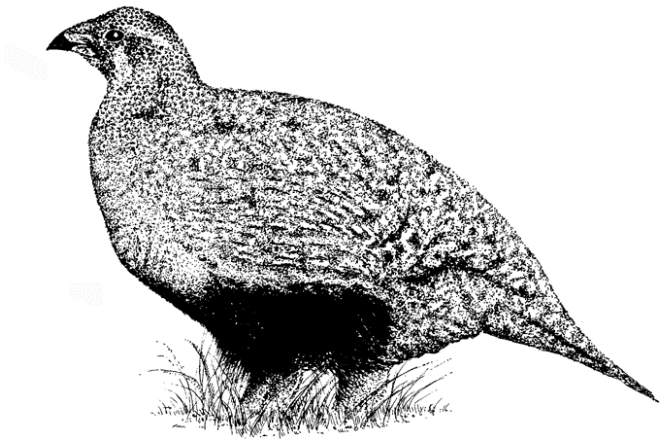
# Report on Conservation Efforts in Response to Threats to Greater Sage-grouse in Washington:

An evaluation of Washington State's efforts to address threats to the viability of Sage-grouse listed in the Conservation Objective Team (COT) report (USFWS 2013)



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# Report on Conservation Efforts in Response to Threats to Greater Sage-grouse in Washington

Washington State is addressing the threats to the viability of sage-grouse listed in the Conservation Objective Team (COT) report (2013) through the following conservation efforts.

## Threat – Loss or degradation of Priority Areas for Conservation (PACs)

### Conservation Objective from COT Report – Retain sage-grouse habitats within PACs

### Conservation Efforts

**Reevaluate the status of PACs and adjacent sage-grouse habitat**

The habitat quality in the Moses Coulee PAC has been maintained or improved due to the Conservation Reserve Program (CRP), and the new State Acres for Wildlife Enhancement (SAFE) program should result in further improvements to the habitat in the future. In the Crab Creek PAC, Washington Department of Fish and Wildlife (WDFW) and Bureau of Land Management (BLM) restoration efforts and management practices have improved or retained sage-grouse habitat. Additionally, CRP and SAFE acreage on private land in the PAC should result in improved habitat quality for sage-grouse. The Yakima Training Center (YTC) military installation continues restoration work and made operational changes to their fire management in 2010 to better manage training-related fires. Restoration work on US Fish and Wildlife Service's (USFWS) Hanford Reach National Monument (Hanford) management unit adjacent to the YTC continues after the most recent wildfires but the timeline for reestablishment of functional habitat is long due to xeric conditions.

**Identify areas and habitats outside of PACs necessary to maintain viability of sage-grouse**

Areas and habitats outside of PACs which may be necessary to maintain viable sage-grouse populations are shown as Sage-grouse Management Units (SMUs) in the 2004 Sage-grouse Recovery Plan (Stinson 2004 and Appendix A). In particular, the habitat in the SMUs that fall between the PACs (Dry Falls, Colockum, Ahtanum Ridge, and Umtanum Ridge) is recognized as important to potentially support resident birds and/or maintain metapopulation connectivity (Robb and Schroeder 2012). Areas for acquisition and restoration are prioritized within the recent report on conservation actions in Washington (Stinson and Schroeder 2014) and include areas that are important for connectivity and expansion of populations. Barriers to sage-grouse movement and dispersal corridors between Habitat Concentration Areas (HCAs – defined as areas where suitable habitat for the species is most dense and correspond approximately to PACs) were modelled in the addendum (Robb and Schroeder 2013) to the ecoregional connectivity analysis for the Columbia Basin that was completed in 2012 (Robb and Schroeder 2012). The connectivity work also identified pinch points within individual linkages between HCAs where movement is funneled through a narrow area and loss of a relatively small amount of habitat could sever the connection between populations.

**Pursue opportunities to increase occupancy and connectivity between PACs**

Lands important to connectivity have high priority for protection, restoration and acquisition in Washington and these areas have been identified in the Washington Connected Landscapes work done recently (Robb and Schroeder 2013). Barriers to movement between HCAs have been identified in the connectivity work as freeways, powerlines, and other energy infrastructure (Robb and Schroeder 2013). Opportunities to influence the placement of energy infrastructure where it will have the least impact on connectivity are pursued (Schroeder et al 2013).

The Wild Horse Wind Farm is located in a connectivity corridor between the YTC and Moses Coulee PACs. Mitigation for the Wild Horse Wind Farm project included a 7,600 acre parcel held in a conservation easement by WDFW as well as 600 acres set aside as mitigation for all wildlife impacts and 10 acres of habitat restoration specific to the needs of sage-grouse. The Quilomene Coordinated Resource Management (CRM) plan covers grazing management on 62,000 acres and was implemented in that same corridor. The CRM allows only 35% forage utilization which should allow shrub steppe habitat to recover its function as sage-grouse habitat and improve connectivity between subpopulations. In addition to the land covered by the CRM, 17,000 acres of shrub steppe was acquired by WDFW to preclude conversion to agriculture or development.

Translocations of sage-grouse from a source population outside of Washington have occurred in all the PACs except Moses Coulee. Sage-grouse were translocated to the YTC in 2004, 2005, 2006 and 2014. Sage-grouse have been reintroduced to Swanson Lakes Wildlife Area beginning in 2008 with translocations occurring annually through 2014. The Yakama Nation has also been translocating sage-grouse since 2004.

## Effectiveness

Effectiveness of recent habitat conservation measures is difficult to gauge because of natural fluctuations in sage-grouse populations and the many years that are often necessary for functional habitat structure to develop in shrub steppe. However, Washington has been successful in determining the areas that are priority sage-grouse habitat for protection and restoration efforts in the PACs and opportunistically acquiring and restoring land. Within and between PACs, restoration projects have had variable levels of success at restoring land back to conditions that mimic natural sage-grouse habitat due to varying precipitation levels, soil quality, invasion by non-native species, and the length of time required for functional habitat to be restored. Federal Farm Bill Programs such as CRP and SAFE have helped to provide additional habitat and buffer patches of remnant natural habitat, however these contracts with landowners can be relatively short (i.e. 10-15 years) and the future of these programs is somewhat tenuous due to its reliance on the federal budget. Site preparation for CRP land that is enrolled in the SAFE program or re-enrolled CRP acreage can result in short-term loss of marginal habitat but will result in establishment of more native vegetation and likely more functional habitat.

Large wildfires in the Moses Coulee in 2013 and additional fires in Crab Creek have degraded some habitat in those PACs. Restoration work on Hanford has been difficult partly because of the semi-arid conditions and partly because the ecosystem has been degraded by past land management and fires to the point where restoration to functional shrub steppe will require extreme effort and investment.

Establishing connections between populations that are now isolated is vital for the long-term viability of sage-grouse populations in Washington and requires focused use of resources for protection and restoration of key habitat. None of the linkages between HCAs currently provide ideal connectivity. Connectivity could be enhanced through the expansion of existing populations, establishment of new populations, and by improving the quality of the linkage habitat (Robb and Schroeder 2012). These actions are limited by available funds, the site potential of the undeveloped or converted habitat, the length of time required to restore functional habitat, access to source populations, and the checkerboard nature of land ownerships in Central Washington. Resource agencies within the range of sage-grouse in Washington are using the available knowledge about barriers in an attempt to avoid additional construction of infrastructure in locations that would increase resistance of movement of sage-grouse between PACs.

In Washington there has been some documentation of limited movement of sage-grouse between Crab Creek and Moses Coulee, but this was from birds translocated to Washington, which are prone to greater movements. However, between Moses Coulee and the PACs to the south (YTC and YN) there is a very narrow pinch point in the connectivity corridor. The Wild Horse Wind Facility mitigation and the Quilomene CRM may improve connectivity by improving habitat. Sage-grouse have been seen occasionally on the Wild Horse Wind Facility and may have travelled between YTC and Moses Coulee PACs in the past (1990s and early 2000s) in spite of the narrowness of the connectivity corridor. Two or three genetic samples from Moses Coulee in the mid-1990s are likely from offspring of dispersers from the YTC (Small et al 2011). However, at this time there is no other documented use of that corridor by sage-grouse.

# Threat - Fire

## Conservation Objective from COT Report – Retain and restore healthy native sagebrush communities within Greater Sage-grouse communities within and outside of PACs

### Conservation Efforts

**Wildfire prevention and suppression**

Wildfire is a significant threat to all sage-grouse populations in Washington, as it is throughout much of the western range. The nature and severity of this threat varies across subpopulations. Wildfire ignition can occur from many sources including the use of and work on highways, military training activities, target shooting, burning of trash, farm and ranch machinery, or lightning (WDFW 2013). Wildfire prevention and suppression occurs throughout the range of sage-grouse in Washington and involves several entities because of the checkerboard arrangement of land ownership.

All WDFW Wildlife Areas (WLAs) have fire prevention and suppression plans as part of their management plans. The management plans for all WDFW WLAs are currently being rewritten and the fire prevention and suppression portions of these plans will also be evaluated and updated. Fire suppression plans evaluate risks, identify responsibilities, priority areas, and strategies for fire suppression, evaluate and map water resources and access points if needed, and evaluate the need for firebreaks, green-stripping, and management of fuels. Wildfire suppression plans serve as a resource to the WLA staff and fire fighters who need to suppress wildfires or plan prescribed burns.

In particular, the fire prevention and suppression plans include maps showing ownership, fire department jurisdictions, structures, fire breaks, and water sources. All roads, including primitive and administrative use roads not currently displayed on other maps, will be mapped to allow for fire suppression access and to assess the potential for roads to act as firebreaks. Some of the PACs (Appendix B) have fairly high road densities such as in the Moses Coulee PAC where there are roads along many of the section lines. Not all roads will function as firebreaks because not all roads are wide enough, depending on the intensity of the fire and wind direction and speed. There are 18 miles of actual firebreaks on the WLAs within the Moses Coulee and Crab Creek PACs. Fire suppression plans on sage-grouse units where reintroductions are occurring or may occur, specifically address sage-grouse habitat protections. For example, Sagebrush Flat Wildlife Area (within Moses Coulee PAC) has unvegetated firebreaks in shrub steppe as part of its fire prevention and suppression plan. Bureau of Land Management (BLM) also assisted Swanson Lakes Wildlife Area (SLWA) staff in the development of fire control activities to help prevent large, catastrophic wildfires on the SLWA and Twin Lakes public lands in the Crab Creek PAC (WDFW 2012).

Title 76 RCW (Forest and Forest Products) was updated in 2012 to allow Department of Natural Resources (DNR) to conduct fire suppression on non-forest state lands. DNR's primary responsibility is to suppress wildfires on 13 million acres of state and private forests and non-forested state lands including shrub steppe within the SMUs and PACs. WDFW entered into contract agreements for DNR to provide the fire suppression on their WLA shrub steppe lands. DNR prepositions firefighting resources to critical wildfire risk areas within Washington when conditions indicate probability for large wildfires. DNR's extended-attack firefighting efforts involve consultation with WDFW land managers to prioritize fire protections efforts and habitat needs. In addition, WDFW has agreements with local fire protection districts to fight fire on WDFW land.

The 1999 catastrophic wildfires in the Great Basin brought together numerous resource specialists and agencies including the BLM to develop fuels management policies that contribute to the conservation of sage-grouse habitat. In June 2011, BLM laid out their policy guidance that augments sage-grouse protection on BLM land through their planning processes, maps, fire management decisions, and best management practices (Instruction Memorandum [IM] 2011-138). The IM directs decisions on fire management to include consideration of sage-grouse habitat based on local conditions.

Sage-grouse habitat conservation is also considered in BLM fuels treatment prioritization during project design, treatment location, and documentation. Updated localized maps of sage-grouse habitat are shared with dispatch offices, fire crew bosses, and other field fire responders. "Toolboxes" that include local maps, contact information of resource advisors, and best management practices for sage-grouse habitat protection are available at each management level. Resource Management and Fire Management Plans are kept up-to-date and these include guidance on sage-grouse and sage-grouse habitat management. This guidance includes prioritization of sage-grouse habitat as critical areas for fire suppression. BLM uses Predictive Services forecasts to pre-position people and fire-suppression equipment to optimize efficient response in sage-grouse habitat on critical fire weather days. Once a fire is reported, maps are used to determine if the fire is in or near sage-grouse habitat, the appropriate resources are dispatched, and on-the-ground incident managers are informed of the threat to sage-grouse habitat. Operations are directed to protect and conserve sage-grouse habitat (Murphy et al. 2013).

Hanford Reach National Monument is outside of the PACs but is potential expansion or connecting habitat. It has a fire management plan that calls for the continued suppression of all wildfires on the Monument. It also incorporates mutual aid agreements with surrounding communities and state and federal agencies and emphasizes a system of emergency communications (USFWS 2001). In addition, USFWS and Washington State University (WSU) are conducting site treatments of *Pseudomonas fluorescens*, a naturally occurring soil bacterium, for use as a biopesticide to control cheatgrass (*Bromus tectorum*). Cheatgrass is an invasive grass that is widespread in the west and is extremely flammable. Initial test results at Hanford are promising with single applications dramatically reducing cheatgrass in three to five years while not hurting other plants or animals. USFWS is working with Environmental Protection Agency to certify this treatment for broad-scale landscape treatment of cheatgrass. Federal registration may take five or more years (USFWS 2013b).

The YTC military installation has a wildland fire management plan that is implemented and reviewed annually (JBLMYTC 2012a). The objectives of the plan include to "minimize wildland fire impacts to cultural and natural resources" and "develop and implement management strategies that reduce the risk of wildland fires spreading beyond the limit of designated areas (e.g., designated containment

areas)." YTC has dedicated wildland fire personnel, equipment, and 220 miles of firebreaks, as well as a system of established fire containment areas, and a risk assessment process to address the wildland fire risk associated with military training (C. Leingang pers. comm.). YTC also funds a Shrub steppe Collaborative Partnership coordinator who regularly engages with local fire managers to address wildland fire threats to shrub steppe.

Unlike other areas in the west, Washington has local fire districts that have firefighting training and responsibility for the protection of privately held shrub steppe ownerships. Many of the communities in eastern Washington have a wildland urban interface where homes are built near or among lands prone to wildfires. To help defend these areas against wildfires many of the communities in shrub steppe have developed Community Wildfire Protection Plans (CWPP). The CWPPs are developed by local citizens and state and federal agencies and can address wildfire response, reduction of risk factors, community preparedness, and structure protection. Several communities within the counties that contain SMUs and PACs have developed CWPPs including communities in Lincoln, Douglas, Benton, Chelan, Kittitas, and Yakima Counties.

**Shrub steppe restoration**

Generic restoration plans have been developed for many public lands (WDFW, BLM, YTC), but not for private lands. The shrub steppe restoration manual recently produced by BLM, Bonneville Power Administration (BPA), and WDFW is a useful guide to restoration techniques in the shrub steppe after wildfires (Benson et al. 2011). The Department of Defense (DOD) also has a revegetation plan for YTC land (JBLMYTC 2012b) and is actively restoring shrub steppe habitat.

Restoration of degraded sage-grouse habitat has been occurring on WDFW and other public lands (BLM, USFWS, YTC, and DNR) within the Management Units as funding for restoration is secured. Some of this restoration includes fire impacted area. Fire lines that are established during firefighting are also reseeded to native vegetation. The YTC has a large shrub steppe fire impact sagebrush reseeding effort that is in the third year of a five year project (Table 1). Areas within YTC's Sage-grouse Protection Area (SGPA) receive first priority for restoration (C. Leingang pers. comm.). Yakima Nation (YN) is planting 3,500 sagebrush plugs in burned areas within the YN horse exclosure area in 2014.

**Table 1.** Restoration of degraded sage-grouse habitat in Washington

| Management Unit/ acres | Years | Comments |
|---|---|---|
| **Crab Creek** | | |
| 1,904 acres | <2004 | BLM and WDFW land in and near SLWLA, Lincoln County; most were native grass/forb mix. |
| 906.5 acres | 2004 to 2013 | BLM and WDFW land.<br>300 acres were also overseeded with sagebrush into existing native grass/forb mix after 2012 Apache Fire. |
| **Moses Coulee and Mansfield Plateau** | | |
| 1,031 acres | 2004 to 2013 | Sagebrush Flats and Wells WLAs - Douglas County; All on Sagebrush Flat WLA except 54 acres on Wells WLA. BLM and WDFW land (includes 223 acres of fire rehabilitation). |
| **Yakima Training Center** | | |
| 13,000 acres | 2010 to 2015 | Fire rehab; Year 2 completed of 5 year plan of seeding and planting sagebrush on fire impact areas [a]. |
| **Hanford Reach National Monument** | | |
| 59,580 acres | 2005 to 2013 | Treatments overlap in acres:<br>50,273 acres treated for invasives.<br>50,802 acres seeded with native seed mixes of grasses, forbs and shrubs.<br>26,613 acres planted to native shrubs and forbs (3,575,725 plants) [b]. |

[a] C. Leingang pers. comm.
[b] H. Newsome pers. comm.

Restoration of the native grass and forb understory is an essential part of habitat that must be established after wildfires. The USFWS has a history of restoring native shrub steppe vegetation after fires including a large restoration effort on more than 59,000 acres on Hanford and the nearby Arid Lands Ecological Reserve. WDFW and BLM have also done small-scale restoration of degraded native bunchgrass/forb sites and YTC has established a forb nursery for use in their ongoing habitat restoration work. WDFW has successfully used aerial seeding for shrub steppe restoration work but success is tied to increased precipitation in the year of seeding, making establishment of vegetation difficult in many years.

**Documentation and monitoring**

State and federal agencies continually document methods and treatments, and monitor results of all restoration projects in the state. WDFW, in cooperation with BPA and BLM, has published a guidebook on the success and failures of past restoration efforts (Benson et al. 2011). The electronic manual was developed to capture the decades of experience and hard-earned knowledge acquired in shrub steppe restoration work in the Columbia River Basin and is intended to be updated regularly as new restoration information becomes available.

BLM has recently published a framework for restoring shrub steppe that models the ecological dynamics of restoration using seven different shrub steppe “starting states” and four “restored states” (Dunwiddie and Camp 2013).

YTC conducts annual monitoring of its restoration efforts utilizing a variety of methods including photo point analysis and transects. Results of restoration efforts are reported annually (C. Leingang pers. comm.).

Recent research to determine whether plugs or bare root stock works best for sagebrush planting was conducted on the Hanford National Monument and plugs survived more consistently (Dettweiler-

Robinson et al. 2013). Additional research has shown that seedlings are established more successfully than seeds while restoring sagebrush to fields dominated by crested wheatgrass (*Agropyron cristatum*) (Davies et al. 2013). The effectiveness of the restoration work on Hanford and the nearby Arid Lands Reserve is being monitored. At this point, because of the long timeframe needed to reestablish shrub steppe, sage-grouse habitat has not yet been established.

**Eliminate intentional fires**

Intentional fire including prescribed burning is rarely used in shrub steppe within the PACs or SMUs in Washington. The exception is for the conversion or development of lands enrolled in Farm Bill programs through NRCS. Burning is sometimes used on lands enrolled in Farm Bill programs as a method to prepare a field for planting and in that case timing is designed to minimize potential impacts on nests and young broods by avoiding treatment (including burning) from mid-March through mid-July. Other than site preparation, NRCS does not allow prescribed burning as a conservation measure in Washington. Private landowners not enrolled in Farm Bill programs do sometimes burn shrub steppe for weed control. Prescribed burning is not used to improve sage-grouse habitat in Washington because research has shown that it is not effective (Baker 2006, Rhodes et al 2010).

## Effectiveness

The threat of wildfire is addressed in a number of ways but is still a major threat to sage-grouse in Washington. In the more arid areas, weather, especially drought, can greatly influence the risk of catastrophic fire. Washington has progressive fire management and aggressive response to wildfires, but firefighting resources will always be used first to protect people's lives and property, and fire containment in remote areas is challenging. Wildfires continue to degrade significant amounts of shrub steppe annually. Some of the ignition sources are due to human uses that are poorly regulated such as target shooting that occurs in remote areas. Due to the small, isolated nature of the state's sage-grouse population, the effect of fire has the potential to significantly compromise the species in Washington. In Douglas County the presence of green agricultural fields that do not carry fire well may provide some fire protection for part of the year. While the YTC aggressively works to control wildfires, military training has degraded significant portions of the habitat within that PAC and fire continues to pose the greatest threats to habitat security in the area. In addition, fires that originate on private land off of the military installation are not suppressed by the DOD until they enter the YTC installation, meaning that fire management is left to the local fire district.

Restoration of habitat affected by wildfire continues to be challenging especially in semi-arid areas that have potential for invasion by annual grasses, or if the restoration effort occurs in a year with lower than normal precipitation. It is recognized that returning burned areas to a perennial based native plant community can make the area less likely to carry intense fires and can help break the cheat grass cycle. However, it can take decades for restored areas to establish a shrub, perennial grass, and forb structure. Funding of restoration on the scale needed to restore habitat structure and function continues to limit the amount of restoration work that can occur.

# Threat – Non-native plant species – weeds/annual grasses

## Conservation Objective from COT Report – Maintain and restore healthy native sagebrush communities within and outside of PACs

### Conservation Efforts

**Retain sagebrush habitat**

State law (RCW 17) requires landowners to manage noxious weeds which may involve control, containment or elimination of plants that interfere with the management objectives for a site. Weed management is conducted on WDFW lands to maintain and improve habitat. WDFW and DNR are required to employ integrated pest management (IPM) on their lands as defined in RCW 17.15.010. The procedures used in restoration of shrub steppe include suppression of cheatgrass and weeds through the use of mechanical and chemical means (Benson et al. 2011). Use of bio-control agents is currently being researched for cheatgrass, medusahead (*Taeniatherum canput-medusae*), and jointed goatgrass (*Aegilops cylindrical*) but may not be available for widespread use for several years (USFWS 2013). YTC annually implements a noxious weed program to address non-native species on the military installation.

**Decrease disturbances that promote the spread of invasive species**

On WDFW-controlled land, road building rarely occurs and many roads are only open for administrative use. BLM roads may be closed to vehicular access to protect resources depending upon the management actions outlined in their Resource Management Plan. There are no road building restrictions to prevent the spread of weeds on private lands.

The Yakama Nation exclosures encompassing 19,500 acres eliminate the disturbance that comes from uncontrolled grazing by wild horses in the land that is fenced. More land is slated to be protected this year with repairs to the damaged exclosure and the planned expansion of exclosures.

Fire is a disturbance common in shrub steppe that may allow the colonization and spread of invasive weeds. Public lands (WDFW, DNR, BLM, DOD) have fire prevention and suppression plans. YTC fire suppression and fire response is very aggressive in recent years. See the discussion under the fire threat above.

The Sage-grouse Initiative (SGI) program has decreased the disturbance associated with grazing in rangeland by funding infrastructure for implementing rest-rotational grazing systems on 31,037 acres from 2010 to 2013. Rest-rotational grazing has been shown to preserve biological crusts and allow for their recovery better than seasonal grazing systems. Biological crusts provide ground cover to spaces between shrubs and grasses which in turn decreases the establishment of invasive species (Kaltenecker et al. 1999). Limits on grazing are also provided by the Douglas County Multi-Species General Conservation Plan (GCP —in review), the WDFW Wildlife Areas Habitat Conservation Plan (HCP —in prep), and the Quilomene Coordinated Resource Management Planning Process (CRM).

Agriculture also disturbs the shrub steppe but agricultural fields enrolled in Farm Bill Programs control weeds during restoration work. Once shrub steppe shrubs, grasses, and forbs are reestablished, invasion by weed species is more difficult.

**Restore altered ecosystems**

Restoration continues on public lands as funding allows. Table 1 shows restoration within the PACs and adjacent areas (Hanford). Enrollment of lands in CRP and SAFE continues to maintain the amount of

land restored in Lincoln and Douglas Counties. Nearly 20 percent of the land cover in the Moses Coulee PAC is CRP and SAFE and the importance of these voluntary programs to habitat restoration cannot be overstated.

### Effectiveness

Federal and State agencies continue to control and treat invasive species on land they manage. Counties have weed boards that require control of noxious weeds but with current tools available this is difficult. In addition, not all invasive species are considered noxious weeds and so are outside of these regulations.

In many parts of the state, the cycle of wildfire and invasion of habitat by fire-prone species continues to be challenging. The combined effects of weather, wind, and xeric landscapes, make wildland fire a constant challenge that kills sagebrush, disturbs the understory plant communities and makes colonization and spread of invasive species a constant threat. Trials for development of biological controls for cheatgrass, medusahead, and jointed goatgrass show potential for increasing the control of these invasive species in the future.

The YTC military installation has high levels of disturbance due to the military training exercises that occur there and which are a frequent source of fire ignition. They have a very robust fire prevention and firefighting response and are maximizing their efforts to compensate for the inherent challenges associated with their mandate as a training facility. Despite this, training-caused fires continue to burn hundreds to thousands of acres of shrub steppe annually.

Restoration of altered ecosystems continues to be a challenge especially on semi-arid land with rocky soils and on the YTC because of the amount of fire and disturbance related to military activities. Restoration of an ecosystem that has been altered to the point of being dominated by a fire-prone invasive species such as cheatgrass is extremely difficult or perhaps impossible. If native perennial vegetation is established, it can take decades for shrub steppe structure and function to be restored so evaluation of recent restoration efforts is premature. In contrast to habitats associated with rocky and shallow soils, habitats associated with deeper soils offer more restoration opportunities, particularly when addressed through enrollment in Farm Bill programs. These habitats in the Moses Coulee PAC have been shown to be useful for sage-grouse as soon as 5 years after initial establishment. The primary downsides of habitats enrolled in Farm Bill programs is that they are not permanent, they are reliant on federal funding, they are voluntary, and they do not provide useful habitat during transition periods (field entering and leaving the program).

## Threat – Energy Development

### Conservation Objective from COT Report – Energy development should be designed to insure that it will not impinge upon stable or increasing greater sage-grouse population trends

### Conservation Efforts

**Avoid energy development in PACs**

In Washington, improperly sited and operated wind power and power transmission and distribution are threats to sage-grouse. Both share aspects of development that can cause habitat loss due to sage-grouse avoidance, such as construction of facilities, road networks, and the resulting habitat

fragmentation. While fossil energy development can have similar direct impacts, such development is not in demand or well-suited for land within PACs.

WDFW, DOD, USFWS, BLM and others closely scrutinize proposals for new wind energy development facility and power line (higher power transmission lines and lower power distribution lines) locations and the associated construction and operation measures. The agencies negotiate to minimize collision risk and damage to habitat, and the indirect issues associated with habitat avoidance by sage-grouse.

Washington's counties and municipalities are empowered to regulate the siting of electric transmission lines and other energy projects through their comprehensive planning and development regulation processes and they issue Conditional Use Permits where appropriate. In particular, local governments, through the Growth Management Act (GMA), are required to protect critical areas and resource lands (agriculture, forestry, and mining); most counties are also required to develop a comprehensive plan to encourage the most appropriate uses of land throughout the municipality or county and to facilitate those uses. Within the range of sage-grouse the following counties and associated cities are not required to prepare a comprehensive plan: Lincoln, Adams, Klickitat, and Okanogan. Comprehensive planning under the GMA is required in Douglas, Yakima, Kittitas, Grant, and Benton Counties.

Some new transmission and wind energy facilities are also evaluated and approved by the State of Washington Energy Facility Site Evaluation Council (EFSEC) that was formed by the Energy Facilities Site Location Act (EFSLA). The EFSEC consists of representatives from various state agencies and representatives of the local governments that may be affected by a project. The EFSEC coordinates evaluations and permits for siting certain energy facilities in Washington and EFSEC evaluation is required by higher voltage facilities.

Depending on the size of the development, the developer of a new wind power generation facility may have the option of pursuing a permit through either EFSEC or the local jurisdiction (cities and counties), with larger power line projects required to apply through the EFSEC. Smaller distribution lines that are not required to go through the EFSEC process and wind energy projects that choose to be permitted locally are still required to comply with State Environmental Policy Act (SEPA) and National Environmental Policy Act (NEPA) review where appropriate.

In 2010, BLM published IM 2010-071 that dealt with sage-grouse management considerations for energy development. In particular, the IM lists possible actions in priority habitat that include rerouting transmission projects and denying or conditioning wind energy development right-of-way grants on their property to protect priority habitat. In April of 2014, the Department of Interior released 'A Strategy for Improving the Mitigation Policies and Practices of The Department of the Interior' which included updated approaches to adhering to mitigation sequencing of avoidance, minimization, and compensation for unavoidable impacts (Clement et al. 2014).

Besides effects from larger power transmission lines, research has also shown that sage-grouse avoid habitat near power distribution lines in areas with habitat that is otherwise suitable (Stonehouse 2013). Other research has shown that raptor foraging does occur from power poles, all horizontal surfaces should fitted with spikes for deterrents to be effective, but that no deterrent completely stops perching, especially by smaller raptors (Dwyer and Doloughan 2014 in press). To decrease the effects of power lines and poles on sage-grouse, more than four miles of power distribution lines and 60 poles that were not needed were removed from BLM and WDFW land in the Crab Creek PAC.

### Effectiveness

The energy needs of the state continue to grow with the population. With hydropower and wind energy generation in more remote locations, Washington has a need for existing transmission corridors for energy transmission from the generation sites. The demand for new wind energy generation that might conflict with sage-grouse PACs has diminished recently, but may build quickly with growth in the state's energy demand, increases in mandated renewable energy thresholds for power utilities, and new policies to strengthen demand for wind power in neighboring states. New and upgraded transmission lines are currently in large demand in Washington to meet reliability and safety needs and provide capacity for future power generation.

Research has shown that sage-grouse avoid the habitat near existing transmission lines and distribution lines and depending on the location of the lines this could adversely affect the connectivity between populations (Stonehouse 2013, Schroeder and Vander Haegen 2014). Resource agencies and biologists have been informing power companies about effects to sage-grouse habitat or movement under different transmission line placement options although these negotiations are complicated by a variety of factors, including costs and the location of existing transmission lines. In spite of regulation of energy development and knowledge of the potential effects of that development on sage-grouse, turbine and transmission line placement that minimizes effects to sage-grouse populations and the connectivity between populations continues to be an important challenge for the sage-grouse populations in Washington. To date, WDFW has not been able to utilize existing regulatory mechanisms to ensure newly proposed construction of transmission lines be sited to avoid Washington's PACs. The ability to secure adequate minimization and mitigation measures – such as line burial – is dependent upon negotiations and EFSEC rulings.

## Threat – Sagebrush removal/elimination

### Conservation Objective from COT Report – Avoid sagebrush removal or manipulation within Greater Sage-grouse breeding or wintering habitats

### Conservation Efforts

**Avoid sagebrush removal or manipulation in sage-grouse breeding or wintering habitats**

Protection is afforded to sage-grouse habitat in the management provisions of the Safe Harbor Agreement between WDFW and USFWS for pygmy rabbits in and around the Moses Coulee PAC that protects shrub steppe habitat. Through this 20 year agreement, 15 private landowners, DNR, and The Nature Conservancy are protecting 120,532 acres of shrub steppe habitat in Douglas and Grant Counties (USFWS 2006). A CRM planning effort in the Colockum sage-grouse management unit protects sagebrush in enrolled lands by requiring grazing levels that maintain the integrity of the shrub steppe habitat and the sagebrush component.

WDFW is also drafting a wildlife area HCP that includes sage-grouse as a covered species. The HCP includes the state owned wildlife area lands and contains measures to minimize or avoid effects to covered species for certain WDFW controlled activities. The draft Douglas County GCP includes conservation practices such as prescribed grazing and range planting that may help to preserve the sagebrush on covered lands. WDFW and DNR are also pursuing a Candidate Conservation Agreement with Assurances (CCAA) with USFWS for conservation actions on state lands within the sage-grouse range and also potentially plan to work with interested private landowners in Yakima, Grant Kittitas and Lincoln Counties to offer their participation in the agreements.

DNR is working to identify critical shrub steppe habitat for sage-grouse through the use of the Natural Heritage Program database. Within the PACs, DNR is working to protect shrub steppe habitat and to protect habitat from development and conversion to agricultural uses. DNR also includes specific Resource Management Plan (RMP) standards in agriculture leases such as maintaining existing native vegetation to provide permanent wildlife habitat and cover. DNR has 51,658 acres in sage-grouse PACs (mostly Moses Coulee and Crab Creek) that are being managed consistent with sage-grouse conservation. These include CRP and SAFE enrollments, Natural Area Preserves, and grazing leases conditioned for shrub steppe protection. Approximately 27,000 acres of DNR land within the SMUs is under lease to and managed by WDFW to benefit sage-grouse.

The BLM's National Sage-Grouse Habitat Conservation Strategy (2004) states the following principles for protecting and managing greater sage-grouse habitat: 1) Protection of unfragmented habitats; 2) Minimization of habitat loss and fragmentation; 3) Management of habitats to maintain, enhance or restore conditions that meet greater sage-grouse life history needs. BLM recently released an Instruction Memorandum (IM 2012-043) that provides guidance for activities that affect the greater sage-grouse. Although the IM does not include the Washington population, it states that the Washington population will be addressed through other policies and planning efforts to "seek to maintain, enhance or restore conditions for greater sage-grouse and its habitat." BLM is currently developing a Resource Management Plan (RMP) for Washington. WDFW is a Cooperating Agency in this planning effort and is actively engaged in providing review and expertise during plan development.

The YTC military installation Sage-grouse Protection Area includes almost a fourth of the installation (77,400 acres).

## Effectiveness

Protection to sagebrush in breeding habitat is provided by a number of state and federal agency plans and directives noted above. That being said, much of the land within the Moses Coulee and Crab Creek PACs is in private ownership, so protections to public lands are not sufficient to maintain the large amounts of habitat required by a landscape species such as sage-grouse. Participation in Farm Bill Programs (CRP and SAFE), the Douglas County GCP, and a future CCAA are voluntary so regulatory protection is limited. Uncertainty about protection to sage-grouse habitat on private lands also arises because local municipalities may not provide consistent protections to sage-grouse habitat via local regulations or implementation of those regulations.

Most of the habitat set aside for grouse in Washington is based on the prioritization of private and public lands near leks in breeding and nesting habitat although it may include winter habitat because some of the protections extend to areas away from leks (e.g. the WDFW WLA HCP measures extend up to eight miles from leks). Despite the SGPA, protections to sagebrush on the YTC military installation is limited due to the military training exercises that occur in the SGPA which can lead to loss of sagebrush or cause fires which result in impacts to large areas of sagebrush. In Washington, the practice of intentionally removing sagebrush has significantly declined from historic levels and there is likely more shrub steppe habitat in places like Douglas County than at times in the past.

## Threat – Grazing

### Conservation Objective from COT Report – Manage grazing consistent with local ecological conditions that maintains or restores healthy sagebrush shrub, native perennial grass, and forb communities and conserves the essential habitat components for greater sage-grouse. Areas that do not meet this standard should be managed to restore these components.

### Conservation Efforts

The ecosystem standards law of 1994 (HB 1309), now codified in RCW 79.13.600, 79.13.610, and 77.12.204, was the original legislation to require that DNR and WDFW evaluate and protect the soils and vegetation on state-managed grazed land to mitigate impacts to sage-grouse and their habitat. Since then, additional laws have been passed (RCW 70.13.610 and RCW77.12.204) to develop standards and practices to meet the goals to "preserve, protect and perpetuate wildlife and fish on shrub steppe habitat or lands that are currently agricultural lands, rangelands or grazable woodlands." Grazing permits on WDFW managed land for periods of more than two weeks must include livestock grazing management plans that include descriptions of ecological impacts, desired ecological conditions, fish and wildlife benefits, monitoring plans, and schedules for evaluation. WDFW PHS management recommendations are one of the tools used by district teams in the development of grazing plans on WDFW lands.

Livestock grazing is currently not permitted on the majority of WDFW-managed lands within the Sage-grouse Management Units, with the exception of seven grazing leases representing a small percentage of the acres in the Units. Only one of these WDFW grazing leases is within a PAC (3610 acres in Moses Coulee) and the forage utilization is less than 30%. Where grazing is permitted, the goal is that grazed lands meet habitat objectives and are consistent with state Ecosystem Standards (RCW 77.12.204, 79.13.610) (J. Burnham pers. comm.). In the Quilomene CRM the grazing forage utilization is 35%. WDFW's WLA HCP will include protections to sage-grouse and sage-grouse habitat in the grazing conservation measures that place spatial, timing, and intensity limits on grazing in shrub steppe and sage-grouse habitat. In the draft HCP, bunchgrass utilization will not exceed 35% on leks and in nesting habitat, leks will not be grazed during the lekking season, and rest-rotational grazing will be used in nesting habitat. WDFW grazing plans are site specific with the goal of achieving high ecological integrity in sage-grouse nesting habitat. WDFW's range ecologist and staff monitor ecological integrity using widely accepted methods (Herrick et al. 2005). WDFW has acquired and may acquire additional lands that are encumbered by pre-existing grazing contracts. Plans are currently being made to amend the contracts in order to meet WDFW's habitat protection standards. Some DNR shrub steppe lands in SMUs that may otherwise be grazed are leased to WDFW and are either not grazed or grazed according to WDFW standards.

DNR has hired a new range specialist to improve monitoring compliance and ensure enforcement of legal and contractual standards for DNR grazing leases on DNR-owned land. DNR manages more than 100,000 acres of land in sage-grouse PACs in Douglas, Lincoln, and Grant Counties. 34,000 acres of that land is covered by grazing leases. The leases comply with the Ecosystem Standards for State-Owned Agricultural and Grazing land (RCWs 79.13.600, 79.13.610, and 77.12.204) and with the Sage-Grouse Recovery Plan (Stinson et al. 2004). Leases include protections to native plant species and communities in riparian and upland areas and protection of limited habitats. Habitat impacts are managed through the timing of grazing and utilization levels for native bunchgrasses that are not to exceed 50% during the active growth period. To further protect shrub steppe habitat, DNR works with WDFW biologists to

develop grazing plans that protect leks and nesting habitat through seasonal restrictions on grazing and DNR may implement rest-rotational grazing in PACs.

Rest-rotation grazing systems that minimize surface disturbance during the dry seasons or when soil is extremely wet and maximize the length of time between disturbance is the preferred strategy for grazing to limit damage to soil crusts (Belnap et al. 2001). BLM implements rest rotation on some allotments and deferred rotation on other allotments (J. Lowe, pers. comm.).

The Sage-grouse Initiative (SGI) funds infrastructure such as pipelines, troughs, wells and fence to develop rest-rational grazing systems on private lands. Through the SGI, 31,037 acres of private rangeland have been enrolled in a rest-rotational grazing system in Washington.

BLM's Resource Management Plan will address grazing impacts on ecosystems and has guidance specific to Washington. BLM has been proactive with grazing management, particularly in areas within PACs. Grazing reductions that include reduced stocking levels and utilization (35%) as well as changes to season of use have been implemented on a 15,000 acre allotment in the Moses Coulee PAC. The rotations are set up to avoid grazing in areas that are most likely to support nesting birds during the breeding season. Other areas have also had reductions in stocking levels and rest rotation implemented. BLM continues to evaluate shrub steppe habitat for adjustments to grazing management to benefit sage-grouse. The Bureau works to achieve Land Health Standards (43 CFR 4180) on leased land especially if those standards may affect sage-grouse or its habitat. BLM has a process to identify appropriate actions when Land Health Standards are not met which includes evaluating the effects of those actions on sage-grouse or its habitat prior to authorizing grazing on an allotment that is not achieving land health standards. When practicable, an interdisciplinary team is deployed to evaluate progress towards land health standards if grazing is a causal factor in not achieving the standards. BLM works to plan and authorize livestock grazing on their land to maintain and/or improve sage-grouse habitat and analyze the effects of grazing using the NEPA process.

The YTC military installation ceased all permitted livestock operations on their land in the mid-1990s in response to sage-grouse concerns, with the one exception being a seasonal domestic sheep trail-through. Requests for trail-through are evaluated on a case-by-case basis and have not occurred annually or not been allowed each time they have been requested, especially in the SGPA during lekking and nesting season.

The draft Douglas County GCP that includes most of the Moses Coulee PAC has grazing guidelines for developing grazing management plans on private covered lands with the objective of promoting better habitat and encouraging plant productivity and vigor, seed production, photosynthesis, recovery, and re-growth. Pastures are only grazed once every three years during the critical boot stage through the seed formation period for bunchgrass species.

### Effectiveness

Voluntary programs (Safe Harbor Agreements, SGI, GCP) are in place to address grazing management on private land. On public lands, policy (BLM, DNR) or planning (WDFW HCP) directs or will direct how grazing is managed. Grazing is ongoing and the impacts are monitored to ensure that the appropriate standards are met but it is too early to tell how effective the management is since it can take years before there is a measurable trend in the response of sage-grouse habitat and/or populations. Some lands acquired by WDFW have continued grazing as a condition of the acquisition that may not be of the

standards required under WDFW management, but changes to the lease conditions are currently being sought.

## Threat – Range Management Structures

### Conservation Objective from COT Report – Avoid or reduce the impact of range management structures on greater sage-grouse

#### Conservation Efforts

Range management structures such as water development and mineral supplements are regulated in the Douglas County GCP and the WDFW WLA HCP. On WDFW land, spring development rarely occurs and when it does it is used to improve livestock distribution to decrease livestock pressure on any one area (such as near seeps and surface water) and maintain ecological integrity that should benefit sage-grouse. The WLA HCP (in prep) does not allow seep or spring development or trough placement within leks or breeding habitat. Breeding habitat is defined in the HCP as all land within 8 miles of an occupied lek.

#### Effectiveness

The occupied range of the sage-grouse in Washington does not include large expanses of grazed land with the infrastructure that accompanies grazing. Troughs and mineral licks do occur on the landscape and are used to more evenly distribute livestock and decrease trampling and overuse of sensitive areas such as seeps, springs and riparian areas.

## Threat – Free-Roaming Horses

### Conservation Objective from COT Report – Protect sage-grouse from the negative influences of grazing by free-roaming equids

#### Conservation Efforts

The Yakama Indian Nation is the only PAC that has a wild horse population impacting shrub steppe habitat. They have fenced 19,500 acres to exclude horses and they are currently constructing exclosure fences around an additional 18,000 acres. Additional funding is being pursued to enlarge the original enclosure to protect an additional 30,000 acres (D. Blodgett III, pers. comm.).

#### Effectiveness

Free-roaming horses in the YN PAC continue to impact shrub steppe habitat and although the effect is localized, control has been minimal to this point. Without additional measures to control wild horses on the YN land, it may be difficult for the grouse population to expand in now unoccupied areas.

## Threat – Pinyon-Juniper Expansion

### Conservation Objective from COT Report –Remove pinyon/juniper from areas of sagebrush that are most likely to support greater sage-grouse (post-removal) at a rate at least equal to the rate of pinyon/juniper incursion

#### Conservation Efforts

There are no conservation efforts since this has not been identified as a threat in Washington at this time.

# Threat – Agricultural Conversion

## Conservation Objectives from COT Report –Avoid further loss of sagebrush habitat for agricultural activities and prioritize restoration within PACs and Greater Sage-grouse breeding and wintering habitats

### Conservation Efforts

**Avoid further loss of sagebrush habitat for agricultural activities and prioritize restoration**

The Farm Bill incentive based programs have been very successful at converting agricultural lands back into shrub steppe in Washington. Quality of habitat depends on the length of time that the land is enrolled, the soils, and the initial planting regime. Some of the conservation acreage in the Moses Coulee PAC for example has been enrolled for more than 20 years and is beginning to resemble native shrub steppe habitat in structure (Schroeder et al. 2012). For conservation lands that have been enrolled for 10 to 20 years in the Moses Coulee PAC, the sagebrush may encroach and become established even if it was not in the original planting mix (M. Schroeder pers. comm.). CRP and SAFE enrolled lands include private lands and DNR managed lands in sage-grouse PACs. DNR has more than 18,000 acres enrolled in CRP within the Moses Coulee and Crab Creek PACs (Table 2).

**Conservation Reserve Program**

**Table 2.** Acres of sage-grouse habitat enrolled in CRP in occupied Washington Sage-grouse Management Units. Note: CRP acreage is approximate since acres enter and leave the program annually. SAFE is a program that is part of CRP but targets specific habitat restoration work.

| **Acres enrolled in CRP and SAFE Farm Bill Programs in occupied Management Units** | | | | **TOTAL** |
|---|---|---|---|---|
| **Year** | **CRP[a]** | **SAFE (sage-grouse habitat)** | **SAFE (shrub steppe)** | |
| <2012 | | 63,000 | 7,322ac | 70,322ac |
| 2012 | | | 8,900 (allocated but not enrolled yet) | |
| 2013 | | | | |
| **Total** | **200,000 ac** | **63,000 ac** | **16,222[b]** | **270,322** |

[a]CRP acreage is based on 1993 Thematic Mapper Landsat data (Jacobson and Snyder 2000 *in* Stinson et al. 2004). CRP acreage is estimated for Mansfield Plateau, Moses Coulee and Crab Creek Management areas.
[b]Allocated but not yet enrolled so not included in total enrolled acreage.

Sage-grouse are a covered species in the Douglas County GCP that is currently being reviewed by USFWS. Participating farmers are covered for a specified amount of "take" and to participate they are required to develop a resource management system that addresses all resource concerns for soil, water, air, plants, and animals and minimizes or avoids the effects of their activities to covered species.

### Effectiveness

Voluntary federal conservation programs have been successful at protecting shrub steppe in the past (1990s and 2000s), but the acreage in this programs is likely to be uncertain in the future due to politics, federal funding, and economic reasons related to crop prices. In general, all agricultural conservation programs benefit remnant shrub steppe by providing a suitable habitat matrix. The CRP lands in Douglas and Grant Counties are a good example of this. Sage-grouse in those Management Units have increased in recent years and appear to have benefitted from a unique configuration of 52% shrub steppe, 10-16% CRP and 29-37% cropland. However, the highly fragmented nature of the landscape has

meant that the remaining shrub steppe exists in relatively small patches of good quality (Schroeder et al. 2012). The conversion of agricultural land to useable habitat is also a lengthy process, perhaps because CRP acres are often on poor rocky soils, and it can be decades before shrub steppe ecological integrity is achieved in a former agricultural field. Although signup is voluntary, if Farm Bill programs remain popular, sage-grouse will benefit as CRP and SAFE fields become more suitable shrub steppe habitat over time.

## Threat – Mining

### Conservation Objective from COT Report – Maintain stable to increasing greater sage-grouse populations and no net loss of greater sage-grouse habitats in areas affected by mining.

#### Conservation Efforts

There are no conservation efforts since this has not been identified as a threat in Washington at this time.

## Threat – Recreation and Military Training

### Conservation Objective from COT Report – In areas subjected to recreational activities, maintain healthy sagebrush communities based on local ecological conditions, with consideration of drought conditions. Manage direct and indirect human disturbance in all sagebrush habitats.

#### Conservation Efforts

On state and federal land within the Moses Coulee and Crab Creek PACs, ORV use is limited to designated routes and no ORV use is allowed off roads within the WLAs. In particular, the Swanson Lakes WLA (in Crab Creek PAC) has limited recreational use or access and many of the roads are for administrative use only. However, ORV use is popular and widespread on private lands and snowmobile use is widespread in the winter throughout the Moses Coulee PAC.

On WDFW lands, conservation measures in the draft HCP place restrictions on other recreational activities with potential to impact sage-grouse such as trail placement, organized horseback riding, organized field trials and game bird releases. New release sites for wild turkeys, ring-necked pheasants, and California quail will not be established on wildlife areas within occupied sage-grouse habitat unless the site was purchased for the purpose of upland gamebird management and hunting. Trail placement, organized horseback riding, and field trials have spatial restrictions to protect leks and nesting habitat.

The YTC military installation has protection measures that are contained in the YTC Sage-grouse Management Plan (Livingston 1998) and in annual memoranda that delineate sage-grouse protections measures (Memorandum IMLM-YTC-PWE 2013). Protections include year-round restriction to bivouacking and digging in the SGPA, seasonal restrictions on activities and access within the SGPA, and flight restrictions within one kilometer of active leks. Activities are also only allowed on established training ranges and designated roads. Daily restrictions of activities on established training ranges between the hours of 2400 and 0900 are implemented from 1 Feb to 15 May. Military training and all public recreational access, livestock trail-through, and most land management activities such as road or range facility repair are either not allowed or restricted in the SGPA from 1 February to 15 June (Livingston 1998).

### Effectiveness

ORV use is the recreational activity with the most potential to impact sage-grouse in Washington, especially within the Moses Coulee PAC because there is more private land than in other PACs. On WDFW lands west and north of YTC, there is fairly high recreational use due to relatively good access, proximity to Ellensburg and Yakima, availability of large blocks of public land, opportunities for target shooting, and limited enforcement of ORV use restrictions. If more BLM land in Crab Creek, Moses Coulee and YTC PACs is designated for ORV use there could be additional negative impacts to sage-grouse and sage-grouse habitat. While the WDFW HCP will provide protections on their wildlife areas, most existing leks are not located on WDFW land and so more protection to lekking and nesting habitat may be needed elsewhere.

## Threat – Ex-urban Development/Urbanization

### Conservation Objective from COT Report – Limit urban and ex-urban development in greater sage-grouse habitats and maintain intact native sagebrush communities.

### Conservation Efforts

In Washington, the Growth Management Act (RCW 36.70A), first passed in 1990, establishes a framework for counties and cities to manage land use and growth. All counties are required to (1) designate and protect critical areas via a Critical Areas Ordinance (CAO) and (2) designate and conserve resource lands (agriculture, forestry, and mining). In addition, 29 of Washington's 39 counties are required to adopt a Comprehensive Plan to guide future land use, infrastructure development, etc. so that the community grows in a coordinated manner. Within the range of sage grouse, counties planning under GMA are Douglas, Yakima, Kittitas, Grant, Franklin, and Benton. Non-GMA counties are Lincoln, Adams, Klickitat, and Okanogan; these counties plan under the 1960's era Planning Enabling Act.

GMA Comprehensive Plans are implemented via a suite of development regulations that deal with zoning, land subdivision, stormwater management, and other development standards. Under state law, all CAOs are required to designate and protect Fish and Wildlife Habitat Conservation Areas (FWHCAs), among other things. Counties and cities are required to use Best Available Science (BAS) when reviewing and revising the level of protection provided by its CAO. Development regulations must preserve the existing functions and values of critical areas. Development regulations may not allow a net loss of ecosystem functions and values and compensatory mitigation is required for any harm (WAC 365-196-830). Comprehensive Plans and implementing ordinances are updated on an eight-year periodic cycle and are approved by the jurisdiction's legislative body (Board of County Commissioners or city council). State agencies may submit comments when Comprehensive Plans and implementing ordinances are updated but there is no state role in approving them. A legal review of a locally approved plan or ordinance occurs only if a party challenges it before the Growth Management Hearings Board, whose decision is appealable to Superior Court.

One source of Best Available Science identified in the Department of Commerce's CAO guidelines is WDFW's Priority Habitats and Species (PHS) program. The PHS program consists of

- A list of priority habitats and species (which is helpful for counties when determining which types of areas to designate as FWHCAs);
- Maps (which are helpful for counties when determining which areas to designate as FWHCAs);

- Management recommendations (which are helpful for determining what activities within FWHCAs should be managed and how they should be managed to protect the species or habitat); and
- Technical advice (which is useful when implementing the CAO in specific cases).

The PHS program is the primary way WDFW communicates important fish, wildlife, and habitat information to local governments, state, and federal agencies, private landowners, consultants, and tribal biologists for land use planning and permitting purposes. PHS management recommendations are available at http://wdfw.wa.gov/conservation/phs/mgmt_recommendations/. Both the sage-grouse and shrub steppe habitat are included on the PHS list and management recommendations are available for each. In these recommendations, for example, WDFW recommends that development (buildings, parking lots, gravel pits, and gravel roads, and any activity that creates continuous noise during the display season) should avoid impacting leks by being built no closer than 3 kilometers from leks (Azerrad et al. 2011). Such recommendations are advisory only and local governments may issue development permits which do not comply with these recommendations.

If a county chooses to designate sage-grouse and shrub steppe habitat as a FWHCA, the county's development regulations may require individual development proposals to take additional protection measures such as preparing a habitat management plan that identifies ways for the development to avoid, minimize, and/or mitigate impacts to the FWHCA. GMA counties also adopt Urban Growth Areas (UGAs) which separates urban areas with higher density housing and services (such as sewers) from rural areas and resource lands (such as long-term agricultural lands). Low density zoning could buffer occupied sage-grouse habitat and may be used for movement of sage-grouse.

Within WDFW SMUs, CAOs vary as to what they designate as FWHCAs. CAOs in Yakima, Kittitas, Douglas, Benton, Grant, Lincoln, and Franklin Counties designate threatened, endangered, and sensitive species and their habitat associations as FWHCAs, and provide varying levels of additional protections for these areas. Yakima, Grant, and Benton Counties specifically designate all PHS species and habitats identified by WDFW. Lincoln (Crab Creek PAC) and Franklin Counties identify all federal and state endangered, threatened, and sensitive species for protection as FWHCAs. Douglas County (Moses Coulee PAC) also designates endangered, threatened, and sensitive species and WDFW's PHS maps are used to help designate where these areas occur. Kittitas County provides protections for "threatened, endangered, or sensitive priority species" (Kittitas County Code, Title 17A.02 Definitions and 17A.07 Habitat). In each of these cases, known or discovered locations of these species and habitats triggers the designation as a critical area. Though the specific nature of these protections varies among the counties, the designation of sage-grouse and shrub steppe habitat may provide counties a mechanism for minimizing disturbance from construction and development activities.

The majority of the YTC PAC consists of federal military land that does not have urban development. Other development associated with the military mission is discussed under infrastructure.

### Effectiveness

Together, Comprehensive Plans, development regulations, and non-regulatory programs can provide an effective way to avoid and minimize development impacts. A proposed development must pass through several reviews and approvals: the proposed use (for example a residential home) must be allowed by the zoning ordinance; the proposed location (for example away from leks) must comply with the CAO. When considering whether to approve, conditionally approve, or deny a proposed development, the county may require additional studies and require that the development take reasonable measures to

minimize the environmental impact. Counties often rely on PHS map data (including proximity to known occurrences) to determine whether additional requirements are warranted; counties also rely on PHS management recommendations when determining appropriate steps to minimize impacts.

The local government has the ability to enforce development codes, including the CAO, by civil code enforcement. Most local governments have building inspectors who inspect developments to ensure permit requirements are followed and code enforcement personnel who can issue citations and stop work orders.

Within the Crab Creek PAC, urban and ex-urban development is a small and localized threat at this time. The Moses Coulee PAC has more potential to be impacted by urban and ex-urban development because of the amount of private land and its location near larger population centers and a popular recreation destination (Banks Lake). Regulatory control of development varies between counties and may not always effectively protect sage-grouse habitat due to the lack of comprehensive protections throughout the PACs and adjacent areas. At this time, development is not much of an issue for the Yakama Nation PAC because it is on sparsely populated tribal land or for the YTC population due to the control of most of the area by the Department of Defense.

## Threat – Infrastructure

### Conservation Objective from COT Report – Avoid development of infrastructure within PACS.

### Conservation Efforts

**No new development of infrastructure corridors within PACs**

On public and tribal lands within the PACs, infrastructure development such as road construction is minimal. Policy 6012, Managing Public Access on Department Lands, provides a framework that addresses WDFW's mandate to preserve, protect, perpetuate, and manage the wildlife and fish of the state, while providing sustainable fish and wildlife related recreational and commercial opportunities. Public access management is sometimes necessary to balance the protection of fish and wildlife resources or WDFW infrastructure with the public desire for access to WDFW lands. Department lands may require short-term, seasonal, or permanent closures for a variety of reasons including the minimization of impacts to wildlife, such as sage-grouse. In many cases WDFW road access is limited to agency management activities to minimize impacts to sage-grouse and other wildlife species.

The GMA is Washington's primary tool for regulation of development of infrastructure on private land. Once sage-grouse and shrub steppe habitat are designated by a county as a FWHCA, the county's CAO and development regulations require additional protection measures and/or a management plan to protect the species or habitat. Development proposals and infrastructure projects must first pass review for compliance with the Comprehensive Plan and zoning ordinances adopted by the local government.

The Department of Defense on the YTC participates in NEPA and SEPA evaluations of proposals for development on public lands adjacent to the YTC that are or may be important habitat for sage-grouse recovery. They provide sage-grouse related information used in NEPA and SEPA assessments. They also do environmental reviews (environmental assessments or environmental impact statements) on infrastructure development on the YTC.

**New infrastructure should be avoided where key connectivity corridors outside of PACs have been identified**

Washington's Connected Landscapes Working Group has modelled connectivity corridors between populations of sage-grouse. This information is available and being used to evaluate proposed infrastructure, particularly power and transmission lines that may decrease connectivity between populations in Washington.

### Effectiveness

Development of infrastructure on private land such as in Moses Coulee and Crab Creek PACs continues to have potential to negatively impact sage-grouse. Protections are provided through GMA, SEPA and NEPA but if human populations increase in and near PACs then long-term impacts from upgrading and widening of existing roads to handle increased numbers and speed of traffic should be monitored. On private land, GMA may influence the siting of developments or mitigation measures, but construction still occurs on the landscape fragmenting large tracts of habitat necessary for sage-grouse.

On the YTC military installation, incremental development that supports the military mission (such as housing, gun ranges, airstrips, roads, fences and etc.) occurs over time and impacts to sage-grouse and sage-grouse habitat are significant. The environmental analysis of the military infrastructure development does not appear to support the avoidance of infrastructure development in this PAC. The YTC military installation's recent Multipurpose Machine Gun Range Project (MPMG) proposal alternative includes development in the SGPA and impacts an active lek.

## Threat – Fences

### Conservation Objective from COT Report – Minimize the impact of fences on sage-grouse populations.

### Conservation Efforts

Fence removal and marking is occurring within Moses Coulee, Crab Creek, and YTC PACs. A total of 157 miles of fence have been removed and 257 miles of fence have been marked. Marking and removal of fences is ongoing. In addition to fence marking and removal, on the YTC military installation elevated structures such as firing range observation towers have been removed in key sage-grouse areas to reduce the number of perches and nesting platforms for predators (raptors and crows). The WDFW WLA HCP does not allow fence construction in occupied leks and any new fence within 0.25 miles of occupied leks will be marked for visibility.

### Effectiveness

Although the effects of fence removal and marking are not being measured, studies have shown that marking fences is an effective way to prevent sage-grouse from colliding with fences (Stevens et al. 2012). New fences erected near leks to implement rest-rotation grazing for lands enrolled in the SGI may create a collision hazard and need to be monitored for effects. Although many of the fences are marked there may be a need to increase the number of fences marked and require maintenance of the markers. The Yakama Nation is constructing fences to exclude horses and it is not known if those fences are marked and the effect of those fences on sage-grouse has not been examined. The construction of facilities that support the YTC military mission may include construction of additional fences that should be marked as they are constructed.

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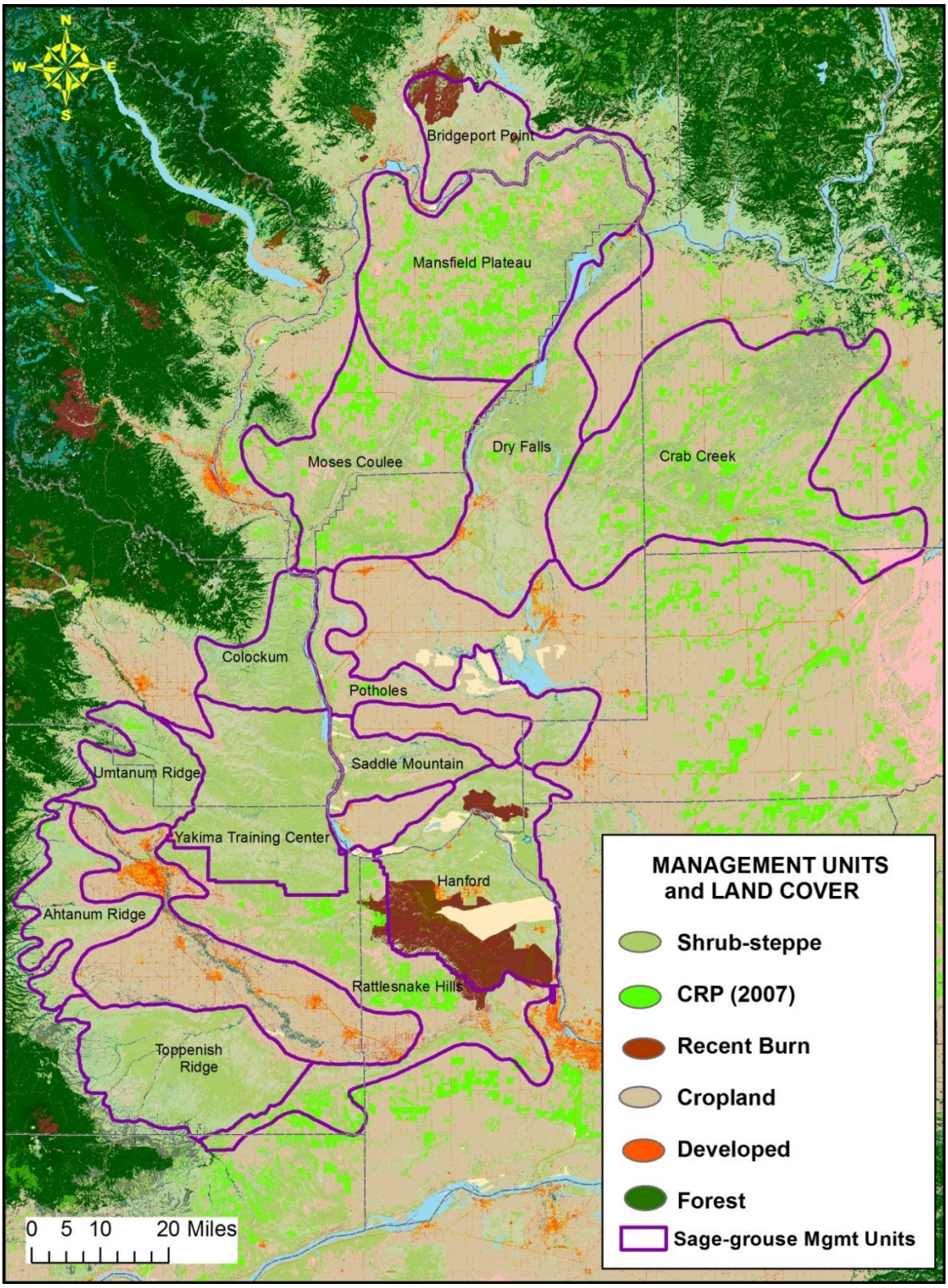
**Appendix A.** WDFW Sage-grouse Management Units in Washington



## **Appendix B.** Washington Sage-grouse PACs