BUTTE CREEK RANCH SAFE HARBOR AGREEMENT

Permittee: Forrest B. Hart and Susan S. Hart, Trustees of "The Hart Family 2003 Trust"; Laura Hart Hyde, Trustee of "The Laura Hart Hyde 2013 Trust"; Alexandra F. Hart, Trustee of "The Alexandra F. Hart 2014 Trust"; Pamela Isabel Piemme, a single woman; and Andrew P. Silva and Mary A. Silva, Co-Trustees of "The Silva Family Trust U/D/T November 21, 2008" (collectively "Property Owners")

U.S. Fish and Wildlife Service (Service):

The Service designates the following as the Agreement Contact:

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Permit Number: 38853-D

Executive Summary

Safe Harbor Agreements (SHAs) are voluntary agreements between the Service and non-federal landowners to encourage property owners to manage their lands for the benefit of threatened and endangered species. In exchange for improving habitat conditions for listed species, private landowners receive assurances that their property will not be encumbered by Endangered Species Act (ESA) restrictions on incidental take of listed species should populations of those species or their habitat increase above existing baseline conditions.

The Butte Creek Ranch (Property) enrolled under this SHA consists of 3,468 acres located to the northeast of Mount Shasta, in Siskiyou County, California. The Property is covered by an existing Conservation Easement (Easement) held by Pacific Forest Trust that will ensure preservation and protection of the Property in perpetuity. Easement restrictions on management activities are incorporated into the SHA as conservation measures to benefit and contribute to the recovery of the federally-listed northern spotted owl (NSO; *Strix occidentalis caurina*) and gray wolf (*Canis lupus*). The Property represents a minor component of the overall geographic range of the NSO and gray wolf, but provides important habitat contributions at the local scale. As a condition of the Easement, a Forest Management Plan and Habitat Enhancement Plan (HEP) will be developed for the Property in consultation with the California Department of Fish and Wildlife (CDFW) which will further ensure that habitat conditions are maintained and improved during the term of the SHA.

The SHA conservation measures and Easement restrictions related to forest management practices will result in a net conservation benefit to NSO by increasing nesting/roosting and foraging habitat on the Property. The terms that address livestock management, habitat

maintenance and enhancement, and road construction and use of motorized vehicles are expected to provide significant conservation benefits to the gray wolf. This will occur through livestock husbandry practices that limit potential wolf interaction and conflict with humans and cattle, an increase in deer and elk habitat, and avoidance of impacts and disturbance to wolves. Conservation measures not included in the Easement that are specific to the SHA include minimizing or avoiding incidental take through seasonal timing restrictions, conducting surveys to monitor use of the Property by NSO and wolves, avoiding wolf den and rendezvous sites, and potential barred owl management to reduce the threat to NSO. Monitoring the effectiveness of the SHA will allow the parties to evaluate whether the biological goals and objectives are being met and whether the authorized amount of incidental take for NSO and wolf have been exceeded.

There are no known NSO currently occupying the Property and very limited amounts of suitable nesting/roosting and foraging habitat are present. The baseline habitat conditions for NSO are estimated to be 65 acres of nesting/roosting habitat and 1,045 acres of foraging habitat. Forest management activities under the SHA are expected to improve NSO habitat conditions in the short-term by retaining elements such as snags, large decadent trees, and woody debris. Long-term improvements to NSO habitat will occur as trees grow larger and stand structural complexity increases. While the SHA allows the Property to return to its original state at the end of the 50 year permit term, this will not likely occur because the Easement contains permanent conservation measures to develop older forest conditions across the Property.

Wolves have been documented on the Property and are expected to use the Property in the future because current levels of human activity will not substantially increase under the SHA and Easement. The Property is relatively undeveloped and provides good habitat due in part to both minimal human presence and road use, in addition to the availability of prey and perennial water. Because the Property is a secure and relatively undisturbed location, it provides an important landscape habitat component for dispersing wolves and may potentially become part of an established territory that supports a wolf pack. It is expected that the Property can support no more than one wolf pack given an average pack's territory size requirement.

Timber harvest activities are estimated to result in the incidental take of up to 12 individual NSO over the permit term during periodic timber harvesting by removing habitat or impairing breeding, feeding, and sheltering if NSO begin occupying the Property. Adult wolves are able to avoid disturbance because they are highly mobile and use large territories. However, take may occur if management activities significantly affect parental care of dependent young. Take of up to 15 juvenile wolves is anticipated over the term of the permit. The potential for incidental take of NSO and wolves that might result from management activities will be reduced by the SHA conservation and minimization measures.

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1.0 INTRODUCTION

1.1 Purpose of the SHA

Private landowners are sometimes reluctant to enhance habitat that may attract listed species onto their properties because of concern that future additional restrictions may be imposed. As such, some landowners have been unwilling to manage their lands to benefit listed species by restoring degraded habitat and improving the status of populations on their lands. The Service published the final SHA policy and associated regulations in the Federal Register in 1999 to address this issue (64 FR 32706). Safe Harbor Agreements are voluntary agreements between the Service and cooperating non-federal landowners. The intent is to benefit endangered and threatened species while giving property owners assurances that in exchange for actions that contribute to the recovery of listed species on their lands, participants receive formal assurances that additional or different management activities will not be required, as long as the conditions of the SHA are fulfilled.

This SHA grants the Property Owners regulatory assurances to continue to use their lands for livestock and timber production in exchange for their commitment to implement conservation measures for the NSO and gray wolf (Covered Species). The conservation measures include creating, maintaining, and enhancing various habitat types and minimizing adverse impacts that could result from ongoing management activities on the Property. By undertaking measures that are expected to provide a net conservation benefit to the Covered Species, the Property Owners will receive Safe Harbor assurances through an ESA section 10(a)(l)(A) enhancement of survival permit (Permit) issued by the Service.

1.2 Regulatory Framework

Sections 2, 7, and 10 of the ESA of 1973, as amended, allow the Service to enter into this SHA. Section 2 of the ESA states that encouraging interested parties, through federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the Nation's heritage in fish, wildlife, and plants. Section 7 of the ESA requires the Service to review and utilize such programs in furtherance of the purposes of the ESA. Lastly, section 10(a)(1)(A) of the ESA authorizes the issuance of permits to "enhance the survival" of a listed species. This SHA was developed pursuant to the Service's Safe Harbor Agreement policy (64 FR 32717) and regulations (64 FR 32706) under section 10(a)(l)(A) of the ESA.

1.3 SHA Standard

Before entering into a SHA, the Service must determine that the conservation measures to be implemented will contribute to recovering the Covered Species by providing a net conservation benefit. To provide a net conservation benefit, the conservation efforts must outweigh the potential impacts from routine and ongoing activities and the potential return to baseline conditions. The following considerations were analyzed to make the net conservation benefit determination:

1) The beneficial activities proposed by the Property Owners, including restoration and enhancement forest management practices, threat management, and measures to minimize adverse impacts.
2) The potential impacts from routine and ongoing activities proposed for incidental take[1] coverage.
3) The potential impacts from returning the Property to baseline conditions at the end of the permit term.

1.4 Parties to the Agreement

In addition to the parties listed above, Pacific Forest Trust (Grantee of the Conservation Easement) and CDFW have agreed to play a role in the implementation of the SHA as described below in section 6.1.

1.5 Relationship to Other Agreements

The Property enrolled under this SHA is also covered by a Conservation Easement (Easement) held by Pacific Forest Trust (Pacific Forest Trust 2015a). The Easement was established because the Property was recognized to possess natural, ecological, historic, scenic, forested and open space values (collectively "Conservation Values"). The specific Conservation Values of the Property are further documented in a Baseline Report developed for the Easement (Pacific Forest Trust 2015b). The Easement establishes objectives for the Property that will protect relatively natural forest and meadow ecosystems; protect native fish and wildlife habitat, especially riparian forests, meadows and habitat for threatened and rare species; protect significant water resources and water quality; maintain the capacity of the Property for productive forest and rangeland management; enhance the forest's ability to store atmospheric carbon; and perpetually prohibit any use of the Property that will impair, degrade or damage the Conservation Values of the Property.

The Easement enables Pacific Forest Trust to ensure preservation and protections of the Conservation Values of the Property in perpetuity through restrictions on management activities. The Easement restricts or prohibits the conversion of native vegetative communities to agriculture, livestock grazing season and net animal units, subdivision of the Property, new construction, road building, and off road vehicle use (see Exhibit D of the Easement). The Easement also contains specific requirements for maintaining habitat elements, such as large old trees, deformed trees, snags, large woody debris, and areas of dense closed canopy forest, that provide intrinsic value to wildlife. Special Habitat Management Zones (SHMZ) identified in Exhibit E of the Easement were also delineated based on portions of the Property that provide unique natural resource values, such as habitat components, aquatic resources and watershed

[1] Section 9 and Federal regulation pursuant to section 4(d) of the ESA prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

values, scenic areas, and areas free from development or human disturbance. Many of the Easement's terms and conditions are incorporated into this SHA as conservation measures.

As a condition of the Easement, a Forest Management Plan and Habitat Enhancement Plan will be developed for the Property in consultation with CDFW within five years of signing the Easement or prior to forest management activities. While these two documents have not yet been fully prepared, they will further ensure that habitat conditions are maintained and improved during the term of the SHA. For example, no timber harvesting, vegetative management, animal grazing, road building, or other construction or uses will occur within the SHMZs, except pursuant to the Habitat Enhancement Plan. These documents will also describe the activities that are intended to be undertaken on the Property so that potential adverse impacts to Covered Species that may result from land use or timber operations can be identified, addressed and resolved in advance of the commencement of operations.

2.0 STATUS AND BACKGROUND OF COVERED SPECIES

The status and distribution, life history and habitat requirements, threats and limiting factors, survival and recovery needs, and state and federal conservation and recovery efforts for the Covered Species are described in this section.

2.1 Northern Spotted Owl (*Strix occidentalis caurina*)

2.1.1 Status and Distribution

The Service listed the NSO as federally threatened under the ESA on June 26, 1990 (55 FR 26114-26194). Critical habitat was designated on federal lands in 1992 and revised in 2008 and 2012. A draft Recovery Plan for the NSO was issued in 2007 (USDI FWS 2007), a final Recovery Plan was published in 2008 (USDI FWS 2008), and a Revised Recovery Plan was published in 2011 (USDI FWS 2011).

The NSO is associated with coniferous forests from southwest British Columbia through the Cascade Range, coastal ranges, and intervening forested lands in Washington, Oregon, and northern California, as far south as Marin County.

2.1.2 Life History and Habitat Requirements

The NSO is one of three spotted owl subspecies, with the California and Mexican spotted owls generally occuring further south. NSO are nocturnal and prey predominantly on small mammals, primarily northern flying squirrels (*Glaucomys sabrinus*), bushy-tailed woodrats (*Neotoma cinerea*), and dusky-footed woodrats (*N. fuscipes*). The NSO is a territorial raptor that ranges widely in search of prey and has an estimated home range size that varies from 2,955 acres in the Oregon Cascades (Thomas et al. 1990) to 14,211 acres on the Olympic Peninsula (USDI FWS 1994). NSO are central-place foragers (Rosenberg and McKelvey 1999) and typically concentrate their use within a 500 acre area called the core that surrounds the nest site and favored foraging areas (Bingham and Noon 1997, USDI FWS 2009). An NSO activity center is defined as the location or point representing a nest stand, including forested stands used by roosting pairs or territorial singles, or concentrated nighttime detections. Activity centers are found within the core use area and are represented by this central location (USDI FWS 2012a).

Throughout its range, NSO are associated with older conifer and mixed-conifer forest that contain structures and characteristics required for nesting, roosting, and foraging. Features that support nesting and roosting typically include a multilayered, multispecies canopy dominated by large [greater than 30 inch diameter at breast height (DBH)] conifer overstory trees and an understory of shade-tolerant conifers or hardwoods; a moderate to high (60-80 percent) amount of canopy closure; substantial decadence in the form of large, live coniferous trees with deformities; numerous large snags; ground cover characterized by large accumulations of logs and other woody debris; and sufficient open space to allow flight under the canopy (Thomas et al. 1990). NSO do not build their own nests and depend on existing structures such as cavities, platforms formed by mistletoe infections, and broken tree tops for nesting. Forests containing older, larger-diameter, deformed, decadent, or diseased trees provide these suitable nest structures. Large diameter snags provide cavities and platforms for nesting, and coarse woody debris on the forest floor and snags provide habitat for the small mammal species that NSO select as prey. Compared to younger, open forests, older dense forests provide better thermal and escape cover for NSO in the form of a more moderate, stable microclimate and better visual screening from predators. The Service's NSO Take Avoidance Guidelines Science Support Document describes in detail the habitat types and amounts the Service considers necessary to maintain continued occupancy and reproduction at NSO territories, and the regulatory and scientific basis for these guidelines (USDI FWS 2009).

The life history, biology, habitat relationships, distribution, population status, and conservation needs for the NSO are described in more detail in the Revised Recovery Plan (USDI FWS 2011), Revised Critical Habitat Designation for the NSO (77 FR 71875), Northwest Forest Plan (NWFP; USDA and USDI 1994) Monitoring Report updates, and status reviews.

2.1.3 Threats and Limiting Factors

The primary threats to NSO identified in the Revised Recovery Plan include competition from barred owls; ongoing loss of habitat as a result of timber harvest, wildfire, and other disturbances; and historical loss of habitat from past activities (USDI FWS 2011). The range-wide NSO population is estimated to have declined by 3.8 percent per year since 1985 and annual rates of decline have been accelerating in specific parts of the range (Dugger et al. 2016).

The decline of in the historic portion of its range is attributed to timber harvest and fragmentation of older forest stands across the landscape. Historical timber harvest and land-conversion caused an estimated 60-88 percent decline in NSO habitat from the 1800s until the time it was listed in 1990 (USDI FWS 2011). Forest fragmentation increased dramatically from the 1930s and 1940s through 2005 (Davis and Lint 2005) as timber harvesting outpaced the development of structurally complex forests.

The most recent assessment of range-wide trends in NSO habitat was based on the NWFP 20-year monitoring report that calculated changes on federal and non-federal lands from 1993 through 2012 (Davis et al. 2015). The report concluded that the rate of habitat loss due to timber harvest on federal lands has declined since the listing of the species in 1990 and the implementation of the NWFP in 1994. This trend is significant because much of the high-quality habitat NSO use for nesting and roosting occurs on federal lands. However, large and severe wildfires continue to pose a risk. On federal lands, most of the nesting and roosting habitat loss (73 percent) was due to wildfire (Davis et al. 2015). Although habitat loss due to timber harvesting has declined on federal lands under the NWFP, net habitat loss is still occurring, particularly from timber harvest on non-federal lands. Timber harvest accounted for 63 percent of the nesting and roosting habitat loss range-wide from 1993 through 2012 (Davis et al. 2015).

The barred owl also represents a significant threat to the NSO. With its recent expansion to as far south as Marin County, California along the Coast Range and Kings Canyon National Park in the southern Sierra Nevada, the barred owl's range now completely overlaps that of the NSO (Gutiérrez et al. 2004). Barred owls affect NSO through competition for resources, direct harm through aggressive behavior, and hybridization. Barred owls have severely reduced NSO site occupancy, reproduction, and survival by competing for habitat and prey (Olson et al. 2004, Higley and Mendia 2013, Wiens et al. 2014, Diller et al. 2016, Dugger et al. 2016). In addition, barred owls may physically attack NSO (Pearson and Livezey 2003, Courtney et al. 2004). The presence of barred owls reduces the likelihood that NSO will vocalize (Dugger et al. 2011, Diller et al. 2014, Sovern at al. 2014), which negatively impacts NSO reproduction because calls are used to defend a territory and locate mates (USDI FWS 2013).

In the future, NSO populations are expected to be negatively impacted by the effects of demographic isolation and climate change, which is projected to bring wetter winters and drier summers within its range. Summer drought stress is projected to increase the rates of insect outbreaks and forest fires and result in loss of NSO habitat. West Nile virus and other diseases also develop more rapidly at higher temperatures, increasing the likelihood of transmission to NSO.

Given its current status and expected continuing decline from the threats described above, the Environmental Protection Information Center (EPIC) filed a petition in 2012 that proposed uplisting the NSO from threatened to endangered species status under the ESA. The conservation status of the NSO is currently being evaluated by the Service to determine if uplisting is warranted.

2.1.4 Survival and Recovery Needs

The survival and recovery needs of the NSO are described in detail in the Revised Recovery Plan (USDI FWS 2011), which includes the recovery strategy, objectives, and criteria for delisting. Recovery will be achieved by maintaining large and well-distributed populations, managing threats, and providing adequate high-quality habitat. The Revised Recovery Plan lists 33 Recovery Actions that address NSO recovery. This SHA provides a net conservation benefit to NSO by adopting and implementing aspects of several of these Recovery Actions (RA), including RA-14 (develop Habitat Conservation Plans and SHAs), RA-24 (protocols to detect barred owls and determine reproductive status), RA-25 (protocols to detect NSO in areas with barred owls), RA-30 (local control of barred owl populations), and RA-32 (maintain and restore high-quality habitat and manage threats to habitat).

2.1.5 Conservation and Recovery Efforts to Date

As previously described in section 2.1.2, threats from habitat loss due to timber harvest and severe wildfire, climate change, and barred owls continue to hinder recovery of the NSO. Conservation efforts by private landowners, agency staff, scientists and researchers, managers, and other parties on private and public lands are being implemented to address these primary threats and reverse the downward population trend based on the Recovery Actions in the Revised Recovery Plan (USDI FWS 2011). Conservation efforts include maintenance and restoration of NSO habitat, monitoring of avian diseases, development and potential implementation of a delisting monitoring plan, and management of the barred owl (USDI FWS 2011). As noted above, the effectiveness of these recovery efforts is currently being evaluated in response to a petition to uplist the NSO from threatened to endangered species status under the ESA.

2.1.5.1 Conservation and Recovery Efforts on Private Lands

Spotted owl conservation efforts on non-federal lands include the development of agreements under section 10 of the ESA, such as Habitat Conservation Plans (HCPs) and SHAs. Practices and regulatory oversight conducted by the California Department of Forestry and Fire Protection (CAL FIRE), which enforces the California Forest Practice Rules (CAL FIRE 2017) under the California Forest Practice Act (CAL FIRE 1973), contribute to additional NSO conservation on private lands in California. These laws are designed to protect forests, streams, fish, wildlife, and habitat. Under this regulatory framework, take of NSO is specifically prohibited (14 CCR 919.10 [939.10]). For each proposed Timber Harvesting Plan (THP), the potential for take of NSO is evaluated prior to timber harvesting. CAL FIRE requests technical assistance from the Service, as needed, when determining whether proposed timber operations are likely to result in take of

NSO, and take avoidance measures recommended by the Service are incorporated into the THP if deemed necessary.

2.1.5.2 Conservation and Recovery Efforts on Federal Lands

Habitat loss on federal lands has been reduced since the listing of NSO. In 1992, the Service designated nearly 6.9 million acres of critical habitat for the NSO, which was increased to 9.5 million acres in 2012 (USDI FWS 2012b). In 1994, the NWFP established a system of Late-Successional Reserves (LSRs) designed to provide suitable NSO nesting habitat over the long term across federally managed lands within the geographic range of the NSO (USDA and USDI 1994). The federal forest lands outside these reserves are managed to allow dispersal of NSO between the LSRs through riparian reserves and other land allocations. The NWFP covers over 24 million acres of federal land within the range of the NSO, of which about 67 percent are allocated in one of several reserved land use designations (Thomas et al. 2006). The Revised Recovery Plan states that much of the LSR network will continue to serve as the basis for NSO recovery on federal lands (USDI FWS 2011).

Under Section 7 of the ESA, all federal agencies must consult with the Service when any action the agency carries out, funds, or authorizes, may affect a listed species. Within the range of the NSO, the Service works closely with federal partners to evaluate if or what effect the agency's proposed action may have on the NSO. If the Service determines that the proposed action may result in jeopardy of the NSO, the Service provides the federal agency with reasonable and prudent alternative actions to avoid the likelihood of jeopardizing the continued existence of the listed species, or destruction or adverse modification of its critical habitat.

In 2013, the Service and the U.S. Geological Survey (USGS) began working cooperatively to experimentally remove barred owls from portions of the NSO range. The data collected during this experiment is currently being evaluated. Depending on the results of this experiment, a strategy for reducing the threat to NSO posed by barred owls will be developed and implemented.

2.2 Gray Wolf (*Canis lupus*)

2.2.1 Status and Distribution

The gray wolf was federally listed as endangered under the ESA in 1974. Since 1979 the northwestern subspecies of gray wolf (*Canis lupus occidentalis*) has been recolonizing its former range, beginning with natural recolonization of northern Montana from populations in Canada. From 1995 to 1996, a reintroduction program was instituted in Yellowstone National Park and central Idaho (MFWP 2015, ODFW 2015). Wolves have since spread to several other states and have been observed in Washington, Oregon, Colorado, Utah, Arizona, Nevada, South Dakota and, most recently, California (CDFG 2011).

The first confirmed gray wolf occurrence in California, since 1924 when the last known wolf was killed in Lassen County, was in 2011 along the California/Oregon border in Siskiyou County (CDFW 2018). The first evidence of a wolf pack recolonizing California was in 2015 when cameras in northern California recorded images of two adult wolves and five pups. This group was dubbed the Shasta Pack (CDFW 2018) and represented the first confirmation of wolf reproduction in California in over 90 years. Currently, the known gray wolf range in California includes northeastern portions of the state in Lassen, Plumas, Modoc, Shasta, and Siskiyou counties.

The California Fish and Game Commission (Commission) listed the gray wolf as an endangered species under the California Endangered Species Act (CESA) on June 4, 2014. A conservation plan was finalized and released by CDFW in December 2016 and provides the most recent and complete descriptions available of the life history, distribution, population status and conservation objectives for wolves in California. The California Wolf Management Plan works to conserve wolves by providing wolf habitat and managing for biologically sustainable populations of prey species, including ungulates such as elk and deer (Kovacs et al. 2016).

2.2.2 Life History and Habitat Requirements

The gray wolf is not associated with a particular habitat type. Wolf habitat ranges from open grassland to thick conifer forests to high alpine tundra. Wolves require an adequate food supply, suitable denning and rendezvous sites, and travel corridors. Its diet can be varied, ranging in size from ground squirrels to bison (Peterson and Ciucci 2003). Ungulates, such as caribou, deer, elk, and moose, represent most of the biomass consumed (Ballard et al. 1987, Fuller 1989a, Smith 1998, Peterson and Ciucci 2003, Darimont et al. 2004). Wolves in California are expected to prey mostly on Roosevelt elk (*Cervus canadensis roosevelti*) and black-tailed deer (*Odocoileus hemionus columbianus*) in the northwestern part of the state and on Rocky Mountain elk (*Cervus Canadensis nelsoni*) and mule deer (*Odocoileus hemionus*) in northeastern California (Kovacs et al. 2016). Wolves tend to avoid areas with large amounts of human habitation and disturbance (Thiel 1985, Mech 1988, Mech et al. 1988). A wolf pack's territory commonly encompasses 100-220 square miles to include ungulate winter and summer range, but can extend up to 1,000 square miles depending on habitat type and prey abundance (CDFG 2011, ODFW 2015).

Most gray wolf packs, even those that include two or more adult females, produce only a single litter of pups each year (Harrington et al. 1982, Packard et al. 1983), although occasional multiple litters have been reported (Murie 1944, Ballard et al. 1987, Mech et al. 1998). Pups are born in early spring with an average litter size of six (Gavrin and Donaurov 1954, Mech 1970, Hayssen et al. 1993). Dens are excavated as early as fall (Thiel et al. 1997) and tend to be centrally located within the territory (Ballard and Dau 1983, Fuller 1989b). Den characteristics vary by location and availability of adequate sites, but most tend to be located near water to meet the lactation needs of nursing females (Mech 1970, Packard 2003). A den can occur in a rock crevice, hollow log, or under the roots of trees (Mech et al. 1998). Home ranges may contain several dens, each of which may or may not be reused across years (Ballard and Dau 1983, Mech et al. 1998).

After six to ten weeks, pups are moved from the dens to rendezvous or post-denning sites. Rendezvous sites are occupied by wolves during the summer and early fall months and are used for resting, feeding, and other activities (Kaminski and Boss 1981). These sites usually include small (i.e., one acre or less), secluded bogs or complexes of meadows and adjacent hillside forests in proximity to surface water (Weaver 1978). During this period, pups are unable to hunt and must remain at rendezvous sites where adults return with food. Wolves typically use two to three rendezvous sites while raising the young. Most pups disperse from their natal pack between the ages of nine and 36 months (Packard 2003).

2.2.3 Threats and Limiting Factors

Though the gray wolf population in the United States is expanding, habitat fragmentation, reduction of prey populations, and direct human contact remain threats to the species (CDFG 2011). The California Wolf Management Plan describes the main threats and limiting factors for the gray wolf in California (Kovacs et al. 2016). Wolves are found only where conditions support an adequate prey base comprised primarily of ungulates, such as deer and elk. One of the primary limiting factors for wolf populations in California is the limited availability of large areas of habitat that are relatively undeveloped and have less chance for contact and conflict with humans. Most wolf packs appear particularly sensitive to human disturbance near den sites and may, depending upon the extent of the disturbance, abandon the den. The primary threats to wolves in California include human/livestock interaction that results in persecution of wolves and poaching.

Although wolves are considered habitat generalists, their tendency to avoid human activity and high demand for prey resources influence their use of the landscape and limit population growth by reducing survivorship and reproduction. Researchers have determined that habitat that provides an adequate food supply is more important than the vegetation type (Fuller et al. 2003). Additionally, they suggest that hunting skills learned by juveniles in particular habitats play a role in the types of habitat these wolves will ultimately occupy as adults. This leads to a pattern of genetic structure in the wolf metapopulation as adults and dispersing juveniles establish territories in similar, “learned” habitats. As a consequence, highly altered landscapes may present limits to population growth and dispersal (Haight et al. 1998) because wolves may not colonize novel habitats even when available.

Wolves are capable of killing large animals, and as such are perceived as a threat to humans, livestock, and pets. Human contact is the primary threat to wolves when it results in retaliation from livestock depredation and illegal take. Potential conflicts between wolves and humans in California are expected to increase as wolves establish territories and populations expand within the state.

Although wolves have been documented using roads for travel, roads may pose a barrier to movement and impact dispersal by fragmenting habitat within the landscape (Stronen et al. 2012). The volume and frequency of traffic, as well as the size of the infrastructure, construction, and location, are all considerations when evaluating the impact roads may have on wolves.

Increasing levels of human activity in areas occupied by wolves can potentially inhibit movement across and among large areas, such as valleys and ridges (Whittington 2005).Vehicular use of roads may disturb wolves and increase the likelihood of contact with humans, pets, and livestock. Limiting road density decreases this potential threat; however, this may not be as important in areas not accessible to the public.

2.2.4 Survival and Recovery Needs

The survival and recovery needs of wolves in California are described in the California Wolf Management Plan (Kovacs et al. 2016). The wolf plan describes a biologically sustainable population as one that can "sustain its size, distribution, and genetic variation in the long-term in spite of fluctuations in abundance and recruitment as a result of human caused mortality, variation in food supply, disease, and habitat quality, without requiring human intervention and conservation actions." Managing for prey populations and their habitat and reducing human impacts on wolves from illegal shooting and trapping, vehicle collisions, exposure to diseases from domestic animals, and habitat destruction and fragmentation are some of the primary methods CDFW will undertake to conserve wolves in California (Kovacs et al. 2016). Maintaining sufficient elk and deer populations in California is critical to wolf survival because adequate food availability is more limiting than habitat availability to generalist species such as wolves. Increased litter size and pup survival are attributed to adequate prey availability (Mech 1970, Zimen 1976, Packard and Mech 1980, Keith 1983, Mech et al. 1998), and malnutrition was found to be the primary factor in lower winter pup survival compared to adults. Maintaining connectivity among wolf populations in neighboring states will be essential because wolf population sustainability depends on genetic diversity of the region's metapopulation (von Holdt et al. 2010).

2.2.5 Conservation and Recovery Efforts to Date

2.2.5.1 Federal Protection

The conservation and recovery of wolves in the United States has been largely driven by the ESA through protection and prohibition of take. Wolves within various geographic areas were listed as endangered under the ESA as early as 1974. Ultimately, this federal designation applied to all wolf populations in the lower 48 states. There have been several rules promulgated by the Service regarding the delisting of wolves in both the western U.S. and the Great Lakes regions that are summarized on the Service's Environmental Conservation Online System[1]. Most of these listing rules have been challenged in court. The future status of wolves under the ESA is uncertain, but it appears that wolves are capable of recovering to self-sustaining populations in much of the intermountain west and the western Great Lakes regions.

In addition to the protection provided to wolves under the ESA, in 1995 wolves were reintroduced to areas where they previously existed but had been extirpated, including Yellowstone and Idaho. These reintroduction efforts established recovery targets and led to an expanding population and accelerated rate of recovery.

[1] https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A00D

2.2.5.2 State Protection

On December 28, 2011, a radio collared male wolf known as OR-7 entered California from Oregon. This was the first known occurrence of a wolf in California since it was extirpated in 1924. On February 27, 2012, a petition was submitted to the Commission to list the gray wolf as endangered under CESA. On June 4, 2014, the Commission added the gray wolf to the list of endangered species. CDFW initiated conservation work by securing a grant from the Service to fund the development of a gray wolf plan. A final conservation plan was released in December 2016.

The California Wolf Management Plan lists a series of strategies and specific actions that will occur in three phases in anticipation of wolf re-establishment and population growth. The strategies are summarized as: 1) assess and monitor California's wolf population; 2) assess and address threats to wolf conservation; 3) manage native ungulate populations to provide abundant prey for wolves; 4) manage wolf-livestock conflicts to minimize livestock losses; 5) develop outreach with affected and interested publics; 6) manage wolf-human interactions to reduce human safety concerns, prevent habituation of wolves, and decrease the risk of conflicts between domestic dogs and wolves; 7) conduct surveys to gather information about the public's knowledge, understanding of conservation issues, and attitudes towards wolves; 8) manage conflicts between wolves and state and federally listed/candidate species; 9) coordinate and cooperate with public agencies, landowners, and non-government entities; and 10) report on and evaluate implementation of the Plan (Kovacs et al. 2016).

The first phase of the plan is now underway and will focus on management of an initial population during the period of wolf reestablishment in California. This will likely take the form of individual dispersing wolves initially, and later through formation of wolf packs. Phase 2 begins when there are four breeding pairs for two successive years confirmed in California and will correspond to the time when the wolf population's growth is driven more by natural reproduction than by continued net immigration. Additional latitude to manage impacts of wolves on livestock or wolf predation on wild ungulate populations whose ranges overlap that of wolves may be warranted in Phase 2. Phase 3 begins when eight breeding pairs are confirmed for two consecutive years. During this period, a status review of the species will be conducted to evaluate whether the state listing as endangered remains warranted.

3.0 DESCRIPTION OF THE COVERED LANDS

3.1 Covered Lands

The Property to be enrolled consists of 3,468 acres located to the northeast of Mount Shasta, in Siskiyou County, California. Lands are located in Sections 10, 11, 13, 14, and 15 of T42N, R2W and Sections 17, 18, 19, and 20 of T42N, R01W, on Mount Diablo Base and Meridian (Map 1). The Property is 9.5 miles to the southwest of the town of Tennant, and 25 air-miles to the northeast of Weed.

3.2 Conditions on Covered Lands

This section characterizes the existing conditions of the Property and includes a description of the general habitat types and species that are likely to be present. Past and current land management and natural disturbances that have influenced, and continue to influence, the current condition of the Property are briefly described.

3.2.1 Habitat on Covered Lands

The Property is located within the Southern Cascade ecoregion, bordered to the west by the Klamath Mountains and to the east by the Modoc Plateau. It is located toward the northeast side of Mount Shasta, where mixed species conifer forest dominates at middle elevations and true fir forest becomes more prevalent as elevation increases. The Property contains areas of wet meadow, montane and riparian hardwood forests, and chaparral. The diversity of vegetation types is a result of diverse soils and topography, as well as fire, grazing, and logging. Table 3 of the Easement Baseline Report (Pacific Forest Trust 2015b) shows the distribution of vegetation types across the Property by size and canopy closure class.

Logging of the Property in the 1920s and 1930s focused on removing large ponderosa and Jeffery pines. As a result, the currently existing conifer stands are disproportionately populated with red fir, mountain hemlock, and lodgepole pine. It appears that historic wildfires have occurred on several ridges where the current vegetation is now comprised of brush species such as manzanita, chinquapin, and snowbrush, with shade-tolerant red fir establishing under the brush. This is a common successional pathway in this region where once fire occurs and consumes trees, brush becomes established and may dominate the site for many decades (Skinner et al. 2006). The flattest, relatively low-lying mesic areas are dominated by meadow habitats surrounded by lodgepole pine stands.

SHMZs were identified and delineated during the development of the Easement to specify areas exhibiting special habitat qualities and ecological characteristics that warrant management considerations. The SHMZs comprise five areas with rare or sensitive habitat types, collectively encompassing approximately 1,300 acres (36 percent) of the Property, including the headwaters of Butte Creek, wet meadows, mature forest reserves, aspen, and montane hardwoods (Map 1). Appendix A of the SHA describes the Habitat Management Goals for each SHMZ that will benefit wildlife.

Approximately 338 acres of the Property (10 percent) are classified as wetlands, which includes streams with associated riparian and grassland habitats and seasonally wet meadows. These areas support primarily herbaceous forbs and grasses. The eastern meadow areas contain alder, willow brush, and aspen, and are considered an Upper Meadow SHMZ as described in Exhibit D of the Easement. Areas of larger aspen and cottonwood along the lower reaches of Butte Creek, as it leaves the Property to the north, are also identified as SHMZs.

The habitat types identified on the Property support a wide variety of plant and animal species, some of which are federally or state listed as threatened, of special concern, or otherwise known to be rare. Special status species known to occur or potentially occur on the Property are listed in Appendix B of the SHA.

3.3 Role of the Covered Lands in the Conservation of Covered Species

This section characterizes the contribution of the Property to the overall conservation of the Covered Species. While the Property represents a minor component of the overall geographic range of the Covered Species, it provides important habitat contributions at the local scale. The current uses of the Property and ongoing management activities have resulted in existing conditions that provide functioning natural communities in the regional context. The relationship of the SHA to the recovery plans for the Covered Species is also described.

3.3.1 Northern Spotted Owl

The Revised Recovery Plan acknowledges the important role of non-federal lands to NSO recovery and RA-14 recognizes SHAs as an important tool that private landowners can voluntarily use to assist with NSO recovery objectives (USDI FWS 2011). Agreements developed under section 10 of the ESA that conserve high-quality NSO habitat and occupied sites can make a significant contribution to NSO recovery. Landowners are more likely to use longer harvest rotations and develop older, more complex stands that can serve as suitable NSO habitat under a SHA because there is no longer the threat of their lands being encumbered by ESA restrictions on incidental take.

The actions taken under this SHA will provide a net conservation benefit and will contribute to the recovery of the NSO by:

1) Reducing habitat fragmentation and increasing habitat connectivity.
2) Maintaining, restoring, and enhancing existing habitat.
3) Managing threats, including barred owl and fire.

The closest known NSO activity center is located 1.3 miles east of the Property on the Klamath National Forest and another activity center is located approximately three miles from the Property on the Shasta-Trinity National Forest. Although there are no known NSO on the Property and the enrolled lands currently provide limited amounts of high-quality NSO habitat, the Property may provide important foraging opportunities for NSO that inhabit nearby federal lands. As habitat develops, the Property will provide additional connectivity to facilitate

dispersal, which is especially important in fragmented habitat because isolated NSO populations have a low probability of persistence. Eventually, the Property may develop enough suitable habitat to support occupancy by NSO under the SHA.

While no Late Successional Forest Stands (as defined by the California Practice Rules, 14 CCR 895.1) occur on the Property, functional components of late seral habitat does occur and can provide habitat for NSO and their prey. This is especially true within riparian zones and in the Butte Creek Headwater SHMZ in the eastern portion of the Property, which abuts a LSR on the adjacent Shasta-Trinity National Forest (Map 1). These habitat features include older, deformed or decadent (cull) trees with large horizontal limbs that could serve as nesting platforms. Based on the most recent timber inventory conducted in 2013, snags and downed woody debris are relatively common (Table 1 and Figure 1) and have been retained where possible during harvest and meadow restoration activities within the past two decades.

Table 1. Number of snags by diameter at breast height (DBH) class on the Butte Creek Ranch property (Black Fox Forestry 2014).

DBH Class (inches)	Number of Snags	Snags per Timbered Acre
0-12	10,784	3.81
12-18	10,725	3.79
18-24	4,495	1.59
24-30	1,001	0.35
30-36	296	0.1
> 36	167	0.06
Grand Total	27,468	9.7

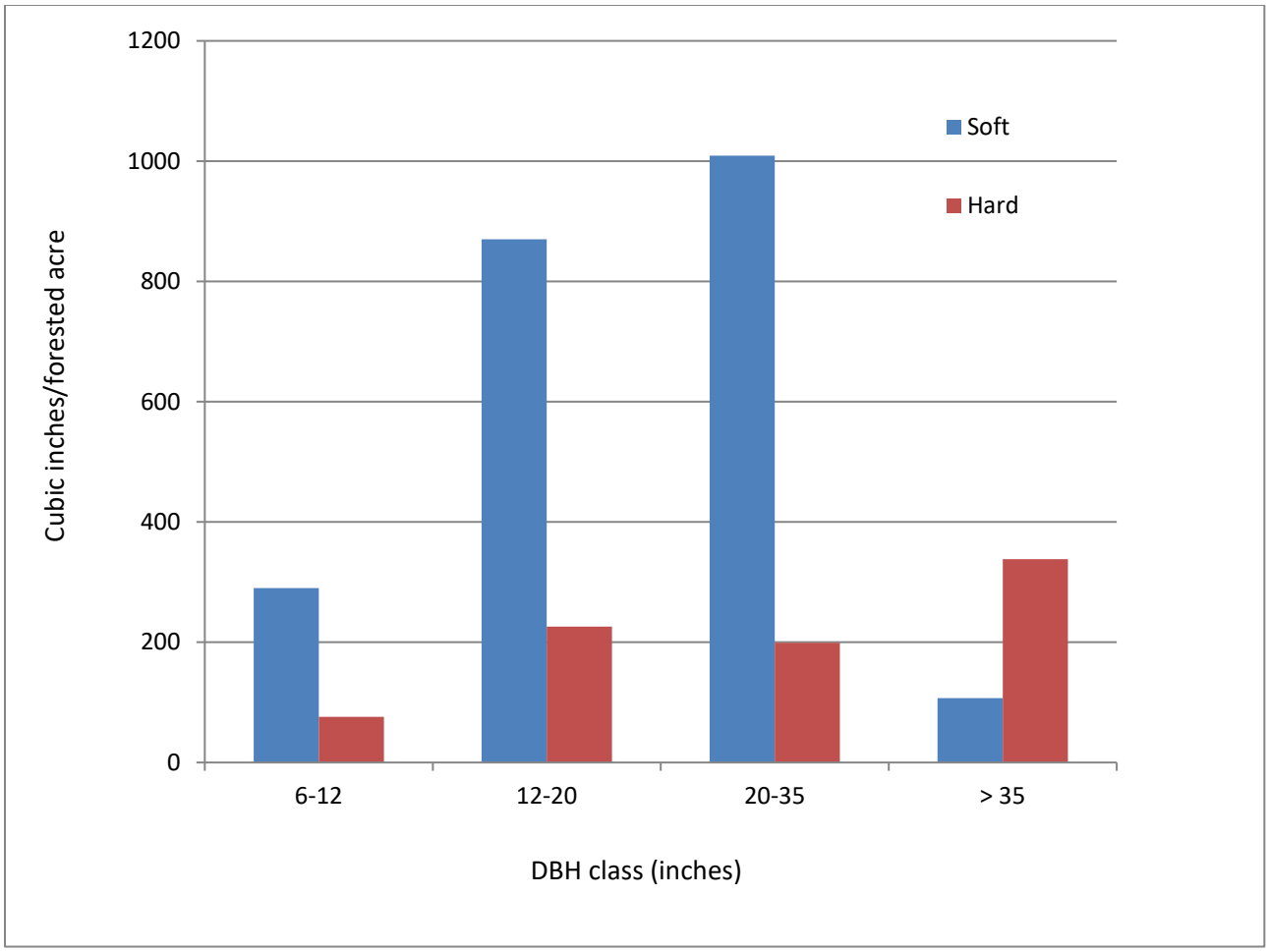

Figure 1. Amounts of downed woody debris by diameter at breast height (DBH) class on the Butte Creek Ranch property.

3.3.2 Gray Wolf

The Property is one of the first places known to support reproducing wolves in California in many decades. The Property is more likely to support summer range, feeding, and dispersal rather than breeding and denning activities due to its high elevation. Given that adjacent federal property on the Klamath National Forest previously provided suitable denning habitat, wolves may continue to use the Property in the future because current levels of human activity that have the potential to make the Property less hospitable to wolves, such as marked increases in road traffic, recreation, noise disturbance, human presence, and land use, will not increase under the SHA and Easement.

Much of the habitat once potentially occupied by wolves in California has been converted to agriculture or urban development and is highly fragmented. Statewide road densities have increased substantially, and the human population has grown to over 38 million people (Kovacs et al. 2016). According to the California Wolf Management Plan, successful conservation for wolves in California requires large landscapes of suitable and non-fragmented habitat capable of

supporting wolves (Kovacs et al. 2016). The Property is relatively undeveloped and provides good habitat due in part to minimal human presence and road use, in addition to the availability of prey and perennial water sources. Because the Property is situated in a secure and relatively undisturbed location, it provides an important landscape habitat component for dispersing wolves and will potentially support an established territory.

Successful conservation of the gray wolf in California will require conservation and management of their primary prey, specifically deer and elk. According to the California Wolf Management Plan, private lands comprised of commercial timberlands and/or rangelands located in proximity to public lands supporting deer and elk habitat are predicted to support wolf populations (Kovacs et al. 2016). Although the Property will be managed to increase older, more complex forest under the SHA, small-scale timber harvest and the creation of high-quality early seral habitat from meadow restoration projects will enhance deer and elk habitat by increasing fawning cover and forage. Management actions under the SHA to maintain, restore, and improve forage and water quantity and quality in key habitats such as mountain meadow and aspen communities will also contribute important deer and elk habitat.

The California Wolf Management Plan also highlights the importance of coordinating with private landowners regarding locations where wolves have been suspected or observed (Kovacs et al. 2016). Trail cameras are currently installed on the Property to detect and monitor wildlife and wolf activity and will continue to be used as part of the monitoring component of the SHA. The cooperation of the Property Owners and contribution of data is important to determine use of the area by wolves and other wildlife species and for successful implementation of wolf conservation actions.

3.4 Threats on Covered Lands

3.4.1 Northern Spotted Owl

As described previously in section 2.1.3, barred owls are known to adversely impact NSO. Currently there are no known barred owls on the Property, but surveys conducted on federal lands have detected barred owls within approximately 1.3 miles of the Property. Throughout the Pacific Northwest, barred owls have rapidly expanded their range and displaced NSO from their territories. Barred owls have smaller home ranges, occur at much higher densities, tolerate a wider range of habitat conditions, and have more diverse diets than NSO (Wiens 2014). Surveying for barred owls and removing individuals that are detected would help reduce this threat and provide a net conservation benefit to NSO by preventing barred owls from displacing NSO that may occupy the Property during the permit term.

Habitat loss and fragmentation through timber harvest has been identified as a primary threat to NSO. However, this threat is not significant on the Property given the requirements in the Easement and SHA to conduct forest management practices that will result in a net increase in NSO habitat across the Property over time by increasing tree diameters, canopy closure, stand structural complexity, and retaining important habitat elements. Additionally, planned

silvicultural treatments such as thinning may benefit NSO by accelerating the development of habitat and prey populations and reducing the risk of unnaturally severe wildfire.

Some activities related to timber harvesting, such as road use, are unlikely to affect habitat conditions for NSO because habitat will not be removed or altered. However, these activities have the potential to adversely affect breeding NSO by increasing noise disturbance and human activity near nest or roosting sites. Disturbance of nesting owls could occur when heavy equipment is used to conduct timber harvesting activities within 0.25 mile of an active nest during the breeding season. Seasonal restrictions identified in section 4.2.1.2 below will minimize disturbance associated with these activities.

3.4.2 Gray Wolf

As described above in section 2.2.3, some of the most significant and direct threats to wolves include persecution of wolves when livestock or pet depredation is perceived and vehicle collisions. A significant increase in human caused noise disturbance may also adversely impact wolves, particularly during the denning or pup rearing season. Den or rendezvous sites could be inadvertently damaged or destroyed during implementation of Covered Activities, or wolves may be intentionally injured or killed by trespassers.

Because wolves are habitat generalists, changes in habitat that alter but maintain the native vegetative community are unlikely to significantly affect wolves. However, habitat changes that directly and indirectly influence prey populations could affect the ability of wolves to procure adequate amounts of food. Timber harvest under the SHA is not expected to result in significant habitat loss and fragmentation for wolves because it will be non-industrial, low intensity, and small-scale, as required under the provisions of the Easement. In fact, timber harvest has the potential to provide a net conservation benefit by improving habitat conditions for deer and elk over time. According to the California Wolf Management Plan (Kovacs et al. 2016), private land can be more productive than public land from an ungulate perspective due to the development of early-successional habitat from logging and other management actions.

As a result of landscape-level fire suppression in northern California, montane meadows are often encroached upon by lodgepole pine and other conifers. Under normal fire regimes and disturbance patterns, meadows are maintained as periodic fire kills encroaching seedlings and saplings at meadow margins. Conifer encroachment that results in the loss of meadows reduces the habitat available for deer and elk as meadows become dominated by trees and grasses and forbs become less abundant and nutritious.

The two large meadows on the Property are experiencing ongoing lodgepole pine encroachment. Section 4.2.2.2 describes the SHA's meadow maintenance and restoration conservation measures to increase deer and elk habitat through prescribed fire and removal of lodgepole pine.

3.5 Baseline Determination

Given the limited data and understanding of how NSO and gray wolves use the Property, baseline conditions are based on the current quantity and quality of suitable habitat and ongoing management activities on the Property rather than population estimates. Data collected during a 2013 forest inventory timber cruise were used to derive baseline habitat conditions for the Covered Species. Dominant tree species, tree size, and canopy cover were used to categorize the Property into habitat types using California Wildlife Habitat Relationships[1](CWHR). This system is used to classify existing vegetation types by tree diameter and canopy closure (Tables 2 and 3) and generally predict wildlife-habitat relationships. The resulting habitat maps were verified for accuracy using Google Earth Map by a Service Wildlife Biologist familiar with the CWHR classification system. The Property was then classified as NSO and gray wolf habitat based on the CWHR categories associated with use (Maps 2 and 3). Table 4 depicts the CWHR categories and amounts of habitat for NSO and wolf.

Table 2. California Wildlife Habitat Relationship (CWHR) tree size class descriptions.

CWHR Size	Description	Diameter at Breast Height
1	Seedling	Less than 1 inch
2	Sapling	1 to 6 inches
3	Pole	6 to 11 inches
4	Small Tree	11 to 24 inches
5	Medium/Large	Tree greater than 24 inches
6	Multi Layered	Size 5 over size 4 or 3; total tree crown closure greater than 60%

Table 3. CWHR tree canopy closure class descriptions.

Tree Canopy	Description (% Canopy Closure)
S	10 to 24%
P	25 to 39%
M	40 to 59%
D	60 to 100%

Table 4. Habitat type by acres on the Butte Creek Ranch for northern spotted owl and gray wolf.

Species	Habitat	CWHR[1]	Acres
Northern Spotted Owl	Nesting/roosting	4D	65
	Foraging	4M	1045
	Dispersal	4S, 4P, aspen	1695
Gray Wolf	Primary prey habitat	4S, open, aspen, chaparral	1083
	Other suitable habitat (dispersal, denning, etc.)	Remainder of the Property	2385

[1] https://www.wildlife.ca.gov/Data/CWHR
[2] http://frap.fire.ca.gov/projects/frap_veg/classification

3.5.1 NSO Baseline

The baseline conditions for NSO are estimated to be 65 acres of nesting/roosting habitat and 1,045 acres of foraging habitat (Table 4, Map 2). The habitat is not expected to be currently occupied because large amounts of contiguous high-quality habitat is lacking, the habitat patches are fragmented by large tracts of non-habitat, and the Property in general is comprised of tree species and habitat types not associated with NSO use. While this amount and quality of habitat is insufficient to support a territorial single or NSO pair, these acres could be used by NSO from a territory located adjacent to the Property. Habitat is expected to increase and spatially change as timber growth and harvest occurs on the Property over the permit term.

The amount of NSO habitat summarized in Table 4 may overestimate the actual amount of functional habitat present. Some higher elevation stands dominated by tree species not typically associated with NSO use, such as red fir, were included in the analysis. These areas could provide habitat for NSO, especially if barred owls are present or become established on the landscape, but in general do not represent high-quality habitat. Also, fine-scale habitat data were not available to identify important habitat elements such as snags, large woody debris, mistletoe brooms, and multi-layered understory structure. These important NSO habitat features are present on the Property, but could not be reliably evaluated because they are not captured by CWHR classification or via remote sensing tools.

There are no known NSO activity centers within the Property boundaries, although surveys have not been conducted.

3.5.2 Gray Wolf Baseline

The baseline prey conditions for wolf are estimated to be 1,083 acres of deer and elk habitat, with the remaining Property functioning as habitat for other life functions, such as providing secure connectivity corridors for dispersal (Table 4, Map 3). The baseline for wolves is considered relative to existing patterns of land use (e.g., recreation, livestock grazing, timber harvesting) that have allowed wolves to use the Property in the past. The status quo will be maintained under the SHA in part due to restrictions on land use required by the Easement. The Easement specifies the type of silviculture that may be used; number of cattle present seasonally; limits on road use, maintenance and construction; and the number and size of buildings on the Property.

In 2015, using trail cameras, CDFW documented two adults and five pups from the Shasta Pack within 0.5 mile of the Property boundary on USFS lands. It is unknown where the pups were born. In November of 2015 and May of 2016, a single male wolf track was detected on the Property and verified through DNA analysis. Evidence of substantial use of the Property as a den or rendezvous site has not been detected during subsequent survey efforts.

4.0 COVERED ACTIVITIES

4.1 Current and Proposed Land Uses and Activities

Members of the Hart family have been stewards of the Butte Creek Ranch for more than 155 years and continue to maintain and enhance wildlife habitat on the Property. The family has a long history of managing the Property's resources, and the primary uses for six generations have been summer cattle grazing and timber production.

4.1.1 Dwellings and Roads

The Property is situated behind a locked gate with road traffic limited to occasional use by the Property Owners during the summer months for ranching operations, low intensity recreation, periodic timber harvesting, and maintaining the Property. Authorized use of the roads occurs on a limited basis by partners, agency staff, and researchers for conducting surveys and studies of wildlife and other natural resources on the Property. Approximately 90 percent of the estimated 15.7 miles of roads have not had vehicular traffic in the past four to five years. The road use is not expected to increase over the permit term. The Property Owners maintain two small cabins located in Sections 13 and 14 for seasonal ranch-related residential and recreational uses, such as hiking and horseback riding. Hunting is prohibited on the Property. Under the terms of the Easement, existing dwellings can be maintained or replaced, but any remnants of the former structures must be removed and the area revegetated.

4.1.2 Livestock Grazing

Annually, cattle from the Property Owner's Little Shasta Valley ranch are herded overland to the Property starting in the mid-summer. Historically, cattle used the Property for summer grazing during a 10 to 12 week season commencing in early to mid-July for a total of 400-430 animal-unit month (AUM). Under the Easement, the timing of summer grazing will begin no sooner than July 1 and the range utilization will be reduced to no more than 180 AUM annually as defined in the Annual Livestock Grazing Management and Monitoring Plan. The Property Owners will continue to monitor cattle presence and range utilization and implement conservation measures to minimize wolf/livestock interaction through their Annual Wolf Preparedness and Monitoring Plan, protect confirmed wolf denning areas, and enhance prey habitat as described in section 4.2.2.1 below.

4.1.3 Timber Harvest

Initial commercial timber harvesting on the Property occurred in the 1920s and 1930s using contemporary methods of the time, including chainsaws to hand fall trees, tractors to yard and skid felled trees, and trucks to transport logs to mill locations. As was typical of that time period, uneven-aged silviculture methods were used to remove individual trees or groups of trees with the highest commercial value. Unmerchantable or submerchantable trees were generally not harvested. Large-scale clearcutting and other even-aged silvicultural practices are not used on the Property.

Timber harvesting on the Property in the mid-1990s used selection silviculture. A sanitation salvage harvest was conducted in 2003 to remove dead and dying trees and improve growth of the residual stand. Future timber harvest will be conducted according to the terms of the Easement, SHA, and California Forest Practice Rules. The Easement prohibits the use of even-aged silviculture and specifically requires an increase in average tree diameter following harvesting using a "thin from below" approach, the maintenance of moderate to dense overstory canopy, and the retention of snags, large downed wood, and designated Wildlife Trees. Generally, Wildlife Trees are selected from those available that have high intrinsic value as wildlife habitat. Such trees often show signs of previous use by wildlife and feature cavities, large horizontal limbs, multiple candelabra tops and other structural characteristics.

4.1.4 Meadow Restoration and Conifer Encroachment

As a result of landscape-level fire suppression, the two large meadows on the Property experience ongoing lodgepole pine encroachment. Between 2008 and 2012, the Property Owners removed encroaching conifers under the Hart THP (2-07-088-SIS) on 647 acres to restore meadow habitat. The historic meadow was delineated to include any wet areas and stands with an understory of corn lilies, grasses and forbs, alders, and willows. All conifers (primarily lodgepole pine), except those with desirable wildlife characteristics, were removed to the greatest extent feasible given market conditions. Additional meadow enhancement projects will likely be conducted during the permit term, which may lead to increased wolf prey habitat by maintaining and enlarging existing meadows. Meadow restoration work is typically conducted when conditions are dry to avoid damaging soils and hydrology. As such, most of these projects will occur after wolves and other wildlife are no longer using these areas for breeding. Prior to conducting this type of work, efforts will be made to determine whether wolves or other sensitive wildlife are present using camera stations, field reconnaissance, and other methods.

4.2 Conservation Measures

4.2.1 Northern Spotted Owl

The SHA's conservation measures are expected to provide a net conservation benefit to NSO by 1) improving habitat on the Property through forest management practices, 2) minimizing or avoiding incidental take through pre-harvest surveys and seasonal timing restrictions, and 3) managing the barred owl threat by allowing the Service access onto the Property to implement barred owl control measures and to conduct surveys.

4.2.1.1 Forest Management

Timber harvesting on private land in California is regulated by the California Forest Practices Act and the California Forest Practice Rules, which provide minimum guidelines to avoid significant adverse impacts to the environment. Within this regulatory framework, private landowners can further define their own objectives to promote wildlife and natural resource conservation.

Exhibit D of the Easement contains restrictions on forest management practices that will improve habitat, minimize impacts, and provide an overall net conservation benefit to the NSO. The Easement restrictions are incorporated into this SHA as conservation measures for the duration of the Permit. The Easement terms for forest management activities conducted on the Property, including timber harvest, are expected to enhance, restore, and maintain complex, mature, native forests. Regular harvest activities, combined with natural processes affecting tree growth and mortality, will continue to produce a shifting mosaic of stands with variable structural composition and complexity. The forest management strategy described below incorporates timber harvest practices that will result in a net increase in tree diameters, stand diversity, large snags, and multiple canopy layers throughout the ownership over time. These features will benefit NSO by increasing prey and creating structures for nesting/roosting, protection from predators, and a more moderate microclimate during extreme weather. Forest management practices will develop the following general forest characteristics across the Property to benefit NSO, allowing for variability across the landscape and over time:

1) A mix of dominant tree species including white fir, red fir, ponderosa pine, lodgepole pine, mountain hemlock and other associated conifers, as well as hardwood species such as black oak, alder, aspen, willow and cottonwood with relative composition depending on elevation, aspect and moisture.
2) A structurally complex multi-story forest canopy of variable densities and heights with a mosaic of vertical and horizontal spacing, allowing for scattered forest openings due to natural disturbances, mortality and timber harvesting.
3) A range of age classes and seral stages distributed across the landscape, from seedlings and early seral openings to late seral trees and late seral functionality; including greater than or equal to 20 percent of conifer volume in trees greater than 30 inch in DBH.
4) Snags (standing dead trees greater than 12 foot in height), downed logs and large woody debris (LWD) on the forest floor, including at least two conifer snags greater than 19 inches DBH and at least one 10-19 inch DBH conifer snag, on average per acre; one downed LWD log greater than 19 inches large-end-diameter; and at least three downed LWD logs greater than 10 inches and less than 19 inches large-end-diameter on average per acre.
5) Wildlife Trees: Conifer and hardwood trees having features of structural decadence (i.e., large diameters, large lateral branches) or significant wildlife value (i.e., tree cavities, broken or re-grown tops, or other nesting platforms) well distributed across the landscape at densities that average three such trees per acre.

The following specific restrictions on timber harvesting, including definitions of the terms, are described in Exhibit D of the Easement and are also incorporated into this SHA as conservation measures. Relevant definitions regarding timber harvesting practices are also included in the California Forest Practice Rules (14 CCR 895.1):

1) Silvicultural Systems: Uneven-aged management silvicultural systems will be used, including individual selection, group selection, sanitation salvage, commercial thinning, or similar techniques. Openings created through timber harvest will not exceed 2.5 acres provided, however, the opening size cannot exceed 0.25 acre on slopes 60 percent and greater or on soils with high erosion hazard ratings.
2) Maximum harvest volumes: Timber harvests will not remove more than 20 percent per decade of Net Merchantable Forest Inventory volume. Such allowable harvest is measured against inventory at the beginning of each decade.
3) Minimum leave stand: After any uneven-aged timber harvest, the residual stand for that harvest unit will contain a distribution of native tree species, with a preponderance of such uncut trees to be windfirm, with full crown and able to promote regeneration of trees with form and exhibiting high-quality genetic characteristics. Trees with significant habitat values will also be given preference for retention, such as dominant and co-dominant conifers, large diameter conifer (especially ponderosa pine and Douglas-fir trees greater than or equal to 30 inch DBH) and hardwood trees (especially oak trees greater than or equal to 24 inch DBH), and Wildlife Trees.
4) Snags: In general, snags will be retained for wildlife habitat benefits and will not be intentionally removed, except for reasons of prevention of epidemic levels of insect infestation and disease, wildfire control, or forest worker and public safety.
5) Catastrophe*:* In the event of a natural catastrophe, such as wildfire, disease and insect infestation, windstorms, and floods, the Property Owners may exceed maximum harvest volumes and opening size limits as necessary to restore the impacted area and to protect the current condition of the surrounding forested landscape. Under these circumstances, dead and mortally damaged timber must be salvaged in accordance with specific restrictions as described in paragraph 7 of Exhibit D of the Easement.

The Easement contains restrictions on activities within the Butte Creek Headwaters SHMZ that maintain and enhance mature forest conditions or late seral forest tree species composition and stand structural diversity over time including: multi-storied canopies, significant amounts of snags and downed woody debris, large (greater than 30 inch DBH) diameter conifer and hardwood trees, and trees with distinctive habitat features, such as broken tops or limbs and mistletoe clumps. These late seral habitat characteristics are expected to benefit NSO by providing nesting, roosting and foraging habitat. The Property Owners estimate that the Property has already reached 14 percent of the 20 percent target conifer volume of trees greater than 30 inch DBH. No timber harvesting, vegetative management, animal grazing, road building, or other construction or uses will occur within the SHMZs, except pursuant to the Habitat Enhancement Plan that seeks to achieve the habitat management goals identified in Appendix A of the SHA.

4.2.1.2 Incidental Take Minimization and Avoidance

Incidental take of NSO will be minimized or avoided through a combination of pre-harvest surveys and seasonal timing restrictions. The Property Owners will conduct surveys of suitable NSO habitat using the call stations identified by the Service in Map 2 or within 0.25-mile of a sale boundary during the active breeding season beginning February 1 and ending August 31 to

determine if NSO are present. Surveys will be conducted according to the "Protocol for Surveying Proposed Management Activities that May Impact Northern Spotted Owls" (USDI FWS 2012a) or current NSO survey protocol approved by the Service. The Service recognizes that current habitat conditions have not improved greatly since the Service issued a technical assistance letter on August 29, 2007 (81333-2007-TA-140) for the Hart THP (2-07-088-SIS) which stated that NSO surveys were not warranted because there were no NSO activity centers within 1.3 miles of the THP boundary, nesting/roosting habitat in or adjacent to the THP was lacking, and because the majority of the THP area was over 6,000 feet in elevation and not expected to be used by NSO. Additionally, surveys conducted by the USFS adjacent to the Property as recently as 2010 have not detected NSO closer than 1.3 miles from the Property boundary. Therefore, modifications to the NSO survey protocol may be appropriate depending on the location of the sale boundary in relation to recent survey effort, proximity to known activity centers and suitable habitat, the quality and quantity of habitat to be harvested within the sale boundary, and other factors. Modifications may include, but are not limited to, the timing, frequency, and number of required surveys per year. Surveys may revert back to the current NSO survey protocol if barred owls or NSO are detected on the Property. The NSO habitat map and call stations will be re-evaluated by the Service every ten years following each forest inventory to account for changes in habitat.

Survey results will be reviewed by the Service prior to timber operations. If NSO become established on the Property, the Property Owners will not conduct timber operations in suitable habitat within 1.3 miles of an occupied nest or roost site without notifying the Service. Timber operations and road use and maintenance within 0.25 mile of an active nest site will not occur during the breeding season to avoid any direct take. However, timing restrictions will be lifted to allow timber operations and other activities that may create a noise disturbance during a Limited Operating Period (LOP) after July 9 if it is determined that no NSO are present or the owls are not nesting using methods described in the survey protocol (USDI FWS 2012a). The Service must be notified at least 30 days prior to any anticipated take of NSO, as described in section 5.1 of this SHA.

4.2.1.3 Barred Owl

Barred owls have not been detected on the Property, although surveys have not yet been conducted. If barred owls become established on the Property in the future, they could pose a threat by outcompeting NSO for habitat. The Revised Recovery Plan identified several Recovery Actions to address the increasing threat of barred owls to the survival of NSO (USDI FWS 2011). The barred owl Recovery Actions pertinent to this SHA include:

1) RA-31: Using SHAs or HCPs to develop mechanisms for landowners and land managers to support barred owl management using a collaborative process
2) RA-24 : Establishing protocols to detect barred owls and document barred owl site status and reproduction

The Revised Recovery Plan also includes RA-28 through RA-30 to address the removal of barred owls to prevent them from displacing NSO and becoming established (USDI FWS 2011).

Preliminary results from a barred owl removal experiment in coastal northern California suggest that NSO survival and population change are positively influenced by barred owl removal (Diller et al. 2016). These results support the hypothesis that barred owl removal and habitat conservation reverse or slow NSO population declines at the local scale (Dugger et al. 2016). The effectiveness of barred owl removal will be determined at the conclusion of the study.

Protocols to detect barred owls and document important population information, including pair status and reproduction, provide vital data to help manage barred owls and reduce their threat to NSO. Under the SHA, the Property Owners will allow the Service access onto the Property to conduct barred owl surveys and implement barred owl control measures. This will allow the Service to monitor the effectiveness of the control strategy and minimize the potential for additional barred owls to become established following control actions.

4.2.2 Gray Wolf

Exhibit D of the Easement provides restrictions on certain uses or changes in management in order to conserve natural resources on the Property. The conservation measures that limit activities such as agriculture/farming, road construction, use of motorized vehicles, and timber harvesting are expected to provide significant conservation benefits to the gray wolf.

4.2.2.1 Livestock Management

Gray wolves can adversely affect livestock directly, by killing or injuring individual animals, or indirectly, by modifying livestock behavior and physiological processes. Most wolf attacks involve one or two individual cattle (Muhly and Musiani 2009) and wolves prey on calves more frequently than adult cattle (Sime et al. 2007, Sommers et al. 2010). To minimize wolf/livestock interaction and protect potential wolf denning areas, the Property Owners will implement the following conservation measures:

1) Grazing of livestock or related management activities will only be conducted in a SHMZ in accordance with the Habitat Enhancement Plan. Access of cattle to SHMZs will be controlled by Range Stewards, as well as barriers such as cattle guards and temporary drift fences. Cattle will be moved as needed to address any concerns regarding impacts to vegetation and streams evidenced by monitoring SHMZs. These restrictions will benefit wolf recovery by potentially creating and enhancing rendezvous and denning sites, travel corridors, and prey habitat by improving riparian vegetation, shrubs and forbs, aspen stands, and meadow habitat.
2) The Property owners will employ a certified Range Steward for the purposes of monitoring cattle grazing and usage patterns while concurrently practicing range reconnaissance methods, such as perimeter surveillance and camera monitoring, as tools for mitigating potential cattle/predator interface risks. Livestock observation will include their location, numbers present, and disposition and/or changes in disposition. Surveillance will be conducted either by foot, horseback, and/or bicycle using established Range Steward techniques in close association with accredited range biologists and agency personnel.

3) The Property Owners will continue to use sustainable stock grazing practices. Livestock grazing on the Property will not exceed 180 AUM per calendar year as established in the Easement. Further, livestock will not be grazed on the Property prior to July 1st of any year without the prior written approval of Pacific Forest Trust in accordance with the Easement. These restrictions on the quantity and timing of livestock grazing will help reduce potential wolf/livestock interactions.
4) The Property Owners will continue to use livestock husbandry practices that reduce potential conflicts with wolves. Property Owners will continue to maintain the Butte Creek "dams" (mother cows) in a group throughout the entire year without comingling with other ranch cattle. New cows will be added to the group each May, but the social network will remain strong with roughly 80 percent of returning dams. This social network, in addition to selecting for docility, reduces the potential for livestock/wolf interaction by encouraging herding and grouping, and resulting in individuals being reticent to wander or splinter into subgroups to any significant degree.
5) Pacific Forest Trust and the Property Owners will review the impacts of grazing on an annual basis as part of the Easement's monitoring program through on-site inspection as described below in section 4.3. Impacts of livestock on potential wolf denning sites will be evaluated by the Service and CDFW during this review.
6) Property Owners will continue their practice of removing sick or injured livestock from the range as soon as is feasible, and not leaving carcasses and bone piles on the Property to prevent attracting wolves to the area where livestock is grazed.
7) When necessary, the Property Owners will use non-lethal techniques to protect livestock and reduce conflict with wolves including, but not limited to, fencing, hazing, fladry, increased human presence through Range Stewards, and corralling and moving the cattle when a wolf is detected in the vicinity.
8) Should any denning or rendezvous sites be detected on or nearby the Property, the Steward and/or the Property Owners will consult with the appropriate State and/or Federal agency staff as to the most appropriate response.
9) The Property Owners will place a portable corral system on the Property while cattle are present to help gather and transport livestock off of the Property if a potential conflict with wolves is eminent.
10) The Property Owners and Range Steward are trained to identify, and are highly vigilant about, any indication that wolves may be present, including the presence of tracks and scat and using trail cameras to detect wolves. The Property Owners and Range Steward have attended formal trainings to learn techniques for minimizing livestock/wolf interaction, including a Range Rider program and Working Circle workshop. Stewards will have both a working understanding of wolf and large predator biology as well as livestock handling techniques. Stewards will be familiar with the livestock present.
11) The Property Owners will continue to be in close communication with neighboring landowners, CDFW, California Wolf Center, and Working Circle about wolf activity and location of cattle.

4.2.2.2 Prey Habitat

Increasing ungulate populations through improvements in habitat is one of the primary management tools for promoting wolf recovery. While black-tailed deer are commonly observed on the Property, Rocky Mountain elk have rarely been seen in the immediate vicinity. The habitat and management practices on the Property under the SHA will provide elk and deer sufficient cover, foraging habitat, and security and thermal cover. To increase wolf prey habitat across the ownership, the Property Owners will implement the following conservation measures:

1) Deer and elk are generally most abundant in early successional forests, oak woodlands, mountain meadows, shrub lands, and aspen communities. Forest management will maintain or enhance baseline conditions of habitat required for wolf prey populations by creating canopy gaps in portions of the forest to promote understory grasses, forbs, and shrubs; maintaining floristically diverse early seral forest openings and non-forest habitats on portions of the Property; and retaining and regenerating mast producing hardwoods.
2) Riparian Management Zones (RMZs) will be maintained and enhanced with natural vegetative composition typical of riparian areas, including aspen, cottonwood, and large hardwood trees in multi-storied stands. This will benefit deer and elk by providing protected moist sites during critical portions of the year, such as spring parturition and lactation periods in late-summer and fall.
3) With agency participation and support, Property Owners will cooperate in the use of prescribed fire and other methods to curtail conifer (lodgepole pine) encroachment to maintain and restore meadows to increase deer and elk foraging habitat.
4) An ungulate survey protocol will be developed in conjunction with CDFW during the preparation of the Habitat Enhancement Plan. The protocol will be used to conduct periodic surveys across the Property to assess deer and elk habitat selection and use, population, health, and distribution.
5) Owners will prohibit the use of sport hunting rifles to take ungulates.

The Property Owners use high intensity, short duration flash grazing practices with their cattle to prevent invasive weed and conifer encroachment into the meadows. To minimize impact or potential damage to the meadow systems, cattle are carefully monitored by ranch managers on site periodically while grazing is occurring. The Property Owners use various techniques, such as human presence, salt box placement, and tape fencing, to prevent overgrazing in an area or damage to wet meadows or areas of saturated soils. Additionally, total allowable AUM (a total of 180 AUM by year 2020 per Easement requirement) will be reduced to less than half of historical levels over the 50 year permit term, thereby significantly reducing the risk of overgrazing.

4.2.2.3 Wolf Conservation

The SHA and Easement restrictions ensure that the Property has the potential to provide suitable habitat for denning, hunting and dispersing wolves by maintaining current levels of human activity and improving existing conditions, as described above in section 4.1. The presence of

wolves on the Property in 2015 demonstrates that wolves and livestock can occupy the same general area and use the land without conflict. Current and ongoing camera monitoring on the Property shows that the wildlife that exists is both abundant and diversified with respect to species and numbers irrespective of Property management activities. Future uses of the Property, including commercial forest management, ranching operations, and maintenance or construction of existing structures and roads, are subject to the terms and restrictions in Exhibit D of the Easement. If activities that may disturb wolves are expected to significantly increase above existing conditions during the permit term, the Property Owners will be required to notify the Service and the SHA may need to be amended.

The Property Owners will implement conservation measures specific to individual wolves or denning structures as follows:

1) Any observations of gray wolves, suspected denning structures, or evidence of wolf activity will be reported to the Service as soon as possible and within 48 hours.
2) The Service will be allowed access to the Property for the purposes of evaluating the potential presence of wolves. Any structure or site that is confirmed or suspected to be a wolf den will be mapped and may be monitored using remote trail cameras or other methods.
3) Den and rendezvous sites will be avoided between March 15 and September 15 to the extent reasonably possible to prevent disturbance, which may lead to abandonment of the site. All structures that have been determined to be used by a breeding pair will be afforded adequate protection measures per consultation with the Service and CDFW. Specific distances or more flexible dates for the seasonal restriction may be developed in coordination with the Service and CDFW, depending on factors such as topography, water availability, meadows, and survey results.
4) Trained livestock personnel and/or a Range Steward will be present at least three days per week during the active grazing season. Human presence will increase if a wolf is detected in the area. The interim HEP Livestock Grazing Plan in Appendix C describes the duties of the Range Steward and plan for livestock-predator/wolf interaction.
5) Property Owners will relocate livestock to the home ranch in the Shasta Valley if the potential for wolf/livestock interactions pose an elevated threat to livestock, as described in the HEP Livestock Grazing Plan.
6) Property Owners will work closely with accredited wolf conservation organizations as a means of learning and sharing the latest science with respect to livestock-predator interaction.
7) If any vegetation disturbance activities are proposed within the most recent wolf activity mapping provided by CDFW[1], consultation with the Service and CDFW will occur to develop incidental take avoidance and minimization measures.
8) Prior to any new road, landing, or skid trail construction or other significant ground disturbing activity using mechanized equipment, the area will be visually inspected for den sites within 24 hours prior to operations during the critical denning period between March 15 and June 15.

[1] https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=147024&inline

4.2.2.4 Roads and Motor Vehicles

Wolves may be displaced or daily activity patterns disrupted by disturbance from new road construction; changes in road use frequency, duration, or intensity; construction and maintenance of stream crossings; and expansion of existing roads. However, roads on the Property are not currently a threat to wolves and do not pose a significant barrier to movement because they are infrequently used and privately accessed. These roads receive virtually no use during the winter and early spring months due to deep snow accumulations. In the summer and fall, road use increases during periodic timber harvesting operations, livestock grazing, recreation, or occasional maintenance.

The Easement restricts construction of new roads and stream crossings or expansion of existing roads to roads directly required for uses and activities permitted in the Easement. These restrictions on new road construction on the Property and changes to existing use will provide a net conservation benefit to wolves by minimizing impacts and disturbance.

Road and stream crossing construction, use, expansion or reconstruction will adhere to the following conditions:

1) Road density will not increase over time. If a road is proposed for construction, an equal amount of road will be decommissioned for use by motorized vehicle,
2) Restricted private use across ownership will be maintained by controlling public access with locked gate.
3) Motorized vehicles will not be used off roads, except directly in connection with permitted forest management, range management, conservation or wildlife management activities.
4) A Road Management Plan is being developed as part of the Easement that includes descriptions and mapped locations of existing and planned roads, including plans for construction, maintenance and decommissioning thereof consistent with Best Management Practices. Currently, there are no plans to develop or construct new roads, but the Plan will be amended as road use is proposed for change.

4.3 Monitoring, Evaluation, and Adaptive Management

Monitoring the effectiveness of the conservation measures is necessary to evaluate whether the SHA's biological goals and objectives are being met and whether the effects of Covered Activities on the Covered Species and their habitats are exceeding the anticipated incidental take levels. Additionally, monitoring provides a framework for modifying the conservation measures and other elements of the SHA if the expected results are not achieved and as conditions change and new information is acquired.

4.3.1 Biological Monitoring

Incidental take avoidance and minimization will be accomplished through a combination of periodic surveys for Covered Species, project consultation with the Service, ongoing monitoring efforts, and pre-harvest and seasonal timing restrictions as described in sections 4.2.1.2 and 4.2.2.3 of the SHA. The Service and CDFW will provide information on NSO and wolf identification and signs of activity to field personnel conducting surveys. Compliance monitoring for this objective consists of documentation showing that pre-harvest and periodic surveys have been conducted, seasonal restrictions have been implemented as necessary, and personnel have been trained. The Property Owners will submit their monitoring and survey results to the Service prior to timber operations to demonstrate compliance with the incidental take avoidance and minimization measures. The report will include the location, dates, and results of the surveys.

The Property Owners will conduct strategic NSO surveys every five years to monitor occupancy using a modified survey protocol and call station map (Map 2) developed by the Service, and obtain survey results from adjacent landowners and federal land managers. The Service will work with the Property Owners to identify areas to survey based on the amounts and types of habitat NSO are likely to use. The Property Owners will continue to use trail cameras on their Property and coordinate with adjacent landowners and CDFW to monitor local wolf activity. Survey data will be used to determine if NSO and wolves are inhabiting the Property. In the event NSO and wolves do establish territories on the Property, additional habitat analyses may be necessary to determine if changes to the monitoring program should occur.

4.3.2 Implementation Monitoring

The Property Owners will submit an annual report that describes any Covered Activities that took place on the Property within the calendar year by December 31st of each year. This report will help the Service to determine if activities were carried out in accordance with this SHA. The Service will be responsible for reviewing monitoring and reporting requirements related to implementation of the SHA and fulfillment of its provisions, including conservation measures and take authorized by the Permit. The Service will use information generated during Easement audits and the CALFIRE THP review process to supplement information submitted in the annual report. The annual report will include, but not be limited to:

1) Incidental take avoidance and minimization measures, if applied.
2) Results of surveys if conducted, including field forms and maps.
3) Changes in baseline conditions that decrease the number of individuals or habitat below existing conditions, whether the change was caused by or beyond the control of the Property Owners.
4) Description of Covered Activities that occur and impacts on Covered Species if known, including an accounting of incidental take.
5) Description of how conservation measures are applied.
6) A summary of yearly operations to determine if the level and scope of activities are consistent with existing baseline conditions and continue to meet the intent of the SHA to minimize disturbance to Covered Species.

The Service will contact the Property Owners annually to evaluate their implementation of the SHA and to identify any modifications that may be necessary. Many of the SHA conservation measures are based on restrictions from the Easement and will be monitored for compliance by Pacific Forest Trust as described in the Butte Creek Meadows Working Forest Monitoring Plan 2016-2025. Portions of this monitoring plan relevant to the SHA conservation measures are included in Appendix D of the SHA. The Service will coordinate with Pacific Forest Trust to monitor the provisions of the Easement that apply to the SHA and accompany Pacific Forest Trust staff on field reviews and inspections as appropriate.

4.3.3 Effectiveness Monitoring

As part of the terms and conditions of the Easement, forest management activities, including those described previously in section 4.2, will be conducted in accordance with a long-term Forest Management Plan prepared in consultation with CDFW for management of the Property as a working forest. Several provisions of the Forest Management Plan can be used to monitor the implementation of the SHA to determine if the Property Owner's forest management activities are promoting conditions that provide suitable NSO, wolf, and prey species habitat over the permit term. These will help determine if the Covered Activities are being carried out in accordance with the SHA, the actual impacts to Covered Species, if the conservation measures are effective at providing anticipated benefits to the Covered Species, and whether the SHA needs to be modified to be successful and meet the original goals and objectives. The following information from the Forest Management Plan may be included in the annual report, if appropriate:

1) Forest stand descriptions and locations, including size classes, diameter distribution, growth rates, relevant inventory information (i.e., snags, large woody debris, hardwoods, Wildlife Trees) and maps.
2) Descriptions and mapped locations of known fish and wildlife habitats, especially species listed as threatened or endangered at the federal or state level, rare plants, watercourses, wetlands and other water bodies, including management considerations thereof.
3) Measures for achieving the species composition, seral stages diversity and forest structural elements of the Performance Goal and for the Riparian Management Zones.
4) Description of stand management history; occurrences of disease, insect infestation and fires based on best available knowledge.
5) Silvicultural and harvest methods, schedules, and equipment to be used.
6) Projections of growth, harvest yield and inventory maintained and updated on a decadal basis at a minimum.
7) Road Management Plan, including Best Management Practices developed in conjunction with CDFW to minimize and avoid impacts to resources, including Covered Species.

4.3.4 Evaluation and Adaptive Management

The Property Owners, CDFW, and the Service will meet in person each year after the annual report has been submitted and reviewed. During the meeting the parties will evaluate the

implementation of the SHA as described above and determine if modifications to the agreement are necessary. The evaluation will include review of the previous year's grazing operations and timber harvesting activities (if conducted), application of the conservation measures, and impacts to Covered Species. Elements of the SHA that may warrant adaptive management based on changed conditions or new information include, but are not limited to:

1) Timing, frequency, or survey protocols based on previous survey results.
2) Incidental take avoidance and minimization measures based on current status of Covered Species on the Property.
3) Management activities based on actual changes in habitat over time and impacts to and incidental take of Covered Species.
4) Conservation measures to minimize disturbance of Covered Species based on yearly operations and the effectiveness of meeting the SHA biological goals and objectives.

5.0 ANTICIPATED EFFECTS

5.1 Level/Type of Take/Impacts

The potential for incidental take of Covered Species resulting from the Covered Activities is minimal because of the SHA conservation and minimization measures. The conservation measures are expected to result in higher quality and greater amounts of habitat for NSO, thereby increasing the likelihood of attracting NSO onto the Property. If NSO do become established on the Property, there would be some risk of incidental take resulting from timber operations. The most likely form of incidental take would be impairment of NSO breeding, feeding, and sheltering from habitat loss during timber harvest activities. It is unlikely that NSO habitat will be removed during the early decades of the SHA because there is currently only a small amount of high-quality NSO habitat present on the Property, and the Easement requires an increase in the number of large trees and amount of older, more complex forest conditions across the Property that will be maintained in perpetuity. Incidental take, if it does occur, would most likely take place decades into the future when additional NSO habitat develops above the existing baseline conditions. Although the SHA would allow the Property Owners to return the Property to baseline conditions even if Covered Species have become established on the Property, this is unlikely because of the Easement requirements to develop and perpetually maintain forests that are older and structurally more complex. These requirements will provide more suitable conditions for NSO than currently exist.

Incidental take of NSO may also occur if operations are conducted on the Property within 0.25-mile of an active nest site and result in NSO abandoning their nest or young. However, the SHA take avoidance and minimization measures in section 4.2.1.2 will minimize this potential through a combination of surveys and seasonal timing restrictions prior to any timber operations in suitable habitat. Direct injury or death of an adult NSO associated with timber operations is not anticipated because owls are mobile and can avoid areas where active disturbance is occurring.

Incidental take of wolves may occur if cattle operations or timber harvesting significantly impairs their feeding, breeding, or sheltering. This could occur if operations are conducted near an active den or rendezvous site, which may lead to abandonment of the site or young because of the disturbance. However, the monitoring of wolf activity and protection measures in section 4.2.2.3 above will minimize this potential. No direct mortality of gray wolves is expected to occur under the SHA.

In the event Covered Species are detected on the Property, management activities will be conducted to avoid take if possible. If take is unavoidable, any take that did occur would be considered incidental and thus not a violation of Section 9 of the ESA. The Property Owners will provide at least 30 days advance notification to the Service prior to any Covered Activity that will likely result in the incidental take of Covered Species.

The landowner will not be responsible for impacts to Covered Species or their habitat due to actions beyond their control. These include natural events, such as fire and wind, or unauthorized uses of and impacts to the Property, including trespass and arson.

5.2 Proposed Authorized Take

The authorization for incidental take of Covered Species is contingent upon the Property Owners maintaining the amount of habitat at or above baseline conditions on the Property at the time the baseline was established during SHA development. The only take authorized is incidental take associated with loss of above-baseline habitat levels from Covered Activities described previously in section 3.5. Above-baseline habitat would include newly developed habitat that did not exist at the time the Property Owners enrolled. The voluntary habitat enhancement activities in section 4.2 above will increase the likelihood that the number of Covered Species and the total area of suitable habitat will increase by providing more complex forested stands for NSO and open meadows and habitat for wolves.

5.2.1 Northern Spotted Owl

Incidental take of NSO was estimated based on home range size, frequency and amount of timber harvesting projected to occur in suitable habitat, and the likelihood that a timber harvest unit would overlap with an occupied home range. Timber harvest activities are estimated to result in the incidental take of up to 10 juvenile NSO over the permit term by removing habitat or impairing NSO breeding, feeding, and sheltering if NSO begin occupying the Property. This assumes that timber harvesting activities intersect an undetected NSO core use area on the Property once every 10 years and that two juvenile NSO (based on the average clutch size) are incidentally taken as the result of abandonment by the adults due to either disturbance or habitat removal. This also assumes that the level of disturbance creates a sufficient impact to cause take. The potential for incidental take may be reduced by conducting surveys, applying limited operating periods, and deferring harvest in areas where NSO are known or suspected of occurring. Direct injury or death of an adult NSO as the result of Covered Activities under this SHA is not anticipated and is therefore not estimated.

Take resulting from returning the Property to baseline would likely affect no more than two adult NSO. This is because the Property is not likely to support more than one pair of NSO because the size of the Property and average NSO home range in this region are both approximately 3,400 acres. However, the Property is not likely to return to current NSO habitat conditions because of the terms of the Easement to increase complex, mature forests across the ownership as described in section 4.2.1.1 above.

5.2.2 Gray Wolf

Implementing the SHA is expected to have a minimal impact on wolves. Adult wolves are able to avoid disturbance because they are highly mobile and use large territories. Wolves concentrate activity in one area only during the denning and rendezvous season, and even then, foraging forays by the adults can be wide-ranging (i.e., 20 or more miles). Therefore, when implementing vegetation management activities, the primary concern is effects to reproductive success, pup-rearing and pup survival because of disturbance to den sites in late winter/early spring and rendezvous sites in late spring/summer. Although unlikely because the Property is typically inaccessible due to its high elevation until after the breeding season, take may occur if Covered Activities significantly affect parental care of dependent young. Abandonment or reduced prey procurement could impact young wolves through starvation, predation, or exposure. The monitoring of wolf activity and protection measures listed above in section 4.2.2.3 will minimize this potential.

The Property Owners use trail cameras to determine if wolves are using the Property. The Property Owners retain a certified Range Steward during seasonal grazing periods as well as for periods before and after. They are also trained to identify and are vigilant for any indication that wolves may be present, including the presence of tracks and scat. Additionally, there is a high degree of interest in detecting wolf activity in the vicinity among neighboring landowners and surrounding communities. As such, it is likely that wolves would be detected if they were consistently using the Property in any given year.

The number of wolves that may be incidentally taken as a result of the SHA Covered Activities was estimated based on the average litter size of six and the expectation that the Property can support no more than one wolf pack given existing habitat conditions and that wolf packs generally require territories of over 100 square miles as noted above in section 2.2.2. The take estimate is also based on the assumption that wolves would be detected about 95 percent of the time they were using a den or rendezvous site on the Property because of the high degree of vigilance by the Property Owners and adjacent landowners. Thus, six juvenile wolves could be taken as a result of operations that cause abandonment by adults approximately five percent of the years covered by the permit (six wolves per year over 50 years multiplied by a five percent chance that a den is present but undetected). Thus an estimated total of up to 15 wolves could be incidentally taken over the term of the permit.

Returning the Property to baseline conditions would not pose a substantial threat to gray wolves because the Property would continue to be managed under the Easement restrictions, some of which would continue to benefit wolves, including restrictions on road use and development.

5.3 Conservation Benefits to the Species

5.3.1 Northern Spotted Owl

The Service has determined that the SHA conservation measures will provide a net conservation benefit to NSO by improving habitat and managing threats, including barred owl and fire. It will take time for late seral forest characteristics to develop in response to the conservation measures, and the Service estimates it may take as long as 50 years of implementing the SHA to improve NSO habitat beyond baseline conditions for the Property to support NSO occupancy. However, immediate conservation benefits will likely occur by reducing the threat of unnaturally severe fires on the Property, allowing the removal of barred owls, and developing long-term forest management plans to guide future improvements to NSO habitat. The growth and yield projections required by the Timber Management Plan and Forest Management Plan, in addition to the Easement's requirement to update the timber inventory every decade or before harvest occurs to reflect the condition of the Property as it changes over time and as management activities are implemented, will allow the anticipated improvements to NSO habitat to be tracked and monitored.

Given there are no known NSO on the Property, if individuals disperse from an adjacent LSR and establish a new territory on the Property, the net conservation benefit for NSO would be realized because the population on the Property will have increased. Even if NSO do not establish permanent territories on the Property, the SHA will benefit NSO on adjacent federal lands by maintaining and developing proximal suitable nesting/roosting, foraging, and dispersal habitat. Impacts of incidental take through disturbance will be minimized because of the incidental take avoidance and minimization measures. The net conservation benefit resulting from these conservation measures will be sufficient to contribute, directly or indirectly, to recovery of NSO, after taking into account the length of the SHA and any off-setting adverse effects of authorized take.

5.3.2 Gray Wolf

The SHA will achieve a net conservation benefit for wolves and increase survivorship and reproduction by maintaining an area of limited human disturbance, providing adequate prey resources, and using livestock husbandry practices to avoid livestock and wolf conflict. By minimizing disturbance and implementing conservation measures that help reduce potential adverse human and livestock interactions with wolves, the Property provides an isolated and protected area for wolves to hunt, breed, and rear pups. Managing the Property to improve habitat for deer and elk will help sustain a wolf pack or dispersing individuals and may also deter wolf depredation on livestock.

Statewide implementation of the wolf conservation plan is expected to result in wolf re-establishment and population growth in California. Because wolf activity has been documented on the Property, the SHA provides a unique opportunity to monitor and manage for wolves through all phases of re-establishment and allow for adaptive management.

6.0 IMPLEMENTATION

6.1 Responsibilities of the Parties

6.1.1 The Service

The Service agrees to provide technical assistance to the Property Owners to assist with implementation of the SHA. The Service will obtain the Property Owners' permission prior to entering the Property to determine if incidental take of Covered Species has occurred and evaluate compliance with the terms of the SHA. The Service will review the monitoring results and annual reports submitted by the Property Owners and inform the Property Owners of any issues regarding inconsistency with the SHA.

6.1.2 Property Owner

The Property Owners are responsible for complying with the terms of the SHA. The Property Owners will be responsible for any costs associated with surveys for Covered Species and agreed upon management practices. The Property Owners will submit an annual report to the Service by December 31 of each year as described in section 4.3 above. The report will include documentation of incidental take that occurred and implementation of management practices conducted pursuant to the SHA. The Property Owners will notify the Service of any known living, sick, or dead Covered Species on the Property. The Property Owners will inform the Service of any planned activity that will likely result in the incidental take of Covered Species or reduction in associated habitat on the Property to allow access and opportunity to relocate any affected individuals of the Covered Species, if appropriate.

6.1.3 Shared Responsibilities of the Parties

The Parties will work cooperatively to record and monitor any incidental take for the duration of the permit term. The Parties will meet on an as-needed basis to review the monitoring results and information contained in the annual report, or to discuss any matters related to this SHA or the Permit. These meetings will provide an opportunity to discuss implementation of the SHA, compliance with the Permit, adaptive management, and resolution of disputes that may arise. The date, time, and location of these meetings will be mutually agreed upon by the Parties, as will a list of potential attendees and potential discussion topics.

Implementation of the SHA will be consistent with applicable federal, state, and local laws and regulations. The Parties will ensure that the terms of the SHA will not be in conflict with any ongoing conservation or recovery programs for the Covered Species.

6.2 Duration of SHA and Permit

The SHA will be in effect for a duration of 50 years following its approval and signing by the Parties. The section 10(a)(1)(A) permit authorizing take of Covered Species will have a term of

50 years from the effective date of the Permit. The Permit and SHA may be extended beyond the specified terms through amendment, upon agreement of the Parties.

6.3 Notification Requirement

For Covered Activities that will likely result in incidental take, the Property Owners agree to provide the Service with an opportunity to rescue individuals of the Covered Species before any authorized incidental take occurs. Notification that take is likely to occur must be provided by the Property Owners to the Service at least 30 days in advance of the action.

6.4 Availability of Funds

Implementation of this SHA is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this SHA will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this SHA to expend any federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

6.5 Notices and Reports

Any notices and reports, including monitoring and annual reports, required by this SHA will be delivered to the person listed below, as appropriate:

Jenny Ericson, Field Supervisor, Yreka Fish and Wildlife Office
1829 South Oregon Street, Yreka, CA 96097
jenny_ericson@fws.gov

Reports will be due December 31 of each year and copies will be made available to all Parties.

6.6 Assurances Provided

The assurances listed below apply to the Property Owners on the condition that the SHA conservation measures are being properly implemented and the Permit will not reduce appreciably the likelihood of both the survival and recovery of any listed species in the wild by reducing the reproduction, numbers, or distribution of that species. The assurances apply only to species covered by the SHA. Through this SHA, the Service provides the Property Owners with assurances that no additional conservation measures or additional land, water, or resource use restrictions, beyond those voluntarily agreed to and described previously in the Conservation Measures section 4.2 above, will be required without the consent of the Property Owner. These assurances will be authorized with the issuance of an enhancement of survival permit under section 10(a)(1)(A) of the ESA.

6.6.1 Changed circumstances provided for in the SHA

Changed circumstances are changes expected to affect Covered Species within the Property that can reasonably be anticipated and for which contingency plans can be made. The Parties have identified drought, wildfire, catastrophic flooding, disease, invasive species, climate change, new species listings under the ESA, and change in the listing status of a Covered Species as potential changed circumstances that are expected to occur over the 50-year permit term. Several of these changed circumstances, including wildfire and floods, are addressed in Exhibit D of the Easement and reiterated in section 4.2.1.1 of this SHA.

If a changed circumstance occurs, the Property Owner will notify the Service within 30 days and will implement the appropriate response identified in Table 5 or a mutually agreed upon approach to address the additional threat and meet the SHA standards. Responses to changed circumstances will be consistent with the performance goals and other terms and conditions of the Easement.

Table 5. Changed Circumstances, potential effect to covered species, and proposed response.

Changed Circumstance	Potential Effect to Covered Species	Proposed Response
Drought	Prolonged periods of drought may result in increased tree mortality due to susceptibility to pests and pathogens. Large-scale tree die-offs may impact NSO by reducing habitat availability or delay the development of mature forest conditions at the stand or property-wide scale.	In the event of moderate to extreme drought, as determined by National Oceanic and Atmospheric Administration (NOAA), the Parties will meet and evaluate the drought conditions and, if opportunities exist, employ mutually agreeable changes to the conservation measures to address local conditions. For example, thinning to relieve drought mortality or reforestation of affected areas may be implemented as soon as reasonably possible.
Wildfire	Fire frequency, intensity, and size has increased within the region since the fire-suppression era, and this trend is expected to continue under climate change projections. Stand-replacing fire may impact NSO by reducing habitat quality and availability.	In the event of stand-replacing fire, the Parties will meet and evaluate the post-fire conditions and, if opportunities exist, employ mutually agreeable changes to the conservation measures to address local conditions. For example, salvage operations may retain standing dead trees identified as important for recruitment of large woody debris for NSO prey habitat.
Catastrophic Flooding	Excessive runoff resulting from catastrophic flooding (e.g., rain on snow events) is associated with mass-wasting of hill slopes, damage to river banks, and downstream flooding. These events have the capability to drastically change stream hydrology and vegetative composition of riparian corridors, which in turn may affect NSO and gray wolf habitat.	In the event of catastrophic flooding, the Parties will meet and evaluate the changes caused by the flood and, if opportunities exist, employ mutually agreeable changes to the conservation measures to address local conditions.

Changed Circumstance	Potential Effect to Covered Species	Proposed Response
Disease	Disease outbreaks can affect segments of wildlife populations and, if left unchecked, can spread to other areas within the species' range.	The Property Owners will report observations of dead or sick wolves or NSO that could be attributed to disease to the Service within 48 hours of discovery. If warranted, the Property Owners will allow access to the Property so that the Service may evaluate the potential for disease outbreak and take actions necessary to intervene in disease transmission.
Invasive Species	Barred owls are known to directly impact NSO through competition for resources, direct harm through aggressive behavior, and hybridization. Barred owls have severely reduced NSO site occupancy, reproduction, and survival by competing for habitat and prey.	If a barred owl or other injurious invasive species are detected on the Property, the Parties will meet and evaluate the potential effects to Covered Species and determine the best method of monitoring, controlling, or eradicating the invasive species. For barred owls, actions may include allowing access to the Property by the Service to implement barred owl control measures.
Climate Change	Climate change may increase the frequency and intensity of drought and fires, severe weather conditions, and floods that can affect the habitat suitability for the Covered Species. Climate change may also alter the ranges of Covered Species at a regional or local scale and the timing of their breeding season.	The proposed response would be the same as that for drought, wildfire, and catastrophic flooding.
New Species Listings on Property	Conservation measures designed to benefit existing Covered Species and Covered Activities may have potential impacts to the newly listed species.	If a non-covered species that occurs within the SHA area becomes a federally listed species, and the Property Owners request coverage for the species, the Service will assess whether the implementation of the SHA may affect such species. If the Covered Activities could result in incidental take of such species, the Service will work with the Property Owners to determine appropriate modifications to the SHA's Covered Activities and conservation measures to either avoid or minimize incidental take of any newly listed species. If the Property Owners wish to cover the species, they may apply for an additional permit or amend the SHA according to regulations to add coverage for the newly listed species.

Changed Circumstance	Potential Effect to Covered Species	Proposed Response
Change in Listing Status of a Covered Species	Conservation measures designed to benefit Covered Species may no longer be necessary.	A change in status from threatened to endangered would not require modification to the SHA or permit if the SHA is being implemented in compliance with the take authorization conditions for that species because the species is considered "Covered". If a Covered Species is delisted through a formal status review by the Service, then the SHA may be amended, as appropriate, to reduce or eliminate required measures for that species.

If additional conservation measures are deemed necessary to respond to changed circumstances and such measures were not identified in section 6.6.1 of this SHA, the Service will not require any conservation measures in addition to those provided for in the SHA without the consent of the Property Owner, provided the SHA is being properly implemented.

6.6.3 Unforeseen circumstances

Unforeseen circumstances are changes in circumstances affecting Covered Species or the geographic area covered by the SHA that could not reasonably have been anticipated by the Parties during development of the SHA, and result in a substantial and adverse change in the status of the species. The Service may require modifications to or additional conservation measures to respond to unforeseen circumstances and will consider whether failure to adopt changes to the conservation strategy would appreciably reduce the likelihood of survival and recovery of the Covered Species in the wild. However, changes to the existing conservation measures may only occur if such measures are limited to modifications within the SHA conservation strategy for the affected species, and only if those measures maintain the original terms of the SHA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the SHA without the consent of the Property Owners, provided the SHA is being properly implemented.

The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. The Service will consider, but not be limited to, the following factors:

1) Size of the current range of the affected species.
2) Percentage of range adversely affected by the SHA.
3) Percentage of range conserved by the SHA.
4) Ecological significance of that portion of the range affected by the SHA.

5) Level of knowledge about the affected species and the degree of specificity of the species' conservation program under the SHA.
6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

6.7 Modifications

After approval of the SHA, the Service may not impose any new requirements or conditions on, or modify any existing requirements or conditions applicable to, the Property Owners or successor in interest to the owner, to compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat covered by the SHA except as stipulated in the version of 50 CFR 17.22(c)(5) and 17.32(c)(5) at the time the SHA is signed.

Any party may propose modifications or amendments to this SHA, as provided in 50 CFR 13.23, by providing written notice to, and obtaining the written concurrence of, the other Parties. Such notice will include a statement of the proposed modification, the reason for it, and its expected results. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence.

6.8 Amendment of the Permit

The Permit may be amended to accommodate changed circumstances in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR 13 and 50 CFR 17. The party proposing the amendment will provide a statement describing the proposed amendment and the reasons for it, and must obtain written concurrence from the other Parties in order for the amendment to become effective.

6.9 Termination of the SHA

As provided for in Part 8 of the Service's SHA Policy (64 FR 32726, June 17, 1999), the Property Owners may, for good cause, terminate implementation of the SHA's voluntary management actions prior to the SHA's expiration date, even if the expected benefits have not been realized. If the SHA is terminated, the Property Owners are required to surrender the Permit at termination, thus relinquishing their take authority and the assurances granted by the Permit. The Property Owners are required to give 30 days written notice of their intent to terminate the SHA, and must give the Service an opportunity to relocate affected species within 60 days of the notice.

6.10 Suspension or Revocation

The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (50 CFR 13.28(a)). The Service may also, as a last resort, revoke the Permit if continuation of permitted activities would likely result in jeopardy of Covered Species (50 CFR 17.22/32(c)(7)). The Service will revoke because

of jeopardy concerns only after first implementing all practicable measures to remedy the situation.

6.11 Remedies

Each party will have all remedies otherwise available to enforce the terms of the SHA and the Permit, except that no party will be liable in damages for any breach of this SHA, any performance or failure to perform an obligation under this SHA or any other cause of action arising from this SHA.

6.12 Dispute Resolution

The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

6.13 Succession and Transfer

This SHA will be binding on and will inure to the benefit of the Parties and their respective successors and transferees (i.e., new owners) in accordance with applicable regulations (50 CFR 13.24 and 13.25). The rights and obligations under this SHA will be bound to the ownership of the Property and are transferable to subsequent non-federal Property Owners pursuant to 50 CFR 13.25. The Permit issued to the Property Owners also will be extended to the new owner(s). As a party to the original SHA and Permit, the new owner(s) will have the same rights and obligations with respect to the Property as the original owner. The new owner(s) also will have the option of receiving SHA assurances by signing a new SHA and receiving a new permit. The Property Owners will notify the Service of any transfer of ownership, so that the Service can attempt to contact the new owner, explain the particular responsibilities applicable to the Property, and seek to interest the new owner in signing the existing SHA or a new one to benefit the specific species addressed in the SHA. Assignment or transfer of the Permit will be governed by Service regulations in force at the time.

6.14 No Third-Party Beneficiaries

This SHA does not create any new right or interest in any member of the public as a third-party beneficiary, nor will it authorize anyone not a party to this SHA to maintain a suit for personal injuries or damages pursuant to the provisions of this SHA. The duties, obligations, and responsibilities of the Parties to this SHA with respect to third parties will remain as imposed under existing law.

7.0 Signatures

U.S. Fish and Wildlife Service IN WITNESS WHEREOF, THE PARTIES HERETO have, as of the last signature date below, executed this Safe Harbor Agreement to be in effect as of the date that the Service issues the Permit.

_____	_____
Forrest Hart Authorized Agent	Date
_____	_____
Jenny Ericson, Field Supervisor Yreka Fish and Wildlife Office	Date

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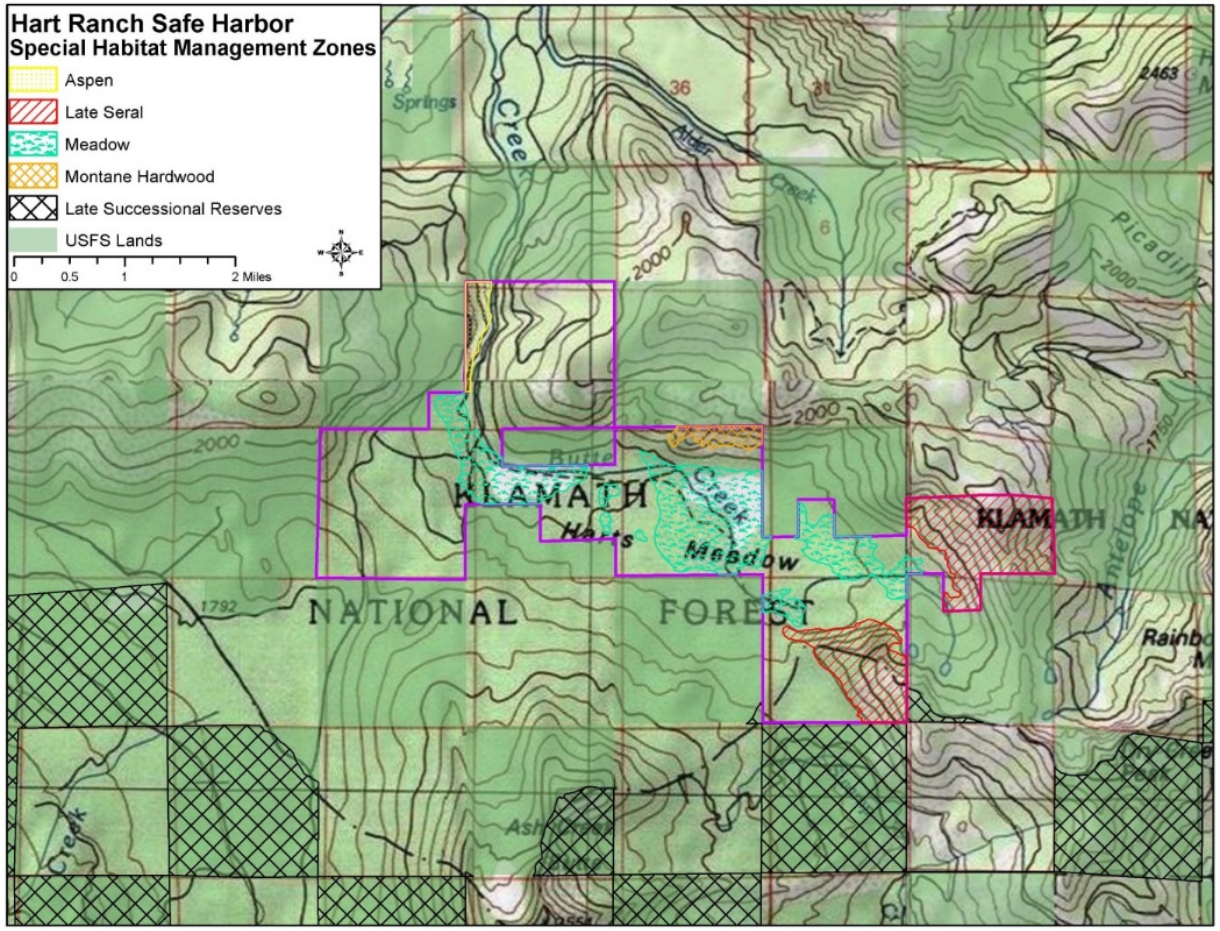
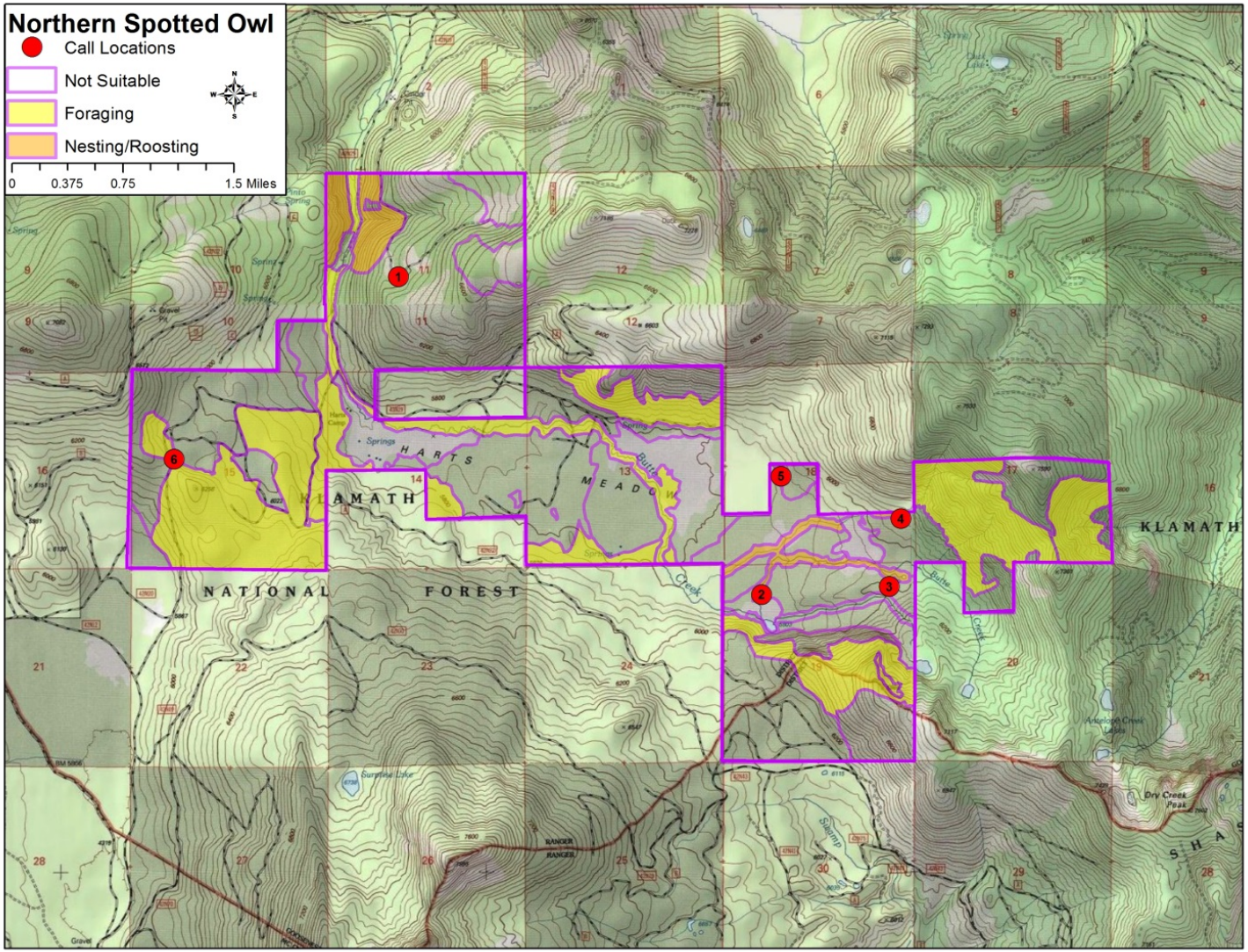
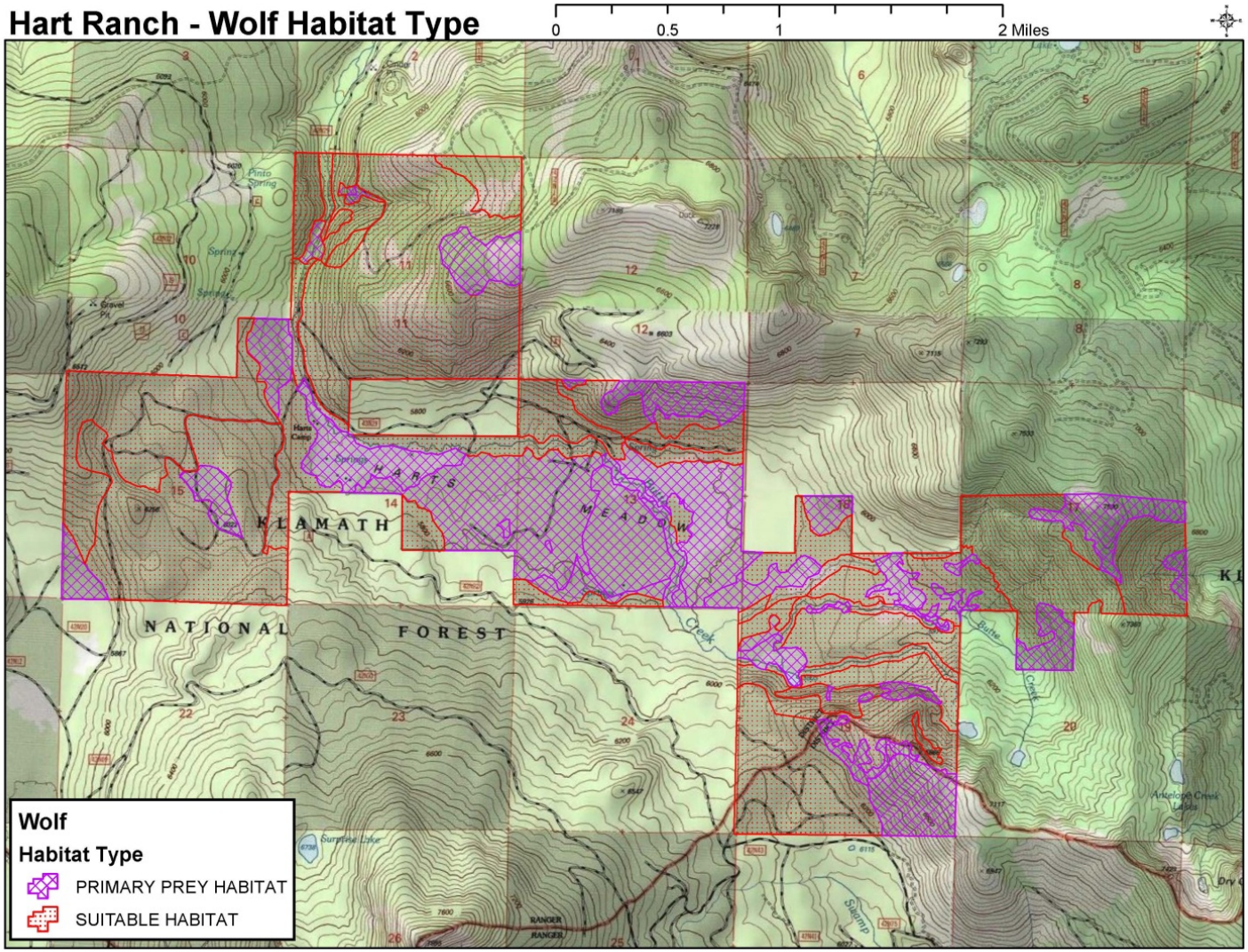
Appendix A: Maps



Map 1: Special Habitat Management Zones within Butte Creek Ranch Property



Map 2: Northern Spotted Owl Habitat and Survey Locations on Butte Creek Ranch Property



Map 3: Gray Wolf Habitat on Butte Creek Ranch Property

Appendix B: Special Habitat Management Zones[1]

	SHMZ Name	Habitat Type	Estimated Acreage	Habitat Management Goals
1	Butte Creek Headwaters	Mature Forest, Springs, Wet Meadow and Riparian Vegetation	327	Where applicable within SHMZ: - Maintain or enhance mature forest or late-seral forest compositional and structural diversity, with an emphasis on snags, downed woody debris, large diameter conifer and hardwood trees (< 30" DBH) and trees with distinctive habitat features. - Maintain and enhance diversity of native shrubs, forbs and grasses in the under story and forest openings. - Maintain and enhance existing aspen stands, or areas where local conditions suggest a greater extent. - Maintain and enhance the grass/forb meadow habitat complex and riparian conditions, allowing for fluctuations in vegetative composition as hydrologic Conditions vary over time. - Maintain streambank stability and prevent sedimentation of streamflows.
2	Upper Meadow	Wet Meadow	444	- Maintain and enhance the grass/forb meadow habitat complex and riparian conditions, and expand the range of wet meadow habitats within designated zone boundaries where local conditions suggest a greater extent, allowing for fluctuations in vegetative composition as hydrologic conditions vary over time. - Maintain streambank stability and prevent sedimentation of streamflows.

[1] From Exhibit E of the Easement

	SHMZ Name	Habitat Type	Estimated Acreage	Habitat Management Goals
3	Lake	Wet Meadow	27	See #2 for Goals
4	Lower Meadow	Wet Meadow	196	See #2 for Goals
5	Montane Hardwoods	Montane Hardwoods	47	Maintain and/or enhance early-seral habitat remnants, allowing for variability in vegetative composition as natural conditions vary over time.
6	Cliffs	Mature Forest	208	Maintain or enhance mature forest or late - seral forest compositional and structural diversity, with an emphasis on snags, downed woody debris, large diameter
7	Aspen	Aspen	51	Maintain and/or enhance existing aspen-, cottonwood -, or other hardwood-dominated riparian habitats , and expand range within designated zone boundaries

Appendix C: Butte Creek Draft HEP: 2018 Livestock Grazing Management and Monitoring Plan for Special Habitat Management Zones

Introduction

The Hart Ranch is located in Siskiyou County, California, and is comprised of two main tracts of land: the Valley Floor Ranch located in the Little Shasta Valley and the Butte Creek Ranch, a mountain property located off the north eastern margin of Mount Shasta.
The Hart Family has strived to use best management practices in order to realize environmental as well as economic benefits from these ranch properties, and takes pride in this legacy as exemplified by the establishment of the Butte Creek Ranch Working Forest Conservation Easement (BCCE) guaranteeing a working and healthy landscape in perpetuity in partnership with the BCCE Grantee, the Pacific Forest Trust (PFT).

Purpose

Livestock grazing is allowed at 270 Animal Unit Months (AUM's) as per Exhibit D of the BCCE. Livestock grazing is only allowed within Special Habitat Management Zones (SHMZ's) if it is in accordance with a Habitat Enhancement Plan (HEP) as per paragraph 6 of the BCCE. The Performance Goals for the four SHMZs (Butte Creek Headwaters, Lake, Upper Meadows and Lower Meadow) which are the subject of this Draft HEP per Exhibit E are listed in Table 1.

Table 1. Habitat Management Goals (Exhibit E of the Conservation Easement)

HMZ Name	Habitat Type	Estimated Acreage	Habitat Management Goals
Butte Creek Headwaters	Mature Forest, Springs, Wet Meadow and Riparian Vegetation	327	Where applicable within SHMZ: Maintain or enhance mature forest or late-seral forest compositional and structural diversity, with an emphasis on snags, downed woody debris, large diameter conifer and hardwood trees (< 30" DBH) and trees with distinctive habitat features. Maintain and enhance diversity of native shrubs, forbs and grasses in the understory and forest openings. Maintain and enhance existing aspen stands, or areas where local conditions suggest a greater extent. Maintain and enhance the grass/forb meadow habitat complex and riparian conditions, allowing for fluctuations in vegetative composition as hydrologic conditions vary over time. Maintain streambank stability and prevent sedimentation of streamflows.
Upper	Wet Meadow	444	Maintain and enhance the grass/forb meadow

HMZ Name	Habitat Type	Estimated Acreage	Habitat Management Goals
Meadow			habitat complex and riparian conditions, and expand the range of wet meadow habitats within designated zone boundaries where local conditions suggest a greater extent, allowing for fluctuations in vegetative composition as hydrologic conditions vary over time. Maintain streambank stability and prevent sedimentation of streamflows.
Lake	Wet Meadow	27	See #2 for Goals
Lower Meadow	Wet Meadow	196	See #2 for Goals

The Hart Ranch is currently developing the HEP for SHMZs in coordination with California Department of Fish and Wildlife (CDFW) for PFT approval. This Draft-HEP with associated monitoring will serve to inform the final HEP as well as ongoing Safe Harbor Agreements (in development), and Working Forest Management Plan. CDFW and the Hart Ranch are cooperating to monitor impacts to SHMZ's by livestock grazing in order to satisfy the requirements of the easement in advance of the final HEP. As stated in the BCCE, PFT and Hart Ranch will also review the impacts of grazing together annually as part of PFT's monitoring of the BCCE.

Monitoring

It has been agreed that on-site inspection and photo point monitoring is the most effective method for determining the baseline impacts from the 2018/19 grazing seasons. The Hart Ranch will graze livestock with standard Hart Ranch practices and within the terms of the BCCE. Pre and post photo points and of SHMZ's and inspections by CDFW will occur. Parties recognize the dynamic nature of the monitoring and will collaborate ensure the success of Hart Ranch cattle grazing activities during this transitional period of long term plan development.

Per standard Hart Ranch Management practices, cattle presence and range utilization will be monitored regularly by Hart Ranch staff. Hart Ranch will ensure that onsite staff will be scheduled in excess during the 2018/2019 season to meet monitoring responsibilities and CDFW will ensure staff are available to monitor photo points and conduct onsite inspections as needed.

Additionally, during the 2018 grazing season Hart Ranch will employ a certified Range Steward for the purposes of monitoring cattle grazing/usage patterns while concurrently practicing range reconnaissance methods such as perimeter surveillance, and camera monitoring as tools for mitigating potential cattle/predator interface risks. Field notes will be maintained for the purposes of baseline establishment and database construction. Surveillance will be conducted either by foot, horseback, and/or bicycle using established Range Steward techniques in close

association with accredited range biologists and agency personnel .

As in the past seven years, Hart Ranch maintains the "Butte Creek" dams in a group throughout the entire year without comingling with other cattle. Though 'new-rookie' cows are added to the group each May; the social network remains strong with roughly 80% of returning dams. This social network adds to the herding; grouping and reticence to wander or splinter into subgroups to any significant degree. Hart Ranch seedstock continue to be selected based on feed efficient genetics and docility as lead Expected Progeny Differences (EPDs). All cattle are handled in accordance with Global Animal Project husbandry Level 4-Beef objectives and using techniques developed by Bud Williams and Dr. Temple Grandin.

Based on feed conditions and utilization, cattle will be moved as needed to address any concerns evidenced by monitoring within and around SHMZs. Salt box placement will be closely monitored and altered if conditions warrant.

Cattle will be limited to the greater area known as the Lower Meadow from July 6thth to a time when conditions including but not limited to feed usage, riparian pressure, cattle ranging out of the primary meadow dictate their relocation to the greater area known as the Upper Meadow. Historically, the time spent in the Lower Meadow has been 16 to 28 days, with an average flash grazing exposure of 18-24 days. Cattle are kept in the Lower Meadow by human "out-rider" presence as well as barriers such as cattle guards and temporary drift fences. There is a drift fence that separates the areas of the Upper and Lower Meadows to cattle passage.

While in the Lower Meadow area, cattle will range to the west margins generally and up into glades and timbered areas uphill and to the north of the lower cabin. Cattle generally will graze out but return to the main meadow on a daily basis.

Once the cattle are moved to the Upper Meadow the general pattern is that they will graze primarily in the Meadow proper for 10-16 days then gradually begin to range out to areas towards the lake and the timber and associated glades to the east and gradually towards the headwaters. The general practice of influencing their grazing patterns by salt location will be monitored more aggressively as conditions demand for the current grazing period. Human presence in daily circling and pressuring the herd away from the of the Butte Creek Headwaters and Lake will also be prominent this season and in particular during the last half of August and first days of September.

The continued presence of nutrient rich feed in 2017, and the anticipated high nutrient rich feed this grazing year coupled with the amounts of forage seen in areas where thinning operations were conducted in 2012 will likely again contribute positively to keeping the cattle more sequestered and less likely to range out of the greater Meadow area.

Timeline
June:

- Range monitoring for moisture content, meadow growth, and access road conditions

- Field cameras installed and monitoring initiated – as part of Hart Cow/Predator preparedness plan – (cameras installation/set-up completed by May 27, 2018.
- Prepare cattle for range- collecting pre-turnout data –pregnancy –ultra sound checks; with weights.
- Pre photo points established and SHMZ inspections by CDFW

Photo Point Number	Description
1	Lodgepole pine serving as a well-marked property corner at boundary between the Property and U.S. Forest Service land
2	Small aspen stand in the Butte Creek Headwaters. Willow in the foreground and conifer in the background
3	Disturbed area caused by avalanche or land slide on steep slope. Early seral conditions exist, primarily manzanita, with young red fir beginning to establish.
4	View of property in foreground. Upper Meadow (closer) and Lower Meadow (farther) can both be distinguished, along with undisturbed forestland. Note: Disturbance near top of hill in the background is not on Property.
5	Habitat structure typical of Butte Creek Headwaters SHMZ. Note the close proximity of meadow habitat to pockets of timber stands consisting of large trees, snags, and other late seral qualities. Existing riparian vegetation can be seen in the foreground in the form of willow.
6	Another aspen grouping at the meadow's edge
7	Habitat typical of the Upper Meadow SHMZ
8	Habitat typical of the Lake SHMZ. Note the multiple channels and prevalence of standing water throughout the meadow.
9	Cliff area as incorporated into Cliffs SHMZ.
10	Meadow restoration area on the Upper Meadow. Montane Hardwood SHMZ can be seen on the hill in background
11	Cabins within the Upper Meadow Development Zone
12	Photo taken in same location as 11a, but facing 180 degrees back toward Upper Meadow.
13	Gate at the southern boundary of the property. Immediately to the west (right) is a catch pen used during annual cattle drive. (Update June 2015. The gate has been replaced by a new gate, of the same style as the gate in Photo 20).
14	Representative post-harvest forest conditions in areas harvested in Section 15 of Forest Management Zone between 2008 and 2012 under the most recent THP.
15	Hart cabin in Lower Meadow Development Zone. Not pictured, but contained with the Zone: three sheds, and an outhouse.
16	One of the largest aspens in the Aspen SHMZ. Photo taken from the access

	road, looking across Butte Creek to the opposite bank.
17	Butte Creek in the Lower Meadow SHMZ, near the Hart Camp Development Zone. Photo taken by Dick Sumner, June 2015. Exact location unknown.
18	Butte Creek in the Lower Meadow SHMZ. Photo taken by Dick Sumner, June 2015. Exact location unknown.
19	Close up of Montane Hardwood SHMZ using telephoto lens from valley floor. Photo taken by Dick Sumner, June 2015.
20	New gate placed at the north entrance to the property. Photo taken by Dick Sumner, June 2015.

July 5-6th :

- Hart Ranch cattle drive, with cattle reaching Butte Creek lower meadow mid-day July 6th. 100-120 cow/calf pair will be turned out with exact number to be reported as counted through "Holding Pen gate"

July 7th – September 4th:

- Cattle will be grazing on the ranch as noted above under monitoring – with presence of Range Steward

September 5th -6th

- Cattle gathered and driven to Holding Pen; Hart Cattle Drive to valley floor ranch

September- Mid November:

- Post grazing photo monitoring conducted; winterization – all fencing grounded.
- Continued camera monitoring stations with documentation – (trespass by USFS permitee cattle was observed in 2017)
- Post photo points established and SHMZ inspections by CDFW
- Post range evaluations- pregnancy ultrasounds/weights

Plan Management – Hart Ranch

While the Butte Creek Ranch is owned by multiple parties, the cattle grazing operations are solely under the management of Hart Cattle Inc, Blair Hart, manager.
Contact point for Butte Creek Grazing/Monitoring- Draft HEP Plan: Blair Hart 530-598-1051 and/or Susan Hart 530-598-1058.

Appendix D: Summary of Easement Restrictions and Associated Monitoring Methods that Pertain to the SHA

Restriction	Method	Frequency
Entire Property		
-Any residential use or the maintenance, construction, reconstruction or placement of any residential structures of any kind additional to the two (2) cabins already existing on the Property, located in the Development Zones and identified in the Report, is prohibited. Notwithstanding the foregoing, however, the existing cabins and associated Development Zones may be relocated by Grantor to an area outside of the designated SHMZs and RMZs as defined in this Easement and further described in the Report. In no event, shall the footprint of any future residence exceed one thousand and five-hundred (1,500) square feet and each cabin shall be confined to a Development Zone that shall not exceed one (1) acre in size. Prior to siting and reconstructing either of the cabins pursuant to this paragraph C, Grantor and Grantee shall identify the new Development Zone by mutual consent. In the event a Development Zone and associated cabin are moved, the existing Development Zone shall be decommissioned and Grantor shall remove all non-historic buildings and materials and shall revegetate the site with native species.	- Inspect property for presence of survey markers, flagging, construction materials, or other development related materials or activities - Contact Siskiyou County planning departments to inquire into building permit applications for Property APNs if physical evidence or observations suggest this is necessary.	Annually As needed
- Construction or placement of any non-residential structures or improvements of any kind outside of the Development Zones is prohibited, except as may be directly required for range management and forestry uses and activities permitted under this Easement and when the construction or placement of such structures is otherwise consistent with the Purpose, terms and conditions herein. Structures such as barns, livestock corrals or transportation-related facilities shall be located within a Development Zone to the greatest extent feasible. Specifically, the portable sawmill may be placed and used in naturally occurring forest openings or temporary ones made in the course of permitted Forest Management.	- Inspect property for presence of survey markers, flagging, construction materials, or other development related materials or activities - Review location of any structures/improvements in order to ensure the conservation values of the property are not negatively impacted - Contact Siskiyou County planning departments to inquire into building permit or other relevant permit applications for Property APN's	Annually Annually As needed

Restriction	Method	Frequency
Grazing of livestock or related management activities shall only be conducted in a Special Habitat Management Zone, as defined below in paragraph N, in accordance with a Habitat Enhancement Plan prepared for Grantor in consultation with CDFW and approved by Grantee, pursuant to paragraph 6 of this Easement. Grantor and Grantee shall review the impact of management activities every year during the regular monitoring visit, and the Habitat Enhancement Plan itself will be thoroughly reviewed and updated as needed every five (5) years to ensure that management activities are consistent with maintaining the health of the ecosystem and related goals, unless Grantor and Grantee mutually agree that such an update is unnecessary for that specific five (5)-year period.	- Inspect aerial imagery - Review Habitat Enhancement Plan in cooperation with CDFW. Provide written response to Grantor within 45 days. - Inspect operations for consistency with Habitat Enhancement Plan	When available Every 5 years, or as needed Annually
Within the first five (5) years from the Effective Date of this Easement (the "Transition Period"), livestock grazing shall not exceed two-hundred and seventy (270) Animal Unit Months (AUMs), as described in the USDA's Natural Resource Conservation Service's National Range and Pasture Handbook and further described in the Report, per calendar year. After the Transition Period, livestock grazing on the Property shall not exceed one-hundred and eighty (180) AUMs per calendar year. Further, livestock shall not be grazed on the Property prior to July 1st of any year without the prior written approval of Grantee.	- Inspect property for evidence of grazing activity - Procure written documentation from Grantor regarding number of cattle grazed - - Confirm that no cattle are on property prior to July 1st by field visit or other means	Annually Annually Annually

Restriction	Method	Frequency
- Construction of new roads and stream crossings or expansion of existing roads is restricted to roads as may be directly required for uses and activities permitted herein; provided, however, that road and stream crossing construction, expansion or reconstruction shall be otherwise consistent with the Purpose, terms and conditions of this Easement. Roads shall be constructed and maintained so as to minimize erosion and sedimentation and ensure proper drainage, utilizing Best Management Practices as recommended by CDFW. Roads that are abandoned, permanently closed and/or decommissioned shall be revegetated with native species, stabilized and ensured of proper drainage. In no event shall new road construction occur on slopes exceeding sixty percent (60%) or within a SHMZ without prior approval of Grantee.	- Inspect roads for signs of construction - Review any construction or maintenance work with respect to Best Management Practices recommended by CA Department of Fish & Wildlife (CDFW) - Query regional CDFW office for "Lake and Streambed Alteration" permits: Northern Region 601 Locust Street Redding, CA 96001 Public Information: (530) 225-2300 Fax: (530) 225-2381 - Inspect decommissioned road sites - Measure slopes along and review locations of proposed new road sites - GPS new roads and update roads layer in stewardship GIS when road construction, expansion or decommissioning occurs - Inspect aerial imagery	Annually As needed Annually As needed As needed As needed At least every 5 years
- Motorized vehicles shall not be used off roads, except directly in connection with permitted Forest Management, range management, conservation or wildlife management activities and when otherwise consistent with the Purpose, terms and conditions herein.	- Inspect areas adjacent to roads/ trails - Inspect property boundaries, especially at access points	Annually Annually

Restriction	Method	Frequency
-Special Habitat Management Zones: *See Exhibit E of the Conservation Easement for a table of the SHMZ types and respective habitat goals and approximate acreages for each.*	- Review Habitat Enhancement Plan for each SHMZ - Consult with the CDFW during review of plans - Review timber inventory to ensure SHMZ timber volumes are included - Visit SHMZs prior to initiation of management activities prescribed in the habitat enhancement plans to document pre-activity conditions - Inspect perimeter and interior of SHMZs post-activity for consistency between Habitat Enhancement Plans, management goals and site conditions - Update stewardship GIS based on activities under the Habitat Enhancement Plans for which georeferenced (via GPS or aerial imagery) points or polygons are used for monitoring - Inspect aerial imagery	Within 30 days of receipt During review Annually Pre-activity Post-activity As needed At least every 5 years

Restriction	Method	Frequency
Within the Forest Management Zone		
Forest management		
-Definition of Forest Management: As used herein, "Forest Management" shall consist of all forest management activities allowable under law, including the harvesting, pruning, or other treatments, and removal of any and all forest products by any and all current and future harvesting and removal methods and techniques, as well as site preparation and reforestation, allowable under law.	- Review forest management activities for consistency with definition	Annually

-Easement Performance Goal: Forest Management Plans and activities developed and undertaken by Grantor will seek to achieve and sustain the desired forest condition described in this paragraph (the "Performance Goal") over time. It is the intent of each Party to ensure that Forest Management activities that are undertaken on the Property, including timber harvesting, enhance, restore, and maintain complex, mature, native forest ecosystems, especially those forest types presently on site while allowing for natural changes. In general, Forest Management will seek to achieve the following characteristics, allowing for variability across the landscape and over time: *(a) A mix of dominant tree species including White Fir, Red Fir, Ponderosa Pine, Lodgepole Pine, Mountain Hemlock and other associated conifers, as well as important hardwood species such as Black Oak, Alder, Aspen, Willow and Cottonwood with relative composition depending on elevation, aspect and moisture;* *(b) In general, a structurally complex multi-story forest canopy of variable densities and heights with a mosaic of open vertical space, allowing for scattered forest openings occurring due to natural disturbances, mortality and timber harvesting;* *(c) A range of age classes and seral stages distributed across the landscape, from seedlings and early seral openings to late seral trees and late seral functionality; including at least twenty percent (20%) of conifer volume in trees greater than 30 inches in diameter at breast height (DBH) ("Big Conifers");* *(d) Standing dead trees ("Snags"), downed logs and large woody debris ("LWD") on the forest floor, including at least two (2) conifer snags greater than nineteen (19) inches DBH and at least one (1) conifer snags between ten (10) and nineteen (19) inches DBH, on average per acre; one (1) downed LWD log greater than nineteen (19) inches large-end-diameter; and at least three (3) downed LWD logs greater than ten (10) inches and less than nineteen (19) inches large-end-diameter on average per acre. For purposes of this Easement, a "Snag" is defined as any dead, standing tree in excess of twelve (12) feet in height;* *(e) Conifer and hardwood trees having features of structural decadence (including, for instance, large diameters, flat tops, large lateral branches, or loose, thick bark) or significant wildlife value (including, for instance, cavities in the base or stem, broken or re-grown tops, or other nesting platforms) well distributed across the landscape ("Wildlife Trees") at densities that average three (3) such trees per acres;* *(f) Riparian Management Zones ("RMZs") with natural vegetative composition typical of riparian areas, including Big Trees and large hardwood trees, in multi-storied stands that provide shade, stabilize soils, minimize sedimentation, and allow for recruitment of large wood debris ("LWD") into streams; and*	- Review updated timber inventories with respect to past inventories, baseline conditions, and progress toward Performance Goal conditions. - Inspect aerial imagery to ensure updated inventory and management plans capture all past forest management.	At least every 10 years At least every 10 years

Restriction	Method	Frequency
(g) Floristically diverse early seral forest openings and non-forest habitats on portions of the Property, inclusive of the SHMZs, to the extent feasible.		
Forest Management Plan: Forest Management shall be conducted in accordance with a written plan prepared by Grantor setting forth Grantor's long-term plan for management of the Property as a working forest (the "Forest Management Plan") consistent with the Performance Goal, and the other terms and conditions of this Easement. The purpose of the Management Plan is to describe the activities that the Grantor intends to undertake so that potential issues that may arise out of operations can be identified, addressed and resolved in advance of the commencement of on the ground activities. *Either within five (5) years following the Effective Date of this Easement or prior to when Forest Management is anticipated, whichever occurs earlier, Grantor shall prepare, and provide to Grantee for its review, the Forest Management Plan for the Property pursuant to paragraph 7 of this Easement.*	- Review long-term forest management plan for consistency with management plan requirements, easement performance goals, and other easement restrictions - Visit the Property to review specific sites addressed in management plan	Within 30 days of receipt Every 10 years, (as needed for FMP review)
Grantor shall update the long-term forest management plan and inventory every ten years to reflect the condition of the Property as it changes over time and as management activities are implemented. If timber harvest is not planned for a decade, Grantor may defer the required updates until a harvest is planned. In no event will harvests occur without a plan and inventory current for the decade. All Forest Management Plans or amendments shall be provided to Grantee for review as provided for in paragraph 4 above.	- Review management plan updates with respect to Property conditions at the time of each update - Remind Grantor of update requirement if management plan has not been updated easement closing	Within 30 days of receipt Spring 2025
Specific Restrictions on Timber Harvest:		
Silvicultural Systems: Uneven aged management silvicultural systems shall be utilized, including individual selection, group selection, sanitation salvage, commercial thinning, or similar techniques. Opening sizes created through Forest Management may not exceed five (5) acres; provided, however, the opening size cannot exceed one-quarter (.25) acre on slopes 60% and greater or on soils with high erosion hazard ratings.	- Review management plan with respect to CE requirements - Pre and post harvest inspection of cutting units to verify opening sizes and silviculture. - Long term aerial photo and GIS monitoring of cutting units	Within 30 days of receipt Annually, pre and post harvest GIS annually, photos at least every 5 years

Restriction	Method	Frequency
Maximum harvest volumes: Timber harvests may not remove more than twenty percent (20%) per decade of Net Merchantable Forest Inventory following establishment of this Easement as measured in Scribner short log board foot volume or another mutually acceptable unit of measurement. Such allowable harvest is measured against inventory at the beginning of each decade.	- Obtain and review submissions to: CA Board of Equalization 50 D Street, Room 203 Santa Rosa, CA 95404-4791 Phone: (707) 576-2100 Fax: (707) 576-2781 - Review reported harvest volume (State Board of Equalization Yield Tax Records) against calculated allowable cut for the decadal inventory period.	Annually Annually
<u>Minimum leave stand:</u> After any uneven-aged timber harvest, the leave stand for that harvest unit shall contain a distribution of native tree species consistent with the site and the Performance Goal of this Easement, with a preponderance of such leave trees to be windfirm, with full crown and able to promote regeneration of trees with high quality genetic characteristics; provided, however, that trees with significant habitat values shall also be given preference for retention, such as dominant and co-dominant conifers, large diameter conifer (especially ponderosa pine and Douglas fir trees 30 inches DBH or greater) and hardwood trees (especially oak trees 24 inches DBH or greater), and Wildlife Trees	- Review management plan and NTMP with respect to CE requirements - Pre and post harvest inspection of cutting units to verify retention components.	Within 30 days of receipt Annually, pre and post harvest
<u>Snags.</u> In general, snags shall be retained for wildlife habitat benefits and shall not be intentionally removed, except for reasons of prevention of epidemic levels of insect infestation and disease, wildfire control, or forest worker and public safety.	- Inspect pre and post harvest for evidence that snags were removed in course of management activities	Pre and post harvest