Updated Precious Lands Wildlife Area Management Plan

March 2017

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for
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PROJECT ID #199608000

TABLE OF CONTENTS

A. INTRODUCTION AND BACKGROUND

Project Purpose

The Nez Perce Tribe (NPT) has developed this management plan for the 16,286 acre Precious Lands Wildlife Management Area located in northern Wallowa County, Oregon and southern Asotin County, Washington (**Figure 1**). This plan outlines the NPT's strategy for mitigating wildlife habitat losses incurred from construction of the four lower Snake River dams. The project was developed under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (P.L. 96-501), with funding from the Bonneville Power Administration (BPA).

The purpose of this plan is to permanently mitigate and protect wildlife and wildlife habitat to address a portion of the mitigation goal identified in the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program (2014). The plan updates the original management plan that was completed in 2003 (Sondenaa and Kozusko 2003) to include new property information and a more adaptive management framework for decision-making. Much of the ecological context, site descriptions, and management strategies have been retained from the original plan.

This plan is expected to provide management context and guidance for the next 10 years until 2027, unless updated sooner. The Nez Perce Tribe Wildlife Division is responsible for project management under the supervision of project leader Angela Sondenaa. Dr. Sondenaa has been with the project since 1998 and leads a staff of three who also have long tenures with the project. Blair McClarin is the lead field biologist and a 15-year veteran of the project. Crew leader Louie Scharnhorst (12 years) works closely with wildlife technician Riley Lozon (10 years) to implement day-to-day activities on the project.

Project Origins and History

In 1995, the NPT submitted the "Northeast Oregon Wildlife Project" (1996-080-00) to BPA for potential funding under the Northwest Power Planning Council's Fish and Wildlife Program. The project was subjected to a National Environmental Policy Act (NEPA) review (BPA and NPT 1996), which resulted in a Finding of No Significant Impact (BPA 1996). Following the NEPA review, the proposal was funded and a Memorandum of Agreement (MOA) between NPT and BPA was signed in September 1996 (**Appendix A**). The resultant contract (96 BI 97175) called for the purchase of approximately 16,500 acres of wildlife habitat using funding provided by BPA. The habitat units (HUs) protected under this contract will be credited to BPA as habitat permanently dedicated to wildlife and wildlife mitigation for construction of the four lower Snake River dams.

The first land purchase occurred in November 1996 and consisted of 10,306 acres located in the Joseph Creek watershed in northern Wallowa County, Oregon. The area consists primarily of canyon grasslands with scattered shrub fields and conifer stands. In September 1998, an additional 158 acres was added along the western rim of Joseph Canyon. This area has gentle topography and deep soils that result in high wildlife values. Approximately 57 acres was under agricultural production for Christmas and ornamental trees.

The next 1,541 acres was purchased in August 1999 and is located in the Buford Creek watershed of the Grande Ronde River. This parcel is another piece of canyon grassland habitat with scattered shrub fields and a few conifer stands. In addition, there are 123 acres in wheat and hay production. The next

purchase occurred in October, 2000 when the NPT liquidated 153 acres (including the 57 acres in commercial tree production) and acquired 3,472 acres within the Joseph Creek drainage.

The last purchases occurred in 2005 when the state of Oregon decided to offer four parcels co-mingled with the Precious Lands area for public disposal. The Nez Perce Tribe successfully acquired 961 acres through open public bid. The current acre total is 16,286 (**Table 1**).

Table 1. Land Purchase History

Date	**Tract Name**	**Acres**	**Cost**
Oct 1996	Helm	10,306	$2,660,674.00
Sept 1998	Graham Tree farm	158	$402,453.00
Aug 1999	Beach Ranch	1,541	$628,254.00
Oct 2000	Jackman	3,320 (net)	$590,741.00
Aug 2005	Oregon Division of Lands #1	760	$228,486.40
Sept 2005	Oregon Division of Lands #2	201	$50,378.64
	Total	16,286	$4,560,987.04
	Average Cost/Acre =	**$280.06**	
Note: The Jackman purchase included a land exchange involving the Graham Tree Farm tract which the NPT relinquished value for value to acquire additional acres of high quality wildlife habitat in Joseph Canyon.			

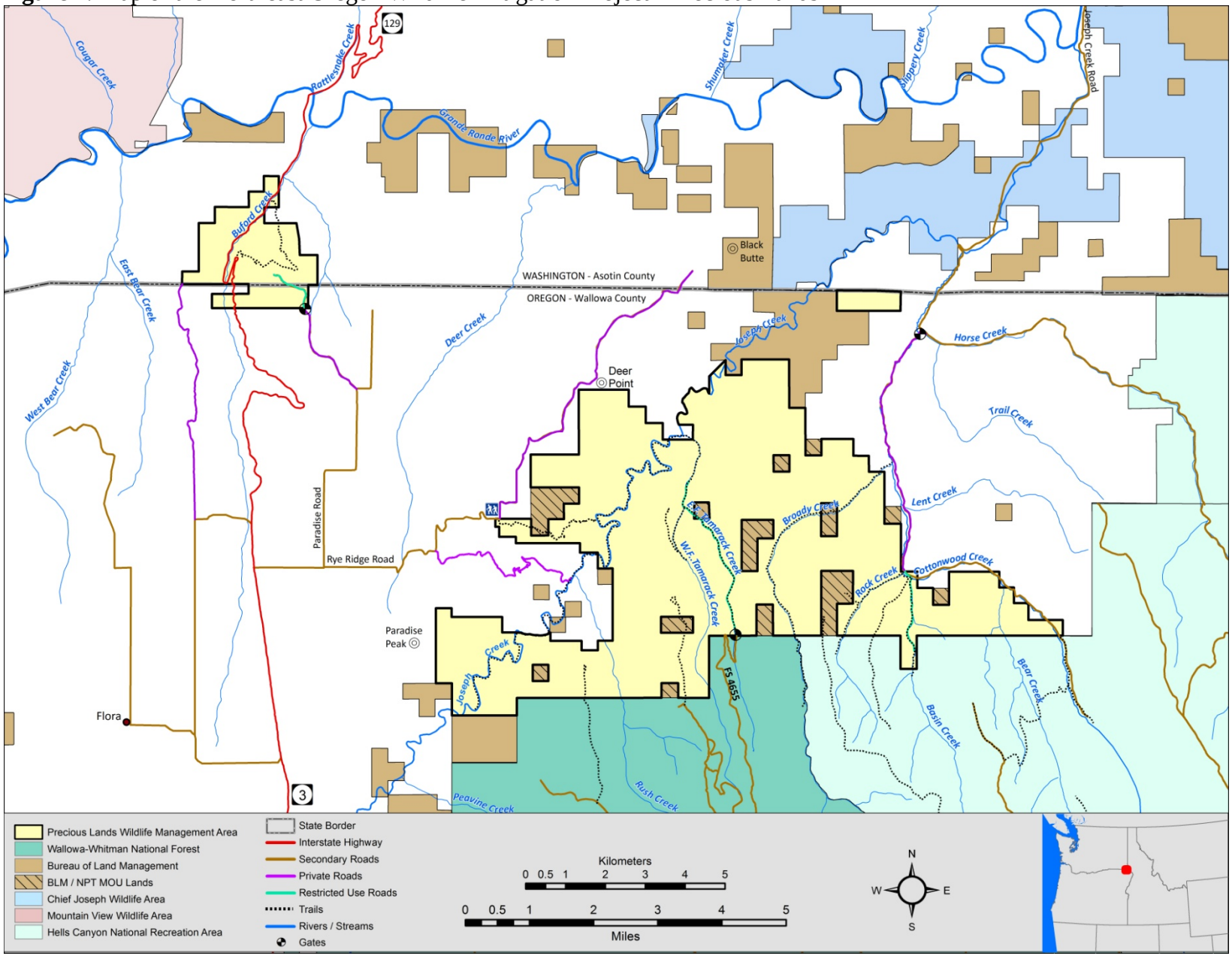
Historic and Current Land Uses

Prior to European settlement, the area was used by Nez Perce people (NiMiiPuu) for traveling from the beautiful Wallowa Valley to wintering sites along the Grande Ronde and Snake Rivers. Both Joseph and Cottonwood Creek are well-known travel corridors. Because of the low elevation of the area, it attracted elk, bighorn sheep, and mule deer that were used for subsistence during the winter months. The bunchgrass communities also provided roots, bulbs, and fresh greens to native inhabitants. After modern horses became available, the canyon grasslands were also used to graze NiMiiPuu horse herds.

Once European settlement occurred, much of the area was homesteaded for use as cattle ranches. Evidence of old homesteads can be seen throughout the area as dilapidated buildings, old fence lines, and remnant fruit orchards. Tax lot records indicate that numerous small parcels were purchased and consolidated over the years to form larger holdings, which made cattle and sheep ranching more feasible in the modern era. Flat benches, ridge tops, and valley bottoms were plowed for hay, grain or vegetable production wherever the soils were deep enough. The steep, rocky terrain of the canyons limited this type of use, however. Into the 1990's the primary economic activity remained livestock operations.

The Precious Lands Wildlife Area is bordered by private land in the north, east and west, and by the Wallowa-Whitman National Forest in the south (**Figure 1**). In addition, approximately 1,180 acres of Bureau of Land Management (BLM) in-holdings are co-mingled with the Precious Lands. These BLM parcels are passively managed by the NPT under a non-use grazing agreement and Memorandum of Understanding between the Nez Perce Tribe and BLM (**Appendix B**). There are no private in-holdings within the Precious Lands wildlife area.

Figure 1. Map of the Northeast Oregon Wildlife Mitigation Project --Precious Lands



Private properties in the area tend to be large with several parcels exceeding 6,000 acres. Cattle ranching, grain crops, hunting and other recreational uses are the primary activities occurring on the private property surrounding Precious Lands. Land management activities on the Wallowa-Whitman N.F. include timber harvest, livestock grazing, hunting, fishing, and recreational uses such as camping and hiking.

Livestock grazing was discontinued on the majority of Precious Lands in 1992 and on the Buford Unit in 2000.

For the purposes of this planning effort, three (3) Planning Units have been delineated. Boundaries were selected based on watersheds (Joseph and Cottonwood Units) or the fact that the parcels are discrete units surrounded by other landowners (Buford Unit, **Figure 2**).

B. CURRENT ECOLOGICAL SETTING

Habitat and Cover Types

Climate, topography and elevation all significantly influence the type and extent of plant communities on the wildlife area. North aspects are dominated by mixed conifer stands, shrub fields and, in previously burned areas, open woodlands containing tall shrubs with limited conifer regeneration. Idaho fescue and prairie junegrass communities can be found on north aspects not currently dominated by trees or shrubs.

South and west aspects are clearly dominated by bunchgrass communities, which is largely a function of moisture availability. These aspects receive more solar radiation over the course of a day, so are drier than either northern or eastern aspects. Lower moisture (due to higher evaporation) results in slopes dominated by drought tolerant grasses rather than shrubs or trees. Easterly aspects support all vegetation types found within the area. At higher elevations, east aspects tend to support more trees than at lower elevations where grasses predominate.

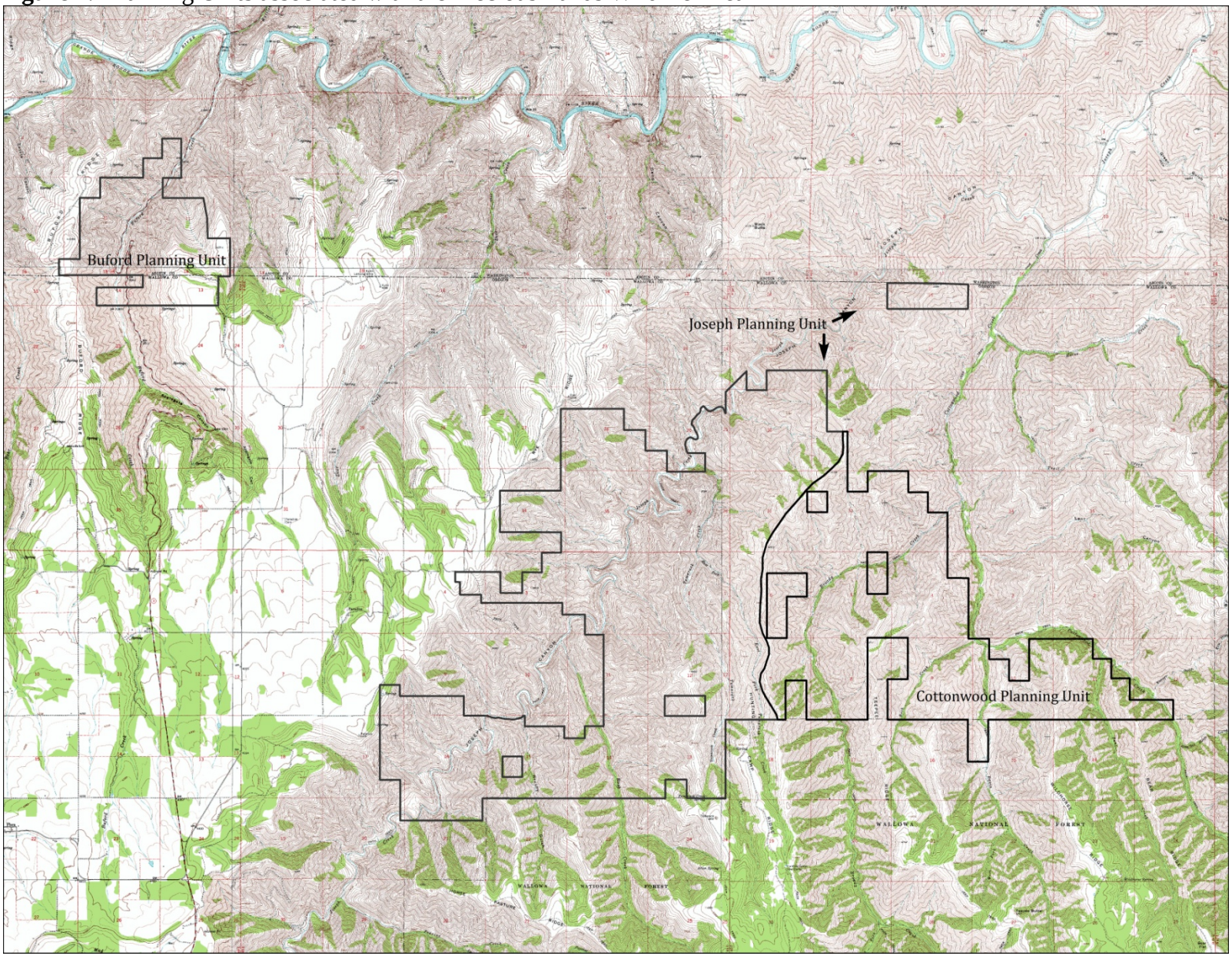
Streamside vegetation consists primarily of black cottonwood or white alder with diverse understory shrubs and the occasional Douglas-fir, larch or ponderosa pine. In a few sites, quaking aspen is a significant component of the riparian overstory. Moist draws, springs, and intermittent streams typically support dense thickets of black hawthorn.

For management purposes, and the Habitat Evaluation Procedures (HEP) assessments, plant communities have been categorized into one of five habitat types: grassland, conifer forest, riparian, short shrub (snowberry/rose), and tall shrub (ninebark/serviceberry/ocean spray). In addition to these terrestrial communities, Precious Lands also supports 16.6 miles of in-stream (riverine) habitat. Desired future conditions and management targets for each of these habitats are outlined in Section D below.

Grasslands

Precious Lands is overwhelmingly dominated by canyon grassland communities. Approximately 75% (12,062 acres) of the total area is classified as some type of grass community, which is typical of the canyon areas of the Snake and Grande Ronde Rivers. The dominant grass within the Precious Lands Area is bluebunch wheatgrass which is of critical importance to the wildlife species of the area. It is preferred

Figure 2. Planning Units associated with the Precious Lands Wildlife Area



forage for elk and deer on winter range, and provides an important seed source for small rodents and birds.

The other common bunchgrass on the wildlife area is Idaho fescue, which can either co-dominate a site with bluebunch wheatgrass, or prairie junegrass. The Idaho fescue/bluebunch wheatgrass association is typically transitional between the wetter, higher elevation Idaho fescue/prairie junegrass sites and the drier bluebunch wheatgrass communities of the steep canyon slopes (Johnson and Simon, 1987). North aspects support the more moisture loving Idaho fescue/prairie junegrass communities. These communities are often very rich in forbs and may contain rare species such as Spalding's catchfly. This is a relatively rare plant community within the Precious Lands because most northerly aspects support dense shrub fields or conifer stands.

Forests

Forested areas within Precious Lands are largely confined to north and east aspects due to high summer temperatures and low rainfall. Sites that support trees are typically narrow strips running from ridge top to canyon bottom along a slope, and rarely exceed 100 acres in size. Douglas-fir is the climax species on nearly all the areas that have been examined, with ponderosa pine and occasionally larch found as seral species. Some stands contain a relatively large number of old pine trees but the younger trees and most of the overstory is Douglas-fir. All stands have a significant shrub component consisting of ninebark, oceanspray, serviceberry, and common snowberry.

Ponderosa pine is found throughout the wildlife area but rarely creates a climax community. Pure ponderosa pine communities are rare throughout the Wallowa-Snake Province because they require drier conditions than what is typical (Johnson and Simon, 1987). This does not, however, diminish the importance of this species from a habitat standpoint. Many wildlife species utilize large diameter ponderosa pine for feeding, roosting, and foraging. Most notably, flammulated owls, pileated woodpeckers, and ruffed grouse all utilize live or standing dead pines for required habitat components.

Forested sites are a limited resource within the management area and only represent 12% (2,242 acres) of the total area, yet are disproportionately important to wildlife. Neotropical bird diversity is much higher in forested sites compared to grassland types (NPT, unpublished data). Forest areas also provide the structure required for cavity nesting birds, roosting bats, and other forest-dependant species. Additionally, stands with high canopy coverage are critical thermal cover and security areas for wintering big game animals (Lyon and Ward, 1982). Clearly, this is a cover type that should be protected and managed for its unique habitat values within this canyon grassland ecosystem.

Riparian

Riparian vegetation occurs along all perennial and intermittent waterways within Precious Lands. Moist draws also support moisture-loving shrub communities dominated by black hawthorn. Larger streams such as Cottonwood and Joseph Creeks support black cottonwood communities, while small tributaries often contain white alder as the dominant overstory tree. Douglas-fir, ponderosa pine, and occasionally larch, are also found throughout the riparian areas, and in the case of Broady and Rock Creeks, represent a significant constituency within the community. Aspen may also be present. One section of East Fork Tamarack Creek contains an aspen gallery along approximately 0.5 miles of the waterway.

Shrubs are an important component of all riparian areas, and in some cases make significant contributions to community diversity. Common understory shrubs include red osier dogwood, elderberry, syringa, thimbleberry, current, and the ubiquitous black hawthorn. Small trees are also present in the form of chokecherry, water birch and cascara. In some cases, black hawthorn forms a nearly impenetrable thicket of shrubs along intermittent waterways and moist draws. These areas are important for nesting birds and as escape cover for deer, grouse, cottontails, black bears, and many other species. The berries provided by riparian shrubs form the majority of the diet for neotropical birds, and black bears preparing for winter hibernation. The importance of these rich communities is further illustrated when one considers that only 4% (647 acres) of the Precious Lands Area supports riparian plant communities.

Important but often overlooked "riparian areas" are the communities that develop around seeps and springs. Typically these sites support dense shrub stands but they may also contain overstory trees such as black cottonwood or aspen. Often, these communities exist as islands in a sea of grassland, and as such, provide much needed vertical structure, shade, escape cover, nesting sites, perches, and drinking water. They may also harbor rare or unique plant species.

Shrub

In addition to their role in riparian communities, shrubs also develop unique, identifiable communities on north slopes and on deep soil toe slopes within the Precious Lands area. Shrub communities are an important component within the canyon grassland ecosystem. Approximately 7.5% of the area (1,234 acres) supports shrub communities of which about half occurs as tall shrub stands (641 acres) and half as short shrub stands (593 acres).

The ninebark community is the most extensive of the shrub fields within the management area. Ninebark, in association with snowberry and rose, forms dense thickets along canyon slopes with northerly aspects. These communities typically lack any tree component and possibly never supported trees even in the absence of fire (Johnson and Simon, 1987). These communities are heavily utilized by wildlife for cover, shade, and nesting. Songbirds appear to be particularly abundant within these shrub types (NPT, unpublished data). Ninebark is very resistant to fire and sprouts vigorously after being burned (Johnson and Simon, 1987) so it is uniquely adapted to the canyon ecosystem.

Snowberry-dominated shrub fields occur throughout Precious Lands on north aspects as inclusions within the Idaho fescue/prairie junegrass community type. Unlike the ninebark communities, these shrub patches rarely exceed one meter in height but may become quite thick. Rose is always an important component of this community and, along with snowberry, can provide important forage for wintering big game animals, and livestock (Martin et al., 1951).

Smooth sumac shrub communities are largely restricted to deep soil toe slope areas, and often occur between riparian areas and upland bunchgrass communities. Although these communities are rarely very large in extent, they nonetheless contribute to habitat diversity within the canyon ecosystem.

In-Stream

Streams are a vital and dynamic part of the Precious Lands landscape. Approximately 16.6 miles of perennial stream provides habitat for numerous aquatic species including threatened Snake River steelhead. Most of our stream have are in canyon bottoms with a cobble and course gravel substrate. A

stream survey conducted in 2006 showed a lack of habitat complexity, poor pool quality, and minimal large woody debris habitat features across most streams (**Table 2**).

Table 2. Basic habitat features of 14 sampled stream reaches from the 2006 fish habitat assessment.

Stream	Temp (^{0}C)*	# pools	Ave. Pool Depth (m)	% Canopy Cover	# Woody Debris	# Fish	# Steelhead
Joseph #3	15.5	1	0.73	50	0	137	7
Joseph #9	18	0	~	50	0	134	9
Joseph #10	17	1	1.39	55	5	287	6
Joseph #11	15.5	0	~	55	0	143	2
Joseph #12	16	0	~	55	0	184	18
Joseph #13	16.5	0	~	50	0	111	13
Joseph #16	13.5	0	~	50	0	174	4
Joseph #17	12	0	~	45	0	325	4
Joseph #18	10	0	~	17	0	165	11
Joseph #19	10	0	~	33	0	177	8
Broady	11.5	4	0.40	70	45	226	101
Basin	12	1	0.51	85	30	135	28
Bear	10	0	~	70	65	8	8
Cottonwood	14	2	0.65	65	0	358	96

*Surveys were conducted from mid August to late September with stream temperature taken in the morning so these data should not be interpreted as maximum daily summer temperatures which are expected to be higher.

The flood events of 1996-97 caused considerable damage to overstory vegetation in Joseph, Buford, and Cottonwood Creeks. Many large trees were uprooted and in some cases, severe down-grading occurred within existing stream channels. Since that large flood event, there has been active cottonwood recruitment and re-growth of the tree community. Flashy flows and peak water events will likely continue to be a factor for in-stream habitat on the wildlife area.

In addition to mainstem passage, high stream temperatures and loss of riparian vegetation are significant limiting factors for salmonid production within the Joseph Creek watershed. Protection and enhancement of streamside vegetation should improve shading and reduce sedimentation into the stream channel while also benefiting terrestrial wildlife species. A healthy overstory will also contribute to large woody debris recruitment, which was identified as a management concern in the lower reaches of Joseph Creek during a 1999 stream survey (Stein 2000).

Focal Fish and Wildlife Species

Target species were used to evaluate wildlife habitat values on the project. A modeling strategy known as Habitat Evaluation Procedure (HEP) was developed by the U.S. Fish and Wildlife Service (1980a, 1980b) and adopted by BPA as a habitat equivalency accounting system. Nine wildlife species models were used to evaluate distinct cover type features and provide a measure of habitat quality. Models measure a wide range of life requisite variables for each species, and monitor overall trends in vegetation community health and diversity.

Target (focal) wildlife species identified for the Precious Lands Area HEP analysis are: downy woodpecker, song sparrow, yellow warbler, western meadowlark, mule deer, chukar, California quail,

blue grouse, black-capped chickadee, and beaver. Originally, river otter was selected as a target species for riverine habitats but was replaced by beaver because of the lack of a suitable model for otter. The beaver model (Allen 1983) provides a more detailed evaluation of riparian community condition compared to the relatively simple otter model used during the Lower Snake Assessment. **Table 3** provides a description of the rational for selecting each species, and the habitat variables measured for each. Typically, simple variables such as shrub height or canopy cover (CC) are measured and used in simplistic habitat models for each species.

Table 3. Target wildlife species selected for the HEP analysis.

HEP Target Species, Rationale, and Model Variables		
Species	**Rationale for Selection**	**HSI Model Variables**
Downy Woodpecker (*Picoides pubescens*)	Selected to measure forested riparian habitats. Represents snag-dependant species.	V1: Square feet basal area/acre V2: # snags (>6" dbh)/acre
Song Sparrow (*Melospiza melodia*)	Selected to measure riparian shrub/woodland habitats.	V1: % canopy cover of shrubs <6 m tall V2: Ave height of shrubs <6 m tall V3: Ave distance to potable water (km)
Yellow Warbler (*Dendroica petechia*)	Selected to measure riparian shrub habitat. Species with declining population trend throughout its range.	V1: % canopy cover of deciduous shrubs <6 m tall V2: Ave height of deciduous shrub canopy (m) V3: % of shrub canopy consisting of hydrophytic species
Beaver (*Castor canadensis*)	Selected to measure riverine habitats and riparian vegetation. NOTE: Substituted for river otter.	V1: % tree canopy cover V2: % trees in the 1-6" DBH class (2.5 – 15.2 cm) V3: % shrub crown cover V4: Ave height of shrub canopy (m) V5: Species composition of woody vegetation V6: % lacustrine surface dominated by water lily V7: % stream gradient V8: Ave annual water fluctuation
Western Meadowlark (*Sturnella neglecta*)	Selected to measure grassland and shrub/steppe habitats.	V1: % herbaceous canopy cover V2: % herbaceous cover comprised of grasses V3: Ave height of herbaceous canopy cover in spring (cm) V4: Ave distance to perch (m) V5: % canopy cover of shrubs <6 m tall
Chukar (*Alectoris chukar*)	Selected to measure grassland habitats. Important game species.	V1: % canopy cover of herbs V2: % canopy cover of shrubs <6 m tall V3: Distance to exposed rocky areas

		(km) V4: Topographic class V5: Distance to mesic shrub cover (km)
Mule Deer (*Odocoileus hemionus*)	Selected to measure grassland and upland shrub habitats. Important game species.	V1: % cover preferred shrubs <1.5 m V2: # preferred shrub spp. V3: Mean shrub height (m) V4: % cover shrubs < 1.5 m V5: % cover palatable herbaceous species V6: Presence of crops within 1.6 km of site V7: Aspect V8: Road density V9: Topographic diversity V10: % evergreen canopy >1.5 m
California Quail (*Callipepla californica*)	Selected to measure upland shrub habitats. Important game species.	V1: % herbaceous canopy cover V2: Distance to roost cover (m) V3: Distance to escape cover (m) V4: Herb height (cm) V5: % shrub canopy cover V6: Ave shrub height (m)
Black-Capped Chickadee (*Parus atricapillus*)	Selected to measure conifer forest habitats. Represents snag-dependant species.	V1: % tree canopy closure V2: Ave height of overstory trees (m) V3: Tree canopy volume V4: # snags 4-10" DBH per 1 acre (10-25 cm DBH per 0.4 ha)
Blue Grouse (*Dendragapus obscurus*)	Selected to measure conifer forest habitats,and the interspersion of conifer and shrub/grass types. Important game species.	V1: % conifer and aspen canopy cover over entire area V2: % shrub crown cover V3: Ave shrub canopy height (cm) V4: % herbaceous canopy cover V5: Ave herbaceous canopy height (cm) V6: # herbaceous species per cover type V7: Distance to forest or tree savanna (km)

No fish species have been selected as focal or target animals, but the area supports Threatened Snake River steelhead which are a priority for the Fish and Wildlife Program (NPCC 2014).

HEP Analysis and Results

One product of HEP is an evaluation of habitat quality expressed in Habitat Units (HUs). This HU accounting system is used to determine the amount of credit BPA receives for mitigation lands. Two Habitat Evaluation Procedures reports (Kozusko 2003, Richardson and Sondenaa 2008) show that Precious Lands is currently providing 21,166 baseline Habitat Units (**Table 4**).

Table 4. HEP results by cover type and species

Habitat Unit Totals and Acreage Results per Species

ACTUAL TOTAL ACRES

Cover Type Codes	Actual Acres
(R) - Riparian	**647**
(OC) - Open Conifer	**1,343**
(C) - Conifer	**630**
(BCS) - Burnt Conifer Shrub	**213**
(BCG) - Burnt Conifer Grass	**99**
(A) - Agriculture	**124**
(DG) - Degraded Grass	**2,929**
(GG) - Good Grass	**9,133**
(TS) - Tall Shrub	**641**
(SS) - Short Shrub	**593**
	16,309*

*Mapping errors contributed to an additional23 acres than the project total of 16,286

STACKED TOTALS - Acres of Habitat and HU's

Species	Cover Types Assessed as Habitat	Acres Habitat	Habitat Units (HU's)
Beaver	R	**647**	**44.6**
Black-Capped Chickadee	OC, C, BCS, BCG	**2,242**	**949**
California Quail	TS, SS, R	**1,881**	**1,346**
Sharp-tailed Grouse	A, GG, DG	**12,186**	**6,740**
Downy Woodpecker	R	**647**	**317**
Mule Deer	R, OC, C, A, DG, GG, TS, SS	**15,997**	**2,564**
Song Sparrow	R, TS	**1,288**	**844**
Western Meadowlark	A, GG, DG	**12,186**	**7,931**
Yellow Warbler	R	**647**	**430.7**
		47,721	**21,166**
		stacked habitat acres	stacked HU's

Because multiple species are used to assess each cover type, total acres of habitat become stacked and exceed actual acres

21,166 HU / **16,309** ac **=** stacked HU/ acre

= 1.3 HU/ac

Invasive Species

Noxious weeds are the single biggest threat to the ecological integrity of the wildlife area. The climate of the region makes it well suited to many of the Eurasian weeds that have been introduced to the region. There are approximately 20 species of plants and four vertebrates that pose particularly challenging threats to the ecological function of native communities (**Table 5**).

Table 5. The most problematic introduced and exotic species known to occur on the wildlife area

Species	Latin Name	Primary Habitat
PLANTS		
Cheatgrass	*Bromus tectorum*	Grasslands
Wind Grass	*Ventenata dubia*	Grasslands
Medusahead	*Taeniantherum caput-medusae*	Grasslands
Rush Skeletonweed	*Chondrilla juncea*	Grasslands
Common Crupina	*Crupina vulgaris*	Grasslands
Sulfur Cinquefoil	*Potentilla recta*	Grasslands
Yellow Starthistle	*Centaurea solstitalis*	Grasslands
Bachelor Button	*Centaurea cyanus*	Grasslands
Diffuse Knapweed	*Centaurea diffusa*	Roadsides & Trails
Hound's Tongue	*Cynoglossum officinale*	Roadsides & Trails
Scotch Thistle	*Onopordum acanthium*	Roadsides & Trails
Himalayan Blackberry	*Rubus discolor*	Riparian
Poison Hemlock	*Conium maculatum*	Riparian
Common Burdock	*Artium minus*	Riparian
Oxeye Daisy	*Chrysanthemum leucanthemum*	Riparian
Bur Chervil	*Anthriscus caucalis*	Riparian
Perennial Pepperweed	*Lepidium latifolium*	Croplands
Field Rose	*Rosa eglanteria*	Grasslands/Croplands/Riparian
Dog Rose	*Rosa canina*	Grasslands/Croplands/Riparian
FISH		
Smallmouth Bass	*Micropterus dolomieui*	Joseph Creek
WILDLIFE		
Common Turkey	*Meleagris gallopavo*	Valleys and Riparian Areas
European Starling	*Sturnus vulgaris*	All Habitats
Humans	*Homo sapiens*	All Habitats

Figures 3 and 4 show the general size and distribution of key noxious weed infestations on the wildlife area. Grasslands and riparian areas both have significant weed issues that threaten their ecological integrity, and will require active management into the future.

Species of Concern

Oregon state has recently completed their comprehensive wildlife conservation strategy that lists 70 taxa of conservation concern for the Blue Mountains Ecoregion (ODFW 2016). The Precious Lands wildlife area provides habitat for 15 of those species (**Table 6**). Additional species such as the Western bumblebee (*Bombus occidentalis*), and Rocky Mountain tailed frog (*Ascaphus montanus*) may inhabit Precious Lands but more effort is needed to document their occurrence.

Figure 3. Distribution of select noxious weeds on the Buford Planning Unit.

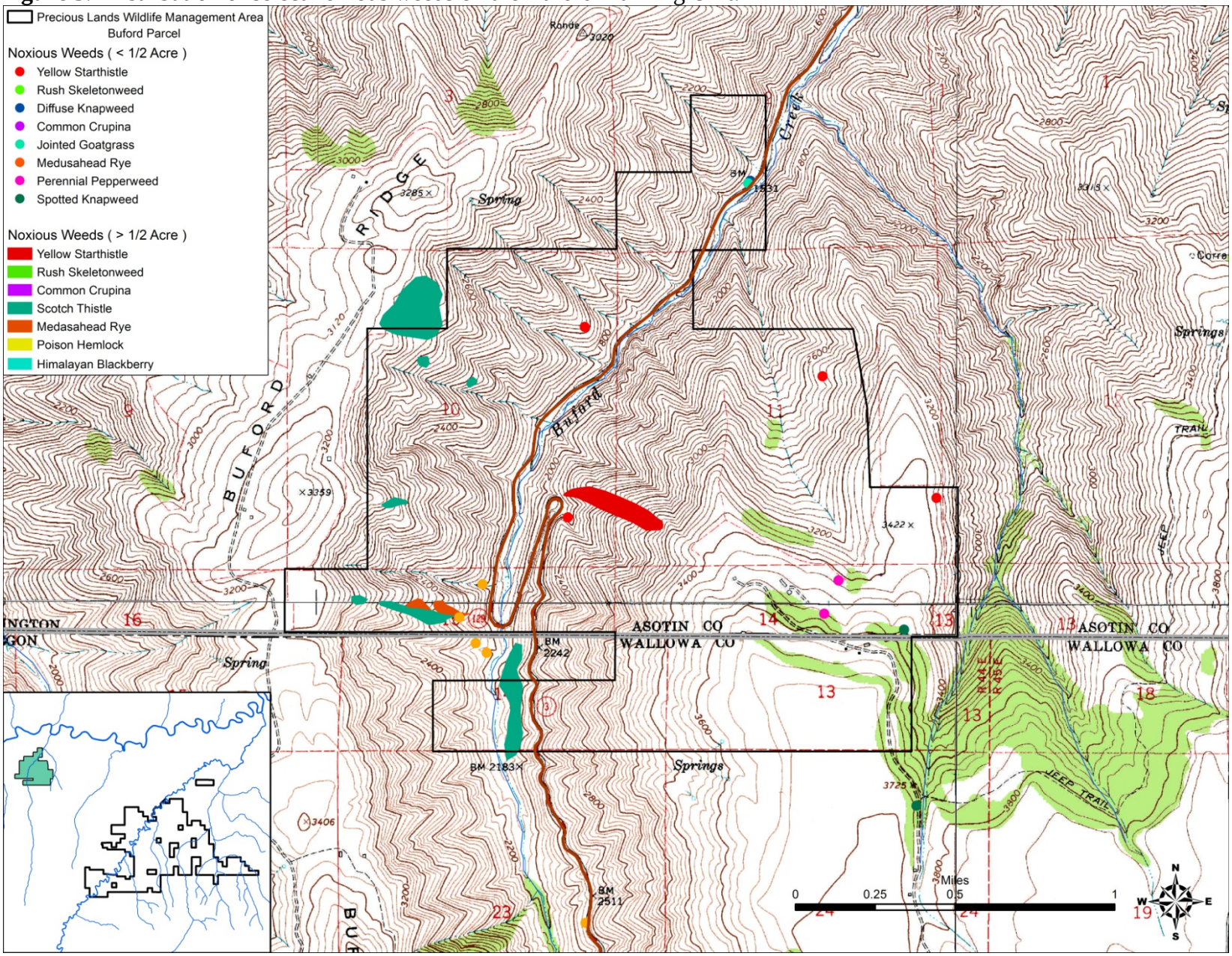


Figure 4. Distribution of select noxious weeds on the Joseph and Cottonwood Planning Units.

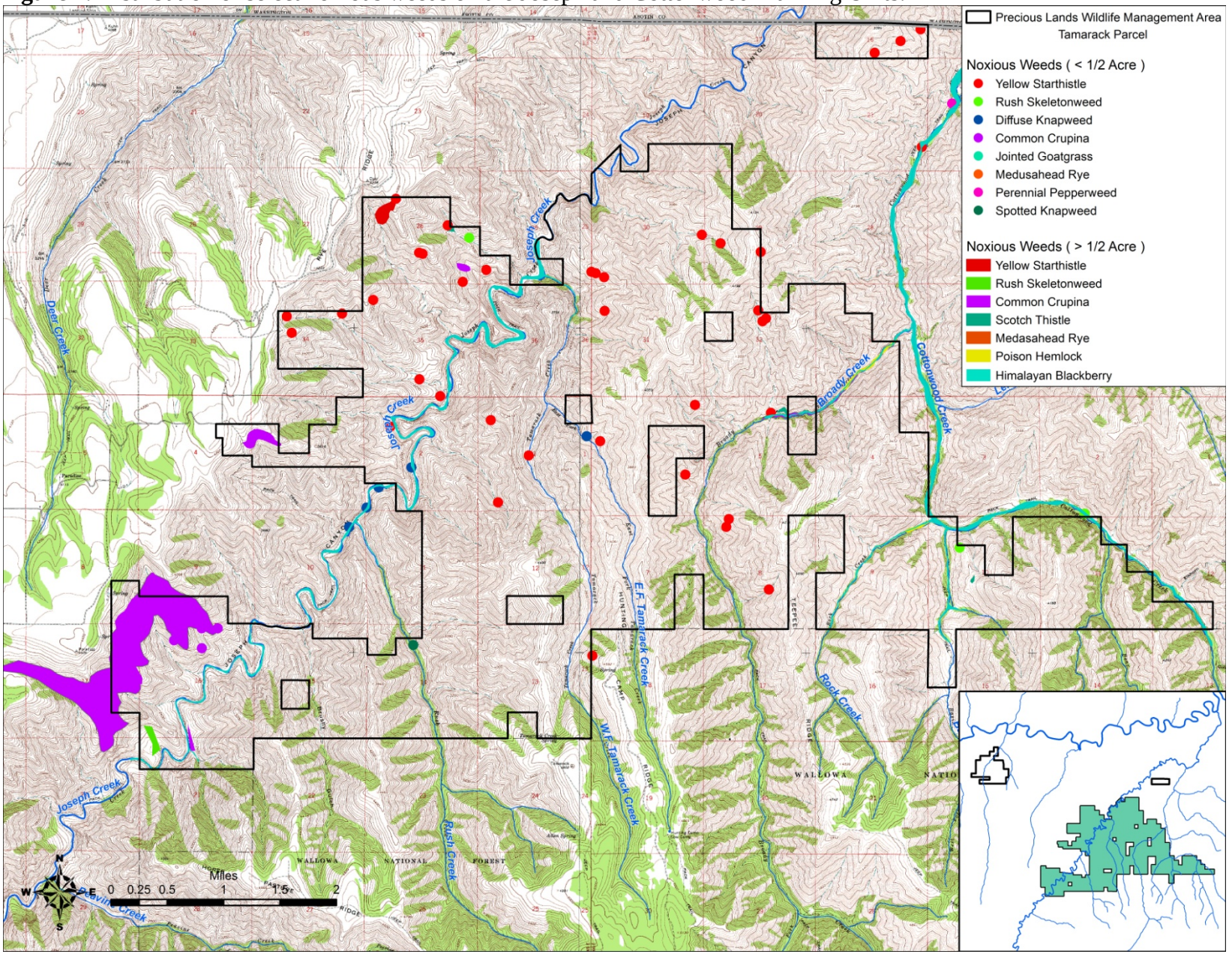


Table 6. Species of Conservation Concern known to occur on the Precious Lands wildlife area.

Species	Latin Name	Primary Habitat
PLANTS		
Spalding's Catchfly	*Silene spaldingii*	North-Facing Grasslands
FISH		
Summer Steelhead	*Oncorhynchus mykiss*	Perennial Streams
BIRDS		
Flammulated Owl	*Psiloscops flammeolus*	Open Ponderosa Pine Forest
Great Gray Owl	*Strix nebulosa*	Old Growth Forest
Lewis' Woodpecker	*Melanerpes lewis*	Ponderosa Pine & Cottonwood
Pileated Woodpecker	*Dryocopus pileatus*	Old Growth Forest
White- headed Woodpecker	*Picoides albolarvatus*	Burned Forests
Olive-sided Flycatcher	*Contopus borealis*	Open Forests
MAMMALS		
Long-legged Myotis	*Myotis volans*	Old Growth Forest
Hoary Bat	*Lasiurus cinereus*	Old Growth Forest
Silver-Haired Bat	*Lasionycteris noctivagans*	Old Growth Forest
Gray Wolf	*Canis lupus*	All Habitats
Rocky Mountain Bighorn Sheep	*Ovis canadensis canadensis*	Grasslands
AMPHIBIANS		
Western Toad	*Anaxyrus boreas*	Ponds & Streams
INVERTEBRATES		
Monarch Butterfly	*Danaus plexippus*	Grasslands

In addition to those species listed by the Oregon Conservation Strategy (ODFW 2016) there are also 13 rare plant species on Precious Lands. These species were not highlighted by the state conservation plan but are tracked by the Oregon Biodiversity Information Center (http://inr.oregonstate.edu/orbic/about-orbic). **Table 7** lists those species known to occur on the wildlife area.

Table 7. Rare plant species known to occur on the Precious Lands wildlife area.

Common Name	Scientific Name	Habitat
Cusick's Milkvetch	*Astragalus cusickii var cusickii*	Grasslands
Oregon Bolandra	*Bolandra oregana*	Wet Seeps & Riparian
Nez Perce Mariposa Lily	*Calochortus macrocarpus* var. *maculosus*	Grasslands
Fee's Lipfern	*Cheilanthes feei*	Moist Caves and Crevices
Rubber Rabbitbrush	*Chrysothamnus nauseosus* spp. *nanus*	Open Rocky Sites
Idaho Hawksbeard	*Crepis bakeri* var. *idahoensis*	Grasslands
Engelman's Daisy	*Erigeron davisii*	Open Rocky Slopes
Diffuse Stickseed	*Hackelia diffusa*	Scree Slopes
Stalk-leaved Monkeyflower	*Mimulus patulus*	Seeps on Bare Mineral Soil
Blue Mountain Penstemon	*Penstemon pennellianus*	Open Forest on Ridge Tops
Rough Goldenweed	*Pyrrocoma scaburula*	Grasslands
Northern Gooseberry	*Ribes oxyacanthoides* spp. *cognatum*	Open Forests
Thick-leaved Thelypody	*Thelypodium laciniatum* var. *streptanthoides*	Cliffs & Rocky Sites

Climate and Climate Change

Climate in this area is largely a function of the topography and elevational gradient of the major river canyons in the region. Elevations on Precious Lands range from a low of 1,540 feet along Joseph Creek in Township 6N, Range 46E, Section 19 to a high of 4,600 feet in the upper reaches of Tamarack Creek in Township 5N, Range 45E, Section 13. Lower elevation sites experience very mild winter temperatures of 20-40^0 F but hot daily maximum temperatures averaging 89^0 F in July and August. Climatic conditions in the canyon bottoms are similar to those found at Lewiston, Idaho approximately 30 miles to the north. Annual precipitation is relatively low and ranges from 12-17" per year. Most of this moisture comes in the form of rain during September through June. Higher elevation sites experience lower winter temperatures and higher snowfall, but have more moderate summer temperatures.

Topographic diversity is an important factor in local microclimatic conditions. Low rainfall coupled with differences in aspect results in varied microclimates throughout the area. North and east aspects are slightly cooler than west and south aspects. This has a dramatic impact on available soil moisture and results in sharp changes in vegetative cover. Conifer stands are mostly restricted to northerly aspects while southerly aspects are clearly dominated by grassland. Easterly aspects support either grassland or shrub communities while westerly slopes largely support grasslands.

Climate change is a rapidly emerging threat to our wildlands and fish and wildlife populations. A recent assessment by the Blue Mountains Adaptation Partnership (Halofsky and Peterson, eds. 2016) provides a comprehensive analysis of climate change impacts on local habitats and resources. The following is a quote from their introduction and is reproduced here in its entirety. (http://adaptationpartners.org/bmap/index.php)

Global climate models project that the current warming trend will continue throughout the 21st century in the Blue Mountains. Compared to observed historical temperature, average warming is projected to be 2.4-3.1 °C by 2050 and 3.2-6.3 °C by 2100, depending on greenhouse gas emissions. Precipitation may increase slightly in the winter, although the magnitude is uncertain.

The effects of climate change on hydrology in the Blue Mountains will be especially significant. Decreased snowpack and earlier snowmelt will shift the timing and magnitude of streamflow and decrease summer soil moisture; peak flows will be higher, and summer low flows will be lower. Pronounced changes in snow and streamflow will occur in headwater basins of the Wallowa Mountains, especially in high-elevation radial drainages out of the Eagle Cap Wilderness, with large changes occurring in the more northerly sections of the Umatilla and Wallowa-Whitman National Forests along the Oregon-Washington border. Mid-elevation areas where snow is currently not persistent (northern Blue Mountains, margins of Wallowa, Elkhorn, Greenhorn, and Strawberry Mountains) may become largely snow-free in the future.

Projected changes in climate and hydrology will have far-reaching effects on aquatic and terrestrial ecosystems, especially as frequency of extreme climate events (drought, low snowpack) and associated effects on ecological disturbance (streamflow, wildfire, insect outbreaks) increase. Vulnerability assessment and adaptation option development for the Blue Mountains conclude the following:

Water resources and infrastructure

- Effects: Decreasing snowpack and declining summer flows will alter timing and availability of water supply, affecting municipal and public uses downstream from and in national forests, and other forest uses including livestock, wildlife, recreation, firefighting, road maintenance, and in-stream fishery flows. Declining summer low flows will affect water availability during late summer, the period of peak demand (e.g., for irrigation and power supply). Increased magnitude of peak streamflows will damage roads near perennial streams, ranging from minor erosion to complete loss of the road prism, thus affecting public safety, access for resource management, water quality, and 4 aquatic habitat. Bridges, campgrounds, and national forest facilities near streams and floodplains will be especially vulnerable, reducing access by the public.
- Adaptation options: Primary adaptation strategies to address changing hydrology in the Blue Mountains include restoring the function of watersheds, connecting floodplains, reducing drainage efficiency, maximizing valley storage, and reducing fire hazard. Tactics include adding wood to streams, restoring beaver populations, modifying livestock management, and reducing surface fuels and forest stand densities. Primary strategies for infrastructure include increasing the resilience of stream crossings, culverts, and bridges to higher peak flows and facilitating response to higher peak flows by reducing the road system and disconnecting roads from streams. Tactics include completing geospatial databases of infrastructure (and drainage) components, installing higher capacity culverts, and decommissioning roads or converting them to alternative uses.

Fisheries

- Effects: Decreased snowpack will shift the timing of peak flows, decrease summer low flows, and in combination with higher air temperature, increase stream temperatures, all of which will reduce the vigor of cold-water fish species. Abundance and distribution of spring Chinook salmon, redband trout/steelhead, and especially bull trout will be greatly reduced, although effects will vary by location as a function of both stream temperature and competition from non-native fish species. Increased wildfire will add sediment to streams, increase peak flows and channel scouring, and raise stream temperature by removing vegetation.
- Adaptation options: Primary strategies to address climate change threats to cold-water fish species include maintaining or restoring natural flow regimes to buffer against future changes, decreasing fragmentation of stream networks so aquatic organisms can access similar habitats, and developing wildfire use plans that address sediment inputs and road failures. Tactics include using watershed analysis to develop integrated actions for vegetation and hydrology, protecting groundwater and springs, restoring riparian areas and beaver populations to maintain summer base flows, reconnecting and increasing offchannel habitat and refugia, identifying and improving stream crossings that impede fish movement, implement engineering solutions to improve stream structure and flow, decreasing road connectivity, and revegetating burned areas to store sediment and maintain channel geomorphology.

Upland vegetation

- Effects: Increasing air temperature, through its influence on soil moisture, is expected to cause gradual changes in the abundance and distribution of tree, shrub, and grass species throughout the Blue Mountains, with more drought tolerant species becoming more competitive. Ecological disturbance, including wildfire and insect outbreaks, will be the primary facilitator of vegetation change, and future forest landscapes may be dominated by younger age classes and smaller trees. High-elevation forest

types will be especially vulnerable to disturbance. Increased abundance and distribution of non-native plant species will create additional competition for regeneration of native plant species.

- Adaptation options: Most strategies for conserving native tree, shrub, and grassland systems focus on increasing resilience to drought, low snowpack, and ecological 5 disturbance (wildfire, insects, non-native species). These strategies generally include managing landscapes to reduce the severity and patch size of disturbances, encouraging fire to play a more natural role, and protecting refugia. Tactics include using silvicultural prescriptions (especially stand density management) and fuel treatments to reduce fuel continuity, reducing populations of non-native species, potentially modifying seed zones for tree species, and revising grazing policies and practices. Rare and disjunct species and communities (e.g., whitebark pine, aspen, alpine communities) require adaptation strategies and tactics focused on encouraging regeneration, preventing damage from disturbance, and establishing refugia.

Special habitats

- Effects: Riparian areas and wetlands will be especially vulnerable to higher air temperature, reduced snowpack, and altered hydrology. The primary effects will be decreased establishment, growth, and cover of species such as cottonwood, willow, and aspen, which may be displaced by upland forest species in some locations. However, species that propagate effectively following fire will be more resilient to climate change. Reduced groundwater discharge to groundwater-dependent ecosystems will reduce areas of saturated soil, convert perennial springs to ephemeral springs, eliminate some ephemeral springs, and alter local aquatic flora and fauna communities.
- Adaptation options: Primary strategies for increasing resilience of special habitats to changing climate include maintaining appropriate densities of native species, propagating drought tolerant native species, maintaining or restoring natural flow regimes to buffer against future changes, and reducing stresses such as conifer encroachment, livestock grazing, and ungulate browsing. Tactics include planting species with a broad range of moisture tolerance, controlling non-native species, implementing engineering solutions to maintain or restore flows, restoring beaver populations, reducing damage from livestock and native ungulates, and removing infrastructure (e.g., campsites, springhouses) where appropriate.

Soils and Topography

The geologic history of the Joseph Creek area is dominated by a series of basalt flows known as the Columbia River Basalts. These flows are very deep and consist of highly fractured, fine-grained material deposited from 2 to 25 million years ago. In addition, loess deposits are found throughout the area, as are deposits of volcanic ash from Glacier Peak (12,000 years ago) and Mount Mazama (6,600 years ago). Some of our more productive forest and grassland sites are associated with deposits of these fine-grained materials (Johnson and Simon, 1987).

Most of the soils occurring on canyon walls and steep slopes are Lithic Argixerolls, Lithic Haploxerolls, or Pachic Argixerolls formed from weathering basalt. These soils are typically shallow, well drained and have a severe erosion potential rating. Benches and ridgetops with slopes of 3 to 45% have slightly deeper soils classified as Xeric Argialbolls or Typic Natrixerolls. These well drained soils formed from loess and minor elements of alluvium and volcanic ash. Erosion potential on these soils ranges from moderate to severe (Gentry, 1991). In most cases, these soils have been used for agricultural production of dryland crops such as wheat or hay.

Fire History
The canyon grassland ecosystem of the Grande Ronde and Snake River canyons evolved with a dynamic and active fire cycle. High summer temperatures, low precipitation, and active lightning storms result in fairly frequent wildland fires (**Figure 4**). Fire return intervals historically ranged from 10-30 years (Fryer 2017), but modern fire suppression has significantly altered the scope and scale of fires today.

During the late 1980's two large fires impacted forested stands within the wildlife management area. The Teepee Butte and Joseph Canyon Fires burned several hundred acres of conifer forest and returned them to early seral shrub stands. Parts of Bear Creek, Brushy Gulch, and Rush Creek all experience stand-replacing fires. Some of these areas are starting to regenerate naturally but are still lacking in large overstory trees. Approximately 312 acres within the Joseph and Cottonwood Planning Units have burned and are still in a grass or shrub cover type. Portions of the Buford Planning Unit have also lost much of their overstory either through selective timber harvest or conversion to wheat and hay production. All of these areas may require active management to help restore them to a mature stand condition.

The Teepee Butte Fire of 1988 completely consumed the riparian vegetation within the Bear Creek drainage. Nearly 30 years post-fire, the area is recovering naturally with dense shrub communities along the stream. Overstory species, however, are just now beginning to over top the shrub canopy. Protection of this stream from trespass livestock grazing will benefit natural recovery efforts.

More recently, two large fires started near or on the wildlife area following summer lightning storms. The Cottonwood fire started in July 2007 on private land to the east of the wildlife area and burned approximately 4,453 acres before it was contained. In July 2015 the Rye Ridge fire started on the western edge of Precious Lands in the Joseph Creek drainage and burned 763 acres (**Figure 4**). All wildfires are actively suppressed by the Oregon Department of Forestry and other agencies as per agreements with Wallowa County and Oregon Department of Forestry so "natural" fire events are no longer allowed to burn on the wildlife area.

Historical and Cultural Resources
This area has been inhabited by humans for thousands of years. There is evidence of traditional cultural use by the NiMiiPuu people as well as more modern relics from early homesteaders and ranchers. Historical structures include log cabin remnants as well as two spectacular, intact barns on the Buford Unit (**Figure 5**). Images of the barns clearly show the need for paint and other maintenance. Cultural surveys are conducted any time management activities might involve ground disturbance. Any new cultural resource findings are reported to the appropriate tribal and state historic preservation offices. Disturbance of any cultural or historic resource is, of course, prohibited by federal law.

Recreational Use
There is only light to moderate use of the Precious Lands for recreational activities. Most use is concentrated in the spring for hiking, wildflower viewing, bird watching, and bear hunting, and again in the fall during hunting season (deer, elk, and upland birds). No motorized access is allowed on the property and all users must abide by the rules established by the Nez Perce Tribal Executive Committee to protect natural and cultural resources (**Appendix C**). Rule violations and acts of vandalism are uncommon although poaching is thought to be a not infrequent occurrence.

Figure 4. Large fire history of the Lower Grande Ronde, Joseph Creek, and Snake River region near Precious Lands.

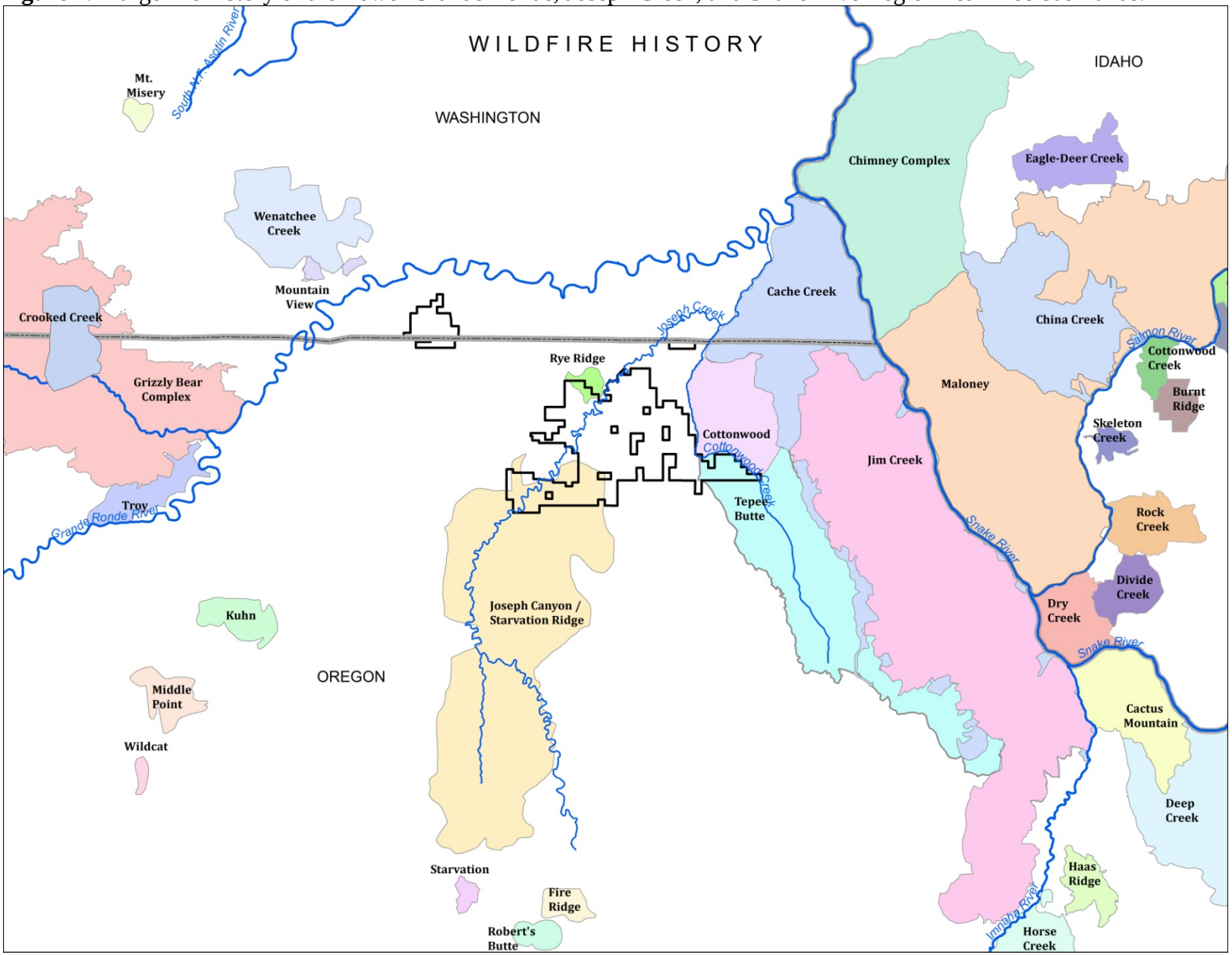


Figure 5. Historic barns on the Buford Unit.

C. PUBLIC PARTICIPATION

During development of the original management plan, a list of potential management issues (public access, hunting, livestock grazing, facilities management, socio-economics, priority wildlife, noxious weeds, biodiversity, water quality, and fire) was developed and presented to the public at a series of six public meetings held throughout the local area. Notification of the meetings was sent to local newspapers and radio stations, and fliers were posted at public bulletin boards. All meetings were held in the evenings to encourage community participation. In total, 56 people participated.

The public was invited to comment on the issues and provide input on management strategies and projects. The public comments received at these meetings or through the mail were used to further refine the management issues that guided the planning team in developing the management direction of the property. From these comments, public access (particularly motorized access), livestock grazing, and noxious weeds were raised as the primary issues of concern.

D. GOALS AND ACTIONS

Project Goal

The overall project goal is to protect, restore, and manage canyon grasslands and associated riparian, shrub land, and forested habitats to support stable or increasing populations of native species within a resilient and diverse community where ecological functions operate within acceptable ranges.

Desired Future Conditions

The 2003 management plan (Sondenaa and Kozusko 2003) describes desired future conditions (DFC) for the five primary ecosystems of grassland, shrub, riparian, conifer forest, and in-stream habitat.

Cover types within the project area are highly variable and few exhibit uniform characteristics that may be used as a standard. Therefore, DFC objectives were developed based on criteria that optimize habitat needs for the greatest number of target (focal) species. Each of the five general habitat types (grassland, shrub, conifer, riparian, and in-stream) has associated species chosen from the HEP assessment. Additional species have been taken into consideration when a cover type fills a particular life requisite, even if the species was not used for the original crediting analysis. A range of condition was chosen from the habitat requirements of all associated wildlife species, and an attempt was made to span the highest range of quality habitat for the greatest number of species.

The specific requisites of an “optimal” habitat may differ greatly from what the plant association can actually produce, however. In consideration of this, each DFC was verified with a regional plant association reference (Johnson and Simon 1987) to confirm that ranges established by wildlife needs are consistent with characteristics of high quality plant communities. Despite this review, our monitoring data show that some of those original target values have proven unrealistic for our area. For example, Johnson and Simon (1987:179) described how "the tall shrub canopy was often so dense that few herbaceous species were able to persist in the shade beneath" ninebark and snowberry dominated shrub lands which suggests that our original target of 50-75% herbaceous cover in these communities is likely unattainable beyond the early establishment phase. This is one example of how monitoring data and an improved understanding of local ecology (both key components of adaptive management), has resulted in modifications to several habitat DFCs to more accurately reflect site potentials on the wildlife area.

Target DFC ranges are left fairly broad to allow for site-specific adaptations, fluctuating budgets, and catastrophic changes such as fires and floods, while still providing a guideline to meet diverse wildlife needs. Cover types with a habitat feature that fails to maintain a value within 15% of the DFC range, or habitat values that increase or decrease more than 15% outside the DFC range in a ten-year sample period, will be considered a priority for an adaptive change in management.

Grassland Community DFC:

- 60-75% herbaceous cover
- < 30% invasive annual grasses
- 20-25 cm average herbaceous height

Grassland Community Description:
Bluebunch wheat is the dominant herbaceous species throughout the majority of the grassland cover type, with an occasional interspersion of Idaho fescue or Sandberg's bluegrass. Grasslands will be managed toward the mid- to late-seral condition, with established bunchgrass hummocks free of cheatgrass or other weedy species in the interspaces. Cheatgrass is typically shorter than bunchgrass; therefore, the average herbaceous height may be an indicator of weedy abundance or decreased value as wildlife cover. Species used to develop grassland DFC's are: Western meadowlark, sharp-tailed grouse, and mule deer.

Shrub Community DFC:

- A mosaic of seral stages with the majority in the mature class
- 80% shrub canopy cover, on average
- 15-20% herbaceous cover

Shrub Community Description:
Shrub fields support a wide variety of wildlife and function as travel corridors between the low elevation riparian areas and upper grassland communities. The moderate range of both shrub and herbaceous canopy cover offers a high quality mix of concealment, roost, thermal protection, and browse opportunities for various wildlife species. For the entire project area, the goal for shrub communities is to have a mosaic of seral stages across the project area. Specifically, 60% of the shrub communities support 60-75% canopy cover, 20% have >75% canopy cover, and 20% have <60% canopy cover. The species used to develop shrub community desired conditions are: mule deer, western meadowlark, blue grouse, California quail, and song sparrow.

Conifer Community DFC:

- 50-80% tree canopy cover
- 25-45% shrub canopy cover
- $\geq$ 2 snags 4-10" dbh per acre
- $\geq$ 0.5 snags $\geq$ 20" dbh per acre

Conifer Community Description:
The forested communities offer cover in all seasons, and fill many life requisites for wildlife. Because use varies so greatly among species, the DFC range was left broad to accommodate differing sites and wildlife needs. Some conifer patches may be maintained at either the higher end of the range or the

lower, depending on site-specific goals and funding. Previously burned or plowed conifer sites with little existing tree cover are being planted to re-establish trees. Understory burning to thin dense shrub thickets may be implemented to increase resiliency and improve tree canopy cover. Mule deer, blue grouse, and black-capped chickadee were used to develop conifer community desired conditions.

Riparian Community DFC:

- 40-70% tree canopy cover
- 35-65% shrub canopy cover
- $\geq$ 3.5 snags 6-10" dbh per acre, $\geq$ 0.5 snags/acre of $\geq$20" dbh
- Basal area 30-80 ft^2/acre

Riparian Community Description:
This cover type supports moderate to high shrub cover and snags to provide habitat for cavity-dependant wildlife. A mix of any of the following species dominates the overstory in riparian hardwood communities: black cottonwood, white alder, water birch, quaking aspen, or willow. Areas experiencing degrading flood events are expected to show an increase of 15-20% tree and shrub cover over a 20-year period, and should exhibit an increasing trend at each of the 5-year monitoring intervals. Downy woodpecker, beaver, black-capped chickadee, and yellow warbler were used to develop DFC's for this community. Forest bats were also taken into consideration, and a large snag requisite was added.

In-Stream Habitat DFC:

- 60-100% shading of water surface
- Maximum daily summer temperatures $\leq 68^0$ F (20^0 C)
- $\geq$ 5 pools per stream mile
- $\geq$ 10 pieces of woody debris $\geq$ 12" diameter and 30' long per stream mile

In-Stream Habitat Description:
Perennial streams well shaded by overstory trees with cool water temperatures to support a diversity of native aquatic species. Stream channels are stable and providing complex habitat features with suitable microhabitats for a variety of fish species and life stages. Invertebrate communities are abundant and have appropriate community composition. Steelhead were used to develop desired conditions in stream habitats.

Project Objectives
In order to accomplish the project goal and attain the desired future conditions for the Precious Lands Wildlife Area, we will implement the following objectives through a combination of active and passive management actions.

Objective 1: Protect and enhance native grassland, riparian, forest, shrub, and in-stream communities on approximately 16,286 acres over the next 10 years.
Objective 2: Restore approximately 125 acres of old agricultural fields to support native grass, forb and tree species within 10 years.
Objective 3: Limit the spread of existing noxious weeds and control new invaders on the 16,286 acre project area over the next 10 years.
Objective 4: Improve in-stream habitat complexity on approximately 16.6 miles of perennial stream over the next 10 years.

Objective 5: At a minimum, monitor 26 vegetation plots, 10 bird point count stations, 15 photo points, 1 restoration field, 1 *Silene* population, and up to 4 ponds regularly as a measure of project accomplishments and population trend over the next 10 years.

Objective 6: Provide appropriate public access to allow compatible recreational opportunities for local residents, and support treaty fishing, hunting, and gathering for approximately 3,600 Nez Perce tribal members for the next 10 years.

Management Activities

The following activities and tasks will be employed to implement project objectives and achieve the stated project goal of supporting "a resilient and diverse community where ecological functions operate within acceptable ranges." Tasks will address some of the significant challenges facing the wildlife area including invasive species and climate change. Activities are grouped according to management focus but the benefits are expected to span multiple objectives. Monitoring these activities and their outcomes will help provide the basis for making adaptive management decisions going forward.

Disturbance Management

- Prohibit public motorized access using education, signs, gates, fencing, and other barriers
- Limit administrative vehicles to designated roadways and trails
- Remove all commercial livestock grazing from the wildlife area
- During wildfire suppression, work with incident commanders to minimize ground disturbance

Weed Management

- Use approved herbicides, mechanical treatments, and biocontrol agents to reduce the density and distribution of noxious weeds
- Routinely survey for new weed infestations and take appropriate control action if found
- Implement biosecurity measures to detect and remove invasive species and propagules from equipment, clothing, and materials prior to use on the area
- Re-vegetate with native species after weed control or significant ground disturbance

Access Management

- Install "Wildlife Area" signs along all exterior property boundaries
- Install and maintain gates and fences to restrict access to only designated locations
- Maintain trails and roads to facilitate safe passage by staff and the public
- Provided maps and other information to the public

Infrastructure Management

- Build and maintain fences as needed to manage access and exclude neighboring livestock
- Maintain buildings to a sufficient standard to retain their value and usefulness
- Maintain trails and roads to facilitate safe passage by staff and the public, while minimizing negative impacts to fish, wildlife, and water quality
- Remove obsolete or dangerous culverts, fences, troughs, buildings, and other debris

Habitat Improvement

- Plant native plants to improve biological and structural diversity including aspen, great basin wildrye, milkweed, native bunchgrasses, ponderosa pine, and other species as necessary

- Control weeds and re-plant with desirable species
- Convert old agricultural fields back to native plant communities
- Install artificial nest boxes until native snag habitat meets desired conditions
- Selectively use fire to improve forest stand condition and build resiliency

Fish and Wildlife Protection

- Prohibit the use of goats and/or sheep to minimize disease threat to native bighorn sheep
- Enforce full seasonal closure on the Tamarack Creek road Nov 1-May 1 yearly
- Implement biosecurity measures to detect and remove invasive species and propagules from equipment, clothing, and materials prior to use on the area
- Work with local law enforcement to promote legal, ethical hunting and fishing practices

Watershed Restoration

- Manage roads and trails to minimize impacts to hydrology, stream stability, and sediment loads
- Plant and promote forest development to improve local hydrology, stream shading, and woody debris recruitment
- Encourage the US Forest Service to restore hydrology, fish passage, and watershed function in headwater areas

E. MANAGEMENT RESTRICTIONS AND PROHIBITIONS

BPA/NPT Memorandum of Understanding

When the Precious Lands project was approved in 1996, BPA and the NPT entered into an MOU which outlined the terms and conditions of the project and its implementation (**Appendix A**). Restrictions were placed on certain management activities such as commercial timber harvest and livestock grazing, and all residential, commercial, or industrial uses. Specifically, the agreement requires the NPT to "permanently protect the properties in the project as wildlife habitat on behalf of BPA, preventing any and all uses of the properties that are inconsistent with this agreement." This management plan will help implement the provisions in the MOU.

Water Rights and Usage

There are no formal water rights associated with any of the property deeds of the Precious Lands wildlife area. There are no water rights withdrawals on any of the associated properties. No irrigation is on-going or planned for the wildlife area so all water resources are retained in stream channels with the exception of three upland stock ponds that will be maintained for amphibian habitat.

Access Management and Easements

Most of the access to this project occurs through private property along private roads. Currently, there are four formal access agreements associated with this project (**Appendix D**) that stipulate terms of use, maintenance responsibilities, and other restrictions. All of these agreements have been duly filed and recorded with Wallowa County as a matter of public record. In general, these easements allow tribal staff, contractors, and authorized guests to use access routes for administrative purposes only. Use by the general public is not allowed.

F. OTHER MANAGEMENT ACTIONS

Access Management

The MOU between BPA and NPT requires that "the public shall have reasonable access to the properties" while preserving and protecting wildlife habitat values. In order to provide the highest habitat quality to wildlife, there will be no motorized access of the project area by members of the public. There are only a few roads that the public can legally use to drive to the property boundary so restricting vehicular access was deemed to be in the best interest of project objectives without causing undue restrictions on the public. Members of the public are allowed to travel onto and through the area on foot, bicycle, and horses/mules. These modes of transportation are more consistent with the goal of minimizing site disturbance and providing sanctuary for wildlife.

No new roads will be constructed. Existing roads will be maintained at current levels to allow motorized access of the property by NPT staff, fire crews, rescue personnel, and other approved parties. Members of the public will not be allowed to access the property using motorized vehicles. This restriction includes full-size passenger vehicles, all terrain vehicles, and two-wheel motorcycles. Special use permits may be issued to groups and/or individuals for specific dates or activities but will require prior approval. A seasonal restriction from November 1 – May 1 will be imposed for all vehicles on the Tamarack Creek road to minimize disturbance to wintering elk. Persons violating the access restrictions will be asked to leave the property immediately and may be charged with trespass.

Non-motorized access will be allowed on the project area for all members of the public. The use of helicopters to scout for, locate, pursue, or retrieve game animals is strictly forbidden. Landing a helicopter on the Precious Lands Wildlife Area is a violation of the motorized vehicle closure. People are encouraged to hike or ride horses onto the property but pack goats are prohibited. Bicycles may be used on trails and roads.

Three of the main access roads to the property pass through private land so are not available for public use. Road access agreements govern the use of these routes by tribal employees and private landowners. The main points of public access at this time include Forest Service Road 4655, Hwy 129 (3), and Rye Ridge road (**Figure 1**). Persons on foot or horseback can access much of the property through National Forest land in the south. Where compatible with wildlife management objectives, trail access will be improved in the future.

Appropriate Public Uses

Appropriate public uses include camping, hiking, bird watching, and other non-consumptive recreational activities. Open campfires are not allowed during the regular fire season (generally May 1 – October 31) or periods under special restriction due to extreme fire risk. There are no sanitation facilities on the project area so users are asked to dispose of their waste in a responsible manner. All trash must be packed out.

This is a wildlife management area so the privileges of human use are necessarily subordinate to wildlife protection needs. Harvest and removal of non-game wildlife and plant resources is strictly forbidden except for treaty-reserved gathering rights of enrolled Nez Perce tribal members. Firewood cutting is also restricted since standing dead and downed trees provide important wildlife habitat. Fallen wood on the ground may be gathered for campfires during open burning periods. Hunting and fishing are

allowed subject to treaty harvest guidelines and state regulations. The use of helicopters to scout for, locate, pursue, or retrieve game animals is strictly forbidden. Furthermore, landing a helicopter on Precious Lands is a violation of the motorized vehicle closure. Use rules are shown in **Appendix C**.

Recreational livestock owners are asked to practice a "leave no trace" philosophy when traveling or camping on the property. Establish camps well away from streams and avoid tying animals directly to trees. Wallowa County is a hay quarantine area. The use of locally grown or weed-free hay and feed is required. Approved recreational livestock include horses, mules, and llamas. Recreational pack goats are not allowed due to the potential for disease transmission to wild bighorn sheep. Additionally, the use of sheep or goat grazing as a vegetation management tool will not be allowed because of potential disease transmission from domestic animals to wild bighorn sheep.

Facilities Use and Maintenance

The Precious Lands area contains three livable buildings and numerous outbuildings and barns. Due to public safety concerns most of these buildings are for administrative use only. Exceptions include the Basin Creek Cabin and the Buford Ranch House. The Basin Creek Cabin is a small log cabin with a sleeping loft and wood stove. There is no electricity or potable water. When not being used by project staff, this cabin is available for public use on a first come basis. Patrons are asked to limit their stay to a maximum seven (7) days, clean up, remove trash, and replenish wood supplies before they leave. This cabin will remain available to the public so long as incidents of vandalism, theft, or other problems don't warrant closure.

The Buford Ranch house is a five-bedroom, two-story home with an unfinished basement. It has electricity, running water, and phone service. This facility may be reserved by non-profit groups for educational, scientific, or cultural uses. All such uses are subject to prior approval and may require a fee.

The Buford Planning Unit has numerous outbuildings and barns associated with the house. Some of these buildings are in good condition and are quite serviceable for project activities, while others are in disrepair or require extensive renovations to make them serviceable. Because of liability and public safety issues, all outbuildings are considered administrative in nature so public use is prohibited. Some buildings will be actively removed from the site, others will be repaired and maintained, and a few will be allowed to naturally deteriorate through benign neglect.

G. ADAPTIVE MANAGEMENT PLAN

This project relies on six primary monitoring protocols to evaluate species response to land management actions (**Table 8**). Methods used on this project are currently published and available on the Monitoring Resources website (https://www.monitoringresources.org/Resources/Home/Index). Data are shared on websites or other public repositories, as appropriate, to make them available to the wider scientific community.

Monitoring is the best way for managers to evaluate the effectiveness of project activities and decide if a change is needed. Habitat feature that fails to maintain a value within 15% of the DFC range, or habitat values that increase or decrease more than 15% outside the DFC range in a ten-year sample period, will be considered a priority for an adaptive change in management.

Table 8: Monitoring methods currently used by the Northeast Oregon Wildlife Mitigation Project.

Title	ID Number	Design Criteria	Frequency	Key Metrics
Breeding Bird Surveys	1974	10 permanent point count stations	1-3 years with 3 visits per year	Bird abundance
Amphibian Surveys	2060	Timed area searches of up to 4 ponds	Yearly when water conditions allow. 1-3 visits per year	Amphibian abundance Physical pond characteristics
Habitat Evaluation	2056	26 permanent line transects	5 year intervals on rotating basis	Plant abundance Structural attributes
Condition Photo Points	2059	15 permanent photo points	5 year intervals on rotating basis	Community composition and structure
Silene Spaldingii Monitoring	2065	3 permanent 10 m^2 plots	3 year interval with 2 visits per year	*Silene* abundance and reproductive status
Grassland Restoration	2055	2 permanent 100 m^2 monitoring plots	5 year intervals after initial 3 year baseline	Species abundance, cover, and frequency Community composition

Other data may also be used to help evaluate project performance and wildlife population response. For example, state fish and wildlife agencies routinely monitor big game population numbers and distributions on winter range which can help inform management strategies. Staff within the Nez Perce Tribe's fisheries department also monitor steelhead escapement numbers from the Joseph Creek drainage which can also educate managers of the importance of this watershed to larger fish population goals.

H. REPORTING

Regular reporting of project activities and accomplishments are a routine part of project administration. **Table 9** shows the nature and frequency of reports issued for this project.

Table 9. Reports associated with the Precious Lands wildlife area.

Report Title	Frequency	Receiving Agency	Where Located
Contract Status Report	Quarterly, Jan/Apr/July/Oct	BPA	Pisces
Contract Annual Report	Annually, March	BPA	Pisces
Herbicide Use Report	Annually, Dec	BPA/NOAA	Pisces
General Council Report	Semi-annual, May & Oct	NPT	NPT -- Executive Director's Office
Quarterly Report	Quarterly, Jan/Apr/July/Oct	NPT/ BIA	NPT -- Executive Director's Office
Silene Monitoring Report	Every 3 years	USFWS	USFWS -- Boise Office

If significant issues or challenges arise, project staff will immediately notify the Contracting Officer's Technical Representative (COTR) assigned to this project at BPA. Staff will work with the COTR to assess the issue and decide who else needs to be informed, and the proper approach to resolving the problem. In the long history of this project there have been few occasions to notify BPA or seek assistance with issue resolution.

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J. APPENDICES A-D