the magnitude of risks in a project, and to help the project sponsor predict and establish a project budget and schedule. The most important objective of risk assessment and management protocols is to help the project sponsor predict the budget and schedule and to ensure that the sponsor can complete the project within the budget and schedule identified in the FTA grant award.

Project risks track the project development process. In general terms, they can be described as follows:

• Requirements Risk. The first step in project development is to identify the requirements—risks associated with definition of basic project needs and transit system requirements to meet those needs;

• Design Risk. The second step is project design—risks involving the adequacy of the information available at each stage of design and engineering, geotechnical conditions in particular, and the impact of redesign;

• Market Risks. The third step is to identify market risks—risks associated with both the procurement approach and the market conditions that can affect the cost of materials and the availability of bidders for construction services, materials, real estate, and manufactured products like vehicles; and

• Construction Risks. The final step is to identify construction risks—those risks associated with the actual construction and start-up of the system.

Once risks are identified, FTA and project sponsors must determine the best method for managing those risks. The preferred methods for managing risk are avoidance, reduction, and mitigation. Because they are really only ways of providing more up-front funding or reducing overall costs but do not reduce risk, less preferred risk management techniques include increasing contingency, reducing project scope, or reducing the level of service. FTA works with each project sponsor to determine the most feasible strategy for each project.

Project sponsors document this risk-informed management process in the project management plan. Including these strategies can help ensure that the project sponsor has the requisite technical capacity and capability to deliver the project on time and within budget by ensuring that the project sponsor understands methods for addressing risks and that it implements strategies to avoid future delays.

FTA can tailor these risk assessment and management tools to take into account the unique circumstances of a project, such as sponsor organization and technical capacity and capability, and the project complexity or status.

C. Questions

1. Should FTA assign PMOCs to oversee projects other than Major Capital Projects? Please provide the rationale for your recommendations including how oversight of these projects should alternatively be provided if PMOCs are not utilized.

2. At what stage in the development process should FTA assign PMOCs to New Starts projects? Explain the basis for your recommendation.

3. Other than a detailed review of a grantee's financial plan, what other methods might FTA utilize to ensure a grantee has the financial capacity to construct and operate a major capital project?

4. Please comment on FTA's Risk Management approach. If you do not agree with FTA's approach, please recommend an alternative and provide a basis for your recommendation.

Following the close of the comment period on this ANRPM, FTA will summarize and respond to the comments and issue a Notice of Proposed Rulemaking that posits explicit text for a rewrite of the regulation at 49 CFR Part 633. We expect to publish such a Notice of Proposed Rulemaking in 2009.

Issued this 4th day of September, 2009.

Peter M. Rogoff,

Administrator, Federal Transit Administration.

[FR Doc. E9–21849 Filed 9–9–09; 8:45 am]

BILLING CODE P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R1–ES–2009–0006]
[MO 922105 0082–B2]

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List *Astragalus anserinus* (Goose Creek milkvetch) as Threatened or Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of a 12–month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce our 12–month finding on a petition to list *Astragalus anserinus* (Goose Creek milkvetch) as a threatened or endangered species under the Endangered Species Act of 1973, as amended (Act). After a thorough review of all available scientific and commercial information, we find that listing *A. anserinus* under the Act is warranted. However, listing is currently precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants. We have assigned a listing priority number (LPN) of 5 to this species, because the threats affecting it have a high magnitude, but are non-imminent. Upon publication of this 12–month petition finding, *A. anserinus* will be added to our candidate species list. We will develop a proposed rule to list *A. anserinus* as our priorities allow. Any determinations on critical habitat will be made during development of the proposed rule.

DATES: The finding announced in this document was made on September 10, 2009.

ADDRESSES: This finding is available on the Internet at *http://www.regulations.gov* at Docket Number FWS–R1–ES–2009–0006. Supporting documentation we used to prepare this finding is available for public inspection, by appointment during normal business hours at the U.S. Fish and Wildlife Service, Utah Field Office, 2369 West Orton Circle Suite 50, West Valley City, Utah 84119. Please submit any new information, materials, comments, or questions concerning this finding to the above address or via electronic mail (e-mail) at *http://www.fw1srbocomments@fws.gov*.

FOR FURTHER INFORMATION CONTACT: Larry Crist, Field Supervisor, U.S. Fish and Wildlife Service, Utah Field Office (see **ADDRESSES**)); by telephone at 801–975–3330; or by facsimile at 801–975–3331. If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(B) of the Act (16 U.S.C. 1531 *et seq.*) requires that, for any petition containing substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of receipt of the petition on whether the petitioned action is: (a) Not warranted, (b) warranted, or (c) warranted, but immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are threatened or endangered, and expeditious progress is being made to add or remove qualified species from

the Lists of Endangered and Threatened Wildlife and Plants. Section 4(b)(3)(C) of the Act requires that we treat a petition for which the requested action is found to be warranted but precluded as though resubmitted on the date of such finding; that is, requiring a subsequent finding to be made within 12 months. We must publish these 12–month findings in the **Federal Register**.

Previous Federal Actions

On February 3, 2004, we received a petition dated January 30, 2004, from Red Willow Research, Inc., and 25 other concerned parties (the Prairie Falcon Audubon Society Chapter Board, Western Watersheds Project, Utah Environmental Congress, Sawtooth Group of the Sierra Club, and 21 private citizens) requesting that we list *Astragalus anserinus* as threatened or endangered, emergency list the species, and designate critical habitat concurrently with the listing (Red Willow Research Inc, in litt. 2004). We acknowledged the receipt of the petition in a letter to the petitioners in a letter dated February 19, 2004. In that letter, we advised the petitioners that our initial review of the petition determined that emergency listing was not warranted, and that if conditions change we would reevaluate the need for emergency listing. We informed the petitioner that in light of resource constraints, we anticipated making our initial finding in Fiscal Year 2005 as to whether the petition contained substantial information indicating that the action may be warranted.

On August 16, 2007, we published a notice of 90–day finding (72 FR 46023) that the petition presented substantial scientific or commercial information indicating that listing *A. anserinus* may be warranted, and that we were initiating a status review of the species. For more information, refer to the 90–day finding that was published in the **Federal Register** on August 16, 2007 (72 FR 46023). We received information from the Bureau of Land Management, Idaho Department of Fish and Game, Red Willow Research Inc. (the petitioner), and the Cassia County Weed Control office in response to the 90–day finding. All information received has been fully considered in this finding.

In accordance with the President's memorandum of April 29, 1994, Government-to-Government Relations with Native American Tribal Governments (59 FR 22951), Executive Order 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with the Tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. In fulfilling our trust responsibilities for government-to-government consultation with Tribes, we met with the Shoshone Paiute Tribes regarding the process taken to conduct a 12–month status review of *Astragalus anserinus*. As an outcome of our government-to-government consultation, we recognize the strong cultural significance of *A. anserinus* to the Shoshone Paiute Tribes and acknowledge that in this 12–month finding. This notice constitutes the 12–month finding on the January 30, 2004, petition to list *A. anserinus* as threatened or endangered.

Species Information

Astragalus anserinus was first collected in 1982 by Duane Atwood from a location in Box Elder County, Utah, and subsequently described in 1984 (Atwood *et al.* 1984, p. 263). The species is known only from tuffaceous (ashy) soils found near Goose Creek on the Idaho, Nevada, and Utah border, an area approximately 20 miles (mi)(32.5 kilometers (km)) long and 4 mi (6.4 km) wide. *A. anserinus* is a low-growing, matted, perennial forb (flowering herb) in the pea or legume family (Fabaceae), with grey hairy leaves, pink-purple flowers, and brownish-red curved seed pods (Mancuso and Moseley 1991, p. 4). This species is distinguished from *A. calycosus* (Torrey's milkvetch), *A. purshii* (woollypod milkvetch), and *A. newberryi* (Newberry's milkvetch), the three other mat-forming *Astragalus* species found in the Goose Creek drainage, primarily by its smaller leaflets and flowers, as well as the color and shape of the seed pods (Baird and Tuhy 1991, p. 1; Mancuso and Moseley 1991, pp. 4–5). In our August 16, 2007, 90–day finding (72 FR 46023), we used the common name for the species, ''Goose Creek milk-vetch.'' Here we use ''*Astragalus anserinus*'' for accuracy, and ''Goose Creek milkvetch'' (unhyphenated) to make the taxonomy more consistent with today's botanical nomenclature.

Biology, Distribution, and Abundance

Astragalus anserinus typically flowers from late May to early June. The species is assumed to be insect-pollinated, but the specific pollinators are unknown (Baird and Tuhy 1991, p. 3). Fruit set begins in early June with fruits remaining on the plants for several months. Mechanisms of seed dispersal are also unknown, but may include wind dispersion of seed pods and insect or bird agents (Baird and Tuhy 1991, p. 3). Because *A. anserinus* often grows on slopes and because the seed pods are found close to the ground below the vegetative portions of the plant, water or gravity dispersal may also be a dispersal mechanism. In 2004 and 2005, clusters of seedlings were occasionally observed on abandoned ant hills, which could suggest some ant dispersal. Little scientific research specific to *A. anserinus* has been conducted beyond a basic species description and various survey efforts.

Limited information is available regarding *Astragalus anserinus* longevity. In September 2004, the U.S. Bureau of Land Management (BLM) Field Office in Burley, Idaho (BLM-Idaho), permanently marked 10 seedlings in a wash at the base of a tuffaceous outcrop (soils comprised of volcanic ash and particulates) at one site (Site 1), 8 seedlings and 7 adults at the base of a slope at a second site (Site 2), and 12 seedlings and 10 adults at a third site (Site 3) (A. Feldhausen, Burley BLM, in litt. 2007a, pp. 8–9). The results of this effort are summarized in Table 1 below. In a separate monitoring effort, BLM-Idaho conducted annual counting of *A. anserinus* individuals at two sites (Big Site 1 and Big Site 7) from 2004 to 2007. These results are depicted in Table 2 below. In combination, these two studies demonstrate large fluctuations in the number of individuals between years, with Table 2 reflecting almost a doubling or halving in magnitude between the numbers of individuals observed in successive years.

TABLE 1. SHORT-TERM TRACKING OF *Astragalus anserinus* INDIVIDUALS (2004–2006) (A. FELDHAUSEN, IN LITT. 2007A, PP. 8–9).

Year	Site 1	Site 2		Site 3	
	Seedlings	Seedlings	Adults	Seedlings	Adults
2004	10 seedlings	8 seedlings	7 adults	12 seedlings	10 adults
2005	4 dead, 2 small seedlings (15 leaves each), 4 small adult plants with pods	6 dead, 1 small seedling (12 leaves), 1 young adult	1 dead, 6 alive	1 stake missing, 5 dead, 6 small adults (3 with pods)	1 dead, 9 with desiccated leaves and numerous pods
2006	All 6 remaining plants swept away by water in a wash		Of the 7 remaining adult plants, 2 dead and 5 alive	Of the 6 remaining stakes: 1 stake missing, 4 dead, 1 adult	7 dead, 3 stakes missing

TABLE 2. MONITORING OF *Astragalus anserinus* AT TWO SITES IN IDAHO (A. FELDHAUSEN, IN LITT. 2007A, PP. 8–9; IDAHO CONSERVATION DATA CENTER (IDCDC) 2007A, ELEMENT OCCURRENCE (EO) 003).

Year	Big Site 1	Big Site 7
2004	123 total (2 dead, 73 seedlings, 48 adults)	138 total (42 seedlings, 96 adults)
2005	136 total (8 dead, 13 seedlings, 115 adults)	67 total (3 dead, 6 seedlings, 58 adults)
2006	88 total	135 total
2007	73 total	69 total

These wide-ranging fluctuations in the number of *Astragalus anserinus* individuals observed suggests that the species is either short-lived or that adult plants may remain dormant during some growing seasons. If the species is short-lived, corresponding augmentation of seedlings to replace lost individuals would be expected; however, this has not been observed. During spring census efforts, seedlings (defined as young developing plants having 3 or fewer leaves) made up 1,433 of the 30,281 individuals that were counted in 2005 (4.7 percent), and 167 of the 4,087 individuals counted in 2008 (4.1 percent) (Service 2008a, p. 1). The definition of seedlings used for purposes of Table 2 is different than that used in the 2004, 2005, and 2008 census efforts; with seedlings in Table 2 being defined by young developing plants with cotyledons (the first leaves to emerge from the ground) present. Seedlings made up 59.3 percent of the total individuals at Big Site 1 in 2004, and 9.6 percent of the total individuals in 2005. Seedlings also made up 30.4 percent of the total individuals at Big Site 2 in 2004, and 8.9 percent of the total individuals in 2005 (J. Tharp, Burley BLM, in litt., 2008a, p. 1). Although we have no direct information on *A. anserinus* seedling germination, it would likely be more or less abundant depending on the time of year sampled. We expect spring would be the most likely time to observe *A. anserinus* seedlings, like many other plants, and the seedlings could be more numerous in years when climatic conditions are more amenable to their germination and establishment. One such climatic factor could be annual precipitation; the amount and timing of this precipitation over the course of a year could influence seed germination and seedling recruitment.

During field surveys, several smaller *Astragalus anserinus* plants were partially excavated and observed to be attached to large woody roots. Parts of some individual plants frequently appeared to be dead, with only a small green portion remaining. This suggests that vegetative growth may vary during successive years, and that plant size may not necessarily correspond to the age of the individual. This also suggests that some *A. anserinus* individuals may remain dormant for an entire growing season. In at least one other species of *Astragalus* (*A. ampullarioides*), adult plants can exhibit dormancy (an inactive state) during a growing season, and the perennial rootstock allows the plant to survive dry years (Van Buren and Harper 2003b in Service 2006a, p. 8). However, monitoring studies to determine whether *A. anserinus* also has this ability have not been conducted.

Table 2 also demonstrates that fluctuations in the number of *Astragalus anserinus* individuals can vary across sites during a given year. For example, the number of individuals counted at Big Site 1 decreased from 136 to 88 between 2005 and 2006, whereas the number of individuals counted at Big Site 7 increased from 67 to 135 during the same time period. However, between 2006 and 2007, the number of individuals counted at Big Site 1 decreased from 88 to 73 and the number of individuals counted at Big Site 7 decreased 135 to 69. Since these sites are approximately 0.5 mi (0.8 km) apart on similar aspects, this suggests that local weather patterns may not be a predominant factor influencing plant abundance and annual survival.

Although we acknowledge there are some uncertainties with regard to longevity, plant dormancy, and the effect of climatic factors on *A. anserinus*, the observed population trend has been a decrease in the number of observed individuals.

Astragalus anserinus is endemic to the Goose Creek drainage in Cassia County, Idaho; Elko County, Nevada; and Box Elder County, Utah. The Goose Creek drainage occurs within the Great Basin ecosystem; this drainage receives an annual rainfall average of less than 12 inches (30 centimeters). Element Occurrences (EOs) are areas where a species was or is recorded to be present. The known EOs of *A. anserinus* occur at elevations ranging between 4,900 to 5,885 feet (ft) (1,494 to 1,790 meters (m)) (Idaho Conservation Data Center (IDCDC) 2007b, p. 2; Smith 2007, Table 1). Most *A. anserinus* EOs are within an approximate 20-mi (32-km) long by 4-mi (6.4-km) wide area, oriented in a southwest to northeasterly direction along Goose Creek. However one *A. anserinus* EO has been documented outside of the Goose Creek watershed approximately 2 mi (3.2 km) south of any other EOs. The geographic range of the species has not been extended from that presented in the 90–day finding (72 FR 46023; August 16, 2007). Based on new information from surveys

conducted in Nevada in 2006, during which several new EOs were discovered, gaps in the range have been filled with the 6 new EOs extending toward the 1 EO outside of the Goose Creek drainage.

Astragalus anserinus occurs in a variety of habitats, but is typically associated with dry tuffaceous soils from the Salt Lake Formation that have a silty to sandy texture (Mancuso and Moseley 1991, p. 12). In Utah, soil series where *A. anserinus* has been located include Bluehill fine sandy loam, Codquin gravelly sandy loam, Cottonthomas fine sandy loam, and Tomsherry fine sandy loam (Hardy 2005, p. 4). The species has been observed growing on steep or flat sites, with soil textures ranging from silty to sandy to somewhat gravelly. These habitats can vary from stable areas with little erosion to washes or steep slopes where erosion is common. It appears that the species tolerates, and may proliferate with, some level of disturbance, based on its occurrence on steep slopes where downhill movement of soil is common, within eroded washes, and along road margins and edges of cattle trails. However, individuals have not been observed where vehicle or livestock travel is frequent or where water flows through washes on a regular basis.

Astragalus anserinus is generally not found on north-facing slopes, but is found on most other slope aspects within sparsely vegetated areas in sagebrush and juniper habitats. The estimated total plant cover (of all species) at sites where *A. anserinus* occurs is between 10 and 35 percent (Hardy 2005, p. 4; Smith 2007, p. 2). The dominant native species within the general surrounding plant community include *Artemisia tridentata* ssp. *wyomingensis* (Wyoming big sagebrush), *Juniperus osteosperma* (Utah juniper), *Chrysothamnus viscidiflorus* (green or yellow rabbitbrush), *Poa secunda* (Sandberg's bluegrass), and *Hesperostipa comata* (needle and thread grass). *A. anserinus* is frequently associated with a suite of native species that reside on the tuffaceous sand (Baird and Tuhy 1991, pp. 2–3) including: *Achnatherum hymenoides* (Indian ricegrass), *Chaenactis douglasii* (Douglas' dustymaiden), *Cryptantha humilis* (roundspike cryptantha), *Eriogonum microthecum* (slender buckwheat), *Eriogonum ovalifolium* (cushion buckwheat), *Ipomopsis congesta* (= *Gilia congesta*; ballhead gilia), *Mentzelia albicaulis* (whitestem blazingstar), and *Phacelia hastata* (silverleaf phacelia). Several nonnative species also co-occur with *A. anserinus* (see *Nonnative Introduced Species* under **Summary of Factors Affecting the Species Rangewide: Factor A**, below). Another Goose Creek drainage endemic, *Penstemon idahoensis* (Idaho penstemon), is found near *A. anserinus*, but these species are seldom found immediately adjacent to one another. Other sensitive species in the area include *Arabis falcatoria* (= *Boechera falcatoria*; falcate rockcress), and *Potentilla cottamii* (Cottam's cinquefoil) (Franklin 2005, pp. 9–10, 159–160).

The Heritage/Conservation Data Center programs in Idaho, Nevada, and Utah rank *Astragalus anserinus* as a G2 species, indicating the species is ''imperiled throughout its range because of rarity or other factors that make it vulnerable to extinction,'' and S1 (critically imperiled) in the three states (IDCDC 2007b, p. 2). Heritage/Conservation Data rankings do not offer any sort of protection, but are often used to guide other agencies and entities in designating sensitive species. The BLM has assigned different status designations to the species in the three states where it occurs. In Idaho, *A. anserinus* is designated as a type 2 species, which reflects a rangewide or globally imperiled species with a high endangerment status. In Utah, the species is designated as a sensitive plant species (Fortner 2003 in Franklin 2005, p. 17), and in Nevada the species is designated as a special status species (Morefield 2001, p. 1). BLM policy provides that species which are designated as a ''sensitive species'' shall be protected as candidate species for listing under the Act (BLM 2001, p. 06C1).

Astragalus anserinus is currently known from 19 EO records (5 in Idaho, 10 in Nevada, and 4 in Utah) (IDCDC 2007b, p.4; Smith 2007, p. 1; Utah Conservation Data Center (UCDC) in litt. 2007, map; Service 2008b, 17 pp.). The number of currently known EOs (19) differs from the 24 EOs identified in the 90–day finding published on August 16, 2007 (72 FR 46023). Recently published NatureServe guidelines for designating EOs in Idaho and Utah (IDCDC 2007b, p. 1; R. Fitts, Utah Conservation Data Center, in litt. 2008, p. 1) state that sites (occupied points, lines, or polygons) that occur within 0.6 mi (1 km) of each other are within the same EO. Accordingly, several occupied sites that were designated as individual EOs in our August 16, 2007, 90–day finding were combined. In addition, six new EOs were discovered in Nevada as a result of survey efforts in 2006. We developed a naming convention to help us manage and compare EO data for recently consolidated sites before and after implementation of the NatureServe guidelines. For example, the designation U001–4–17 identifies Utah EO 001, which was previously identified as Utah EO 004. The suffix 17 reflects a site number that has been assigned according to the sequence the site was counted in 2004 or 2005. We use our naming convention as described, as well as EO number in various places throughout this finding, depending on the context of the particular site being referenced.

The majority of *Astragalus anserinus* sites in Idaho, Utah, and Nevada occur on Federal lands managed by the BLM (Service 2008, 17 pp.). In 2004 and 2005, we conducted a multiagency census and survey effort for *A. anserinus* with the BLM, USFS, and natural resource agencies from the States of Idaho, Nevada, and Utah. Our objective was to count (census) known sites, survey additional areas, and document any new populations. In 2004, we examined 33 sites in 5 EOs in Idaho (3,467 individuals were counted); 6 sites in 3 EOs in Nevada (2,252 individuals were counted); and 11 sites in 2 EOs in Utah (7,558 individuals were counted) (Service 2008, 17 pp.). In 2005, we examined 5 sites at 1 EO in Nevada (3,074 individuals were counted), and 64 sites in 1 EO in Utah (27,207 individuals were counted) (Service 2008, 17 pp). During the 2004 and 2005 census efforts, 40,858 individual plants of the estimated 60,000 individual plants range-wide (68 percent) were counted at 119 sites in 12 EOs.

Estimating the total *Astragalus anserinus* population size is complicated because of the variability in the species annual abundance, and the different census and survey methods that have been employed. For example, plant abundance at one site in Idaho over a 4–year period varied significantly: 138 plants were counted in 2004; 67 plants in 2005; 135 plants in 2006; and 69 plants in 2007 (Service 2008, 17 pp.). Census efforts in 2008 at 3 sites that were not affected by a significant wildfire in 2007 demonstrated a general decrease from plant counts when compared to the 2004 or 2005 data; 1 site increased by 5.4 percent (652 to 687), 1 site decreased by 76.3 percent (1,458 to 346), and 1 site decreased by 79.0 percent (3,081 to 647) (Service 2008c, Table 2). Using the best available data for each *A. anserinus* site, we estimate that there were approximately 60,000 individuals distributed across the three states prior to the 2007 wildfires (Service 2008, 17 pp.). However, we recognize the inherent variability associated with

estimating population size, because of large fluctuations observed between successive monitoring years and the differing census and survey methods that have been employed. Generally, the 2004 and 2005 census counts yielded higher numbers than had been estimated by previous surveys (Service 2008, pp. 1–6), however, monitoring efforts have not occurred regularly enough or over a long enough period to allow us to statistically analyze population trends.

Based on pre-2007 (pre-wildfire) individual plant count data, approximately 10 percent of all known *Astragalus anserinus* individuals occur in Idaho (5,500 plants), 25 percent occur in Nevada (15,500 plants), and 65 percent occur in Utah (39,000 plants) (Service 2008c, Table 1). State-specific information on the population status of *A. anserinus* is described below.

Idaho

Prior to 2004, seven EOs (which are now combined into four EOs under the NatureServe guidelines) were monitored by the IDCDC, who reported the number of *Astragalus anserinus* individuals at most sites as estimations. The first *A. anserinus* EO was documented in 1985 (1 year after the species was described (Atwood *et al.* 1984, p. 263)), but systematic or comprehensive surveys were not conducted in Idaho until 1991 (Mancuso and Moseley 1991, p. iii). In 1991, the *A. anserinus* population in Idaho was estimated at over 914 individuals (Mancuso and Moseley 1991, pp. 2, 13–14).

During the 2004 census effort, the four known *Astragalus anserinus* EOs in Idaho were revisited and three new sites were located (two sites were within an existing EO and one new site was considered to be a new EO). In total, 5,052 *A. anserinus* individuals were counted, with 2,460 of these individuals observed within the original 4 Idaho EOs (Service 2006b, Table 1). Based on pre-2007 EO revisions, census data from 2004 indicated: (a) stable plant numbers at four EOs; (b) an increase in plant numbers at one EO (compared to pre-2004 survey numbers); and (c) an unknown change at two EOs (participants were unable to conduct a complete census because part of the EOs are on private property) (Service 2006b, Table 1). However, because of the different survey methodologies employed before 2004, it is difficult to conclusively compare survey and census results or estimate long-term population trends for *A. anserinus* in Idaho (Service 2006b, Table 1).

In 2007, the IDCDC standardized its methodology for designating *Astragalus anserinus* EOs to conform to the above referenced NatureServe guidelines. Under the new methodology, the four existing EOs and the three new sites found in 2004 were combined into five EOs (EOs 1, 6 and 7 were deleted and added to EO 3; EO 9 was added as a new EO (IDCDC 2007b, p. 4)). The IDCDC methodology also ranks the health of the EOs based on a weighted formula made up of three elements: EO size (33 percent); EO condition (based on the abundance of native plants, introduced plants, and anthropogenic disturbance) (33 percent); and EO landscape context (based on the degree of habitat fragmentation) (33 percent). Rankings are categorized from A through D, with ''A'' ranked EOs generally representing higher numbers of individuals and higher quality habitat, and ''D'' ranked EOs generally representing lower numbers of individuals and lower quality (or degraded) habitat. Under this ranking system, the IDCDC assigned an ''A'' ranking to one EO, ''B'' rankings to two EOs, and ''C'' rankings to two EOs (IDCDC 2007b, p. 4).

Monitoring efforts and results in Idaho that have been used to inform this status assessment for *Astragalus anserinus* include: (a) the collection of plant community data and establishment of photo-points in 2000 and 2001 at 3 sites (Mancuso 2001a, pp. 8–9; Mancuso 2001b, p. 2); (b) census efforts at all Idaho EOs on public land in 2004 (Service 2008b, 17 pp.); (c) conducting annual census efforts at 2 sites in Idaho since 2004, as summarized in Table 2 above (A. Feldhausen, in litt. 2007a, pp. 8–9; IDCDC 2007a, EO 003); (d) the permanent marking and monitoring of *A. anserinus* individuals at 3 sites from 2004 to 2006 as summarized in Table 1 (A. Feldhausen, in litt. 2007a, pp. 8–9); and (e), establishing *A. anserinus – Penstemon idahoensis – Euphorbia esula* (leafy spurge) control study plots at 11 sites in 2007 by BLM-Idaho (A. Feldhausen in. litt. 2007a, p. 3).

Nevada

Astragalus anserinus surveys in Nevada were first conducted in 1991 and 1992, resulting in the documentation of 4 EOs, with an estimated plant abundance of 827 individuals (Morefield 2001, p. 1). Subsequent census efforts in 2004 and 2005 failed to locate any new sites until 2006, when 6 new EOs with approximately 11,000 individuals were discovered. The 6 new EOs represent 18.3 percent of the estimated range-wide population total of 60,000 individuals (Service 2008b, 17 pp.). There are presently ten known EOs in Nevada, as documented by the Nevada Natural Heritage Program (NNHP) (Smith 2007, p. 1). Site visits to 4 EOs were conducted during the 2004 and 2005 census efforts, and 4,930 *A. anserinus* individuals were counted. However, because of the different survey methodologies employed prior to 2004, it is difficult to conclusively compare survey and census results or estimate long-term population trends for the species in Nevada (Service 2006b, Table 1). In 2008, we counted individuals at two sites during our post-2007 wildfire assessment study, including EO 001 (which partially burned), and site 1 of EO 004 (which did not burn). We observed that the number of individuals in EO 001 decreased by 68 percent, while the number of individuals in EO 004 increased by 5.4 percent (Service 2008c, Table 2) (see the discussion under *Wildfire* below for further details on the 2008 study).

Monitoring efforts and results in Nevada that have been used to inform this status assessment include census efforts conducted in 2004 and 2005 at four EOs (Service 2008b, 17 pp.), and post-wildfire census efforts in 2008 at two EOs (one that partially burned, and one that did not burn) (Service 2008c, Table 2, Map 2).

Utah

There were 9 known *Astragalus anserinus* EOs in Utah with an estimated 7,617 individuals, based on the results of initial surveys conducted in 1990 and 1991 (Baird and Tuhy 1991, p. 2; Morefield 2001, p. 1). Eight of these EOs were documented by the UCDC, and one EO was documented in the Nevada Natural Heritage Program database, although it was not reflected in the UCDC database (Mancuso and Moseley 1991, p.2). There were additional Utah surveys in 1993 (Hardy 2005, p. 4), however we do not know whether they were resurveys of known sites and do not believe the results are included in the UCDC database. The BLM Salt Lake City, Utah field office (BLM-Utah) staff indicates that they are aware of data from at least one additional site that has not been submitted to the UCDC (Hardy 2005, p. 4). In addition, surveys were conducted in Utah by BLM in 2000, 2001, and 2004 to evaluate the environmental effects of a waterline and livestock water tank construction project to the species (Hardy 2005, p. 5); no sensitive plants were discovered along the proposed water line.

Site visits conducted to what was then 6 known EOs, and 1 new site during 2004 and 2005 census efforts recorded a total of 33,476 *Astragalus*

anserinus individuals, although only partial plant counts were conducted at 3 of the 6 known EOs. Two other documented EOs that had the greatest numbers of individuals weren't counted during the 2004 and 2005 census efforts because of limitations on access and time constraints (Service 2006b, Table 1). The 2004 and 2005 census data indicated higher *A. anserinus* count numbers than the previous estimates at five of the known EOs. However, because of the different survey methodologies that were used before 2004, we are unable to conclusively compare survey and census results or estimate long-term population trends for the species in Utah (Service 2006b, Table 1).

In early 2007, the UCDC reconfigured *Astragalus anserinus* EOs in Utah to conform to the general EO standards guidebook, IDCDC methodology, and NatureServe guidelines, resulting in the combining of the nine previously documented EOs into four EOs (R. Fitts, in litt. 2008). Based on 2005 census estimates, the largest Utah EO (EO 001) supported over 37,000 plants, making up over 60 percent the known individuals range-wide (Service 2008b, 17 pp.).

In 2008, re-census efforts were conducted as part of a post-wildfire assessment at ten sites in Utah where we had information on the number of individuals from 2004 or 2005 surveys. We surveyed two sites that did not burn, four sites that were partially burned, and four sites that were completely burned. At the 2 sites that did not burn, the individual numbers of plants decreased by 76.3 percent and 79 percent. At the 4 sites that partially burned, the individual numbers of plants decreased by 34.9 percent, 89.7 percent, 91.1 percent, and 92.6 percent. The individual plant counts at the 4 sites that completely burned decreased by 94.9 percent, 98.1 percent, 98.2 percent, and 100 percent (Service 2008c, Table 2) (see the *Wildfire* discussion under factor A, below, for further information on the 2008 post-wildfire assessment efforts).

Monitoring efforts and results in Utah that have been used to inform this status assessment include: (a) census efforts conducted in 2004 and 2005 at portions of 2 EOs (Service 2008b, 17 pp.); (b) installation of 4 small chicken-wire exclosure cages over 5 individual plants in 2004 to monitor effects of a waterline construction project (all individuals were still present in 2007) (Hardy 2008, pp. 1–2); (c) documentation of 2 individual plants within a 300-foot long belt transect in 2006 (scheduled to be resurveyed in 2010 (Hardy 2008, p. 2)); (d) establishing a study plot in 2007 near a waterline constructed in 2004 that includes 231 *A. anserinus* individuals, which may be fenced in the future (Hardy 2008, p. 1); and (e) conducting field inspectionsat 10 sites during the 2008 post-wildfire re-census effort (Service 2008c, Table 2, Map 2).

Summary of Factors Affecting the Species Rangewide

Section 4 of the Act (16 U.S.C. 1533) and implementing regulations at 50 CFR 424, set forth procedures for adding species to the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section (4) of the Act, we may determine a species to be endangered or threatened based on any of the following five factors: (A) The present or threatened destruction, modification, or curtailment of habitat or range; (B) overutilization for commercial, recreation, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. In making this finding on a petition to list *Astragalus anserinus*, information regarding the status of, and threats to, *A. anserinus* in relation to the five factors provided in section 4(a)(1) of the Act is discussed below.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Wildfire

Organisms adapt to disturbances such as historical wildfire regimes (fire frequency, intensity, and seasonality) with which they have evolved (Landres *et al.* 1999, p. 1180), and different rare species respond differently to wildfire (Hessl and Spackman 1995, pp. 1–90). In general, fire regimes within forest and steppe habitats in the western United States have been highly disrupted from historical patterns (Whisenant 1990, pp. 4–10; D'Antonio and Vitousek 1992, pp. 63–87; Weddell 2001, pp. 1–24). In some instances, fire suppression has allowed grasslands to be invaded by trees (Burkhardt and Tisdale 1976, pp. 472–484; Lesica and Martin 2003, p. 516), and in many grassland and shrub habitats, fire frequencies have increased due to the expansion and invasion of annual nonnative grasses (Whisenant 1990, pp. 4–10; D'Antonio and Vitousek 1992, pp. 63–87; Hilty *et al.* 2004, pp. 89–96). These invasive annual nonnative grasses become established in unvegetated areas that would normally separate native vegetation, dramatically increasing the ability of wildfire to spread.

Our understanding of the historical wildfire regime in the Goose Creek drainage, and specifically within *Astragalus anserinus* habitat, is limited. In general, the average wildfire return interval within the sagebrush-steppe ecosystem as a whole has been reduced from between 60 and 110 years, to often less than 5 years (Whisenant 1990, p. 4; Wright and Bailey 1982, p. 158; Billings 1990, pp. 307–308; USGS 1999, pp. 1–9; West and Young 2000, p. 262). Recent wildfires often tend to be larger and burn more uniformly across the landscape, leaving fewer unburned areas, which can affect the post-fire recovery of native sagebrush-steppe vegetation (Whisenant 1990, p. 4; Knick and Rotenberry 1997, pp. 287, 297; Brooks *et al.* 2004, pp. 682–683). The result of this altered wildfire regime has been the conversion of vast areas of sagebrush-steppe ecosystem into nonnative annual grasslands (USGS 1999, pp. 1–9). The proportion of annuals in the sagebrush-steppe ecosystem increases dramatically at higher fire frequencies, while all other vegetative life forms decrease. Sagebrush can reestablish from seed following fire, however the seeds are short-lived and if a second fire occurs before the new plants produce seed (4 to 6 years), the species may face local extirpation. This would be less of a problem if the fires occurred over relatively small areas, because seed from adjacent unburned areas would be naturally transported back into burned areas. As fires become larger, the opportunity for seed migration into burned areas is dramatically decreased (Whisenant 1990, p. 8–9). Based on our observations, *Astragalus anserinus* seedling germination does not appear to be stimulated by wildfire. Accordingly, fewer individuals and fewer seeds would be available for recruitment if wildfire were to return before the species is able to recover from earlier wildfire impacts to the population. As a result, there would be a corresponding decline in the overall number of individuals.

Wildfire was not documented within *Astragalus anserinus* habitat prior to 2000 (A. Feldhausen, in litt. 2007, p. 3; R. Hardy, Salt Lake City BLM, in litt. 2008, p. 1), although undoubtedly they occasionally occurred in the past. *Astragalus anserinus* habitat is normally sparsely vegetated (e.g., typically 10 to 30 percent total vegetative cover), which likely makes it less vulnerable to wildfire because of the lack of fuels to sustain fire over large areas. We are aware of a wildfire that occurred in *A.*

anserinus habitat in Idaho in 2000, and another wildfire that occurred in Nevada and Utah in 2007. The 2000 Idaho wildfire affected two EOs (EO 007 and EO 009), however at the time, EO 009 had not been documented and *A. anserinus* was not affected by the 2000 wildfire at EO 007 (A. Feldhausen, in litt. 2007a, p. 11). Accordingly, before 2008, we had no pre-wildfire data with which to assess the impact of wildfires on *A. anserinus*. Our knowledge of the effects from wildfire was limited to observations at EO 009 from 2004. Based on the best available information, EO 009 is made up of 3 separate occupied sites that contain 10, 36, and 749 individuals based on 2004 surveys/census efforts. The EO 009 site with 749 individuals is within a sparsely vegetated slope with mature junipers and shrubs, and may not have burned during the 2000 wildfire.

Based on pre-fire data, a single wildlfire in 2007 in Nevada and Utah completely burned 3 EOs and portions of 5 other EOs containing approximately 53 percent of all known *Astragalus anserinus* individuals (31,500 of 60,000 individuals). The 2007 wildfire also burned 25 percent of the known occupied habitat (100 acres (ac) (41 hectares (ha)) out of an estimated 400 ac (164 ha)) (Service 2008c, Table 1).

In Nevada, 3 EOs were completely within the burned area footprint (1,512 total individuals), and three other EOs were partially burned, but had an estimated loss of approximately 72 percent of the individuals within those 3 EOs (5,394 of 7,508 individuals). In Utah, portions of two EOs were burned in the wildfire (EOs 001 and 009). The wildfire in EO 001, which contained more than 60 percent of the known individuals (37,000 of 60,000 individuals), was estimated to have burned approximately 40 percent of the known individuals (24,000), and approximately 18 percent of the total occupied acreage (71 ac (29 ha)) (Service 2008b, 17 pp.). Please note that since six of the 10 currently known EOs in Nevada were not discovered until 2006 (EOs 005 through 010), and only population estimates and point data have been collected, the total number of individuals and the acreage affected by the 2007 wildfire are only estimates. Estimating the number of individuals and acres with greater precision is difficult because of the various methods that have been employed by prior survey and census efforts.

Based on initial field visits and reports following the 2007 wildfire (Howard 2007, pp. 1–2), we initially understood that the wildfire burned intensely and almost continuously across the landscape. However, our 2008 field inspection determined that the wildfire burned as a mosaic rather than continuously, and did not affect some small patches of *Astragalus anserinus* occupied habitat. We observed that 21.3 percent, 81.1 percent, and 94.6 percent of the total acreage was burned at 3 *A. anserinus* sites, however estimates were not made for 2 other sites within the burned area perimeter that were only partially burned (Service 2008c, Table 2). Our inspection also documented the bunchgrasses *Hesperostipa comata* (needle and thread), *Poa secunda* (Sandberg's bluegrass), *Pascopyron smithii* (western wheatgrass), *Agropyron cristatum* (crested wheatgrass), and *Achnatherum hymenoides* (Indian ricegrass), as well as the shrub *Chrysothamnus viscidiflorus* (green or yellow rabbitbrush) re-sprouting from roots that survived the 2007 wildfire. These species generally made up approximately 20 percent of the total vegetative cover at the burned sites, and it was estimated that 75 to 90 percent of the bunchgrasses had survived the wildfire (M. Mancuso, Mancuso Botanical Services, in litt. 2008, p. 1).

In June, 2008, we conducted post-wildfire re-census efforts to specifically evaluate the effects of the 2007 wildfire and determine the response of *Astragalus anserinus* to this event. We counted individual plants at 12 sites where we had count data from either 2004 or 2005, including Nevada EO 001, Nevada EO 004, and 10 sites within Utah EO 001 (which represents the largest EO). Three of the sites that were surveyed were not burned, 5 of the sites were partially burned (including Utah EO 001–4–17 which supported 7,486 individuals prior to the fire based on 2005 data), and 4 of the sites were completely burned. Using pre-2007 information, we estimate that we resurveyed habitat containing approximately half of the estimated 31,500 individuals burned in the 2007 wildfire (Service 2008c, Tables 1 and 2). Generally, individual plant counts in almost all burned and unburned areas were less than those recorded in 2004 and 2005.

Table 3 provides pre- and post-fire survey data from the 12 sites. For the 3 unburned sites, the number of individuals increased by 5.4 percent at the first site (652 in 2004 to 687 in 2008), decreased by 76.3 percent at the second site (1,458 in 2004 to 346 in 2008), and decreased by 79.0 percent at the third site (3,081 in 2005 to 647 in 2008) (Service 2008c, Table 2). For the 4 sites that completely burned, the number of individuals decreased by 94.9 percent at the first site (3,695 in 2005 to 188 in 2008); 98.1 percent at the second site (314 in 2005 to 6 in 2008); 98.2 percent at the third site (1,115 in 2005 to 20 in 2008), and 100 percent at the fourth site (224 in 2005 to 0 in 2008) (Service 2008c, Table 2).

TABLE 3. CENSUS RESULTS FROM THE 2008 POST-WILDFIRE SURVEYS.

EO Number and Site Number	Burned or Unburned	2004 or 2005	2004/2005 Number of Individuals	2008 Number of Individuals	Individuals Percent Change	2004 or 2005 Percent Area Burned
N004–1	Unburned	2004	652	687	+5.4	
U001–7–3	Part-Burned	2004	1,742	1,134	-34.9	21.3
N001–1	Part-Burned	2004	541	173	-68.0	unknown
U001–6–1	Unburned	2004	1,458	346	-76.3	0
U001–4–35	Unburned	2005	3,081	647	-79.0	0
U001–4–17	Part-Burned	2005	7,486	772	-89.7	94.6
U001–4–33	Part-Burned	2005	349	31	-91.1	unknown

TABLE 3. CENSUS RESULTS FROM THE 2008 POST-WILDFIRE SURVEYS.—Continued

EO Number and Site Number	Burned or Unburned	2004 or 2005	2004/2005 Number of Individuals	2008 Number of Individuals	Individuals Percent Change	2004 or 2005 Percent Area Burned
U001–4–30	Part-Burned	2005	175	13	-92.6	81.1
U001–NV–1	Burned	2005	3,695	188	-94.9	100
U001–4–12	Burned	2005	314	6	-98.1	100
U001–NV–2	Burned	2005	1,115	20	-98.2	100
U001–4–34	Burned	2005	224	0	-100.0	100

During our field surveys at the 5 sites that were partially burned, we observed a 34.9 percent to 92.6 percent decrease between the number of *Astragalus anserinus* individuals counted in 2004 or 2005 and the number counted in 2008. The sites that had the most burned area generally reflected larger decreases in the number of individual plants (Table 3) (Service 2008c, Table 2). Extant *A. anserinus* individuals were also more frequently associated with unburned areas in the partially burned sites. For example, approximately 94.6 percent of the occupied area within site U001–4–17 was burned during the 2007 wildfire (this site represented the site with the most individuals counted prior to the 2007 wildfire (7,486)). We observed that 562 of the 772 individuals counted in U001–4–17 in 2008 (68.1 percent) occurred in the 5.4 percent of the site that did not burn. Prior to the 2007 wildfire, *A. anserinus* densities were generally higher within the more sparsely vegetated areas of occupied sites. It is likely that the number of individuals detected within the burned and unburned areas was influenced by their pre-wildfire distribution, particularly since sparsely vegetated areas were less likely to burn. Because the density of individuals at any particular site was not measured at a fine enough resolution in the 2004, 2005, or 2007 surveys, it is difficult to conclusively compare pre-2007 wildfire densities to post wildfire densities.

We also compared the acreage occupied by *Astragalus anserinus* between that recorded during the 2004 and 2005 census efforts and what we observed in June 2008. The occupied acreage decreased at each of the 12 sites, which included both burned and unburned areas, with a range of 37.9 to 100 percent (Service 2008c, Table 2). The occupied acreage at the 3 sites that did not burn decreased 62.1 percent, 60.5 percent, and 77.4 percent (average = 66.6 percent); the reason for the decrease is unknown. The occupied acreage at the 5 partially burned sites decreased 37.9 percent, 59.9 percent, 97.3 percent, 86.8 percent, and 99.4 percent (average = 73.3 percent). The occupied acreage at the 4 sites that completely burned decreased 90.2 percent, 77.0 percent, 96.0 percent, and 100 percent (average = 90.8 percent) (Service 2008c, Table 2). Since explicit data collection protocols were not established to differentiate between map points at which an individual was recorded and map polygons which indicate an area within which one or more individuals were recorded, we considered plants to be within the same polygon if they were within 33 to 66 ft (10 to 20 m) of one another. For this reason, determining fire effects by comparing the burned, unburned, and partially burned acreage is not as accurate as comparing the numbers of individuals that were actually counted.

Despite the significant declines in the number of individuals and occupied acreage detected in the 2008 surveys, some *Astragalus anserinus* individuals did survive the effects of the fire. Plants can survive wildfires in several ways. Adult plants can survive, plants may re-sprout from the base, or plants can re-establish from seed (Brown and Smith 2000, p. 33). Field surveys conducted in November 2007 (after the 2007 wildfire), documented that most of the above-ground vegetation had been removed at several *A. anserinus* sites. During the subsequent 2008 field surveys, we observed that some adult plants that survived inside burned areas were attached to large woody roots that likely survived the wildfire. This suggests that the *A. anserinus* individuals that survived the 2007 wildfire likely re-sprouted after the wildfire. If *A. anserinus* is able to remain dormant during a growing season, the low plant numbers we observed in 2008 in unburned sites may indicate that some plants were dormant at that time, although we do not have any information regarding this capability.

We also compared the number of *Astragalus anserinus* seedlings counted in 2008 between burned areas and areas that did not burn. We observed that seedlings made up 11.4 percent of *A. anserinus* plants (76 of 665) in burned areas, 11.5 percent (23 of 200) in partially burned areas, and 2.1 percent (68 of 3,222) in unburned areas (Service 2008a, Table 1). Seedlings can become re-established from surviving plants, seed dispersal from off-site plants, wildfire stimulated seed banks, or plants that re-sprout after a wildfire (USFS 2000, p. 33). The increased number of seedlings within burned and partially burned areas may demonstrate that seed germination was stimulated by the 2007 wildfire. However, even if this is true, this response did not offset the observed individual plant losses resulting from the 2007 wildfire. We are unaware of any available information on *A. anserinus* seed bank longevity, and do not fully understand the effect wildfire may have on this species. Seed bank studies for other *Astragalus* species indicate that the group generally possesses hard impermeable seed coats with a strong physical germination barrier. As a result, the seeds are generally long-lived in the soil and only a small percentage of seeds germinate each year (summarized in Morris *et al.* 2002, p. 30). However, we do not know if the seed germination strategy for other *Astragalus* species is comparable to that employed by *A. anserinus*.

We observed an average 50 percent decline in the number of *Astragalus anserinus* plants counted at the 3 sites that were not burned in the 2007 wildfire, compared to pre-fire site data for those areas. For sites that were completely burned by the 2007 wildfire, average plant numbers declined 97.8 percent from the number of individuals counted in 2004 or 2005. In some plant species, seed dormancy is broken by wildfire (e.g., *Pinus contorta*, lodgepole pine), and after a wildfire numerous seedlings sprout because this seed dormancy has been broken. However, we did not see a significant number of new seedlings within burned areas.

Because of the low numbers of observed individuals and the lack of a source for a large flush of seedlings, it is likely that *A. anserinus* recovery will depend on the successful re-colonization of burned areas. Because of the generally low number of seedlings counted, where data are available, we suspect that this re-colonization may take several years and be dependent upon suitable environmental conditions.

We believe that wildfire frequency will increase within *Astragalus anserinus* habitat. Wildfire return intervals in the sagebrush-steppe ecosystem, which includes the Goose Creek drainage, have been significantly reduced from between 60 and 110 years to often less than 5 years. The fact that the 2007 wildfire was the second wildfire recorded within a 7–year period in the Goose Creek drainage, with no previously recorded wildfires in this area, appears to present supporting evidence for increased fire frequency. Wildfire kills *Astragalus anserinus*, and seedling germination does not appear to be stimulated by wildfire. Accordingly, increased fire frequency will result in fewer *A. anserinus* individuals, and less seed availability for recruitment. The ongoing and cumulative effects of wildfire on *A. anserinus* include a substantial reduction in the amount of available habitat, and range-wide population-level effects caused by the loss of approximately 98 percent of the individual plants in the burned areas (which were roughly 53 percent of the pre-2007 wildfire total known individuals). Future wildfires in the area will likely result in similar detrimental effects on the remaining population.

It is likely that *Astragalus anserinus* recovery will depend on the successful re-colonization of burned areas, which will probably occur slowly over time. However, because wildfire frequency has increased in this area, recovery may be constrained by additional wildfires in the relatively near future. Therefore, we find the magnitude of this threat to be high.

Wildfire Management

Wildfire management can include prescribed burning, and activities associated with fighting wildfires such as the construction of fire lines and staging areas, retardant application, and post-wildfire restoration efforts such as disking and seeding. In 2008, disking and seeding associated with soil stabilization activities occurred over portions of 11 *Astragalus anserinus* sites in Utah in response to the 2007 wildfire (Service 2008c, Tables 2–4, Map 4; Service, in litt. 2008, photos 1–3). It is likely that numerous individual plants were lost to site re-seeding efforts and road construction activities. We also observed in some cases that *A. anserinus* root systems had been exposed, and believe that it is likely that individual plants were turned over and buried during the disking operations. These actions likely killed individual plants, thereby compounding the ongoing detrimental effects of the wildfire itself on the *A. anserinus* population.

Firefighting Activities

Firefighting activities such as prescribed burning, road and fire line construction and retardant application can destroy habitat and kill or injure individual *Astragalus anserinus* plants. Such activities occurred during the response to the wildfire in 2007. Advance *A. anserinus* surveys were not conducted because of the immediate need to respond to the 2007 wildfire (M. Gates, Salt Lake City BLM, in litt. 2008a). During a brief field inspection of the area affected by firefighting activities prior to our 2008 post-fire surveys, we observed that at least one new road had been constructed along a ridge, and that several fire lines had been excavated by hand adjacent to *A. anserinus* habitat. We also observed that a wide fire line had been constructed between 2 known EOs. During our 2008 post-wildfire surveys over 18 *A. anserinus* occupied sites, we observed that fire retardant had been applied at 1 site over an area approximately 10 ft (3 m) in radius (U001–4–35). We also observed that a new access road had been constructed through site U001–7–3, and evidence of tire tracks in occupied areas at site U001–4–33.

One study of the effects of fire retardant chemical (Phos-Chek G75-F) and fire suppressant foam (Silv-Ex) application, alone and in combination with fire, on Great Basin shrub steppe vegetation found that growth, resprouting, flowering, and incidence of galling insects on *Chrysothamnus viscidiflorus* (yellow rabbitbrush) and *Artemisia tridenta* (Big sagebrush) were not affected by any chemical treatment. In general, the study found that species richness declined, especially after Phos-Check application, but by the end of the growing season, species richness did not differ between treated and control plots (Larson *et al.* 1999, p. 115). We are unaware of the specific retardant used in the 2007 fire response, or whether *A. anserinus* would be similarly unaffected. However, based on the limited extent of the area that was treated with retardant, we do not anticipate any significant long-term impacts to the overall *A. anserinus* population. In addition, since advance *A. anserinus* surveys were not conducted because of an immediate need to respond to the wildfire, we do not know if the other activities adversely affected the species. Some fire fighting activities could present a future threat to *A. anserinus*, depending on their specific location and scale; however, we are unable to assess the magnitude of those potential threats at this time.

Post Wildfire Emergency Stabilization and Restoration

Post-wildfire restoration activities can also destroy habitat, kill or harm individuals, and introduce nonnative species, which may outcompete *Astragalus anserinus* for resources. The following is a discussion of restoration activities that occurred after the 2008 fires.

2007 Wildfire Emergency Stabilization and Restoration in Nevada: Following the 2007 wildfire season, the BLM Elko Nevada Field Office (BLM-Nevada) developed a soil stabilization plan for implementation in 2008 that included reseeding several areas affected by the fire. A native grass restoration seeding effort was planned near EO 005, but was not conducted (Howard 2007, p 3). Post-fire aerial seeding of *Artemisia tridentata* var. *wyomingensis* (Wyoming sagebrush), which is native to Goose Creek, was undertaken within drainages at or near the site instead of the native grass restoration seeding effort (K. Fuell, Elko BLM, in litt. 2008, p. 1). This action may be beneficial to *Astragalus anserinus*, however we are unaware of the specific treatment locations, whether the efforts were successful, or whether they affected *A. anserinus* in EO 005.

2007 Wildfire Emergency Stabilization and Restoration in Utah: Restoration seeding activities in Utah were conducted in late May and early June, 2008, as part of an Emergency Stabilization Plan (ESP) that was developed by BLM to treat areas affected by the 2007 wildfire. A fencing project and juniper removal chaining efforts (using a chain connected between two tractors) were included as elements of this plan. Under the ESP, disk seeding with a mix of native and nonnative species (see ''Nonnative Invasive Species—seeded'' below) was conducted within *Astragalus anserinus* habitat in an area west of Grouse Creek Road to stabilize the soils, prevent erosion, and minimize competition by *Bromus tectorum* (cheatgrass) in the burned area. Areas to be avoided were identified in advance with flagging to

prevent impacts to *A. anserinus* from planned juniper removal chaining operations and seeding efforts (M. Gates, in litt. 2008b, p. 1). However, not all *A. anserinus* sites were avoided.

The rangeland drills employed in the Utah seeding effort were fitted with metal cutting discs measuring at least 1.0 ft (0.30 m) to 1.5 ft (0.46 m) in diameter, that were spaced on approximate 8 inch (20 centimeter) centers. The tractors used in the restoration activities would generally pull two rangeland drills at once, breaking the soil horizon to a depth of approximately 5 inches (13 centimeters) and a width of roughly 20 ft (6.1 m) (Service, in litt. 2008, p. 4, 5). Although living *Astragalus anserinus* individuals were observed between disk furrows during our site inspections (Service, in litt. 2008, p. 11–14), we did not observe any individual plants within the disk furrows themselves. Our assumption is that any *A. anserinus* individuals that may have been previously established in these areas were turned over and buried by the furrowing activities.

The above drilling and seeding activities were conducted one week before our 2008 re-census surveys. Since the work had been recently accomplished, we were able to observe evidence of several live *Astragalus anserinus* individuals whose woody roots had been exposed during the drilling effort. It is unlikely that these individuals with exposed roots will survive the physical and physiological stress of that exposure (Service, in litt. 2008, p. 12, 14). At two sites, the drilling and seeding efforts affected clusters of live *A. anserinus* individuals that had not been exposed to wildfire (Service 2008c, Maps 4, 9). During our 2008 surveys, we were unable to quantify the direct effects of seeding efforts to *A. anserinus* for several reasons: 1) the wildfire reduced plant numbers such that there were very few plants left with which to analyze effects, 2) it was difficult to separate the effects from drilling and seeding from those associated with the wildfire, and 3) many of the 2004 and 2005 census polygons did not completely align with the areas that were drilled and seeded, which made comparisons difficult. Because there were no post-wildfire project-specific surveys conducted in advance, it is possible that the remedial drilling and seeding efforts in Utah affected previously unknown and unsurveyed *A. anserinus* sites.

Although the ESP included plans to remove dead juniper trees from several burned areas near *Astragalus anserinus* habitat by using a chain connected between two tractors, we did not observe any evidence that this activity had been conducted during our June 2008 field inspection.

Summary: During our 2008 post-wildfire re-census in Utah, we documented 11 occupied sites within Utah EO 001 (the largest known *Astragalus anserinus* EO) that were impacted by wildfire management actions (Service 2008c, Table 3). The 11 affected sites contained an estimated 11,000 individual plants (representing 18 percent of the estimated pre-fire rangewide population and 34.5 percent of the pre-fire population numbers within burned areas). On average, 47.1 percent of the total occupied area of a site was seeded (Service 2008c, Tables 1, 4), with a range of 13.6 percent to 100 percent of the occupied acreage at each of the 11 sites affected by disking and seeding activities (Service 2008c, Table 4). The 11 sites comprised roughly 13 percent (54 of 405 ac (22 of 164 ha)) of the total area rangewide, with roughly 25 ac (10 ha) or 6 percent of the total area rangewide being impacted by disking and seeding activities (Service 2008c, Table 4). It is likely that some *A. anserinus* individuals that were established in these areas were killed either because of mechanical damage or burial during the disking operations. However, we did see live plants between the furrows that appeared intact and are likely to survive. Because 4 of the 11 sites were not surveyed in 2004 and 2005 (U001–6–2, U001–6–3, U001–6–4, and U001–6–New), we do not have reliable baseline acreage estimates for these areas. The seeding efforts conducted under the ESP affected more than 50 percent of the occupied acreage at site U001–4–17, the site with the highest number of individuals counted in 2005 (7,486 plants). In addition, 117 of the 772 individuals (15.2 percent) counted at this site in 2008 were within areas impacted by the seeding activities (Service 2008c, Tables 3, 4).

We were unable to quantify the direct effects of remedial seeding activities to *Astragalus anserinus* because there were so few plants left after the 2007 wildfire, and it was difficult to differentiate the drilling and seeding effects from the fire effects. However, it is likely that numerous individual plants were lost because of the post-wildfire stabilization efforts. The effects of wildfire control activities and seeding efforts were detrimental to several affected *A. anserinus* sites and may continue to be detrimental because of the overall reduced recruitment capacity. This could be exacerbated if future wildfires result in similar or more aggressive post-fire remedial seeding activities in areas occupied by *A. anserinus*, which could negatively impact the population by further reducing the number of individuals. However, the magnitude of that potential impact could vary widely, depending on the specific location and scale of activity and the specific *A. anserinus* EO affected. Therefore, we are unable to assess the magnitude of those potential threats at this time.

Nonnative Introduced Species—Unseeded

Invasive nonnative plants (weeds) invade and alter diverse native communities, often resulting in nonnative plant monocultures that support little wildlife. Many experts believe that following habitat destruction, invasive nonnative plants are the next greatest threat to biodiversity (Randall 1996, p. 370). Invasive nonnative plants alter different ecosystem attributes including geomorphology, fire regime, hydrology, microclimate, nutrient cycling, and productivity (Dukes and Mooney 2004, p. 4). Invasive nonnative plants can also detrimentally affect native plants through competitive exclusion, alteration of pollinator behaviors, niche displacement, hybridization, and changes in insect predation. Examples are widespread among taxa and locations or ecosystems (D'Antonio and Vitousek 1992, pp. 74–75; Olson 1999, pp. 6–18; Mooney and Cleland 2001, pp. 5446–5451).

Nonnative plants that were not intentionally seeded and are known to occur at *Astragalus anserinus* sites include *Alyssum desertorum* (desert madwort), *Bromus tectorum* (cheatgrass), *Descurainia sophia* (flixweed), *Euphorbia esula* (leafy spurge), and *Halogeton glomeratus* (halogeton). In 2008, we also located one *Hyoscyamus niger* (black henbane) individual within one *A. anserinus* site. In previous years, this species had only been observed as a few plants along Goose Creek road. With regard to the above nonnative species, the two of most concern to *A. anserinus* are *B. tectorum* because of possible effect in altering the wildfire regime (see *Wildfire* above), and *E. esula* because of its invasive capabilities (DiTomaso 2000, p. 255).

Prior to the 2007 wildfire, *Bromus tectorum* was observed throughout the range of *Astragalus anserinus*, but was generally encountered at low density. *Bromus tectorum* is documented at all 5 EOs in Idaho, and 3 of the 4 EOs in Utah. Although habitat information is available for only 4 of the 10 EOs in Nevada, *B. tectorum* is documented at 3. One Utah EO has not been visited since

1990, and nonnative species presence has not been reported (Service 2008b, 17pp.). *Bromus tectorum* was generally found at less than 5 percent cover when it occurred with *A. anserinus*, based on estimates from the 2004 and 2005 census efforts. At *A. anserinus* sites with either a southern slope exposure or where livestock trampling was observed to be more prevalent, the *B. tectorum* percent cover was generally higher (e.g., between 10 to 20 percent, although as high as 70 to 80 percent in a few cases) (Service 2008b, 17 pp.). We do not yet know how the 2007 wildfire may have affected *B. tectorum* abundance, but are aware that the species often proliferates as a result of wildfire (D'Antonio and Vitousek 1992, pp. 74–75). The net effect of *B. tectorum* invasion is a ''positive feedback from the initial colonization in the interstices of shrubs, followed by fire, to dominance by *B. tectorum* and more frequent fire'' (D'Antonio and Vitousek 1992, pp. 74–75). However, field observations during the 2008 re-census effort suggest that *B. tectorum* infestations were generally similar to what they were before the 2007 fire within and outside of areas burned, although these observations were not well quantified. This may imply that *B. tectorum* may not be a threat to *A. anserinus* at this time. However, wildfire frequency is tightly linked with annual grass abundance. If wildfire frequency increases, it is expected that *B. tectorum* will also increase in abundance.

Euphorbia esula (leafy spurge) is a perennial forb with a deep and extensive spreading root system, which can be up to 20 ft (6 m) long. *E. esula* also spreads by seeds that are explosively dispersed as much as 15 ft (4.5 m). This species has been designated as a noxious weed by the state of Idaho, meaning it has the potential to cause injury to public health, crops, livestock, land or other property (Idaho Statute 22–2402). It reduces species diversity (Selleck *et al.* 1962, p.21; Butler and Cogan 2004, p. 308), forms almost homogeneous plant communities (Belcher and Wilson 1989, p. 174), poses a threat to other rare plant species such as *Platanthera praeclara*, (western prairie fringed orchid) (Kirby *et al.* 2003, p. 466), and is known from 42 of the 44 counties in Idaho (Invaders Database System 2008). It generally forms monocultures with very little native vegetation in the areas where it is found in the Goose Creek drainage.

Euphorbia esula has not been documented at *Astragalus anserinus* sites in Nevada; however, it has been documented at 4 of 5 *A. anserinus* EOs in Idaho and within the largest EO in Utah (Service 2008b, 17 pp.). In general, most *E. esula* sites are small in size, dispersed throughout *A. anserinus* EOs, and impact only small portions of some sites. In Utah EO 001, *E. esula* occurs in 1 of the 54 known occupied sites, and from 10 to 200 ft (3 to 61 m) away at 6 other sites (Service 2008b, 17 pp.). In Idaho EO 003, it is present in 13 of the 26 *A. anserinus* sites, although we have not established that all of these exposures directly overlie *A. anserinus* sites. It has also been documented as occurring in the area at seven other sites in Idaho (Service 2008b, 17 pp.). Based on field observations in 2004 and 2005, we estimate that *E. esula* co-occurs with *A. anserinus* at less than 2 percent of the total range-wide occupied area. In 2008, we observed two leafy spurge sites that had been disked and seeded during the post fire restoration effort in Utah (Service 2008c, Maps 7, 9; Service, in litt. 2008, pp. 15–16). This action may result in a substantial increase in *E. esula*, since one study examining the effects of tilling on *E. esula* found a three-fold increase in the number of stems per square meter after tilling was conducted (Selleck *et al.* 1962, p. 14).

Euphorbia esula control efforts within the Goose Creek drainage have been underway for several years; from 1999 through 2007, control efforts were conducted at over 500 sites in Idaho. Approximately 40 percent of the *E. esula* sites documented between 1999 and 2006 at Idaho EO 003 were no longer present in 2007 as a result of these efforts (A. Feldhausen, in litt. 2007, pp. 5–6). However, despite a rather intense control program in Utah, the species presence is increasing (Hardy 2005, p. 2). In 2007, increasingly aggressive control and monitoring efforts targeting *E. esula* were expanded and implemented at several *Astragalus anserinus* and *Penstemon idahoensis* sites in Utah and Idaho. BLM-Idaho established 11 small study plots to determine the effectiveness of *E. esula* treatments and to monitor any effects to *A. anserinus* and *P. idahoensis* (A. Feldhausen, in litt. 2007a, p. 3). Control efforts have expanded in the Goose Creek drainage in Idaho and Utah, but *E. esula* is still found in or near at least 20 *A. anserinus* sites in 5 EOs in Idaho and Utah (Service 2006b, p.4; A. Feldhausen, in litt. 2007a, p. 3; Service 2008b, 17pp.). In the Nevada portion of the Goose Creek drainage, BLM-Nevada has not conducted any invasive species management activities and none are planned (Howard 2007, p. 3).

The potential for *Euphorbia esula* and *Bromus tectorum* to become established throughout the entire Goose Creek drainage poses a threat to *Astragalus anserinus*. However, infestations of both species are currently limited and do not impact all occupied sites. In Idaho, control efforts appear to have been effective in eliminating *E. esula* at some sites and in controlling its spread. We recognize that this threat could become greater in the future, if wildfire frequency increases such that it promotes the spread of *B. tectorum* into *A. anserinus* EOs, since *B. tectorum* is highly invasive, highly flammable, dies and dries out in the spring, and spreads fire rapidly (D'Antonio and Vitousek 1992, p. 74). The magnitude of the potential threat presented by *B. tectorum* or *E. esula* competition would vary depending on the location and scale of the infestations, the specific *A. anserinus* EO(s) affected, and the effectiveness of any control treatments. As a result, we are unable to assess the likelihood or magnitude of future threats at this time.

Nonnative Introduced Species—Seeded

Agropyron cristatum (crested wheatgrass) was planted in the Goose Creek drainage before 1970 (Hardy 2005, p. 2; A. Feldhausen, in litt. 2007, p. 10; Howard 2007, p. 3). It was planted extensively near *Astragalus anserinus* sites during range seeding operations in the 1950s and 1960s, and also during wildfire restoration activities conducted within the Goose Creek drainage in 2007. Although *A. cristatum* is by far the most common intentionally seeded nonnative species, other nonnative species have also been introduced, including *Agropyron fragile* (Vavilov Siberian wheatgrass), *Elymus junceus* (Russian wildrye), *Elymus lanceolatus* ssp. *lanceolatus* (Critana thickspike wheatgrass), *Linum perenne* (Apar blueflax), *Medicago sativa* (Ladak alfalfa), and *Thinopyrum ponticum* (= *Agropyron elongatum*, tall wheatgrass) (M. Gates, in litt. 2008e, p. 1; R. Hardy, in litt. 2008, p. 1).

Agropyron cristatum is often used for rangeland seedings because seed is widely available, it establishes easily, provides suitable forage for livestock, provides some erosion control, and controls competition from other invasive nonnative plants (Walker and Shaw 2001, p.56). *A. cristatum* is extremely competitive and can out-compete other vegetation in several ways (Pellant and Lysne 2005, pp. 82–83). *A. cristatum* seedlings are better than some native species at acquiring moisture at low temperatures (Lesica and DeLuca 1998, p. 1; Pyke and Archer 1991, p. 4; Bunting *et al.* 2003, p. 82), and *A. cristatum* plantings are very stable and may inhibit or retard the development of a native plant

community (Marlette and Anderson 1986, p. 173). Range surveys conducted in 1966 in southern Idaho documented that *A. cristatum* had persisted in some areas for 30 to 50 years and was spreading into adjacent habitats (Hull and Klomp 1966, p. 7; 1967, p. 227). Increasing plant diversity within *A. cristatum* sites is challenging, and requires the implementation of measures to reduce its ability to compete before native species can be introduced (Pellant and Lysne 2005, pp. 84–87).

Prior to 2008, *Agropyron cristatum* had been documented at 2 of 5 *Astragalus anserinus* EOs in Idaho, and 1 of the 4 EOs in Nevada where we had habitat information. *A.gropyron cristatum* has the largest extent of area in *A. anserinus* habitat in Utah, where it was found extensively in the largest Utah EO (EO 001) (Service 2008b, 17 pp.). Although not quantified, some of the new EOs found in 2006 in Nevada were observed to be occupied by *A. cristatum* (Howard 2007, p. 3; Smith 2007, p.2). However, where both species co-occur they are typically separated, with *A. cristatum* growing on flatter areas and *A. anserinus* on slopes (Service 2006b, p. 5). Maps obtained from BLM-Utah indicate that *A. cristatum* had been seeded directly over numerous *A. anserinus* EOs, although, based on our field observations during the 2004 and 2005 census efforts, we were unable to confirm whether this actually occurred. *A. cristatum* was seldom observed where *A. anserinus* occurred, which indicates that the steep slopes may have been too difficult to plant and were avoided (Service 2006b, p. 5). We observed that *A. anserinus* density appeared to be higher on flat areas below tuffaceous outcrops where *A. cristatum* was not seeded (Service 2008b, 17 pp.) than on flat areas where *A. cristatum* was seeded. Two sites surveyed in 2005 (U001–NV–1 and U001–NV–2) were unusual in that we observed a high density of *A. anserinus* individuals in flat areas, as opposed to sloping areas where they are typically observed; these areas had not been seeded with *A. cristatum*.

Areas disturbed in 2004 during construction of a livestock watering pipeline that impacted one *Astragalus anserinus* site in Utah (see *Livestock Use* below) were reseeded with several nonnative species, including *Agropyron fragile, Elymus junceus*, *Elymus lanceolatus* ssp. *lanceolatus, Medicago sativa*, and *Thinopyrum ponticum* (M. Gates, in litt. 2008e, p. 1). We are unaware of the effect this activity may have had on *A. anserinus* since we have not inspected the pipeline subsequent to its construction. The monitoring associated with this project was limited to tracking effects of reseeding on five *A. anserinus* individuals in livestock exclusion cages.

Some areas in Utah that burned during the 2007 wildfire were reseeded in 2008 with *Achillea millefolium* (western yarrow)—a native forb; *Pascopyrum smithii*—a native grass; canby bluegrass (*Poa secunda* Canbar)—a native grass; *Agropyron cristatum*—a nonnative grass; *Elymus junceus*—a nonnative grass; *Linum perenne*—a nonnative forb; and *Medicago sativa*—a nonnative forb (M. Gates, in litt. 2008b, p. 1). Although the intention of these restoration efforts was to avoid known occupied *A. anserinus* habitat (M. Gates, in litt. 2008b, p. 1), we observed during our 2008 survey that 11 sites within Utah EO 001 (the largest EO) had been drilled and seeded (Service 2008c, Table 3) (see the ''2007 Wildfire Emergency Stabilization and Rehabilitation in Utah'' section above for more details).

We do not fully understand the effects of the seeding efforts on occupied *Astragalus anserinus* areas. The available literature has documented that *Agropyron cristatum*, which is frequently used to stabilize soils disturbed by fire, is able to out-compete slower-developing native species because of its drought tolerance, fibrous root system, and good seedling vigor (USDA 2006, p. 1). The seedings of *A. cristatum* that were conducted prior to 2008 were generally separated from *A. anserinus* areas, and did not appear to be spreading significantly from the areas where the species was planted. Because of this separation, populations of *A. cristatum* established due to the pre-2008 seeding activities were not considered to be a threat to *A. anserinus*.

The 2008 seeding activities took place directly over areas that supported approximately 10 percent of the pre-wildfire *Astragalus anserinus* individuals, although we are unable to conclusively determine the ongoing or cumulative effect of this activity on *A. anserinus* because of the short time that has elapsed. In addition, we are not aware of any specific studies on the competitive relationship between *A. cristatum* and any other *Astragalus* species, although *A. cristatum* is known to be an effective competitor with other aggressive introduced plants during the establishment period (USDA 2006, p. 1).

Summary: The 2008 *Agropyron cristatum* seeding activities occurred directly over areas that supported 18 percent of the pre-2007 wildfire *Astragalus anserinus* rangewide population numbers. We observed *A. anserinus* density to be higher in areas where *A. cristatum* was not seeded (Service 2008b, 17 pp.). We believe *A. cristatum* may be outcompeting *A. anserinus* in flat areas where *A. cristatum* was seeded directly over *A. anserinus* during the 1950s and 1960s. The available literature has documented that *A. cristatum* is highly competitive with other species (USDA 2006, p. 1). We believe that the reduced population level effects that resulted from the 2007 wildfire are being exacerbated by the ongoing competitive effects of nonnative seeded plants that were introduced for rangeland improvement and fire response activities. After fully considering each of the above factors, we find the threat presented by nonnative invasive species to *A. anserinus* to be moderate in magnitude, because of the likelihood of more frequent wildfire in the area combined with the cumulative population-level effects on recruitment and recovery from past seeding activities.

Livestock Use (Trampling, Water Developments, and Habitat Degradation)

Threats related to livestock use include the physical effects of trampling of plants, and the effects from range improvement projects and livestock water developments that degrade habitat and concentrate animals. We are unaware of any research that has evaluated the effects of livestock use on *Astragalus anserinus* specifically; however, the effects of livestock on other plant species is well documented (Milchunas and Lauenroth, 1993, pp. 327–366; Jones 2000, pp. 155–164). To our knowledge, the effects of livestock use on *A. anserinus* pollinators have not been investigated. However, one study of another Great Basin *Astragalus* species hypothesized that sheep use and grazing affected the pollinators for that species through the destruction of potential nest sites, destruction of existing nests and contents, direct trampling of adult bees, and removal of food resources (Sugden 1985, p. 309).

Livestock use has occurred within the Goose Creek drainage for more than 150 years, although it was likely much greater during the late 1800s (Hardy 2005, p. 1). The Goose Creek drainage was a stopping area for pioneers traveling the California National Trail because of the availability of water, which increased livestock presence in the area (Howard 2007, p. 3). However, without pre-livestock baseline population information on *Astragalus anserinus*, it is difficult to assess the effects of this activity to the species over time.

The presence of livestock trails and evidence of trampling has been documented at every *Astragalus anserinus* EO (Howard 2007, p. 3; A. Feldhausen, in litt. 2007a, p. 4; Service 2008b, 17 pp.). In addition, all *A. anserinus* sites on public land are within active livestock grazing allotments. None of these sites have been fenced or otherwise excluded from livestock use, other than some allotments that were recently closed in Nevada as a result of the 2007 wildfire (Bluff Creek, Grouse Creek, and Little Goose Creek) (B. Fuell, Elko BLM, in litt. 2008, p. 1). One livestock exclusion fence that is proposed for construction east of the 2007 wildfire perimeter in Utah has not yet been installed; however, BLM has indicated that they believe that *A. anserinus* would be largely undisturbed by this activity (M. Gates, in litt. 2008c, p. 1; 2008d, p. 1). This fence, if installed, would protect *A. anserinus* sites from livestock use within areas burned by the 2007 wildfire.

The intensity of livestock use varies throughout the Goose Creek drainage, depending on the terrain, location, and proximity to water sources. For example, flat areas (especially those planted with *Agropyron cristatum*) generally receive more livestock use than the steep tuffaceous outcrops where *A. anserinus* normally occurs. Based on field observations from the 2004 and 2005 census efforts, we estimate that less than 5 percent of any particular *A. anserinus* site is being used as livestock trails, with the exception of one site located approximately 328 ft (100 m) from a water development. The fact that *A. anserinus* individuals have not been observed within well-used trails suggests that plants are lost to trampling. However, the species is sometimes observed to be abundant along trail margins. The relatively sparse vegetation within most occupied sites and the species' apparent ability to tolerate some level of disturbance has likely helped it persist.

Water tanks, placement of salt licks, and fence construction may alter livestock grazing patterns and influence the effects of trampling at some *Astragalus anserinus* sites by concentrating animals. In general, the few fences that occur within *A. anserinus* habitat occur on private lands. Although salt licks can increase livestock use in an area, we are only aware of one salt lick, which was placed approximately 330 ft (100 m) from EO (N004) in Nevada. We are also aware of two fences within the Goose Creek drainage in Utah. One was installed adjacent to Pole Creek to protect the creek from livestock (Service 2005a, p. 3), although its effects, if any, to *A. anserinus* are unknown. A new fence is proposed for construction east of the 2007 wildfire perimeter to protect burned areas from livestock entry but is not expected to affect *A. anserinus* (M. Gates, in litt. 2008c, p. 1; 2008d, p. 1).

We are aware of five livestock water tanks located within 1 mi (1.6 km) of *Astragalus anserinus* sites. The availability of watering locations can influence livestock grazing patterns by concentrating animals in certain areas, affecting native vegetation. During our 2004 plant census, we observed that an area extending approximately 150 ft (45 m) around the tanks had been completely denuded of vegetation from livestock use. A water pipeline constructed in Utah in 1987 delivers water to two livestock tanks sited within *A. anserinus* habitat (Hardy 2005, p. 3). One of the tanks is located within 330 ft (100 m) of an occupied *A. anserinus* site. Thirteen *A. anserinus* plants were observed immediately outside the denuded area around this tank, although we are unaware as to whether the species was present prior to construction because this was a recently discovered site at an existing EO (Service 2006b, p. 2). A site within this same EO but approximately 450 ft (140 m) away from the closest water tank was partially protected from livestock access because of its location on a steep bluff. More than 850 *A. anserinus* individuals were recorded within this partially protected EO.

Another livestock watering tank was constructed in 2004 on an extensive flat area within Utah EO 003. Although the nearest *Astragalus anserinus* individuals are located approximately 1,600 ft (485 m) from the tank itself (Service 2006b, p. 3), the pipeline serving this and another water tank went through the upper portion of EO 003. Although no *A. anserinus* plants were observed in the construction area during BLM's 2000 and 2002 site surveys, plants were subsequently discovered during a 2004 pre-construction survey. However, no *A. anserinus* individuals were lost during project implementation (Service 2005a, p. 3). The areas that were disturbed by construction were seeded with nonnative forage species (see *Nonnative Invasive Species seeded* section), and monitoring efforts are underway to detect any changes to *A. anserinus*. As part of the pipeline monitoring efforts, four livestock exclosure cages measuring approximately 3 ft by 3 ft (0.9 m by 0.9 m) were established. Vegetation is being monitored to detect changes to *A. anserinus* within and outside of the cages (Hardy 2005, p. 7; Service 2005a, p. 3). In addition, BLM proposes to construct a livestock exclosure around 1 ac (0.4 ha) of occupied habitat at this location and conduct a census of *A. anserinus* within and adjacent to the exclosure (Hardy 2005, p. 7).

Another water tank has been in place for over 15 years between two *Astragalus anserinus* EOs on BLM land in Idaho (EOs 004 and 009), but is located is at least 3,000 ft (900 m) away from any known *A. anserinus* individuals (Service 2005b, p. 3). An above-ground pipeline and opening valve was constructed within EO 004, but plans are being developed to relocate the pipeline beneath an existing unimproved road. This pipeline also distributes water to several water tanks on the Sawtooth National Forest, but those tanks are not within any known *A. anserinus* locations. The pipeline relocation project has not been accomplished to date (J. Tharp, in litt. 2008b, p. 1), and an environmental assessment will be completed prior to implementation to identify and develop appropriate measures to avoid or minimize any adverse effects of this activity to *A. anserinus* (Service 2005b, p.3). An additional water tank (the Delano Well site), is located approximately 1,200 ft (370 m) from Nevada EO 002, where 10 individual plants were counted in 2006 (Howard 2007, p. 2). However, since we don't have any pre-construction survey information, we don't know whether the construction of the Delano Well site affected *A. anserinus*. We are unaware of any future plans by BLM to develop water tanks within *A. anserinus* habitat.

In addition to direct consumption (see discussion of herbivory under **Factor D** below) and trampling impacts, habitat degradation and alterations to the ecosystem associated with livestock use may also be a concern (Milchunas and Lauenroth, 1993, pp. 327–366; Jones 2000, pp. 155–164). Jones (2000) analyzed 54 studies and 16 variables to assess grazing on North American arid ecosystems across elevations, from forest ecosystems to grasslands, and across different grazing systems. The author found that 11 of the 16 variables that were evaluated revealed significant detrimental effects from cattle grazing (Jones 2000, p. 159). Some of the adverse effects from livestock that have been documented in studies include changes in the timing and availability of pollinator food plants (Kearns and Inouye 1997, pp. 298–299); changes to insect communities (Kearns and Inouye 1997, pp. 298–299; Debano 2006, pp.

2553–2554); changes in water infiltration due to soil compaction (Jones 2000, Table 1); disturbance to soil microbiotic crusts (Belnap *et al.* 1999, p. 167; Jones 2000, Table 1); subsequent weed invasions (Parker *et al.* 2006, pp. 1459–1461); and soil erosion from hoof action (Jones 2000, Table 1). Portions of at least 1 EO in Idaho, 2 EOs in Nevada, and the largest EO in Utah (EEO 001) show evidence of soil microbiotic crusts that have been trampled by livestock (Service 2008b, 17 pp). In addition, at least 1 EO in Idaho, 1 EO in Nevada, and the largest EO in Utah (EO 001) exhibit deeply incised washes (Service 2008b, 17 pp.). Given that all EOs on public lands are within active grazing allotments, the possibility of such effects occurring to *Astragalus anserinus* is high.

Summary: Livestock use has been documented at every *Astragalus anserinus* EO, and all sites on public land are within active grazing allotments. Livestock can trample plants, however, many of the *A. anserinus* sites are on sloping hillsides that livestock generally avoid. Since *A. anserinus* individuals have not been observed within well-used trails, any individuals that may have been present within the trail footprint prior to livestock use were likely lost to trampling. The fact that the species is sometimes abundant along trail margins suggests it is able to persist at some lower level of disturbance. Based on these factors, even though grazing is ongoing, the magnitude of livestock-related threats (including fence construction and water tank construction) is considered low to moderate. The magnitude of this threat could increase in the future if livestock management activities or new water developments are implemented in a manner that concentrates animals around *A. anserinus* EOs.

Development (Road Construction and Maintenance, Utilities, Garbage Dumps, Private Properties)

In general, the Goose Creek drainage in Idaho, Utah, and Nevada where *Astragalus anserinus* is found is sparsely populated, and the effects of development are relatively minor. Across the range of the species, we estimate there are fewer than ten human-inhabited areas (each with fewer than five buildings). Mancuso and Moseley (1991, p. 22), indicate that some *A. anserinus* habitat was likely destroyed during the construction of secondary access roads that cross much of the Goose Creek drainage. We have documented roads affecting small portions of 3 of 5 EOs in Idaho, 1 of the 4 EOs in Nevada (for which we have habitat information), and 2 of 4 EOs in Utah, including the largest EO (EO 001) (Service 2008b, 17 pp.). In addition, new roads and fire lines associated with the 2007 wildfire impacted some sites in Utah (see *Wildfire Management* and *Firefighting Activities* above). Most of the land adjacent to Goose Creek is privately owned, and has been largely converted to livestock pasture. The status of *A. anserinus* on private land is largely unknown, because most of the known sites have not been visited since the early 1990s. Because of the remoteness of the Goose Creek drainage, development impacts on *A. anserinus* have been few and localized to date. Most *A. anserinus* EOs are made up of several sites within 0.6 mi (1 km) of each other, so population-level effects often associated with habitat fragmentation are not anticipated. In this regard, we do not anticipate any significant continuing or cumulative effects to *A. anserinus* from the existing roads or development. Since we are also unaware of any future development plans in the area, we consider the magnitude of this threat to be low.

Recreation (Off-Highway Vehicle Use)

Recent census and survey efforts have not documented any impacts to *Astragalus anserinus* because of recreational use (Service 2008b, 17 pp.). Accordingly, we consider this potential threat to be low in magnitude and non imminent.

Mining

One expired mineral exploration permit did overlap with a portion of EO 002 in Nevada (Howard 2007, p. 3), and another mineral development firm has expressed interest in exploring areas south of the Goose Creek drainage near an existing *Astragalus anserinus* EO in Nevada (M. Hemker, Idaho Fish and Wildlife Office, in litt. 2006). However, we are unaware of any other mining efforts that could potentially affect *A. anserinus* or its habitat. Based on the limited mining interest that has been identified in the Goose Creek vicinity to date, we consider this threat to be low in magnitude and non-imminent.

Summary of Factor A

The 2007 wildfire severely constrained the range and numbers of the population, significantly reducing the number of *Astragalus anserinus* plants available for recruitment. This threat is exacerbated by the increased fire return interval in the sagebrush-steppe ecosystem, which increases the possibility that another wildfire will occur before the species can recover from the loss of individuals associated with the 2007 wildfire. Accordingly, we find the negative rangewide, population-level effects both from the 2007 wildfire and potential future wildfires to be high in magnitude. However, this threat is not considered to be imminent since we cannot predict when the next fire may occur.

The threat presented from competition by seeded and unseeded nonnative plant species will likely add to the negative wildfire effects on the *Astragalus anserinus* population, further reducing its ability to recover. Accordingly, we have determined that this threat is also moderate in magnitude. The mechanical damage to *A. anserinus* individuals from construction activities and the disking and seeding efforts related to wildfire management activities were also detrimental to several affected *A. anserinus* populations. These effects may continue to impact the species' overall recruitment capacity; however, we find them to be moderate to low in magnitude and non-imminent because of their localized impact and the uncertain timing of future activities of this nature.

Livestock-related threats could increase in magnitude if new water developments or management activities are implemented that significantly concentrate animals around *Astragalus anserinus* EOs, but we are unaware of any plans in this regard. Accordingly, we have determined that livestock use presents a threat that is low to moderate in magnitude, but non-imminent. The threats presented by development, recreation, and mining use in the Goose Creek drainage and *A. anserinus* EOs are considered low in magnitude and non-imminent because of the limited use of the area for these types of activities.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are not aware of any threats involving the overutilization or collection of *Astragalus anserinus* for any commercial, recreational, scientific, or educational purposes at this time.

Factor C. Disease or Predation

During the 2004 and 2005 census efforts, few *Astragalus anserinus* plants exhibited signs of herbivory. Those that did were observed to be eaten near the ground (e.g., at a height of 1 inch (2 centimeters)), which indicates that rabbits may have been responsible (G. Glenne, Idaho Fish and Wildlife Office, in litt. 2006). We are unaware of any herbivory attributable to livestock, native ungulates, or birds, although in

2004, numerous green caterpillars and webs were found on plants at one site in Idaho (Service 2008b, 17 pp.). In addition, several plants were observed withering, particularly after the heavy rains in May of 2005 (IDCDC 2007a, p.3), which was attributed to either a fungus or caterpillar damage.

Summary of Factor C

With very little herbivory by wildlife or livestock observed or documented, predation does not appear to pose a significant threat to *Astragalus anserinus*. We have no reason to suspect this poses a significant threat to the species. Accordingly, we find the threat to the species resulting from herbivory to be low in magnitude and non-imminent. There is no evidence that disease, such as fungal damage, poses a significant threat to the species.

Factor D. Inadequacy of Existing Regulatory Mechanisms

There are no State regulations in Idaho, Utah, or Nevada that protect *Astragalus anserinus*. All *A. anserinus* sites on public land are within active livestock grazing allotments. The status of *A. anserinus* on private land is largely unknown, because most of the known sites have not been visited since the early 1990s. The BLM has promulgated regulations, policies, and guidelines to protect sensitive species on Federal lands, control wildfire and rehabilitate burned areas, and implement rangeland assessments, standards, and guidelines to assess rangeland health. In Idaho, *A. anserinus* occurs within four livestock grazing allotments, although we do not know the extent to which the standards or assessments are being met (A. Feldhausen, in litt. 2007, p.4). Trespass cattle were removed from one of these allotments in 2007 as an administrative matter not related to a resource concern (A. Feldhausen, in litt. 2007b, p. 1); we have no information regarding whether these cattle may have impacted *A. anserinus*. In Nevada, *A. anserinus* occurs within three livestock grazing allotments, although none of the livestock management plans for these allotments have identified *A. anserinus* as a species of concern (Howard 2007, p. 3). Generally, all allotments require biannual pasture rotations (Howard 2007, pp. 3–4), but do not specifically address *A. anserinus* management. We do not have any information regarding the implementation of rangeland standards or assessments within these allotments, whether the allotments have been surveyed for *A. anserinus*, or whether these rotations benefit *A. anserinus*. In Utah, *A. anserinus* sites occur within one allotment (Hardy 2005, p. 1); the Utah Goose Creek Ranch was established as a private grazing unit in 1928 and the Goose Creek Allotment fence was constructed in 1953. Livestock use on most key forage species within this allotment is generally ''light to moderate'' but has been ''heavy to severe'' in some areas in some years (especially during drought years) (Hardy 2005, p. 2). A rangeland standards assessment was conducted in the Utah Goose Creek drainage in May of 1999, and determined the western portion of Goose Creek to be ''functional,'' and the central portion to be ''stable'' with the hydrological aspects ''functional''. However, the central portion's biotic integrity was determined to be ''at risk'' because of a lack of vegetative diversity (Hardy 2005, p. 3). This area was primarily occupied by *Artemisia tridentata* ssp. *wyomingensis* and *Agropyron cristatum*, but lacked forbs and other grasses. Consequently, the western portion of the Basin was rated as being in the late-seral stage, but the middle part was rated as being in the mid-seral stage. BLM guidelines within Utah require that areas not be grazed for two growing seasons after a fire treatment (M. Gates, in litt. 2008d, p. 1), although we frequently observed livestock within the area burned in the 2007 fire during our 2008 surveys in Utah. We have been advised that BLM-Nevada has closed all burned areas to livestock use until further notice (B. Fuell, in litt. 2008, p. 1).

As discussed under Factor A, two livestock water tank and pipeline projects in Utah and Idaho were surveyed by the BLM for *Astragalus anserinus* prior to construction. Survey and monitoring efforts specific to *A. anserinus* are discussed above; however range-wide trend monitoring has not been conducted. The species special designation status by the BLM requires that they follow specific management guidelines; however, we have no information regarding whether or how the guidelines are being implemented.

Summary of Factor D

We do not have information on how BLM standards and guidelines are being met within livestock allotments that contain *Astragalus anserinus*, nor do we have any information that allotment management plans address *A. anserinus*. We consider the threat presented by inadequate regulatory mechanisms to be moderate to low in magnitude, but non-imminent, because the native vegetation at *A. anserinus* sites appears to be relatively intact and it appears the standards and guidelines are probably protective of the species.

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

We have no information concerning pollinators, genetic diversity, or germination that is specific to *Astragalus anserinus*. As such, we are unable to determine whether these or any other presently unknown natural or manmade factors could potentially affect the ability of this species to survive into the foreseeable future. With regard to climate change, *Bromus tectorum* and other C3 grasses (C3 refers to one of three alternative photosynthetic pathways) are likely to thrive as atmospheric carbon dioxide increases, likely influencing wildfire frequency (Mayeux *et al.* 1994, p. 98). Further, as the climate changes, the abundance and distribution of native flora and fauna will also likely change. While the extent to which climate change may affect *A. anserinus* habitat is not fully understood, those effects could result in physiological stress or the loss or alteration of habitat. In addition, an increased occurrence of extreme events, such as fire and drought, could also impact the remaining populations. Endemic species with limited ranges and adapted to localized conditions would be expected to be more severely impacted by climate change (Midgley *et al.* 2002, p. 448) than those considered habitat generalists. Because the specific effects of probable climate change are unknown at this time, we are not able to predict the foreseeable magnitude of this potential threat with confidence.

Since most EOs are comprised of many sites that are within 0.6 mi (1 km) of each other, genetic exchange should still be possible given appropriate pollination vectors, although the scale at which it occurs may be reduced because of a reduced number of individuals. One exception may be Nevada EO–005, which was small and isolated to begin with and burned in 2007. Our 2008 field inspection observed only two plants, so the genetic bottleneck effects typically relevant to small population sizes may be evident in this EO. However, the surrounding area has not been thoroughly searched for additional plants.

Summary of Factor E

We are unaware of any other natural or manmade factors affecting the species' continued existence that present a current threat to *Astragalus anserinus*. We are unable to predict the magnitude of the threat presented by probable climate change to *A. anserinus* at this time. We also consider the

potential genetic bottleneck effects to *A. anserinus* to be low in magnitude, since it may only apply to one EO, which has not been thoroughly surveyed for the presence of other individuals.

General Threats Summary

Ongoing threats to remaining *Astragalus anserinus* individuals include future habitat degradation and modifications to the sagebrush-steppe ecosystem in which it occurs because of an altered wildfire regime (i.e., fires are increasing in frequency, size, and duration); diminished recruitment capacity resulting from the 2007 wildfire that eliminated 53 percent of the known individuals (31,500 of 60,000) and burned 25 percent of the known occupied habitat (100 ac (41 ha) of 400 ac (164 ha)); loss of additional individuals and diminished recruitment capacity from future wildfires; and ongoing effects of habitat competition from both seeded and unseeded nonnative plant species. Other factors that may threaten *A. anserinus* to a lesser extent include livestock use, recreation, mining, development, and the inadequacy of regulatory mechanisms. Climate change effects to Goose Creek drainage habitats are possible, but we are unable to predict the specific impacts of this change to *A. anserinus* at this time.

The continuing effect of the 2007 wildfire to the species' recruitment capabilities, and the potential for similar effects to remaining populations from future fires present the greatest threats to *Astragalus anserinus* at this time. The fact that our post-fire surveys documented a 50 percent decline in the number of known *A. anserinus* individuals in areas that did not burn versus a 98 percent decline in the number of known individuals in areas that did burn suggests strongly that fire may kill *A. anserinus*. We did not observe any evidence that *A. anserinus* seed dormancy is broken by wildfire during our field inspections, which occurs in some other plant species. Based on the best available information, the species' capacity to replace the number of individuals lost to the 2007 wildfire will likely depend on recruitment, which we believe occurs slowly based on the average number of seedlings that were observed during our post-wildfire surveys. Given what we believe to be an increasing fire frequency, it is possible that recruitment will not restore these populations before the next fire event. In addition to the threats related to increased fire frequency, wildfires now tend to be larger and burn more uniformly across the landscape, leaving fewer unburned areas, which affects the post-fire recovery capacity of native sagebrush-steppe vegetation (Whisenant 1990, p. 4; Knick and Rotenberry 1997, pp. 287, 297; Brooks *et al.* 2004, pp. 682–683). These cascading effects increase the likelihood that the species will become endangered within the foreseeable future throughout all or a significant portion of its range.

The establishment of *Euphorbia esula* and *Bromus tectorum* throughout the Goose Creek drainage also represents a potential but not imminent invasive competition threat to *Astragalus anserinus*. *E. esula* represents a potential threat primarily because of its invasive capabilities and its ability to displace native plants. *B. tectorum* represents an additional threat because of its ability to alter and shorten the wildfire return regime. However, infestations for both species are currently localized, limited in size, and do not impact all *A. anserinus* occupied sites. Further, *E. esula* control efforts have increased in recent years, and *B. tectorum* invasion appears to be primarily confined to southern portions of the Goose Creek drainage. Nevertheless, if wildfire frequency is increasing as suggested by the occurrence of two wildfire events in the last 7 years, the threat presented by *B. tectorum* expansion would likely increase in magnitude.

Astragalus anserinus normally occurs in sparsely-vegetated sites, where it is able to tolerate the physiological stresses of living in tuffaceous soils that are apparently not conducive to supporting other plant species. The 2008 wildfire response included seeding *Agropyron cristatum* directly over areas that supported approximately 18 percent of the pre-wildfire *A. anserinus* individuals. *A. cristatum* is known to be an effective competitor with other aggressive introduced plants (USDA 2006, p. 1), and we presume that it may be an even more effective competitor with less aggressive plants. If *A. cristatum* plants which are seeded during fire restoration activities are able to outcompete *A. anserinus*, it may displace the species over time. This threat could increase in magnitude if seeding activities are conducted to respond to future wildfires in *A. anserinus* habitat.

Finding

As discussed in the Summary of Factors section, we determined that any future threat resulting from the effects of wildfire would be high in magnitude, based on the continuing population-level effects resulting from the 2007 wildfire on recruitment. That threat would be exacerbated by fire fighting response and restoration activities, including drilling, disking, and seeding efforts in burned areas, which could introduce competitive species as discussed in Factor A.

The wildfire return interval in the Goose Creek watershed may now be on the average of every decade (versus every 60 to 110 years), based on the two recent occurrences. However, we acknowledge the uncertainty associated with establishing trends based on the limited data available, particularly since we have no historical records of wildfire frequency in the Goose Creek watershed. Preliminary data suggest that within the 4 sites that were completely burned by the 2007 wildfire, *Astragalus anserinus* numbers declined 98 percent from the 2004 and 2005 counts (Service 2008c, Table 2). The primary threats to the species center on the ongoing and cumulative effects of the 2007 wildfire and future wildfires to recruitment capacity, compounded by competition from nonnative species. Based on our analysis of the best available information, we have no reason to believe that population trends will improve, nor that the effects of the primary threats acting on the species will be ameliorated in the foreseeable future.

Climate change projection models are not reasonably accurate for the localized range of *Astragalus anserinus*, and therefore we cannot reasonably predict that climate change will pose a threat in the future. Accordingly, because the specific effects of climate change are unknown, we are unable to project with any certainty whether climate change may lead to such on the ground effects as changing wildfire regimes or increasing size and number of invasive plant populations, which might impact *A. anserinus*.

As required by the Act, we considered the five potential threat factors to assess whether *Astragalus anserinus* is threatened or endangered throughout all or a significant portion of its range. When considering the listing status of the species, the first step in the analysis is to determine whether the species is in danger of extinction throughout all of its range. If this is the case, then we list the species in its entirety. For instance, if the threats to a species are directly acting on only a portion of its range, but they are at such a large scale that they place the entire species in danger of extinction, we would list the entire species. If, however, we determine a species is not endangered throughout its range, we would then evaluate whether the species is threatened throughout all or a significant portion of its range.

Threats affecting *Astragalus anserinus* and its habitat are at a magnitude that threatens the species throughout all of its range. We acknowledge there are uncertainties regarding (1) the post-wildfire recovery abilities of the species over the long-term; (2) the return interval of future wildfires; (3) the effects of post-fire restoration seeding activities in occupied areas; and (4) the extent of invasive nonnative plant competition that will occur as a result of wildfire and post-fire restoration activities. Based on the best available information, the threats of greatest concern to *A. anserinus* include the continuing effects to its recruitment capacity due to: (1) the loss of 98 percent of the known individuals in areas burned in the 2007 wildfire, versus the loss of 50 percent of the known individuals in areas that did not burn; (2) the potential inability of the species to recover those losses through recruitment of new individuals before the next wildfire occurs; and (3) competition from nonnative plants. Decreased genetic exchange may present a threat to Nevada EO–005, which was a small and isolated site to begin with and burned in 2007. However, the genetic bottleneck effects of small population size would not be a factor at this time for the other EOs, since they are composed of several sites within 0.6 mi (1 km) of each other. Accordingly, genetic exchange between them should remain possible provided sufficient pollination vectors are available.

In summary, we have carefully assessed the best available scientific and commercial information available regarding the past, present, and future threats faced by *Astragalus anserinus* in developing this 12- month finding. We have reviewed the petition, information in our files, information supplied to us by State and Federal agencies, peer-reviewed literature, and other unpublished documents. We evaluated both the extent of the occupied area that was burned and the decline in the total number of individual plants that resulted from the 2007 wildfire. We also evaluated the 2008 fire rehabilitation activities, and the effects of competition from nonnative plants and other potential threats. Given the possibility that wildfire frequency may be increasing, the species may not have an opportunity to recover before the next wildfire event. Accordingly, we find that listing *A. anserinus* as threatened or endangered is warranted. However, as explained in more detail below, an immediate proposal of a regulation implementing this action is precluded by higher priority listing actions, and progress is being made to add or remove qualified species from the Lists of Endangered and Threatened Wildlife and Plants.

We have reviewed the available information to determine if the existing and foreseeable threats render the species at risk of extinction now such that emergency listing is warranted. We have determined that an emergency listing is not warranted for this species at this time because there are extant populations in Idaho, Nevada, and Utah, and we do not believe there are any potential threats of such great immediacy, severity, and/or scope that would threaten all of the known populations with the imminent risk of extinction. However, if at any time we determine that emergency listing of *Astragalus anserinus* is warranted, we will initiate an emergency listing.

The Service adopted guidelines on September 21, 1983 (48 FR 43098) to establish a rational system for allocating available appropriations to the highest priority species when adding species to the Lists of Endangered or Threatened Wildlife and Plants or reclassifying threatened species to endangered status. The system places greatest importance on the immediacy and magnitude of threats, but also factors in the level of taxonomic distinctiveness by assigning priority in descending order to monotypic genera, full species, and subspecies (or equivalently, distinct population segments of vertebrates). The lower the listing priority number, the higher the listing priority (that is, a species with an LPN of 1 would have the highest listing priority).

As a result of our analysis of the best available scientific and commercial information, we have assigned *Astragalus anserinus* a Listing Priority Number of 5, based on our finding that the threats to the species are high in magnitude but not imminent. Approximately 98 percent of the individual plants that had been previously documented in the areas burned by the 2007 wildfire were killed, based on the lack of adult plants as well as seedlings in the burned areas. In addition, it is possible that the fire return interval is increasing in the Goose Creek drainage. We believe the rangewide threat from future wildfires will exacerbate the ongoing effects to the population's recruitment capacity resulting from the 2007 wildfire and is high in magnitude. However, this and other threats to the species are not imminent. While we conclude that listing *Astragalus anserinus* is warranted, an immediate proposal to list this species is precluded by other higher priority listing, which we address below.

Preclusion and Expeditious Progress

Preclusion is a function of the listing priority of a species in relation to the resources that are available and competing demands for those resources. Thus, in any given fiscal year (FY), multiple factors dictate whether it will be possible to undertake work on a proposed listing regulation or whether promulgation of such a proposal is warranted but precluded by higher-priority listing actions.

The resources available for listing actions are determined through the annual Congressional appropriations process. The appropriation for the Listing Program is available to support work involving the following listing actions: proposed and final listing rules; 90–day and 12–month findings on petitions to add species to the Lists of Endangered and Threatened Wildlife and Plants (Lists) or to change the status of a species from threatened to endangered; annual determinations on prior ''warranted but precluded'' petition findings as required under section 4(b)(3)(C)(i) of the Act; proposed and final rules designating critical habitat; and litigation-related, administrative, and program management functions (including preparing and allocating budgets, responding to Congressional and public inquiries, and conducting public outreach regarding listing and critical habitat). The work involved in preparing various listing documents can be extensive and may include, but is not limited to: gathering and assessing the best scientific and commercial data available and conducting analyses used as the basis for our decisions; writing and publishing documents; and obtaining, reviewing, and evaluating public comments and peer review comments on proposed rules and incorporating relevant information into final rules. The number of listing actions that we can undertake in a given year also is influenced by the complexity of those listing actions; that is, more complex actions generally are more costly. For example, during the past several years, the cost (excluding publication costs) for preparing a 12–month finding, without a proposed rule, has ranged from approximately $11,000 for one species with a restricted range and involving a relatively uncomplicated analysis to $305,000 for another species that is wide-ranging and involving a complex analysis.

We cannot spend more than is appropriated for the Listing Program without violating the Anti-Deficiency

Act (see 31 U.S.C. 1341(a)(1)(A)). In addition, in FY 1998 and for each fiscal year since then, Congress has placed a statutory cap on funds which may be expended for the Listing Program, equal to the amount expressly appropriated for that purpose in that fiscal year. This cap was designed to prevent funds appropriated for other functions under the Act (for example, recovery funds for removing species from the Lists), or for other Service programs, from being used for Listing Program actions (see House Report 105-163, 105th Congress, 1st Session, July 1, 1997).

Recognizing that designation of critical habitat for species already listed would consume most of the overall Listing Program appropriation, Congress also put a critical habitat subcap in place in FY 2002 and has retained it each subsequent year to ensure that some funds are available for other work in the Listing Program: ''The critical habitat designation subcap will ensure that some funding is available to address other listing activities'' (House Report No. 107 - 103, 107th Congress, 1st Session, June 19, 2001). In FY 2002 and each year until FY 2006, the Service has had to use virtually the entire critical habitat subcap to address court-mandated designations of critical habitat, and consequently none of the critical habitat subcap funds have been available for other listing activities. In FY 2007, we were able to use some of the critical habitat subcap funds to fund proposed listing determinations for high-priority candidate species. In FY 2008, while we were unable to use any of the critical habitat subcap funds to fund proposed listing determinations, we did use some of this money to fund the critical habitat portion of some proposed listing determinations, so that the proposed listing determination and proposed critical habitat designation could be combined into one rule, thereby being more efficient in our work. In FY 2009, we anticipate being able to do the same.

Thus, through the listing cap, the critical habitat subcap, and the amount of funds needed to address court-mandated critical habitat designations, Congress and the courts have in effect determined the amount of money available for other listing activities. Therefore, the funds in the listing cap, other than those needed to address court-mandated critical habitat for already listed species, set the limits on our determinations of preclusion and expeditious progress.

Congress also recognized that the availability of resources was the key element in deciding whether, when making a 12–month petition finding, we would prepare and issue a listing proposal or instead make a ''warranted but precluded'' finding for a given species. The Conference Report accompanying Public Law 97-304, which established the current statutory deadlines and the warranted-but-precluded finding, states (in a discussion on 90–day petition findings that by its own terms also covers 12–month findings) that the deadlines were ''not intended to allow the Secretary to delay commencing the rulemaking process for any reason other than that the existence of pending or imminent proposals to list species subject to a greater degree of threat would make allocation of resources to such a petition [that is, for a lower-ranking species] unwise.''

In FY 2009, expeditious progress is that amount of work that can be achieved with $8,808,000, which is the amount of money that Congress appropriated for the Listing Program (that is, the portion of the Listing Program funding not related to critical habitat designations for species that are already listed). Our process is to make our determinations of preclusion on a nationwide basis to ensure that the species most in need of listing will be addressed first and also because we allocate our listing budget on a nationwide basis. The $8,808,000 is being used to fund work in the following categories: compliance with court orders and court-approved settlement agreements requiring that petition findings or listing determinations be completed by a specific date; section 4 (of the Act) listing actions with absolute statutory deadlines; essential litigation-related, administrative, and listing program management functions; and high-priority listing actions for some of our candidate species. The allocations for each specific listing action are identified in the Service's FY 2009 Allocation Table (part of our administrative record).

In FY 2007, we had more than 120 species with an LPN of 2, based on our September 21, 1983, guidance for assigning an LPN for each candidate species (48 FR 43098). Using this guidance, we assign each candidate an LPN of 1 to 12, depending on the magnitude of threats (high vs. moderate to low), immediacy of threats (imminent or nonimminent), and taxonomic status of the species (in order of priority: monotypic genus (a species that is the sole member of a genus); species; or part of a species (subspecies, distinct population segment, or significant portion of the range)). The lower the listing priority number, the higher the listing priority (that is, a species with an LPN of 1 would have the highest listing priority). Because of the large number of high-priority species, we further ranked the candidate species with an LPN of 2 by using the following extinction-risk type criteria: International Union for the Conservation of Nature and Natural Resources (IUCN) Red list status/rank, Heritage rank (provided by NatureServe), Heritage threat rank (provided by NatureServe), and species currently with fewer than 50 individuals, or 4 or fewer populations. Those species with the highest IUCN rank (critically endangered), the highest Heritage rank (G1), the highest Heritage threat rank (substantial, imminent threats), and currently with fewer than 50 individuals, or fewer than 4 populations, comprised a list of approximately 40 candidate species (''Top 40''). These 40 candidate species have had the highest priority to receive funding to work on a proposed listing determination. As we work on proposed and final listing rules for these 40 candidates, we are applying the ranking criteria to the next group of candidates with LPN of 2 and 3 to determine the next set of highest priority candidate species.

To be more efficient in our listing process, as we work on proposed rules for these species in the next several years, we are preparing multi-species proposals when appropriate, and these may include species with lower priority if they overlap geographically or have the same threats as a species with an LPN of 2. In addition, available staff resources are also a factor in determining high-priority species provided with funding. Finally, proposed rules for reclassification of threatened species to endangered are lower priority, since as listed species, they are already afforded the protection of the Act and implementing regulations.

As discussed above, we assigned *Astragalus anserinus* an LPN of 5, based on our finding that the threats to the species are high in magnitude but not imminent. Pursuant to the 1983 Guidelines, a ''species'' facing imminent high-magnitude threats is assigned an LPN of 1, 2, or 3 depending on its taxonomic status. Therefore, work on a proposed listing determination for *A. anserinus* is precluded by work on higher priority candidate species (i.e., species with LPN of 1 through 4); listing actions with absolute statutory, court-ordered, or court-approved deadlines; and final listing determinations for those species that were proposed for listing with funds from FY 2008. This work includes all the actions listed in

the tables below under expeditious progress.

As explained above, a determination that listing is warranted but precluded must also demonstrate that expeditious progress is being made to add or remove qualified species to and from the Lists of Endangered and Threatened Wildlife and Plants. (Although we do not discuss it in detail here, we are also making expeditious progress in removing species from the list under the Recovery program, which is funded by a separate line item in the budget of the Endangered Species Program. As explained above in our description of the statutory cap on Listing Program funds, the Recovery Program funds and actions supported by them cannot be considered in determining expeditious progress made in the Listing Program.) As with our ''precluded'' finding, expeditious progress in adding qualified species to the Lists is a function of the resources available and the competing demands for those funds. Given that limitation, we find that we are making progress in FY 2009 in the Listing Program. This progress included preparing and publishing the following determinations:

FY 2009 COMPLETED LISTING ACTIONS

Publication Date	Title	Actions	FR Pages
10/15/2008	90-Day Finding on a Petition To List the Least Chub	Notice of 90–day Petition Finding, Substantial	73 FR 61007 61015
10/21/2008	Listing 48 Species on Kauai as Endangered and DesignatingCritical Habitat	Proposed Listing, Endangered; Proposed Critical Habitat	73 FR 62591 62742
10/24/2008	90-Day Finding on a Petition to List the Sacramento Valley Tiger Beetle as Endangered	Notice of 90–day Petition Finding, Not substantial	73 FR 63421 63424
10/28/2008	90-Day Finding on a Petition To List the Dusky Tree Vole *(Arborimus longicaudus silvicola*) as Threatened or Endangered	Notice of 90–day Petition Finding, Substantial	73 FR 63919 63926
11/25/2008	12-Month Finding on a Petition To List the Northern Mexican Gartersnake *(Thamnophis eques megalops*) as Threatened or Endangered With Critical Habitat; Proposed Rule	Notice 12 month petition finding, Warranted but precluded	73 FR 71787 71826
12/02/2008	90-Day Finding on a Petition To List the Black-tailed Prairie Dog as Threatened or Endangered	Notice 90–day Petition Finding, Substantial	73 FR 73211 73219
12/05/2008	90-Day Finding on a Petition To List the Sacramento Mountains Checkerspot Butterfly *(Euphydryas anicia cloudcrofti*) as Endangered with Critical Habitat	Notice 90–day Petition Finding, Substantial	73 FR 74123 74129
12/18/2008	90-Day Finding on a Petition to Change the Listing Status of the Canada Lynx	Notice 90–day Petition Finding, Substantial	73 FR 76990 76994
1/06/2009	Partial 90-Day Finding on a Petition To List 475 Species in the Southwestern United States as Threatened or Endangered With Critical Habitat	Notice 90–day Petition Finding, Not substantial	74 FR 419 427
2/05/2009	Partial 90-Day Finding on a Petition To List 206 Species in the in the Midwest and Western United States as Threatened or Endangered With Critical Habitat	Notice 90–day Petition Finding, Not substantial	74 FR 6122 6128
2/10/2009	90-Day Finding on a Petition To List the Wyoming Pocket Gopher as Threatened or Endangered With Critical Habitat	Notice 90–day Petition Finding, Substantial	74 FR 6558 6563
3/17/2009	Listing *Phyllostegia* hispida (No Common Name) as Endangered Throughout Its Range	Final Listing Endangered	74 FR 11319 11327
3/25/2009	12-Month Finding on a Petition to List the Yellow-Billed Loon as Threatened or Endangered	Notice 12 month petition finding, Warranted but precluded	74 FR 12931 12968
4/09/2009	12-Month Finding on a Petition to List the San Francisco Bay-Delta Population of the Longfin Smelt *(Spirinchus thaleichthys*) as Endangered	Notice 12 month petition finding, Not warranted	74 FR 16169 16175
4/22/2009	90-Day Finding on a Petition To List the Tehachapi Slender Salamander *(Batrachoseps* stebbinsi) as Threatened or Endangered	Notice 90–day Petition Finding, Substantial	74 FR 18336 18341
5/07/2009	90-Day Finding on a Petition To List the American Pika as Threatened or Endangered with Critical Habitat	Notice 90–day Petition Finding, Substantial	74 FR 21301 21310

FY 2009 COMPLETED LISTING ACTIONS—Continued

Publication Date	Title	Actions	FR Pages
5/19/2009	12-Month Finding on a Petition to List the Coaster Brook Trout as Endangered	Notice 12–month petition finding, Not warranted	74 FR 23376 23388
6/09/2009	90-Day Finding on a Petition To List *Oenothera acutissima* (Narrowleaf Evening-primrose) as Threatened or Endangered	Notice 90–day Petition Finding, Not substantial	74 FR 27266 27271
6/29 /2009	Proposed Endangered Status for the Georgia Pigtoe Mussel, Interrupted Rocksnail, and Rough Hornsnail with Critical Habitat	Proposed Listing, Endangered; Proposed Critical Habitat	74 FR 31113 31151
7/01/2009	90-Day Finding on a Petition to List the Northern Leopard Frog *(Lithobates* [=*Rana*] *pipiens*) in the Western United States as Threatened	Notice 90–day Petition Finding, Substantial	74 FR 31389 31401
7/07/2009	12-Month Finding on a Petition To List a Distinct Population Segment of the Roundtail Chub *(Gila robusta*) in the Lower Colorado River Basin	Notice 12–month petition finding, Warranted but precluded	74 FR 32351 32387
7/08/2009	90-Day Finding on a Petition to List the Coqui Llanero *(Eleutherodactylus juanariveroi*) as Endangered	Notice 90–day Petition Finding, Substantial	74 FR 32510 32513
7/08/2009	90-Day Finding on a Petition to List the Susan's purse-making caddisfly *(Ochrotrichia susanae*) as Threatened or Endangered	Notice 90–day Petition Finding, Substantial	74 FR 32514 32521
7/08/2009	Proposed Endangered Status for Flying Earwig Hawaiian Damselfly *(Megalagrion nesiotes*) and Pacific Hawaiian Damselfly *(M. pacificum*) Throughout Their Ranges	Proposed Listing, Endangered	74 FR 32490 32510
7/09/2009	Listing Casey's June Beetle *(Dinacoma caseyi*) as Endangered and Designation of Critical Habitat	Proposed Listing, Endangered; Proposed Critical Habitat	74 FR 32857 32875
7/22/2009	90-Day Finding on a Petition To List the White-Sided Jackrabbit *(Lepus callotis*) as Threatened or Endangered	Notice 90–day Petition Finding, Substantial	74 FR 36152 36158
8/06/2009	Initiation of Status Review for Mountain Whitefish *(Prosopium williamsoni*) in the Big Lost River, Idaho	Notice of Status Review	74 FR 39268 39269
8/11/2009	90-Day Finding on a Petition To List the Jemez Mountains Salamander *(Plethodon neomexicanus*) as Threatened or Endangered With Critical Habitat	Notice 90–day Petition Finding, Substantial	74 FR 40132 40138
8/19/2009	12-Month Finding on a Petition To List the Ashy Storm-Petrel as Threatened or Endangered	Notice 12 month petition finding, Not warranted	74 FR 41832 41860

Our expeditious progress also included work on listing actions, which we funded in FY 2009, but have not yet been completed to date. These actions are listed below. Actions in the top section of the table are being conducted under a deadline set by a court. Actions in the middle section of the table are being conducted to meet statutory timelines, that is, timelines required under the Act. Actions in the bottom section of the table are high priority listing actions. These actions include work primarily on species with an LPN of 2, and selection of these species is partially based on available staff resources, and when appropriate, include species with a lower priority if they overlap geographically or have the same threats as the species with the high priority. Including these species together in the same proposed rule results in considerable savings in time and funding as compared to preparing separate proposed rules for each of them in the future.

ACTIONS FUNDED IN FY 2009 BUT NOT YET COMPLETED

Species	Action
Actions Subject to Court Order/ Settlement Agreement	

ACTIONS FUNDED IN FY 2009 BUT NOT YET COMPLETED—Continued

Species	Action
Slickspot peppergrass	Final listing determination
Coastal cutthroat trout	Final listing determination
Mono basin sage-grouse	12–month petition finding
Sacramento Mtns. checkerspot butterfly	12–month petition finding

ACTIONS FUNDED IN FY 2009 BUT NOT YET COMPLETED—Continued

Species	Action
SW Bald eagle population	12–month petition finding
Black-tailed prairie dog	12–month petition finding
Lynx (include New Mexico in listing)	12–month petition finding
White-tailed prairie dog	12–month petition finding
American pika	12–month petition finding
Hermes copper butterfly	90–day petition finding
Thorne's hairstreak butterfly	90–day petition finding
Actions with Statutory Deadlines	
48 Kauai species	Final listing determination
Black-footed albatross	12–month petition finding
Mount Charleston blue butterfly	12–month petition finding
Goose Creek milkvetch	12–month petition finding
Mojave fringe-toed lizard[1]	12–month petition finding
Pygmy rabbit (rangewide)[1]	12–month petition finding
Kokanee – Lake Sammamish population[1]	12–month petition finding
Delta smelt (uplisting)	12–month petition finding
Cactus ferruginous pygmy owl[1]	12–month petition finding
Tucson shovelnosed snake[1]	12–month petition finding
Northern leopard frog	12–month petition finding
Tehachapi slender salamander	12–month petition finding
Coqui Llanero	12–month petition finding
Susan's purse-making caddisfly	12–month petition finding

ACTIONS FUNDED IN FY 2009 BUT NOT YET COMPLETED—Continued

Species	Action
White-Sided Jackrabbit	12–month petition finding
Jemez Mountains Salamander	12–month petition finding
Desert tortoise – Sonoran population	12–month petition finding
4 subspecies of *Pseudocopaeodes enunus*	90–day petition finding
Southeastern pop snowy plover & wintering pop. of piping plover	90–day petition finding
Berry Cave salamander[1]	90–day petition finding
Ozark chinquapin[1]	90–day petition finding
Smooth-billed ani	90–day petition finding
Bay Springs salamander[1]	90–day petition finding
Mojave ground squirrel[1]	90–day petition finding
Gopher tortoise – eastern population	90–day petition finding
Mojave ground squirrel	90–day petition finding
Pacific walrus	90–day petition finding
32 species of snails and slugs	90–day petition finding
Calopogon oklahomensis	90–day petition finding
Striped newt	90–day petition finding
American dipper – Black Hills population	90–day petition finding
Sprague's pipit	90–day petition finding
Southern hickorynut	90–day petition finding
5 Southwest mussel species	90–day petition finding
Chihuahua scarfpea	90–day petition finding

ACTIONS FUNDED IN FY 2009 BUT NOT YET COMPLETED—Continued

Species	Action
Wrights marsh thistle	90–day petition finding
White-bark pine	90–day petition finding
Puerto Rico harlequin	90–day petition finding
Fisher – Northern Rocky Mtns. population	90–day petition finding
42 snail species (Nevada & Utah)	90–day petition finding
HI yellow-faced bees	90–day petition finding
206 species (partially completed)	90–day petition finding
475 Southwestern species (partially completed)	90–day petition finding
High Priority Listing Actions[3]	
19 Oahu candidate species (16 plants, 3 damselflies) (15 with LPN = 2, 3 with LPN = 3, 1 with LPN =9)	Proposed listing
17 Maui-Nui candidate species (14 plants, 3 tree snails) (12 with LPN = 2, 3 with LPN = 3, 3 with LPN = 8)	Proposed listing
Sand dune lizard (LPN = 2)	Proposed listing
2 Arizona springsnails *(Pyrgulopsis bernadina* (LPN = 2), *Pyrgulopsis trivialis* (LPN = 2))	Proposed listing
2 New Mexico springsnails *(Pyrgulopsis chupaderae* (LPN = 2), *Pyrgulopsis thermalis* (LPN = 11))	Proposed listing
2 mussels (rayed bean (LPN = 2), snuffbox No LPN)	Proposed listing

ACTIONS FUNDED IN FY 2009 BUT NOT YET COMPLETED—Continued

Species	Action
2 mussels (sheepnose (LPN = 2), spectaclecase (LPN = 4),)	Proposed listing
Ozark hellbender[2] (LPN = 3)	Proposed listing
Altamaha spinymussel (LPN = 2)	Proposed listing
5 southeast fish (rush darter (LPN = 2), chucky madtom (LPN = 2), yellowcheek darter (LPN = 2), Cumberland darter (LPN = 5), laurel dace (LPN = 5))	Proposed listing
8 southeast mussels (southern kidneyshell (LPN = 2), round ebonyshell (LPN = 2), Alabama pearlshell (LPN = 2), southern sandshell (LPN = 5), fuzzy pigtoe (LPN = 5), Choctaw bean (LPN = 5), narrow pigtoe (LPN = 11), and tapered pigtoe (LPN = 11))	Proposed listing
3 Colorado plants (Pagosa skyrocket *(Ipomopsis polyantha*) (LPN = 2), Parchute beardtongue *(Penstemon debilis*) (LPN = 2), Debeque phacelia *(Phacelia submutica*) (LPN = 8))	Proposed listing

[1] Funds for listing actions for these species were provided in previous FYs.

[2] We funded a proposed rule for this subspecies with an LPN of 3 ahead of other species with LPN of 2, because the threats to the species were so imminent and of a high magnitude that we considered emergency listing if we were unable to fund work on a proposed listing rule in FY 2008.

[3] Funds for these high priority listing actions were provided in FY 2008 and 2009

We have endeavored to make our listing actions as efficient and timely as possible, given the requirements of the relevant law and regulations, and constraints relating to workload and personnel. We are continually considering ways to streamline processes or achieve economies of scale, such as by batching related actions together. Given our limited budget for implementing section 4 of the Act, these actions described above collectively constitute expeditious progress.

Astragalus anserinus will be added to the list of candidate species upon publication of this 12–month finding. We will continue to monitor the status of this species as new information becomes available. This review will determine if a change in status is warranted, including the need to make prompt use of emergency listing procedures.

We intend that any proposed listing action for *Astragalus anserinus* will be as accurate as possible. Therefore, we will continue to accept additional information and comments from all concerned governmental agencies, the scientific community, industry, or any other interested party concerning this finding.

References Cited

A complete list of all references cited is available on the Internet at *http://www.regulations.govand* on request from the Idaho Fish and Wildlife Office (see **ADDRESSES**).

Author

The primary authors of this document are the staff members of the Idaho Fish and Wildlife Office

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: August 26, 2009

Daniel M. Ashe

Acting Director, U.S. Fish and Wildlife Service

[FR Doc. E9–21754 Filed 9–9–09; 8:45 am]

BILLING CODE 4310–55–S

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS-R2-ES-2009-0060]

[92210-1111-0000-B2]

Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List Cirsium wrightii (*Wright's marsh thistle*) as Threatened or Endangered with Critical Habitat

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 90–day petition finding and initiation of a status review.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 90–day finding on a petition to list *Cirsium wrightii* (Wright's marsh thistle) as threatened or endangered under the Endangered Species Act of 1973, as amended, and designate critical habitat. Following a review of the petition, we find the petition provides substantial scientific or commercial information indicating that listing this species may be warranted. Therefore, with the publication of this notice, we are initiating a status review of the species to determine if the petitioned action is warranted. To ensure that the status review is comprehensive, we request scientific and commercial data regarding *Cirsium wrightii*. At the conclusion of this review, we will issue a 12–month finding to determine if the petitioned action is warranted. We will make a determination on critical habitat if and when we initiate a listing action for this species.

DATES: We made the finding announced in this document on September 10, 2009. To allow us adequate time to conduct this review, we request that we receive information on or before November 9, 2009.

ADDRESSES: You may submit information by one of the following methods:

- Federal eRulemaking Portal: *http://www.regulations.gov*. Search for docket FWS-R2-ES-2009-0060 and then follow the instructions for submitting comments.
- U.S. mail or hand-delivery: Public Comments Processing, Attn: FWS-R2-ES-2009-0060; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will post all information received on *http://www.regulations.gov*. This generally means that we will post any personal information you provide us (see the Information Solicited section below for more details).

FOR FURTHER INFORMATION CONTACT: Wally ''J'' Murphy, Field Supervisor, New Mexico Ecological Services Office, 2105 Osuna NE, Albuquerque, NM 87113; by telephone (505-346-2525) or by facsimile (505-346-2542). Persons who use a telecommunications device for the deaf (TTD) may call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Request for Information

When we make a finding that a petition presents substantial information indicating that listing a species may be warranted, we are