

ENVIRONMENTAL ASSESSMENT

Issuance of a Recovery Permit for a Candidate Conservation Agreement with Assurances for Columbia Spotted Frogs (*Rana luteiventris*) at San Noble Springs Owyhee County, Idaho

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Abstract:

The purpose of this environmental assessment is to evaluate a proposed action and four alternatives (including no-action) for implementing a Candidate Conservation Agreement with Assurances (Agreement) for Columbia spotted frogs (*Rana luteiventris*) on State of Idaho-managed lands in the Sam Noble Springs area of Owyhee County, Idaho. The need for this agreement stems from the interest of the State of Idaho to conserve one of the largest known populations of the species in Owyhee County while maintaining some livestock grazing opportunities, using the land to generate funds through activity leases. The majority of these lands are administered by the State of Idaho, as State-endowment lands, with private lands and federal Bureau of Land Management lands adjacent to the site. Under the proposed action, the State would implement conservation measures on state lands that would promote the conservation of the Columbia spotted frogs and benefit the species, including excluding livestock grazing from primary frog habitat and reducing the impacts of water use by livestock. Under the proposed Agreement, the State would be granted authorization to incidentally take Columbia spotted frogs under the conditions specified in a permit issued pursuant to section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended (ESA), if the species is subsequently listed within the duration of the permit.

The proposed Agreement is consistent with the U.S. Fish and Wildlife Service's "Candidate Conservation Agreement with Assurances Final Policy" (64 FR 32726). This policy encourages the implementation of conservation measures for species that have not been listed under the ESA, but warrant agency concern. The proposed Agreement identifies obligations of the parties, and approval of the Agreement would provide conservation benefits for spotted frogs on those State lands enrolled under the Agreement throughout the 680-acre (275 ha) project area in Owyhee County, Idaho. As proposed, a permit authorizing incidental take of Columbia spotted frogs would be issued under the Agreement consistent with section 10 of the ESA.

This environmental assessment analyzes four alternatives, including:

- Alternative A - the "No Action" alternative would not include an Agreement or a federal permit, and landowners would not receive any incidental take authorization. No conservation measures would be implemented, and livestock grazing effects on frog habitat in Sam Noble Springs would continue as it has in the past.
- Alternative B - the "Proposed Action Alternative" provides that the Agreement would be approved, and a permit would be issued to the State of Idaho, Department of Lands and Department of Fish and Game (State). The State would implement conservation measures on their land as identified in the Agreement, and would receive incidental take coverage for implementing conservation measures, including removing livestock grazing effects from primary frog habitat, and monitoring the frog population and habitat.
- Alternative C - the "Limited Grazing Alternative" would include an Agreement with the State and a permit issued for a plan that would allow livestock to graze the riparian pasture for a limited amount of time each year to maintain greater amounts of riparian vegetation than under Alternative A, but less than under Alternative B.
- Alternative D - the "Complete Grazing Exclusion Alternative", all livestock would be removed from the entire 680 acre (275 ha) parcel; no permit would be issued because there would be no risk of incidental take from livestock grazing.

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SECTION I: PURPOSE AND NEED FOR ACTION

A. Purpose for the Environmental Assessment:

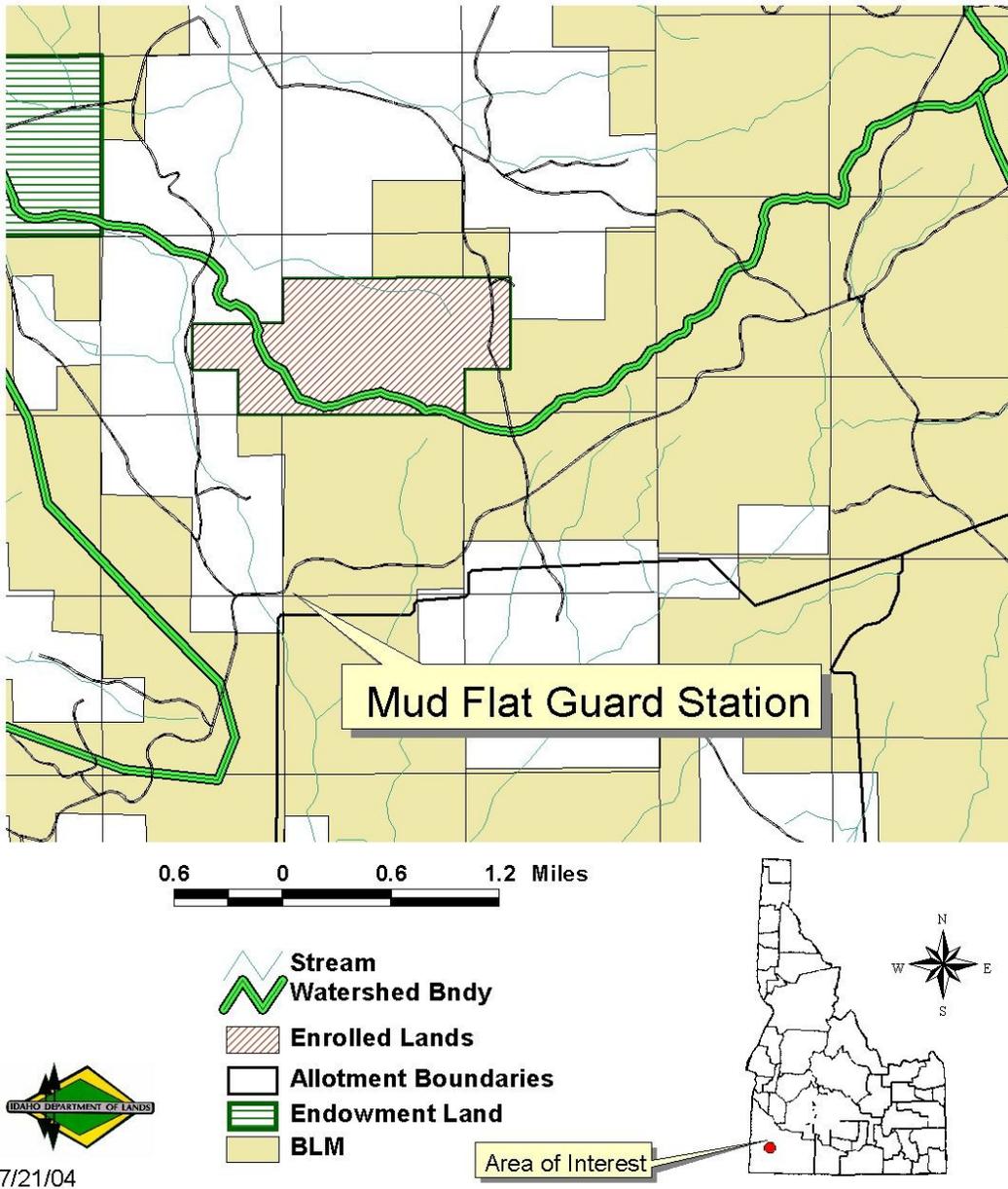
The purpose of this environmental assessment is to evaluate the proposal and three alternatives for implementing a Candidate Conservation Agreement with Assurances (Agreement) for the Columbia spotted frog (*Rana luteiventris*) at Sam Noble Springs in Owyhee County, Idaho. The purpose of the proposed project is to improve the conservation of the species on State lands in the Sam Noble Springs portion of state land, while allowing livestock grazing activities to continue on most of the 680-acre parcel. This land contains the largest population of spotted frogs in Owyhee County. The proposed Agreement would allow the State of Idaho, primarily through the Idaho Department of Lands (IDL) and the Idaho Department of Fish and Game (IDFG), in cooperation with the U.S. Fish and Wildlife Service (Service) (collectively “the agencies”) to implement conservation measures for Columbia spotted frogs in Owyhee County, Idaho. This environmental assessment is needed to allow the Service to evaluate the proposed project and the applicant’s request for a section 10(a)(1)(A) permit, as well as our need to conserve the largest population of frogs in Owyhee County.

The proposed Agreement would support efforts to manage for the enhancement, protection, creation, or rehabilitation of habitat for frogs, with an emphasis on core riparian habitat for most life history functions of the species. These measures would enhance conservation of the species within Sam Noble Springs. The conservation measures would be implemented by the state, and would consist of modifying grazing practices and actively managing habitat for the purpose of conserving the species. The proposed Agreement includes State endowment lands within the project area identified in Figure 1.

Under the proposed Agreement, the State would be issued a section 10(a)(1)(A) permit and would agree to implement the conservation measures outlined in the agreement, which has been determined to provide adequate conservation for Columbia spotted frogs. This permit would authorize incidental take of Columbia spotted frogs as long as the permit conditions, including the Agreement and its specified conservation measures, are implemented. Should the species eventually be listed under the Endangered Species Act of 1973, as amended (ESA), the proposed permit would authorize incidental take of Columbia spotted frogs, consistent with the Agreement and as the result of specified land management practices. The proposed covered practices are related to agriculture and livestock management activities and habitat restoration efforts which include: grazing management activities, installation of grazing management structures, creation of additional livestock watering ponds, installation and operation of a water collection facility serving a livestock watering trough, maintenance of existing livestock watering ponds, and management of vegetation in and adjacent to spotted frog habitat. The permit would include ESA regulatory assurances as discussed in the Service’s Candidate Conservation Agreement with Assurances Final Policy (64 FR 32726).

Figure 1. Lands proposed to be enrolled in a Candidate Conservation Agreement with Assurances for Columbia spotted frogs in Owyhee County, Idaho (Alternative B).

Figure 1 ENROLLED LANDS



Consistent with the Service's Candidate Conservation Agreement with Assurances Final Policy, the conservation goal of the Agreement is to encourage development and protection of suitable Columbia spotted frog habitat on non-Federal lands by modifying livestock grazing and water management and the restoration/creation of suitable breeding habitat. The conservation goal would be met by giving the State incentives to implement conservation measures, primarily through regulatory certainty concerning land use restrictions that might otherwise apply should the Columbia spotted frog become listed under the ESA. This environmental assessment is intended to inform the public, and help the Service decide whether to accept the Agreement and issue the section 10 permit pursuant to the ESA, consistent with the requirements of the Service's Candidate Conservation Agreement with Assurances Final Policy (64 FR 32726).

B. Need for the Proposed Action:

The need for proposed action is based on the fact that the Columbia spotted frogs (*Rana luteiventris*) at Sam Noble Springs are part of a population of frogs that are a candidate for listing under the ESA. Threats to the population mainly include impacts to, or loss of habitat, specifically including the loss of perennial wetlands used for feeding, breeding, hibernating, and migrating. Livestock grazing and water use in areas where frogs occur may contribute to habitat loss. The State of Idaho has an opportunity at Sam Noble Springs to address effects of livestock grazing on frog habitat while continuing to meet their management needs. By implementing their proposed action, the State may help ensure long-term protection of a population of a species that is a candidate for listing under the ESA, by significantly reducing the risk of impacts to frog habitat, while reducing any long-term regulatory risk to their ability to generate funds from those lands if frogs were listed and ESA take prohibitions limited their ability to lease those lands for livestock grazing.

C. Decision to be Made by the Responsible Official:

The Service will decide whether or not to approve the State of Idaho's proposed Candidate Conservation Agreement with Assurances, and issue a permit, in accordance with section 10(a)(1)(A) of the ESA, based on the Agreement as proposed or on the Agreement as further conditioned. To approve the Agreement, the Service must find that:

1. Take of Columbia spotted frogs will be incidental to otherwise lawful activities, and will be in accordance with the terms of the Agreement;
2. The Agreement complies with the requirements of the Candidate Conservation Agreement with Assurances final policy;
3. The probable direct and indirect effects of any authorized take will not appreciably reduce the likelihood of survival and recovery in the wild of this species;
4. Implementation of the terms of the Agreement is consistent with applicable Federal, State, and Tribal laws and regulations;

5. Implementation of the terms of the Agreement will not be in conflict with any ongoing conservation programs for species covered by the Agreement; and
6. The agencies have shown the capability for and commitment to implementing all of the terms of the Agreement.

D. Scoping and Issues Considered During Agreement Development:

A variety of issues have been raised during the time that the IDL, IDFG, and the Service have been discussing frog conservation opportunities, and whether to issue a federal endangered species permit to the State in exchange for an Agreement to conserve frogs:

- 1) Columbia spotted frog species conservation status: the federal status of frogs has been periodically reviewed by the Service, and determinations made that listing still appears to be warranted.
- 2) Columbia spotted frog habitat use and conservation needs: specific questions were raised by the IDL and others about the type of habitat needed for each life stage, and about the level of certainty the Service has about habitat needs for Columbia spotted frogs.
- 3) Land management actions affecting habitat conservation: questions have arisen from biologists with the IDL, IDFG, and Service; researchers from Boise State University; and staff from Western Watersheds Project regarding the effects of certain land management actions on frogs, such as building and maintaining ponds that frogs may use, disturbing springheads in drainages where frogs occur, and the effects of vegetation removal by livestock grazing on wetland function and frog habitat.
- 4) Livestock grazing effects on frog habitat: staff from the IDL and the Service expressed uncertainties about the degree to which livestock grazing in frog habitat may affect frog population viability.
- 5) State constitutional requirement for IDL to make money: the State has struggled to identify ways to ensure conservation of frogs while meeting their fiduciary responsibility to the citizens of Idaho by generating revenue from lands they manage.
- 6) Monitoring and adaptive management needs: questions remain from the Service, IDFG, and IDL over the amount of monitoring and management adaptations that may be needed to ensure that any land management actions do not harm, and hopefully benefit, Columbia spotted frog populations.

SECTION II: DEVELOPMENT AND CONSIDERATION OF ALTERNATIVES

This Environmental Assessment analyzes four alternatives, and identifies an additional alternative that was considered but eliminated because it did not meet the Service's Purpose and Need for the proposed project. These alternatives include Alternative A, No Action; Alternative B, Proposed Action; Alternative C, Limited Grazing; and Alternative D, Complete Grazing Exclusion.

A. Alternatives Considered For Further Analysis:

Alternative A, the "No Action" alternative would not include an Agreement and a federal permit would not be issued. Landowners would not receive any incidental take authorization under the ESA. Livestock grazing effects on frog habitat in Sam Noble Springs would continue as it has in the past.

Currently, the State's livestock permittee uses 254 Animal Unit-Months (AUMs) of forage on the entire 680 acre (275 ha) State land parcel each year. The season of use is generally from July through October. At this time of year forage in the wet meadow area stays green and succulent, and is preferred by livestock over nearby upland vegetation. Since most of the forage exists in the more well-watered riparian area adjacent to the spring heads and runoff channels (roughly 100 acres, or 40 ha, of the parcel), and most of this use comes during periods of warmer weather, most livestock use on the 680 acres (275 ha) occurs in these riparian areas. This is also the area that provides the majority of the habitat for Columbia spotted frogs. In the fall of each year, the remaining stubble height of grasses in the riparian area is minimal (T. Trent, IDFG, pers. comm. 2004). The net effects of livestock grazing, including water and vegetation use, may have an effect on the ability of frogs to use this habitat for foraging, migration, and other life history functions.

The estimated cost and revenue per year for 25 years for this Alternative A would include one day per year of administration cost to IDL at approximately \$150, annual pond maintenance costs of \$300, and payment of revenue to IDL of approximately \$1,270 per year for 254 AUMs at \$5 per AUM (T. Duffner, IDL, pers comm. 2005a).

Alternative B, the "Proposed Action Alternative" (see Appendix 1), provides that the Agreement would be approved, and a permit would be issued to the IDL. The State would implement conservation measures on their land as identified in the Agreement, and would receive incidental take coverage for implementing conservation measures, including excluding livestock grazing from primary frog habitat, and monitoring the frog population and habitat.

The State of Idaho's Agreement includes specific conservation measures related to livestock grazing for Columbia spotted frogs on the 680-acre (275 ha) Sam Noble Springs parcel, including: exclusion of grazing from 104 acres (42 ha) of riparian and adjacent upland habitat through installation of a fence; installation of other grazing management structures; creation of additional livestock watering ponds; installation and operation of a water collection facility serving livestock watering troughs outside of the 104-acre (42 ha) enclosure; restoration of

existing livestock watering ponds; and management of vegetation in and adjacent to spotted frog habitat. Excluding 104 acres (42 ha) from grazing would result in a reduction of the number of AUMs allowed on the state land in the big field, from 254 to 144. To facilitate implementation of this alternative, IDL would issue a permit to IDFG for the livestock enclosure. IDL could issue a 25-year lease to another state agency, such as IDFG, providing for longer-term conservation benefit under this alternative (IDL could only issue a 10-year lease to a non-state entity).

The estimated cost per year for 25 years for this Alternative B would include the following:

- Riparian land payment and lease (\$40,400).....\$1,600
- Riparian fence (\$10,000).....\$400
- Water development (\$18,700).....\$750
- West side pond development (\$1,000).....\$25
- Annual fence maintenance (\$6,250).....\$250
- Annual pond maintenance (\$7,500).....\$300
- IDL administration (\$3,750).....\$150
- Cultural resources survey (\$400).....\$20

The total estimated annual cost for this alternative is approximately \$3,500 per year, including the land lease and payment costs which were paid for by public funds. Revenue to IDL would include the riparian land lease of \$1,600 per year, plus \$720 per year for 144 AUM's at \$5 per AUM (T. Duffner, IDL, pers. comm. 2005a).

Alternative C, the “Limited Grazing Alternative”, would include an Agreement between the State of Idaho and the Service, and proposed section 10(a)(1)(A) permit, for a plan that would allow livestock to graze the riparian pasture for a limited amount of time each year to maintain greater amounts of riparian vegetation than under Alternative A, but less than under Alternative B. Some reduced number of AUMs from the current level of 254 AUMs of livestock would be allowed access to the enclosure area for a period of time that would be more limited than under Alternative A.

This alternative would be similar to Alternative B, the Proposed Action Alternative, except that some livestock grazing would be allowed in the 104-acre (40 ha), fenced riparian area every year, and some other additional conservation measures, such as habitat enhancement measures on the western end of the State land parcel, may not be implemented.

The estimated cost per year for 25 years for this Alternative C would include the following:

- Riparian fence (\$10,000).....\$400
- Annual fence maintenance (\$6,250).....\$250
- Annual pond maintenance (\$7,500).....\$300
- IDL administration (\$3,750).....\$150

The estimated total annual cost for this alternative is approximately \$1,100 per year. Revenue to IDL would include revenue of approximately \$1,270 per year for 254 AUM's at \$5 per AUM (T. Duffner, IDL, pers. comm. 2005a).

Alternative D, the “Complete Grazing Exclusion Alternative”, would require that all livestock be removed from the entire 680 acre (275 ha) parcel and a livestock enclosure fence be constructed; no permit would be issued because there would be no risk of incidental take from livestock grazing or water use. This type of land use would require a change in designation by the Idaho Land Board, which was expressly not authorized by the Board in a September, 2001, meeting. If a special-use permit were issued to a non-state entity to facilitate this alternative, it would be for only 10 years (as opposed to the 25-year lease available to another state entity, as described under Alternative B).

The estimated cost per year for 25 years for this Alternative D would include one day of administration per year at approximately \$150, plus construction of 1.25 miles (1.6 km) of fence amortized at \$260 per year, and annual maintenance of 3.75 miles of older perimeter fence and 1.25 miles of new perimeter fence, at approximately \$1,000 per year. Revenue would be approximately \$1,905 per year for a lease rate 1.5 times greater than the AUM rate of \$5 per AUM, for what has been 254 AUM’s over the entire parcel (T. Duffner, IDL, pers. comm. 2005a).

B. Alternatives Identified But Not Considered For Further Analysis:

Other permutations of the four alternatives were considered at various times, and all of the associated ideas are represented to varying degrees in the four alternatives listed above. There was one other alternative that was briefly considered but eliminated from further analysis: this would have included the State and the livestock grazing permittee, who is also an adjacent landowner, completing a joint CCAA covering both the State land parcel and the adjacent private land parcel in one comprehensive plan. This was not analyzed further because the private landowner was not prepared to enter into an endangered species permitting process.

SECTION III: AFFECTED ENVIRONMENT

A. Introduction

General Information

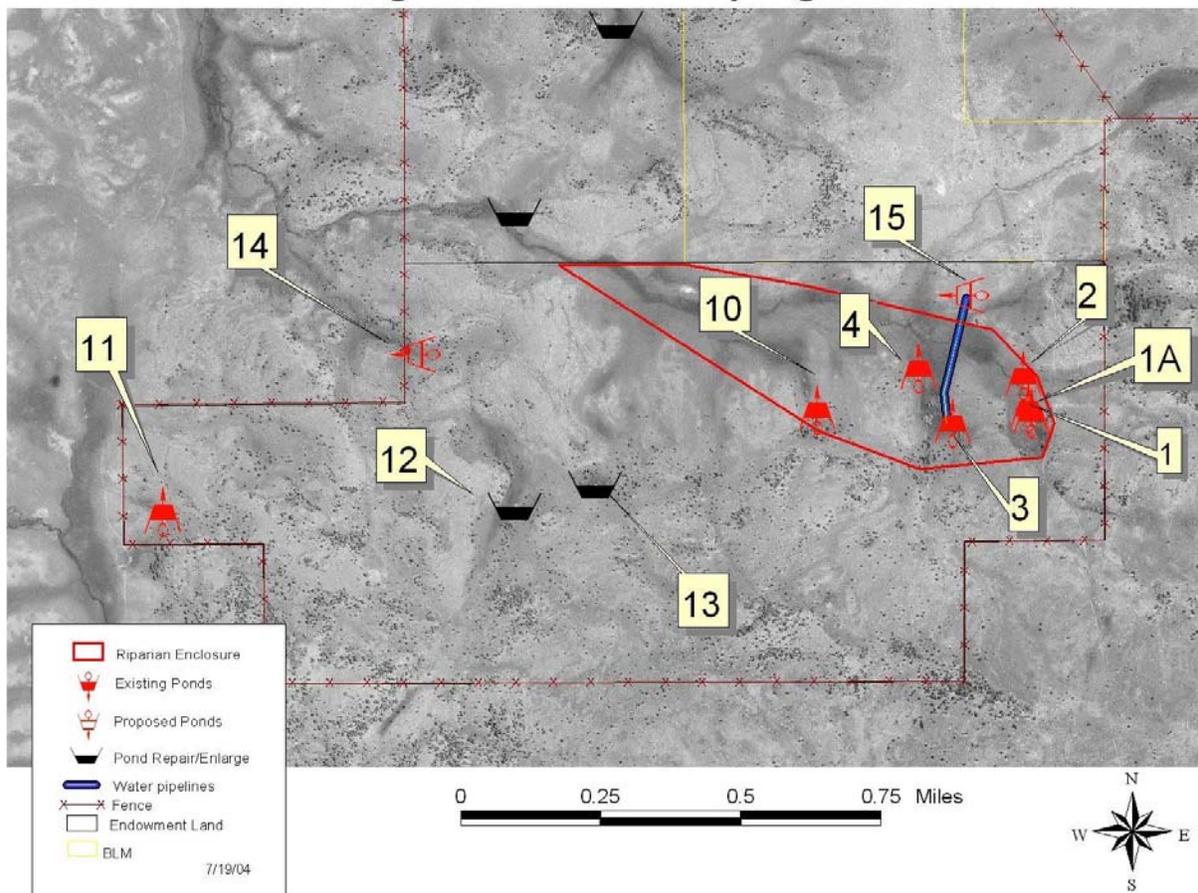
The area covered by the Agreement, is located in the Upper Rock Creek drainage in Owyhee County, Idaho (Figure 1). This land includes 680 acres of State Endowment land owned by the State of Idaho and managed by the IDL, located at N¹/₂SE¹/₄, SE¹/₄SE¹/₄ Section 22; S¹/₂, S¹/₂N¹/₂ Section 23; SW¹/₄NW¹/₄, NW¹/₄SW¹/₄ Section 24 Township 9 South, Range 2 West (Figure 2). The land is not irrigated and the dominant agricultural use is livestock grazing. This area, referred to as the Sam Noble Springs parcel, includes a complex of several natural springs and nine man-made livestock watering ponds and the surrounding uplands (IDL and IDFG 2004).

Lease Agreement between Idaho Department of Fish and Game and Idaho Department of Lands

The IDFG entered into a lease with the IDL for the Sam Noble Springs parcel effective January 1, 2003, which terminates on December 31, 2027. The lease requires the payment of \$38,500 to the IDL and \$1,910.00 to a prior lessee by IDFG. The IDFG has also agreed to construct and maintain a fence encompassing a 104 acre (42 ha) wet meadow, to construct and maintain a fence around a springhead and spanning a part of a newly constructed pond (#14, Figure 2). The lease states that the primary purpose is to conserve Columbia spotted frog and its habitat. Maintenance of the existing ponds within the 104 acre (42 ha) enclosure will take place only for the benefit of spotted frogs. The IDL reserves the fee title of the leased site with all the improvements placed by IDFG. The Department also reserves as its sole property any and all water from any source arising on State land and will hold the water rights and beneficial use that may develop as a result of the lease (IDL and IDFG 2003).

Figure 2. Sam Noble Springs parcel, Owyhee County, Idaho.

Figure 2. Sam Noble Springs



B. Columbia Spotted Frog Management and Ecology

Populations of the Columbia spotted frog (*Rana luteiventris*) are found from Alaska and British Columbia to Washington east of the Cascades, eastern Oregon, Idaho, the Bighorn Mountains of Wyoming, the Mary's, Reese, and Owyhee River systems of Nevada, the Wasatch Mountains, and the western desert of Utah (Green *et al.* 1997). Genetic evidence (Green *et al.* 1997) indicates that Columbia spotted frogs may be a single species with three subspecies, or may be several weakly-differentiated species. The Service currently recognizes four populations based on disjunct distribution: Northern, Great Basin, Wasatch, and West Desert. Columbia spotted frogs are believed to be abundant within the Northern population of the species' range from Alaska to Wyoming (Gomez 1994). The other three disjunct populations (Great Basin, Wasatch, and West Desert) received candidate status in 1993 based on the loss of subpopulations in a number of areas in Nevada. The Great Basin population is distributed in isolated patches from eastern Oregon, through southwest Idaho, and into Nevada. At that time, the Great Basin population was given an ESA listing priority of 9; in 2001 the priority was raised to 3 (the highest listing rank possible for a subspecies), based upon the discovery of *Chytridiomycosis* in the Owyhee

subpopulation, declining numbers, and the imminence of threats. The Columbia spotted frog is known to occur in Owyhee and Twin Falls counties, Idaho as shown in Figure a.

The Service, in its 1993 Federal Register notice which presented a “warranted but precluded” finding on whether to list spotted frogs under the ESA, suggested that spotted frog populations south of the Snake River plain should be managed in a way similar to other disjunct populations that are in decline. As of 2001, the Idaho Conservation Data Center had recorded 51 Element Occurrences (EO’s) for Great Basin population of Columbia spotted frogs: 1 was extirpated, presence was not verified at 5, and 20 had 5 or fewer frogs observed at the most recent survey (ICDC 2000).

The largest known threat to spotted frogs is habitat alteration and loss, specifically loss of wetlands used for feeding, breeding, hibernating, and migrating. Reduction or loss of habitat can be attributed at least in part to recent drought conditions, spring developments, livestock impacts on wetlands, water diversions, road construction, dam construction, fire, and loss of native beavers. Other threats include predation by non-native species and diseases. These threats, most of which are anthropogenic in nature, are likely playing a role in the decline of spotted frogs (Munger 2003).

Spotted frogs are classified as a priority species of special concern by the IDFG and are ranked as S2 (imperiled) by the Idaho Conservation Data Center (ICDC 2000). Currently, the Service is conducting an evaluation of the Great Basin population of spotted frogs based on the new Distinct Population Policy (C. Mellison, USFWS, pers. comm. 2004).

1. Population Status

Historical population status and range within Twin Falls and Owyhee Counties

Today, Columbia spotted frogs of the Great Basin Population occur at remnant, isolated, higher elevation sites in Nevada, southwestern Idaho, and eastern Oregon. Historically, the range of the Great Basin Population included the Raft River and Goose Creek drainages, the lower portions of which occur in Cassia County and the Owyhee Mountains in Owyhee County in southern Idaho. Recent surveys conducted in the Raft River and Goose Creek drainages in Idaho failed to locate spotted frogs (Reaser 1997, Shipman and Anderson 1997, Turner 1962). In 1994 and 1995 the Bureau of Land Management (BLM) conducted surveys in the Jarbidge and Snake River Resource Areas in Twin Falls County, Idaho. These efforts were also unsuccessful in locating spotted frogs (McDonald 1996). Frogs were found in Bear Creek and Shack Creek in 1997 and 2001 (J. Engle, USFWS, pers. comm. 2005).

Current Population Status of the Great Basin Population in Idaho

Prior to 1993, spotted frog occurrence in the Owyhee Mountain range of southwestern Idaho was only recorded for six historical sites (Munger *et al.* 1996). However, extensive BLM-funded surveys since 1993 (Munger 2002) have led to a substantial increase in the number of sites in southwest Idaho known to be occupied by spotted frogs. Although these surveys increased the available information regarding known species locations, most of these sites support small

numbers of frogs. Of the approximately 52 known EO's in 2005, fewer than 10 frogs were observed at 37 EO's at last observation (J. Engle, USFWS, pers. comm. 2005). Monitoring at 10 of the 52 occupied sites since 1997 indicates a general decline in the number of adult spotted frogs encountered (Engle 2000, Engle and Munger 2000, Lingo and Munger 2003). All known local populations in Owyhee County appear to be functionally isolated (Engle 2000, Engle and Munger 2000, Lingo and Munger 2003).

Rock Creek Area

The largest known EO of the Great Basin population of spotted frogs occurs in the Rock Creek drainage of Owyhee County. The Sam Noble Springs EO supported approximately 350 adult frogs, as estimated in the 1990's (Engle 2000). Recent data indicate a steady decline in the frog population at this site, to less than an estimated 100 individuals in 2003 (Lingo and Munger, 2004).

Enrolled Lands

The Sam Noble Springs EO exists primarily on the enrolled lands, and is one of the largest known local population of the species in Owyhee County. Six of the ponds in the Sam Noble Springs parcel are known to be occupied by Columbia spotted frogs, as are most of the spring heads and stream riparian habitat occupied at least seasonally.

2. General Habitat Requirements

Past studies have shown that frogs require habitat components serving four major life-history needs: hibernating, breeding, foraging, and migrating (IDFG *et al.* 1995, Munger 2003, Lingo and Munger 2003).

First, hibernacula with oxygenated water and sufficient interstitial spaces for frogs to seek protection are required for successful overwintering. Munger (2003) observed that five types of hibernacula may be used by Columbia spotted frogs: undercut banks, spring openings, the interior of beaver dams, water-flooded burrows associated with Geyer's willow, and the bottoms of ponds (See also IDFG *et al.* 1995). Bull and Hayes (2000) found that overwintering patterns were linked to local environmental variations and observed overwintering at aquatic sites.

Second, successful frog breeding requires sites that have sufficient water to allow young to complete the larval phase. After emergence, adults move to breeding areas in the enrolled land area, and beyond. Breeding usually occurs in pooled water (*e.g.*, oxbows, lakes, stock ponds, beaver-created ponds, springs, seeps in wet meadows, and stream side channels) with floating vegetation and some emergent vegetation (IDFG *et al.* 1995, Reaser 1997, Munger *et al.* 1997). Successful egg production and the viability and metamorphosis of spotted frogs are susceptible to habitat variables such as water temperature, water depth, pH, desiccation, over-hanging vegetation, and the presence/absence of non-native fishes and bullfrogs (non-native species are not known to be a threat at Sam Noble Springs) (Morris and Tanner 1969, Reaser 1996, Munger *et al.* 1996). Breeding and egg deposition may take place as early as late March and tadpoles

hatch through May. Columbia spotted frogs may transform from tadpoles to frogs from June through the end of the summer season (Engle 2001).

Following breeding, frogs may remain at the same site or may move to other feeding areas. Frogs require shallow pond margins and moist areas with vegetative cover for feeding habitat. Frogs forage in the wet meadow and along the margins of the ponds (Engle 2001).

Frogs need movement corridors containing water and vegetation for cover that allow safe travel among required habitat components. Breeding areas may be located hundreds of meters away from overwintering sites, thus the ability to move between breeding and hibernation sites is critical. The wet meadows and associated watercourses serve as dispersal corridors and are important for short-distance seasonal migrations on the enrolled lands (Engle 2001).

3. Factors Affecting Columbia Spotted Frogs On and Near the Enrolled Lands

Effects on Habitat and Range

Spotted frog habitat degradation and fragmentation is probably a combined result of decreased riparian vegetation and water source alterations. Activities that can influence vegetation and water sources include past and current spring development, agricultural development, and heavy livestock grazing. Spotted frog habitat in Owyhee County occurs in areas where these activities are likely to occur, or where these activities have occurred in the past. The effects of habitat degradation and fragmentation include, but are not limited to: (1) the elimination of vegetation necessary to protect frogs from predators and UV-B radiation avoidance; (2) reduction of soil moisture; (3) undesirable changes in water temperature, chemistry, and water availability; and (4) restructuring of habitat zones through trampling, rechanneling, or degradation, causing the loss of breeding, feeding, and hibernation sites (IDFG *et al.* 1995, Munger *et al.* 1997, Reaser 1997, Munger 2003).

Springs serve an important role in spotted frog habitat. Springs provide a source of water for frog breeding, feeding and winter refuge (IDFG *et al.* 1995). Springs provide deep, protected areas for spotted frogs in cold climates, which serve as hibernacula. Springs also provide protection from predation through underground openings (IDFG *et al.* 1995, Patla and Peterson 1996). Spring developments alter the source of water in desert ecosystems, which may lead to the loss of associated riparian habitats and wetlands used by spotted frogs. Many of the springs in southern Idaho, eastern Oregon, and Nevada have been developed.

Protection of wetland habitat from loss of water to irrigation or water development may be difficult in some situations because water developments have already occurred within much of the known habitat of spotted frogs (Munger 2003). Federal lands may have water rights that are approved for wildlife use, but these rights are often superceded by upstream or downstream water rights that do not provide for minimum flows. Also, most public lands are managed for multiple use and are subject to livestock grazing, silvicultural activities, and recreation uses that may be incompatible with spotted frog conservation unless adequate conservation or mitigation measures are instituted.

Vegetation and surface water along movement corridors provide protection from high temperatures and arid environmental conditions, as well as protection from predators (Engle 2001). Loss of vegetation and/or lowering of the water table in movement corridors can pose a significant threat to frogs moving from one area to another. Fragmentation and loss of habitat can prevent frogs moving between hibernation, breeding, and feeding sites, and may prevent colonization of potentially suitable sites.

Fragmentation of habitat may be one of the most significant barriers to spotted frog recovery and population persistence (Engle and Munger 2000). Recent studies in Idaho indicate that spotted frogs exhibit breeding site fidelity (Patla and Peterson 1996, Engle 2000, Engle and Munger 2000). Zones of unsuitable habitat may impede movement of frogs from hibernation sites to breeding sites. As movement corridors become more fragmented due to loss of flows and vegetation within riparian or meadow habitats, local populations will become more isolated (Engle 2000). Although a direct causal effect between livestock grazing and declines in spotted frog populations has not been demonstrated in the Owyhees, negative effects of heavy grazing on the components of habitat important to spotted frogs (that is, the vegetation, hydrology, and structure) in riparian areas have been documented (Kaufman *et al.* 1982, Kaufman and Kreuger 1984, Skovlin 1984, Schulz and Leininger 1990). Lingo and Munger (2003) speculate that grazing the margins of ponds may decrease the successful metamorphosis of spotted frogs.

Other Natural Effects

Natural fluctuations in environmental conditions tend to magnify the detrimental effects of these activities, just as activities that alter vegetation and water sources may magnify the detrimental effects of natural environmental events. Multiple consecutive years of less than average precipitation may result in a reduction in the number of suitable sites available to spotted frogs (Lingo and Munger 2003). Local extinctions eliminate source populations from habitats that in normal years are available as frog habitat (Gotelli 1995, Lande and Barrowclough 1987, Schaffer 1987). These climatic events are likely to exacerbate the effects of other threats, thus increasing the possibility of stochastic extinction of subpopulations by reducing their size and potential for connectedness to other subpopulations (see Effects on Habitat and Range Factor above for additional information). As movement corridors become more fragmented, due to loss of surface flows within riparian or meadow habitats, local populations will become more isolated (Engle 2000). Increased fragmentation of the habitat can lead to greater loss of populations due to demographic and/or environmental stochasticity.

Effects of Disease and or Predation

Predation by fish, bull frogs, and other species such as reptiles, herons, and birds may not be considered a significant factor for spotted frogs under normal habitat conditions, given that these species have evolved together over millenia. However, the effects of interactions with the mentioned predators/competitors could result in further depletions of already fragile populations in the area covered by the agreement.

Chytrid fungus, (*Chytridiomycosis*), is a fungal disease responsible for catastrophic amphibian population declines (Daszak 1999). Chytrids are ubiquitous fungi that develop without hyphae

and are found in aquatic habitats and moist soil, where they degrade cellulose, chitin, and keratin (Powell 1993). It is believed that in hot or desert regions, outbreaks generally occur during winter (hibernation) or early spring (J. Wood, USFWS, pers. comm. 2001). Humans (fieldworkers and tourists), freshwater fish, and amphibians are known transmitters of the fungus. Livestock have not been identified as a carrier, although it is possible. Chytrid has the ability to cause local population declines resulting in local host extinction. Chytrid fungus has been discovered within Owyhee County at Circle Pond, but has not yet been confirmed within the Sam Noble Springs spotted frog population, though it may already be present (M. Drew, IDFG, *in litt.* 2003).

C. Wetland and Upland Vegetation and Hydrology

The Sam Noble Springs parcel is a complex of several natural springs and nine man-made livestock watering ponds (Figure 2). There are approximately four springs within the 104 acre (42 ha) enclosure proposed in Alternative B and identified on the map, and 3 springs outside the enclosure in the 680 acre (275 ha) area. The springs in the wet meadow complex on the Sam Noble Springs parcel produce from 10 to 20 gallons (38 to 76 liters) per minute depending on the year and may drop to 6 gallons (23 liters) per minute in extreme drought years (IDL 2005).

The springs drain into a wet meadow complex dominated by sedges (*Carex* spp.). Willows (*Salix* spp.) are present around some of the ponds and there is an isolated clump of willows in the wet meadow. The wet meadow and spring complex occupies less than 100 acres (40 ha) of the 680 acre (275 ha) Sam Noble Springs parcel.

The IDL has made observations of vegetation composition and structure within and outside of their proposed enclosure as described in Alternative B. Their description follows:

Outside enclosure

The 576 acres (233 ha) of State land outside the enclosure consist of gently rolling uplands ranging in elevation from 5,700 to 5,900 feet (1,737 to 1,798 m). Soils are finer textured loams in the draws, becoming coarser on the ridges with occasional boulders and rock outcrops. The boulder and rock outcrops are more common towards the south and west sides of the parcel.

Most of the upland vegetation outside the enclosure is a mountain big sagebrush (*Artemisia tridentata vaseyana*) /mixed perennial grass community. The dominant grasses are bluebunch wheatgrass (*Agropyron spicatum*), and Idaho fescue (*Festuca idahoensis*). Other common grasses are sandberg bluegrass (*Poa sandbergii*), squirreltail (*Sitanion hystrix*) and needlegrass (*Stipa* spp.). Near the fringes of the meadow on deeper soils Kentucky bluegrass (*Poa prattensis*) and prairie Junegrass (*Koeleria cristata*) may be found. Common forbs are balsam root (*Balsamorhiza sagittata*), yarrow (*Achillea millefolium*), and lupine (*Lupinus* spp.). Near the meadows and some level hardpan flats wyethia (*Wyethia amplexicaulis*) may be common. The shallow hardpan areas and rocky ridges are dominated by low sagebrush (*Artemisia arbuscula*) rather than big sage, and comprise about ten percent of the upland area. The grass component is similar to the big sage types, but the forb component is dominated by buckwheat

(*Eriogonum spp.*) and wyethia. Bitterbrush (*Purshia tridentata*) is common in both the low sage and big sage communities. Curlleaf mountain mahogany (*Cercocarpus ledifolius*) becomes a co-dominant species in the areas with bedrock outcrops. Rabbit brush (*Chrysothamnus spp.*) may be found throughout the uplands and is most common on the big sage sites.

Juniper (*Juniperus scopulorum*) occurs throughout the area. It is a major component of the overstory on the higher ridge tops and side slopes of the deeper draws. It is now expanding out onto the deeper loamy soils in the draw bottoms and even into the open meadows. All the upland sites are considered to be in good to excellent ecological condition. The mahogany is mature and decadent with little reproduction. Bitterbrush and sagebrush, where not influenced by juniper, are vigorous and self-maintaining.

Inside enclosure

There are 104 acres (42 ha) fenced into an enclosure and leased to the IDFG. Two sagebrush communities are represented within the enclosure. The silver sage community covers about 26 percent (27 acres or 11 ha) of the enclosure and occurs as a band in varying widths between the wet meadow and the big sage upland. It is an area that gets some flooding and standing water in spring snowmelt. Dominant species of this community include silver sage brush (*Artemisia cana*). The sage canopy cover is less than 10 percent. Understory near the wet meadow is dominated by Kentucky bluegrass, timothy (*Phleum pretense*), and Canada reedgrass (*Calamagrostis canadensis*). Forbs in the wetter silver sage area include potentilla (*Potentilla gracilis*), wyethia, and western yarrow. The dryer silver sage areas that transition to the big sage sites are dominated by Idaho fescue, prairie junegrass, and needlegrass. Forbs are antennaria (*Antennaria spp.*), flax (*Linum lewisii*), and western yarrow.

The big sagebrush community is on the side slopes and ridges mostly in the southern half of the enclosure. It covers about 43 percent (45 acres or 18 ha) of the enclosure and has almost all the junipers that are fenced into the enclosure. A few remnant aspens (*Populus tremuloides*) are found in one location immediately west of ponds 1 and 1a (Figure 2) in the sagebrush community.

Meadow Vegetation

The meadow area within the enclosure is a series of ribbons along the bottoms of drainages which connect the ponds to Rock Creek and continues down Rock Creek off the State land. The meadow covers about 32 acres (31 percent) of the enclosure. A Level III greenline transect (a survey that identifies plant species composition along the stream) was initially performed in July 2000. This transect was done along the stream in about the center of the meadow area. Approximately 1,280 feet (390 m) were sampled on each bank. The transect was located so that one reach of each stream type on the State land is measured. The upper 640 feet (195 m) has a very low gradient channel with a fine grained bed. The lower 640 feet (195 m) is slightly steeper gradient, and is slightly incised. This lower segment is also where willows are found along the creek. The information from this transect was used to identify the riparian community types in this meadow.

In July 2001, a riparian cross section transect was established at this same location. This transect established the width of the riparian area and the width of each community type along each cross section. Both of these transects were reread in August of 2004. All of the data were summarized to identify species composition, relative composition of each community type, ecological status of the meadow, and site stability. A new riparian cross section transect was established below pond 3 in 2004 as well. This transect was also summarized and added to the other transect data.

Table 1. Results from riparian vegetation sampling conducted in July, 2001, on the Sam Noble Springs parcel, Owyhee County, Idaho (T. Duffner, IDL, pers. comm. 2004b). NA = results not applicable or not available.

| | | Successional Status | |
|----------------------|------|---------------------|---------------|
| Transect Location | Year | Transect Type | |
| | | Green Line | Cross Section |
| Rock Creek (willows) | 2000 | Late (83%) | NA |
| Rock Creek (willows) | 2001 | NA | Late (82%) |
| Rock Creek (willows) | 2004 | Late (85%) | Late (88%) |
| Meadow Pond 3 | 2004 | NA | Late (72%) |

| Riparian Green Line Transect Stability Rating | | |
|---|------|-----------------|
| Rock Creek | 2000 | 7.9-Good (high) |
| Rock Creek | 2004 | 8.7-Good (high) |

Based on these transects, the meadow area is considered to be late successional status with a good or high stability rating. Although successional status and stability increased between 2000 and 2004, this is not enough to confirm a trend. However plant vigor based on leaf width and length, seed head production, and woody shrub hits would all indicate an upward trend.

The dominant species along the greenline on Rock Creek are sedges, especially water sedge (*Carex aquatilis*), and Nebraska sedge (*Carex nebrascensis*), and baltic rush (*Juncus balticus*). Grasses, although not dominant, include mannagrass (*Glyceria spp.*), Timothy (*Phleum pratense*), and Kentucky bluegrass (*Poa pratensis*). Four species of sedge are present within the enclosure: *Carex aquatilis*, *Carex simuleta*, *Carex nebrascensis*, and an unknown *Carex* species. All *Carex* species comprise approximately 65 percent of the vegetation sampled during the greenline transect surveys; *C. nebrascensis* accounts for approximately one third of the total amount (J. Silas, IDL, pers comm. 2006).

The riparian cross section transects centered on Rock Creek were dominated by water sedge, Nebraska sedge, and Baltic rush near the creek. As the transect continued out onto dryer areas, grasses and forbs increased. Dominant grasses included Canada reedgrass, timothy, Kentucky bluegrass, and meadow barley (*Hordeum brachyantherum*). Dominant forbs found mixed with these grasses included potentilla, groundsel (*Senecio spp.*), and aster (*Aster spp.*).

Other common forbs in the meadow include iris (*Iris missouriensis*), wyethia, yarrow, veratrum (*Veratrum californicum*), and goldenrod (*Solidago spp.*), geranium (*Geranium spp.*), gentian (*Gentiana spp.*), bed straw (*Galium spp.*), and shooting star (*Dodecatheon spp.*).

Other common grasses and sedges in the meadow include tufted hair grass (*Deschampsia cespitosa*), oatgrass (*Danthonia intermedia*), spike rush (*Eleocharis spp.*), rocky mountain sedge (*Carex scopulorum*), beaked sedge (*Carex utriculata*).

Shrubs associated with the meadow include geyer's willow (*Salix geyeriana*), Wood's rose (*Rosa woodsii*), and current (*Ribes spp.*). The willows are generally associated with areas that have permanent surface water. Rose and current occur as widely scattered individual plants.

The area outside the wetlands is dominated by sagebrush and bitterbrush overstory with a moderately diverse understory of native forbs and grasses dominated by Idaho fescue and bluebunch wheatgrass. Cheatgrass (*Bromus tectorum*) is present in an old burn on the eastern end of the area but is not dominant and does not appear to be moving to new sites. Rocky mountain juniper is increasing in the upland areas and encroaching into the fringes of the meadow (IDL and IDFG 2004).

D. Livestock Grazing

The Sam Noble Springs parcel is leased to a rancher, who is also an adjacent landowner, for livestock grazing. The parcel is part of a larger pasture, called the "big field" composed of the Sam Noble Springs parcel, and private and BLM land to the north of the State land parcel. There are no division fences between these ownerships or within the big field. Livestock grazing in the big field may take place from late July through October. At that time of year the upland vegetation is curing rapidly or has cured and very little green forage exists in the big field except for the wet meadows. Livestock tend to congregate in the wet meadows due to the green vegetation and the presence of water. There are six livestock watering ponds and one proposed pond in the big field in addition to the six ponds in the wet meadow complex on the Sam Noble Springs parcel (Figure 2).

On the Sam Noble Springs parcel, livestock use has been most intense in the wet meadow adjacent to the stream channel, and around the livestock watering ponds (T. Koch, USFWS, pers. comm. 2005b). The wet meadow vegetation is grazed very close, except where the ground is too wet and soft for the cattle to walk. The margins of the ponds have been heavily grazed and trampled, and pond margins have often been denuded of all vegetation. The trampling around ponds is exacerbated in dry years when some of the ponds have dried up, concentrating livestock use at the few remaining ponds with water.

Livestock grazing on the Sam Noble Springs parcel can begin about the same time Columbia spotted frogs are transforming from tadpoles to young frogs (metamorphs). The amount of overlap depends on the timing of grazing and phenology of frog emergence. There is some evidence that fewer young frogs are produced at ponds intensively used by livestock at the same time emergence is taking place (Lingo and Munger 2003).

E. Wildlife

The area in and around Sam Noble Springs includes a fairly complete assemblage of native species of fish and wildlife. Most species of wildlife rely on surface water and vegetation associated with water to meet at least part of their survival needs.

Birds

Green wing teal (*Anas crecca*), cinnamon teal (*Anas cyanoptera*), mallard (*Anas platyrhynchos*), mountain bluebird (*Sialia currucoides*), red winged blackbird (*Agelaius phoeniceus*), common snipe (*Gallinago gallinago*), Wilson's phalarope (*Phalaropus tricolor*), northern flicker (*Colaptes auratus*), killdeer (*Charadrius vociferus*), yellow warbler (*Dendroica petechia*), sandhill crane (*Grus canadensis*), song sparrow (*Melospiza melodia*), common raven (*Corvus corax*), hummingbird species, Canada goose (*Branta canadensis*), greater sage grouse (*Centrocercus urophasianus*), mourning dove (*Zenaida macroura*), violet-green swallow (*Tachycineta thalassina*), sage thrasher (*Oreoscoptes montanus*), western meadowlark (*Sturnella neglecta*), and short-eared owls (*Asio flammeus*) were observed at Sam Noble springs during the spring and summer from 1998 to 2001 (J. Engle, Boise State University, *in litt.* 1998; J. Engle, Boise State University, *in litt.* 1999; J. Engle, Boise State University, *in litt.* 2000a; J. Engle, Idaho Department of Fish and Game, *in litt.* 2001a). Brewer's sparrow (*Spizella breweri*), green-tailed towhee (*Pipilo chlorurus*), vesper sparrow (*Pooecetes gramineus*), and sage thrasher (*Oreoscoptes montanus*) have also been noted onsite (Fite 2006).

Two sage grouse were seen in the enclosure on September 28 and 29, 2004. The grouse flushed to the upland area once they were sighted (T. Duffner, IDL, pers. comm. 2004a). There are no known sage grouse leks in or near the State land parcel that includes Sam Noble Springs. Primary sage grouse habitat occurs approximately one mile (1.6 km) south of the State land parcel, south of the mud flat road (Tracey Trent, IDFG, pers. comm. 2004a).

Mammals

Ungulate species such as mule deer (*Odocoileus hemionus*) and pronghorn antelope (*Antilocapra americana*) have been seen at Sam Noble Springs during the spring and summer from 1998 to 2001 (J. Engle, Boise State University, *in litt.* 1998; J. Engle, Boise State University, *in litt.* 1999; J. Engle, Boise State University, *in litt.* 2000a; J. Engle, Idaho Department of Fish and Game, *in litt.* 2001a). The enclosure surrounding the leased land that was constructed in 2003 by IDFG was built to allow safe passage of ungulate wildlife species (T. Trent, IDFG, pers. comm. 2004b).

Other mammals seen at the Sam Noble springs include: muskrat (*Ondatra zibethica*), coyote (*Canis latrans*), mountain cottontail rabbit (*Sylvilagus nuttalli*), vole species, shrew species, deer mice (*Peromyscus maniculatus*), Belding's ground squirrel (*Citellus columbianus*), and kangaroo rat (*Dipodomys spp.*) (J. Engle, Boise State University, *in litt.*, 2000a; J. Engle, IDFG, *in litt.* 2001a). IDL and the permittee report occasionally observing elk (*Cervus canadensis*) at Sam Noble Springs.

Pygmy rabbits (*Brachylagus idahoensis*) have not been observed on the Big Field parcel, but are known to occur within a few miles, and in other locations in Owyhee County (Roberts 2003, Burak and Munger 2006).

Reptiles

Western fence lizards (*Sceloporus occidentalis*) and western terrestrial garter snakes (*Thamnophis elegans*) have been observed at Sam Noble springs (J. Engle, Boise State University, *in litt.* 1998; J. Engle, Boise State University, *in litt.* 1999).

Amphibians

Pacific tree frogs (*Hyla regilla*), and garter snakes (*Thamnophis spp.*) have been observed at Sam Noble springs (J. Engle, Boise State University, *in litt.* 1998; J. Engle, Boise State University, *in litt.* 1999).

Fish

No fish are known to occur regularly on the Sam Noble Springs state land parcel. Redband trout (*Oncorhynchus mykiss gairdneri*) do occur nearby, downstream at least one mile (1.6 km) in mainstem Rock Creek.

Threatened and Endangered Species

No species listed under the endangered species act are located in the project area (ICDC 2005).

F. Local Communities and Economies

Owyhee County, which includes the project area, grew in population by 27 percent from 1990 to 2000, and is now over 10,000 residents (U.S. Bureau of the Census 2001). It is less than an hour's drive from Boise and the Treasure Valley, which is the largest population center in the state of Idaho. Many Treasure Valley residents recreate in Owyhee County.

Approximately 80 percent of Owyhee County residents' income is generated from non-farm sources, and 20 percent is from farm sources (BLM 2004). Owyhee County includes a large percentage of public lands which supports, among other activities, a significant amount of recreational use. Some portion of farm income is also generated on public lands, primarily through livestock grazing, such as on the State land parcel at Sam Noble Springs. Over 75 percent of lands in Owyhee County are managed by the federal government (primarily BLM) Over 17 percent are private lands and nearly 7 percent are State lands managed primarily by IDL.

G. Recreation

As reported by the Statewide Comprehensive Outdoor Recreation and Tourism Plan, the top five adult recreational activities are walking; hiking; watching wildlife other than birds or fish; swimming in a pond, lake or river; and viewing fish. Fishing and hunting are also popular activities among adults statewide: roughly 50% of adults surveyed fish on rivers and 46% fish on lakes, while 34% participate in big game hunting, 25% in upland bird or small game hunting, and 18% and 13% in rodent and waterfowl hunting, respectively (IDPR 2003).

Recreational use in this portion of the State of Idaho has grown rapidly in the last 20 years, mirroring a roughly 100 percent increase in population growth in southwest Idaho over that same time period (BLM 2004). The most popular recreational activities on public lands in this part of the State include driving various types of vehicles for pleasure, bird watching, nature study, camping, big game hunting, upland bird hunting, hiking, and horseback riding. Many people from Idaho's largest population center – the Treasure Valley and the City of Boise – recreate in Owyhee County.

All of these activities could, and to some extent probably do occur on or near the state land parcel at Sam Noble springs.

H. Cultural resources

Past cultural surveys of the surrounding area indicate that within three to five miles (4.8 to 8 km) of Sam Noble Springs archeological materials were present and that prehistoric occupation of the area and the spring could have been likely. Therefore, a cultural resource survey of all the areas proposed for ground disturbance was conducted on November 7 and 8, 2003, by Joseph Gallagher and Chris Gallagher (J. Gallagher, Heritage Preservation Resources, *in litt.* 2003). No cultural resources were found in the project area during this survey. The Regional Archeologist for the Service certified that funding of the proposed construction with federal aid funds is in compliance with Section 106 of the National Historic Preservation Act (A. Raymond, USFWS, *in litt.* 2003).

SECTION IV: ENVIRONMENTAL CONSEQUENCES

A. Introduction

Effects of each alternative on the environment in the 680-acre (275 ha) project area vary from few effects from Alternative D, the Complete Grazing Exclusion alternative, to continued ongoing effects from livestock grazing from Alternative A, the No Action alternative, to some construction and water use effects from Alternative B, the proposed action. The differences in effects among the Alternatives would be primarily on wetland vegetation.

B. Effects on Columbia Spotted Frogs

Alternative A:

The effects on spotted frogs of Alternative A would remain unchanged from past management of State lands at Sam Noble Springs. Potential impacts from livestock grazing and water use would remain the same as described in Section III of this document, and by the State of Idaho in the Agreement (IDL 2005). These potential impacts, combined with ongoing low levels of annual precipitation, may result in a continuation of the ongoing frog population decline in this area.

Alternative B:

The effects of Alternative B would include nearly eliminating impacts to frogs from livestock grazing in occupied frog habitat, and reducing impacts to frogs from water use by livestock in the wet meadow area on State lands, as a result of implementing the proposed terms of the Agreement. In addition, commitments to enhance habitat within and outside of the wet meadow habitat and proposed enclosure may provide additional opportunities to benefit frog populations. This alternative may provide the greatest potential conservation benefit to frogs of all the alternatives because of the reduction in livestock access to water and to frog habitat within the enclosure, combined with other conservation commitments outside of the enclosure, and a monitoring and adaptive management commitment. Only Alternative D may ultimately prove to provide more frog conservation if the most important factor to frogs is leaving all surface water within the enclosure, and not allowing any withdrawal. This Alternative B would allow some water to be withdrawn for livestock, and depending upon how much water is withdrawn and the timing of the withdrawals, this Alternative may have less of a benefit to frogs than Alternative D because of reduced water quantity for frogs.

Under this Alternative, the spotted frog population at Sam Noble Springs may have an opportunity to increase, thereby reversing declining population trends of the last several years. Potential ongoing impacts, such as water withdrawal from the wet meadow area within the enclosure, may continue to impact frogs and their habitat, but overall, impacts from livestock watering and grazing combined will be greatly reduced. Continued grazing of livestock outside the enclosure may also affect frogs by either impacting broader watershed hydrology function (*e.g.*, soil compaction or vegetation removal), or by affecting seasonal dispersal habitat for frogs (*e.g.*, vegetation removal increasing desiccation risk, or potential trampling, of dispersing

metamorphosed frogs). However, overland dispersal of metamorphosing frogs may currently be low in this area (Engle and Munger 2000), the actual risk of impacts to frogs from grazing would be low overall because of dispersed grazing behavior of livestock in uplands. This alternative would maintain an opportunity to allow some livestock grazing if it may benefit frog habitat.

If low levels of annual precipitation persist, any potential recovery of frog populations at Sam Noble Springs may be impaired. In addition, other factors such as disease may also impair populations here. However, the potential effects on frogs and their habitat from livestock grazing will be small. Risk of “take” of frogs, as defined under the ESA, will be greatly reduced from Alternative A, and will be low overall. The greatest potential risk of take is water withdrawal from the enclosure. Effects of the water collection system will be monitored to detect significant negative effects. The State will work with the Service to review monitoring results and adapt management, if necessary, to ensure impacts to frogs are minimized.

Alternative C:

Under Alternative C, frog populations would continue to experience pressure from livestock impacts to frog habitat in the wet meadow. Impacts would be less than for Alternative A, but more than Alternative B. Potential recovery of frog populations at Sam Noble Springs would be limited by ongoing habitat impacts, in addition to other factors such as low precipitation and disease. Population declines may continue.

Alternative D:

Under Alternative D, frog populations would have the maximum opportunity to recover without any impacts from livestock grazing and water use, which would be excluded under this alternative. There would be almost no human-caused impacts to frogs or their habitat because there would be no active or ongoing management actions on State lands that would directly affect frog habitat. This Alternative would reduce risk of negative human-caused impacts on frogs more than any other alternative, including Alternative B. This Alternative also would not include commitments to potentially enhance frog habitat on the western portion of State lands, nor would it include a monitoring and adaptive management plan to ensure that artificially-created livestock watering ponds, which the frogs have come to depend on for key life history functions, would remain. Finally, there would be no commitment to allow limited livestock grazing in frog habitat to benefit frogs, if necessary. This Alternative represents a strategy of maximum reduction of risk of impacts from active management actions, but does not include developing and Agreement between the Service and the State, or other potential actions for actively promoting the conservation of spotted frogs and their habitat.

C. Effects on Wetland and Upland Vegetation and Hydrology

Alternative A:

The effects of Alternative A on vegetation and hydrology, as described by the State of Idaho in the Agreement, would remain unchanged from past management of State lands at Sam Noble

Springs. Vegetation removal by livestock, especially in the wet meadow area, as well as in uplands, would continue. Vegetation composition would likely remain unchanged. Impacts to wetland and upland soils from livestock grazing, including soil compaction, would continue, and may effect wetland water storage capability, altering water runoff patterns in the area by accelerating runoff when water is present and increasing the amount of time stream channels run dry when the presence of water declines.

Alternative B:

The effects of Alternative B on vegetation and hydrology may be significant within the enclosure, compared to Alternative A, similar to that of Alternative D, and more than that of Alternative C. With the complete exclusion of livestock grazing within the enclosure, wet meadow vegetation will grow to full height and remain throughout the year uncropped by livestock. This may create more cover for terrestrial life stages of frogs, providing greater opportunity to escape from some predators and better avoid dessication during warm, dry summer months. Increased vegetative cover may also provide more habitat for insects that frogs eat. This Alternative would also maintain the opportunity to allow limited grazing of livestock within the enclosure to benefit frog habitat, if appropriate.

Hydrologic conditions within the enclosure may also be significantly affected under Alternative B if an increased mass of wet meadow vegetation helps to trap and hold more water in the meadow itself. Removal of livestock in the enclosure will eliminate any risk of wet meadow soil compaction, further increasing the potential for water storage. Finally, reduced AUMs on the State land parcel, combined with the exclusion of livestock from riparian areas, will likely significantly reduce the amount of water used by cows in Sam Noble Springs; possibly by up to 45 percent or more. More water available in frog habitat would probably increase greatly the habitat quality and quantity for foraging, migrating, and possibly overwintering.

The effects of Alternative B on upland vegetation outside the enclosure will be little different than Alternative A. Livestock will continue to graze upland vegetation as they have in the past. This would likely have little effect on frogs, which spend the vast majority of their time in or near surface water. However, dispersing spotted frogs may not restrict dispersal movements to riparian or wetland corridors and thereby encounter upland conditions during dispersal (Turner 1960). It is unknown whether or how often this happens at Sam Noble Springs, and what habitat conditions are necessary to facilitate such dispersal. If future research or monitoring demonstrates an opportunity to increase frog conservation by addressing upland habitat conditions, the Service and the State can work together to incorporate such ideas.

Alternative C:

The effects of Alternative C on vegetation and hydrology would be similar to Alternative B because this alternative would maintain an enclosure that was accessed for part of each year by livestock. However, this alternative would allow relatively more removal of wet meadow vegetation and trampling of soils than Alternative B, where livestock would be completely excluded year-round. Conversely, there would be more wet meadow vegetation remaining, with

less livestock compaction of soils, and more of the hydrologic benefits than in Alternative A. Effects on upland vegetation would be the same as for Alternative B.

Alternative D:

The effects of Alternative D on vegetation and hydrology would be greatest, compared to Alternative A. Effects on wet meadow vegetation within the enclosure would be similar to Alternative B, and relatively greater than Alternative C, except that no withdrawal of water from within the enclosure would occur under this Alternative, and the opportunity for wet meadow vegetation to develop would be maximized. Similarly, hydrologic effects of this Alternative would be comparable to Alternative B, only greater, because of no water withdrawal. Effects on upland vegetation may be significant because all livestock grazing would be excluded from the entire covered lands, including the uplands. Thus, any effects of livestock grazing observed with the other three Alternatives would not occur under this Alternative.

D. Effects on Livestock Grazing

Alternative A:

The effects of Alternative A on livestock grazing would remain unchanged from past conditions. A total of 254 AUMs would be authorized for grazing on the 680-acre (275 ha) State land parcel at Sam Noble Springs. The State of Idaho would continue to exercise a lease of those livestock grazing rights, likely to the rancher who has been the lessee for the last many years.

Alternative B:

The effects of Alternative B on livestock grazing would be to reduce the amount of AUMs on the 680-acre (275 ha) State land parcel from 254 AUMs per year to 144 AUMs, and prevent access to 104 acres (42 ha) of land, including wet meadow habitat, by livestock. The State of Idaho would lease the 104 acres (42 ha) of land to the IDFG for 25 years for the purpose of conserving spotted frogs. Livestock would continue to have access to what will likely be a reduced amount of water from Sam Noble Springs via a water collection and delivery system, transporting water to a trough in an area outside of the enclosure.

Alternative C:

The effects of Alternative C on livestock grazing would be intermediate between Alternative A and Alternative B. Some reduced number of AUM's from the current level of 254 AUM's of livestock described under Alternative A, but more than the 144 AUM's of Alternative B, would be allowed access to the enclosure area, foraging and drinking water there, for a period of time that would be more limited than under Alternative A. The State of Idaho would continue to exercise a lease of those livestock grazing rights, likely to the rancher who has been the lessee for the last many years.

Alternative D:

The effects of Alternative D on livestock grazing would be greater than any other Alternative, resulting in elimination of all 254 AUMs of livestock grazing opportunity on State lands, and loss of the revenues associated with the existing grazing lease. The State of Idaho would need to find an opportunity to fulfill their constitutional mandate to raise money on lands they manage. This might be possible to achieve by leasing lands to a group interested in acquiring the grazing rights for the 680 acres (275 ha), but not actually grazing livestock on it, such as what has been proposed in the past by interested environmental groups.

E. Effects on Other Wildlife

Alternative A:

The effects of Alternative A on other wildlife will be similar to past impacts. Extensive and intensive livestock grazing would result in competition for forage and water with other wildlife, and ongoing effects on habitat quality for animals such as elk, deer, sage grouse, songbirds, and reptiles. With reduced native wet meadow vegetation and upland vegetation, and reduced water availability in an arid environment, it is likely that habitat quality would be reduced for these and most other native species identified in section II.E, above. Effects on wet meadow wildlife habitat would be relatively greater than effects on upland habitat because livestock usually spend a disproportionate amount of their time in wet meadow areas during warm summer months in arid environments like Sam Noble Springs. Effects on upland habitat may include competition for forage with native ungulates, and reduced cover for smaller species, and for ground-nesting birds such as sage grouse.

Alternative B:

The effects of Alternative B on other wildlife would be to provide increased habitat quality for most species of wildlife that depend on wet meadow habitats, including all types of wildlife listed in the paragraph above. Under this Alternative, livestock would be excluded from the wet meadow habitat in the enclosure, creating greater opportunities for native wildlife there. Upland wildlife habitat effects outside of the enclosure would probably continue as they have in the past, as described under Alternative A.

Alternative C:

The effects of Alternative C on wildlife habitat would be intermediate between the effects of Alternatives A and B. Some amount of additional forage and water would be available to wildlife within the enclosure because grazing use of those resources would be reduced compared to Alternative A, but there would be less available for livestock as compared to Alternative B. Upland effects would be the same as for Alternatives A and B.

Alternative D:

The effects of Alternative D on wildlife would be greatest of all Alternatives, as compared to Alternative A. With the complete exclusion of livestock grazing from all 680 acres (275 ha) of

State land, all forage and water resources would remain available to all native species of wildlife, including those identified in section II.E of this document. There would be no risk of impact from livestock grazing on wildlife.

F. Effects on Local Communities and Economies

Alternative A:

The effects of Alternative A on local communities and economies will remain unchanged from current conditions. There will be no potential increase or decrease in economic opportunity for livestock grazing, recreation or any other potential form of economic activity, compared to past conditions.

Alternative B:

The effects of Alternative B on local communities and economies would include reduced opportunity for livestock grazing. A total of 110 AUM's would be removed from the state land parcel at Sam Noble Springs, reducing economic gain accordingly. Overall, this reduction, while significant for that land parcel and livestock operator, is probably not a significant reduction compared to the amount of livestock grazing opportunity throughout the Owyhee Mountains. With a reduction in forage and water use by livestock here, and the use of fencing design and construction intended to accommodate wildlife species such as deer, elk, and antelope, there is potential for increased economic benefit for recreation and aesthetic uses. This land parcel is close to the Mud Flat road – a backcountry scenic byway that hosts many visitors per year making vehicle sightseeing trips (BLM 2004). Under this alternative, landscape and wildlife viewing may increase slightly. Also, a significant amount of hunting takes place in Owyhee County each fall, and this alternative may help provide increased hunting opportunity. The net effect of this alternative on local communities and economies is likely minimal.

Alternative C:

The effects of Alternative C on local communities and economies would be intermediary between Alternatives A and B. This alternative would result in a smaller reduction in livestock grazing opportunity, and therefore less of a loss of economic benefit for that activity. It would also likely increase slightly some of the potential economic benefit for recreation and aesthetic uses described under Alternative B, above. The net effect of this alternative on local communities and economies would be less, potentially, than under Alternative B.

Alternative D:

The effects of Alternative D on local communities and economies would be to remove all livestock grazing from the Sam Noble Springs state land parcel, and removing all potential economic benefit from this activity. Conversely, recreation and aesthetic values would be maximized. The net effect of this alternative is uncertain because of the higher loss of livestock grazing value, and the potentially-highest gain in recreation and aesthetic value.

G. Effects on Recreation

Alternative A:

The effects of Alternative A on recreation will be remain unchanged from current conditions, similar to as described for the “Effects on Local Communities and Economies” section above. There will be no potential increase or decrease in recreation opportunity, compared to past conditions.

Alternative B:

The effects of Alternative B on recreation will be to potentially increase opportunities slightly, as described above in the “Effects on Local Communities and Economies” section above. With a reduction in livestock AUMs in the Sam Noble Springs area, there may be a slight increase in landscape viewing, wildlife viewing, and hunting opportunities, compared to past conditions.

Alternative C:

The effects of Alternative C on recreation will be intermediate between that described for Alternatives A and B, above, similar to what was described in the “Effects on Local Communities and Economies” section above. There may be some very slight increase in potential recreation opportunity for landscape viewing, wildlife viewing, and hunting, compared to past conditions.

Alternative D:

The effects of Alternative D on recreation would potentially be the greatest of all the alternatives, similar to what was described under the “Effects on Local Communities and Economies” section above. There will be the greatest potential increase recreation opportunity with the removal of all livestock grazing on the State land parcel at Sam Noble Springs, potentially maximizing recreational and aesthetic values. However, overall, this potential increase would be relatively modest throughout Owyhee County overall, compared to past conditions.

H. Effects on Cultural Resources

Alternative A:

The effects of Alternative A on cultural resources will remain unchanged from previous conditions. There would be no change in management of the State land parcel at Sam Noble Springs. In addition, the State of Idaho submitted a request for cultural resource compliance to the Service on November 19, 2003 (J. Gallagher, Heritage Preservation Resources, *in litt.* 2003). The Service reviewed the project pursuant to section 106 of the National Historic Preservation Act, and concurred that, “No historic properties of other significant cultural resources were identified in the area of potential effect for the project.” (A. Raymond, USFWS, *in litt.* 2003).

Alternative B:

There would be no effect of Alternative B on cultural resources because no cultural resources were identified as existing in the project area. The State of Idaho submitted a request for cultural resource compliance to the Service on November 19, 2003 (J. Gallagher, Heritage Preservation Resources, *in litt.* 2003). The Service reviewed the project pursuant to section 106 of the National Historic Preservation Act, and concurred that, “No historic properties of other significant cultural resources were identified in the area of potential effect for the project.” (A. Raymond, USFWS, *in litt.* 2003).

Alternative C:

There would be no effect of Alternative C on cultural resources because no cultural resources were identified as existing in the project area. The State of Idaho submitted a request for cultural resource compliance to the Service on November 19, 2003 (J. Gallagher, Heritage Preservation Resources, *in litt.* 2003). The Service reviewed the project pursuant to section 106 of the National Historic Preservation Act, and concurred that, “No historic properties of other significant cultural resources were identified in the area of potential effect for the project.” (A. Raymond, USFWS, *in litt.* 2003).

Alternative D:

There would be no effect of Alternative D on cultural resources because no cultural resources were identified as existing in the project area. The State of Idaho submitted a request for cultural resource compliance to the Service on November 19, 2003 (J. Gallagher, Heritage Preservation Resources, *in litt.* 2003). The Service reviewed the project pursuant to section 106 of the National Historic Preservation Act, and concurred that, “No historic properties of other significant cultural resources were identified in the area of potential effect for the project.” (A. Raymond, USFWS, *in litt.* 2003).

Table 2. Summary of environmental impacts of each alternatives on resource parameters.

| Resource | Alternative A “No Action” | Alternative B “Proposed and Preferred Alternative” | Alternative C “Limited Grazing” | Alternative D “Complete Grazing Exclusion” |
|---|---|---|---|---|
| Spotted Frog Conservation | Frog population viability reduced; significant impacts | Frog population viability and habitat quality increased; beneficial impacts but not significant | Frog population viability slightly reduced; beneficial impacts but not significant | Frog population viability and habitat quality increased; beneficial impacts but not significant |
| Vegetation / Hydrologic Function & Protection | Continued vegetation removal and soil compaction; negative impacts but not significant | No vegetation removal and soil compaction on 104 acres; beneficial impacts but not significant | Reduced vegetation removal and soil compaction on 104 acres, continued vegetation removal and soil compaction on rest of parcel; beneficial impacts but not significant | No vegetation removal and soil compaction on entire 680 acre parcel; beneficial impacts but not significant |
| Livestock Grazing Opportunity | 254 AUMs from July through October on entire parcel; beneficial impacts but not significant | Livestock excluded from 104 acres; 144 AUMs from July through October on rest of parcel; negative impacts but not significant | 254 AUMs from July through October on entire parcel; reduced AUMs on 104 acres for restricted period of time; negative impacts but not significant | None; livestock excluded from entire parcel; negative impacts but not significant |

| | | | | |
|--|---|---|--|--|
| Other Wildlife Conservation | Continued competition for forage and water, ongoing negative effects on habitat quality; negative impacts but not significant | Increased habitat quality and quantity for wet meadow-obligate species; beneficial impacts but not significant | Slight increase in habitat quality and quantity for wet meadow-obligate species; beneficial impacts but not significant | Increased habitat quality and quantity for wet meadow-obligate and upland species; beneficial impacts but not significant |
| Local Communities / Economic Opportunity | No change to existing income generation from livestock ranching, increased potential for listing may pose economic threats; no impact | Small reduction in income generation from livestock ranching; reduced likelihood of a listing; negative impacts but not significant | Slight reduction in income generation from livestock ranching; increased potential for listing may pose economic threats; negative impacts but not significant | No income generation from livestock ranching on entire parcel; negative impacts but not significant |
| Recreation Opportunity | No impact from human actions associated with alternative | Potential slight increase in recreational opportunities; beneficial impacts but not significant | Potential slight increase in recreational opportunities, smaller degree of anticipated change than Alternative B; beneficial impacts but not significant | Potential increase in recreational opportunities, larger degree of anticipated change than Alternative B; beneficial impacts but not significant |
| Listed Species | Increased likelihood of listing spotted frogs; no significant impacts on other listed species | Decreased likelihood of listing spotted frogs; no significant impacts on other listed species | Slightly decreased likelihood of listing spotted frogs; no significant impacts on other listed species | Decreased likelihood of listing spotted frogs; no significant impacts on other listed species |
| Visual Quality | No impact from human actions associated with this alternative | No impact from human actions associated with this alternative | No impact from human actions associated with this alternative | No impact from human actions associated with this alternative |
| Air Quality | No impact from human actions associated with this alternative | No impact from human actions associated with this alternative | No impact from human actions associated with this alternative | No impact from human actions associated with this alternative |
| Cultural Resource Conservation | No impact from human actions associated with alternative | No impact from human actions associated with alternative | No impact from human actions associated with alternative | No impact from human actions associated with alternative |

Cumulative Effects

Cumulative effects are those effects on the environment that result from incremental impacts of the proposed action when added to other past, present, and reasonably foreseeable future actions

(either Federal or non-Federal). Cumulative impacts can result from individually minor, but collectively significant actions that take place over a period of time.

Effects under Alternatives B, C, and D would be related to land management actions taken to conserve Columbia spotted frogs on the State parcel known as Sam Noble Springs. These actions would generally be habitat improvements for spotted frogs by allowing vegetation regeneration and preventing soil compaction in most of the wet meadow by livestock. The cumulative positive effect that could occur under Alternatives B, C, and D is a change over time in habitat and wildlife species populations will occur from implementation of spotted frog conservation measures on the parcel under any alternative.

Under either Alternative B or C, if an Agreement was approved and a permit issued to the State of Idaho, it is reasonable to foresee other landowners who are interested in Columbia spotted frog conservation, and/or desire ESA regulatory assurances, entering into similar agreements with the Service. Effects from other landowners implementing similar conservation measures would be positive, in fact, should similar conservation measures be implemented on all necessary properties throughout the range of the species (that are subject to the same threats present on the proposed project area), the Service believes that the possible listing of Columbia spotted frogs would be precluded or removed.

Cumulative impacts would be positive, though not significant, for Columbia spotted frogs and other wildlife species dependent on habitats preferred by spotted frogs, including wet meadows. Under Alternative B, C, or D, cumulative positive impacts would be expected to occur over time as a result of an increase in the quantity and quality of habitat for spotted frogs and other wildlife species on the Sam Noble Springs parcel. These positive cumulative impacts would likely occur beyond the approximate 22-year duration of the Proposed Action Alternative B since habitat improvements would be expected to extend over a longer period of time. These positive cumulative effects are expected to contribute to the recovery and sustainability of Columbia spotted frogs and other species dependent on similar habitats.

With the exceptions of recreation and grazing, cumulative effects to resources other than biological resources will not differ substantially between the “No Action” Alternative and Alternative B, C, or D. Cumulative impacts to cultural resource conservation and air and visual quality would be negligible from the minor land use changes proposed under Alternatives B, C, or D. Some minor changes in recreation may occur as a result of the habitat improvements and conservation measures anticipated under Alternatives B, C, or D, however, these effects to recreation would be negligible due to the relatively small area affected.

Another similar activity that is occurring within the range of the Columbia spotted frog is the implementation of the Conservation Agreement for the northeastern Nevada subpopulations of the Columbia spotted frog. The cumulative effect of conservation activities for spotted frogs within this area would be a net benefit to the conservation of Columbia spotted frogs on a regional scale. If sufficient species conservation, resulting from this and other projects, is achieved to avoid a future listing of spotted frogs, the local and regional economies would benefit by avoiding potential regulatory limitations. No negative cumulative effects are anticipated.

SECTION V: COMPLIANCE, CONSULTATION, AND COORDINATION WITH OTHERS

The Service became aware of the need to conserve spotted frogs in Owyhee County shortly after they were identified as a candidate species for listing under the ESA, in 1992. After consulting with the Owyhee County Commission, the Service conducted preliminary surveys with the assistance of some private landowners, and roughly doubled the known number of breeding sites in the Owyhee Mountains, from approximately 6 sites to approximately 11 sites (T. Koch, USFWS, pers. comm. 2005a). Boise State University (BSU) subsequently began investigations and steadily increased the amount of information known about this species in the Owyhee Mountains throughout the 1990's and early 2000's.

The Service began having discussions with Mr. Chris Black in the late 1990's regarding opportunities to conserve spotted frogs on his private land on Long Tom Creek, just north of the Sam Noble Springs state land parcel, as well as at Sam Noble Springs, since Mr. Black was the State's livestock grazing permittee there. Mr. Black expressed repeated interest in conserving frogs, and took actions on his private property, including plugging holes in old beaver dams and nearly doubling the number of frog breeding sites on his own property and attempting (unsuccessfully) to reintroduce beaver in the early 2000's (T. Koch, USFWS, pers. comm. 2005a).

The Service met with the Shoshone-Pauite Tribe on March 10, 2005, during the monthly Wings and Roots forum. At that meeting, the Service offered to present information related to the Columbia Spotted Frog Agreement under development at that time with IDFG and IDL. The Tribe accepted the offer and requested that the presentation be put on the agenda for an upcoming meeting. We discussed the Agreement with the Tribe during the April 14, 2005, Wings and Roots meeting in Boise. They expressed an interest in the project, and learning more about it. The Service subsequently e-mailed the draft environmental assessment to the Tribe's wildlife biologist, Mr. Tim Dykstra. The Service offered to send more information if necessary, and invited the Tribe to comment, periodically following up to solicit comments, ideas, or observations (T. Koch, USFWS, pers. comm. 2005c).

The IDL became aware of the spotted frog population on its Sam Noble Springs parcel in 1998 when BSU requested permission to study the frogs (J. Munger, BSU, *in litt.* 1998). In November 1999, IDL received a request from Western Watersheds Project (WWP), to reclassify the state land parcel from grazing to miscellaneous use as a sensitive species habitat. In order to make an informed decision regarding management of the Sam Noble Springs parcel, IDL met with Dr. James Munger from BSU and the IDFG (T. Duffner, IDL, *in litt.* 2000a). Concerns regarding the effects of livestock grazing on spotted frogs and their habitat were discussed, and IDL asked for management recommendations from BSU at the meeting. IDL also met with BSU, IDFG, and Mr. Black - IDL's lessee for this land parcel - so that IDL could provide an overview of the current management plan for the parcel (J. Engle, BSU, *in litt.* 2000b). The Service asked to be involved in the review of IDL's management plan (R. Ruesink, USFWS, *in litt.* 2000). IDL responded to BSU's recommendations regarding grazing by trying to develop a management

proposal that addressed concerns and asking for further clarification and information (T. Duffner, IDL, *in litt.* 2000b). In the summer of 2000, an interagency meeting was held between IDL, IDFG, BSU, Service, the Idaho Governor's Office of Species Conservation (OSC), and Mr. Black (T. Duffner, IDL, *in litt.* 2000c). Agreements were made to meet on site and determine what areas needed fencing, what water developments were needed, and who would be responsible for construction and costs. The IDL, Service, BSU, IDFG, and the BLM were to meet and develop a monitoring protocol. A meeting was held on March 20, 2001, to discuss a draft Agreement. Those invited were from the OSC, Service, BLM, BSU, IDL, and IDFG (J. Engle, IDFG, pers. comm. 2001). Additional meetings were held in 2001 to refine understanding of frog conservation needs and opportunities.

IDL submitted a draft Agreement to the Service on September 10, 2001, and on October 10, 2001, the Service responded that they were interested in providing technical assistance and stated there were concerns with some of the measures (R. Ruesink, USFWS, *in litt.* 2001). IDL responded by identifying a collaborative team to refine the Agreement. (W. Wiggins, IDL, *in litt.* 2001).

At the September 11, 2001, Idaho State Board of Land Commissioners ("Land Board") meeting, the Land Board unanimously accepted the recommendation of IDL to draft an Agreement for consideration by Service, approve a grazing lease to Mr. Black, and not reclassify the status of the land parcel (ISBLC *in litt.* 2001). The OSC, IDFG, IDL, and BSU met in December and determined that developing the Agreement should be a coordinated effort between IDL and IDFG (W. Wiggins, IDL, *in litt.* 2002).

On March 20, 2002, IDFG, and OSC met to discuss BSU research and provide a presentation to Owyhee County Commissioners and the Idaho Cattle Association (T. Duffner, IDL, pers. comm. 2002). Technical meetings and field reviews were held in May and June of 2002 in order to move the draft Agreement forward. In August of 2002, BSU graduate student Hallie Lingo proposed to IDL a research proposal at Sam Noble Springs. IDL approved the research and issued permits to BSU (T. Duffner, IDL, *in litt.* 2002a, b). Additional meetings were held in the fall of 2002, and Mr. Black began working with IDFG to reintroduce beaver on his private land nearby. There was a discussion regarding providing better communication with the Idaho Cattleman's Association regarding why the State was developing an Agreement.

In April 2003, IDL, BSU, WWP, and IDFG met to discuss a WWP proposal to fence a larger area from grazing and limit water developments (T. Duffner, IDL, pers. comm. 2005b). The group met again in May 2003. Afterward, BSU, IDL, and IDFG discussed expanding the enclosure area as proposed by WWP, and determined there would be little benefit to frogs (T. Duffner, IDL, pers. comm. 2005b). In June of 2003, Mr. Karl Gebhardt of the BLM developed a concept design for a water system that would allow fencing of the wet meadow while providing water to disperse livestock grazing (T. Duffner, IDL, pers. comm. 2005b). A field review was scheduled with IDFG, Mr. Gebhardt, and WWP in July 2003 (T. Duffner, IDL, pers. comm. 2003d). Mr. Gebhardt completed the design and forwarded it to IDL in August (C. Smith, IDL, pers. comm. 2003). WWP and BSU were provided an opportunity to comment on the proposed system. WWP noted in response that they had provided feedback but there were still specific questions that needed to be answered (G. Bray, WWP, pers. comm. 2003a). WWP again

expressed its concerns to the water development in October (G. Bray, WWP, pers. comm. 2003b). BSU researchers thought the design would work but expressed a concern regarding the top of the spring pipe (J. Munger, BSU, pers. comm. 2003). IDL addressed this by explaining the stand pipe heights had to be adjustable until the system had been operated and flows adjusted. IDL also added gate valves on the collector and return lines which allows the State to control diversion of water flows into each collection box (T. Duffner, IDL, pers. comm., 2005c). After IDL's explanation, WWP still expressed concern about the box tops and how to prevent tampering and freezing. In the fall of 2003, the IDL, WWP, BLM (Mr. Gebhardt), and BSU met to discuss the water development system proposed for the Sam Noble Springs parcel (L. Jorgensen, IAG, *in litt.* 2003). In response, IDL placed the collection boxes as deeply in the ground as possible, insulated the lids, and put outflow lines as low as possible. IDL will also remove the standpipe prior to winter each year so the boxes will drain out, leaving little or not standing water that may freeze. In addition, the lids were designed to accommodate hasps and locks if they are needed in the future to respond to tampering with valves and standpipes (T. Duffner, IDL, pers. comm. 2005c). The IDL submitted a revised draft of the Agreement on November 26, 2003 (W. Wiggins, IDL, *in litt.* 2003).

In December, IDL submitted another draft Agreement and in February of 2004 (IDL and IDFG 2004), the Service stated they looked forward to assisting IDL and IDFG in finalizing the plan (J. Foss, USFWS, *in litt.* 2004). The IDL and Service met in March 2004, to discuss and refine the content of the draft Agreement. The two agencies met again intermittently on the draft Agreement and EA between November 2004, and March 31, 2005.

The Service met with WWP in January 2005, to gather additional information about their activities and specific interests in support of spotted frog conservation in the Sam Noble Springs area. WWP expressed concerns around who would be responsible for operating the water system consistent with the terms of the draft Agreement (the answer shared was that the State is responsible), and what contingencies would occur in the event of low flow events, and under other circumstances. The answer provided was that the Service would work with IDL to adapt management, and ultimately could suspend or revoke the permit in cases of permit non-compliance (T. Koch, USFWS, personal communication 2005d). Subsequent communications and information-sharing between IDL and Service resulted in completion of this draft environmental assessment in June, 2005.

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- Gallagher, J. 2003. Heritage Preservation Resources, Meridian, Idaho. Subject: Letter to Anan Raymond, Regional Archaeologist, USFWS, regarding the cultural resources survey report for the Sam Noble Springs Parcel.
- (ISBLC) Idaho State Board of Land Commissioners, Boise, Idaho. 2001. Subject: Columbia spotted frog agreement/reclassification appeal from Western Watersheds Project. 8 pp.
- Jorgensen, L.K. 2003. Deputy Attorney General, Idaho Department of Lands, Boise, Idaho. Subject: Letter to Laird Lucas regarding the water development at Sam Noble Springs.

- Munger, J. 1998. Professor, Department of Biology, Boise State University, Boise, Idaho. Subject: Letter to Idaho Department of Lands requesting access to state lands in Owyhee County for the purpose of conducting research on Columbia spotted frogs.
- Raymond, A. 2003. Regional Archeologist, USFWS, Portland, Oregon. Subject: Letter to Verlyn Ebert, Division of Federal Aid, USFWS, and Karla Russell, Nongame Wildlife Grants Coordinator, IDFG, regarding the cultural resources survey report. 10 p.
- Ruesink, R.G. 2000. Snake River Basin Office Supervisor, USFWS, Boise, Idaho. Subject: Letter to Idaho Department of Lands requesting participation in a review of the current management of Sam Noble Springs.
- Ruesink, R.G. 2001. Snake River Basin Office Supervisor, USFWS, Boise, Idaho. Subject: Letter to Idaho Department of Lands regarding a proposed candidate conservation agreement with assurances for Columbia spotted frogs.
- Wiggins, W.A. 2001. Director, Idaho Department of Lands. Subject: Letter to U.S. Fish and Wildlife Service regarding a collaborative team for refining a proposed candidate conservation agreement with assurances for Columbia spotted frogs.
- Wiggins, W.A. 2002. Director, Idaho Department of Lands. Subject: Letter to Idaho Department of Fish and Game regarding collaborating to refine a proposed candidate conservation agreement with assurances for Columbia spotted frogs.
- Wiggins, W.A. 2003. Director, Idaho Department of Lands. Subject: Letter to the U.S. Fish and Wildlife Service transmitting a draft candidate conservation agreement with assurances for Columbia spotted frogs on the Sam Noble Springs parcel.

Personal Communications

- Bray, G.E. 2003a. Western Watersheds Project, Hailey, Idaho. Subject: Concerns regarding the design of the water collection system proposed for installation on the Sam Noble Springs parcel. Dated October 6, 2003.
- Bray, G.E. 2003b. Western Watersheds Project, Hailey, Idaho. Subject: Concerns regarding the design of the water collection system proposed for installation on the Sam Noble Springs parcel. Dated October 7, 2003.
- Duffner, T. 2003d. Resource Supervisor, Idaho Department of Lands, Boise, Idaho. Subject: Field review of proposed water development at pond 3 on the Sam Noble Springs parcel; AUM costs. Dated July 7, 2003.
- Duffner, T. 2004a. Resource Supervisor, Idaho Department of Lands, Boise, Idaho. Subject: Construction activities at Sam Noble springs. Dated September 30, 2004.

- Duffner, T. 2004b. Resource Supervisor, Idaho Department of Lands, Boise, Idaho. Subject: Description of vegetation on Sam Noble Springs parcel. Dated October 30, 2004.
- Duffner, T. 2005a. Resource Supervisor, Idaho Department of Lands, Gooding, Idaho. Subject: Estimated economic cost and return analysis for alternatives. Dated July 14, 2005.
- Duffner, T. 2005b. Resource Supervisor, Idaho Department of Lands, Gooding, Idaho. Subject: Coordination meetings that occurred from April through June, 2003. Dated July 14, 2005.
- Duffner, T. 2005c. Resource Supervisor, Idaho Department of Lands, Gooding, Idaho. Subject: Description of modifications to water collection system. Dated June 15, 2005.
- Engle, J. 2001. Biologist, IDFG, Boise, Idaho. Subject: Meeting announcement for March 20, 2001, regarding discussion of the draft Columbia spotted frog habitat conservation assessment/conservation strategy.
- Engle, J.C. 2005. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: Columbia spotted frog survey results for Bear and Shack Creeks and current overall population status of Great Basin population in Idaho. Dated January 13, 2005.
- Koch, T.E. 2005a. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: May, 1996 field sampling trip with biologist Jeri Wood. Dated _____. P. 32
- Koch, T.E. 2005b. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: Repeated field observations of areas of heaviest livestock use on the Sam Noble Springs parcel from 1999-2004. Dated May ,2005. P 20
- Koch, T.E. 2005c. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: Correspondence with Tim Dykstra, wildlife biologist for the Shoshone-Paiute Tribe. Dated May 19 and June 13, 2005.
- Koch, T.E. 2005d. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: Meeting with Gene Bray, Western Watersheds Project, on frog conservation needs at Sam Noble Springs. Dated January 18, 2005.
- Mellison, C. 2004. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: Evaluation of population of Columbia spotted frogs. Dated September 9, 2004.
- Munger, J. 2003. Professor, Department of Biology, Boise State University. Subject: Email to Idaho Department of Lands regarding the design of the water collection system proposed for installation on the Sam Noble Springs parcel. Dated October 2, 2003.
- Silas, J. 2006. Range Resource Specialist, Idaho Department of Lands, Boise, Idaho. Subject: Email to U.S. Fish and Wildlife Service regarding responses to public comments. Dated June 27, 2006.

Smith, C. 2003. Idaho Department of Lands, Boise, Idaho. Subject: Email to Laird Lucas, Western Watersheds Project, regarding the status of the design of the water collection system. Dated September 8, 2003.

Trent, T. 2004a. Biologist, Idaho Department of Fish and Game, Boise, Idaho. Subject: Briefing Paper on Sam Noble Springs State Land Grazing Lease and Spotted Frogs. Meeting Dated July 10, 2001.

Trent, T. 2004b. Biologist, Idaho Department of Fish and Game, Boise, Idaho. Subject: Sage grouse habitat near the Sam Noble Springs parcel. Dated October 21, 2004.

Trent, T. 2004c. Biologist, Idaho Department of Fish and Game, Boise, Idaho. Subject: Native ungulate presence on the Sam Noble Springs parcel, and design of enclosure fence. Dated September 27, 2004.

Wood, J. 2001. Biologist, U.S. Fish and Wildlife Service, Boise, Idaho. Subject: Timing of Chytrid fungus outbreaks in arid regions. Dated May 31, 2001.

Appendix I: Columbia Spotted Frog Contact List

Members of Congress

State Government

Idaho Department of Lands
Idaho Department of Fish and Game
Office of Species Conservation

State Senate

State House of Representatives

County Government

Owyhee County Commissioners

City Government

Federal Agencies

Bureau of Land Management

Native American Tribes

Shoshone-Paiute Tribe

Universities

Boise State University
Idaho State University

Non-governmental Organizations

Western Watersheds Project
Advocates for the West
Idaho Cattleman's Association

Public Libraries

Media

Private Citizens

State permittee for Sam Noble Springs allotment

Appendix I: Draft Candidate Conservation Agreement with Assurances for Columbia Spotted Frogs (*Rana luteiventris*) at Sam Noble Springs Owyhee County, Idaho