U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: *Potentilla basaltica*

COMMON NAME: Soldier Meadow cinquefoil, basalt cinquefoil

LEAD REGION: Region 8

INFORMATION CURRENT AS OF: April 2010

STATUS/ACTION

___ Species assessment - determined we do not have sufficient information on file to support a proposal to list the species and, therefore, it was not elevated to Candidate status
___ New candidate
_X__ Continuing candidate
___ Non-petitioned
_X__ Petitioned - Date petition received: May 11, 2004
__ 90-day positive - FR date:
__ 12-month warranted but precluded - FR date:
__ Did the petition request a reclassification of a listed species? No

FOR PETITIONED CANDIDATE SPECIES:
a. Is listing warranted (if yes, see summary of threats below)? Yes
b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? Yes
c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.

The petition received in May 2004 to list all 225 candidate species, including *Potentilla basaltica* as an endangered species under the Endangered Species Act, was largely based on the present or threatened destruction, modification, or curtailment of its habitat or range, disease or predation, the inadequacy of existing regulatory mechanisms, and other natural or manmade factors affecting its continued existence (Center for Biological Diversity (CBD) *et al.* 2004). In addition, the petitioners state that these species have been on the candidate list for 17 years or more, and such delays have contributed to the extinction of many non-listed species (CBD *et al.* 2004). We considered the information contained in the petition in this assessment; however, no new substantive data on *P. basaltica* were presented.

Higher priority listing actions, including court-approved settlements, court-ordered and statutory deadlines for petition findings and listing determinations, emergency listing determinations, and responses to litigation, continue to preclude the proposed and final listing rules for the species. We continue to monitor populations and will change its status or implement an emergency listing if necessary. The "Progress on Revising the Lists" section of the current CNOR

(*http://endangered.fws.gov/*) provides information on listing actions taken during the last 12 months.

___ Listing priority change
Former LPN: ___
New LPN: ___
Date when the species first became a Candidate (as currently defined): June 13, 2002

___ Candidate removal: Former LPN: ___
___ A – Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.
___U – Taxon not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.
___ F – Range is no longer a U.S. territory.
___ I – Insufficient information exists on biological vulnerability and threats to support listing.
___ M – Taxon mistakenly included in past notice of review.
___ N – Taxon does not meet the Act's definition of "species."
___ X – Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering Plants, Rosaceae (Rose Family)

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Nevada and California

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Humboldt County, Nevada, and Lassen County, California

LAND OWNERSHIP: In Nevada, all but one of the *Potentilla basaltica* occurrences are within the Black Rock-High Rock Canyon Emigrant Trails National Conservation Area (NCA) managed by the Bureau of Land Management (BLM), Winnemucca District Office. The species occurs within a grazing allotment and an Area of Critical Environmental Concern/Research Natural Area (ACEC/RNA) that are overlain by the NCA (BLM 2003b). The other Nevada occurrence and a portion of the Ash Valley, California, population are on private land. The remainder of the Ash Valley population is within the Ash Valley ACEC/RNA managed by the Alturas Field Office of the BLM.

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LEAD FIELD OFFICE CONTACT: Steve Caicco, Nevada Fish and Wildlife Office, (775) 861-6341, steve_caicco@fws.gov

BIOLOGICAL INFORMATION

Species Description: *Potentilla basaltica* is a low growing, rhizomatous, herbaceous perennial. It has a stout taproot and several decumbent stems that are glabrous and become purplish with age. There are numerous prostrate, pinnate, minutely ciliate leaves that form a basal rosette. The flowers are bright yellow with a shallow notch at the tip and a bowl-shaped hypanthium (Tiehm and Ertter 1984, p. 228). It begins flowering in May and continues through the summer; seeds have been collected as late as October (Knight 1990, p. 17).

Taxonomy: *Potentilla basaltica* was first discovered in 1982 in Nevada, and formally described in 1984 (Tiehm and Ertter 1984, pp. 228-231), based on a type specimen collected in 1983. This species is one of several in the genus that has sessile, simple lobed leaflets and small flowers resembling those of the genus *Ivesia*. It was assigned to *Potentilla* based on petal size, stamen attachment near the rim of the hypanthium, and phenology (Tiehm and Ertter 1984, p. 230), who noted that it was yet another species that cast doubt on the generic distinctiveness of *Potentilla* and *Ivesia*. Dr. Ertter has since confirmed that the taxon is a *Potentilla* and not an *Ivesia* (B. Ertter, Jepson Herbarium, pers. comm., as cited in Nevada Natural Heritage Program (NNHP) 1999, p. 6). Current information on taxonomic validity was reviewed on the Jepson Flora Project website; *P. basaltica* is the accepted name for a taxon native to California (Jepson Online Interchange; http://ucjeps.berkeley.edu/interchange.html, accessed on March 24, 2010). We have carefully reviewed the available taxonomic information to conclude the species is a valid taxon.

Habitat/Life History: The vegetation of Soldier Meadow, where *Potentilla basaltica* occurs in Nevada, is broadly classified into four wetland communities and three upland communities, one of which is considered transitional to wetlands. Over 60 plant species occur in the marshes, seeps, and wet meadows (Nachlinger 1991, p. 8). About 49 thermal springs occur in the area, at elevations ranging from 4,330 to 4,570 feet (ft) (1,320 to 1,393 meters (m)); most are located just above the level of inundation reached by the Pleistocene pluvial lake, Lake Lahontan (Nachlinger 1991, p. 1). Some of the springs provide the only known habitat for the federally listed desert dace (*Eremichthys acros*) and the elongate Mud Meadows springsnail (*Pyrgulopsis notidicola*), a Federal candidate species, both of which are endemic to the Soldier Meadow region (Knight 1990, p. 17).

At Soldier Meadow, *Potentilla basaltica* occurs in or near alkali meadows, seeps, and marsh habitats bordering perennial thermal springs, outflows, and meadow depressions between 4,330 and 4,600 ft (1,320 and 1,402 m) elevation (Service 1997, pp. 15-16; Knight 1990, p. 14). The majority of *P. basaltica* occur in alkali meadows and seeps, which have moist to saturated soils and are dominated by short to moderately tall perennial grasses and herbs (Nachlinger 1991, pp. 12-14). Alkali marshes generally have standing water of variable depth; *P. basaltica* is present in this community only where water is very shallow (Nachlinger 1991, p. 12). *Potentilla basaltica* also occurs along margins of streambanks where water temperature extremes are moderated (Knight 1990, p. 14). Plants are usually not found adjacent to downstream reaches of the spring outflows, possibly due to higher nutrient concentrations, richer soils, or increased salt

accumulations (Knight 1990, p. 14).

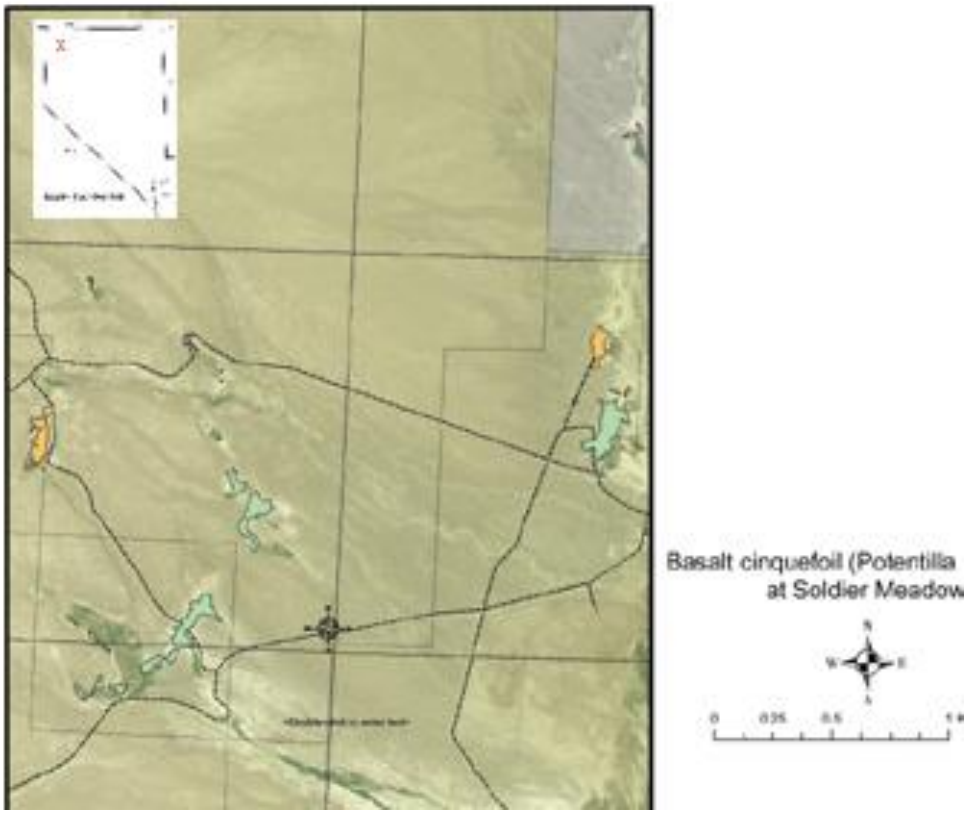
In northeastern California, *Potentilla basaltica* is known from public land administered by the BLM in Ash Valley near Ash Creek between 5,000 and 5,200 ft (1,525 and 1,586 m) elevation (California Natural Diversity Data Base (CNDDB) 2002, p. 1). The plant also occurs on adjacent private land where its habitat has been described as the subalkaline margin between a meadow system and the sagebrush-conifer ecotone, in an area previously disturbed by road construction (Service 1997, p. 8). Vegetation cover is generally sparse, and associated species include *Artemisia tridentata* (sagebrush), *Juncus* (rush) species, *Carex* (sedge) species, and *Ranunculus occidentalis* (western buttercup); the portion of the Ash Valley population on the private land is estimated to be less than 1,000 individuals (CNDDB 2002, p.1).

Little research has been conducted to understand the life history of this species, its ecological requirements, population biology, and genetic variability. It is believed that this species is capable of being self-compatible (Barbara Ertter, pers. comm., as cited in Knight 1990, p. 19); insect pollination has not been observed (Service 1997, p. 16).

Historical Range/Distribution: At the time of its description in 1984, *Potentilla basaltica* was only known to occur in Nevada. A single population was subsequently discovered in California.

Current Range/Distribution: Soldier Meadow lies in northwestern Nevada at the northern edge of the Black Rock Desert in the transition zone between the Basin and Range and the Columbia Plateau Physiographic Provinces. This region is characterized by cold, dry winters influenced primarily by cool, polar air masses, and by hot, dry summers influenced primarily by warm, tropical air masses (Nachlinger 1991, p. 4). Soldier Meadow lies between the Calico Mountains to the west and the Black Rock Range to the east. Within Soldier Meadow, *Potentilla basaltica* has been documented from 11 discrete occurrences primarily on lands managed by the Winnemucca District Office of the BLM. During extensive surveys of all spring systems in the Soldier Meadow area, this species has only been found within a total area estimated at about 70 acres (ac) (28 hectares (ha)) (Nachlinger 1991, p. 17). Based on Global Positioning System data taken in 2002, the 11 known occupied sites total approximately 24 ac (9.6 ha); most occurrences are small, ranging from 0.03 to 5.9 ac (0.01 to 2.4 ha) (Fraser 2002). Unoccupied, apparently suitable habitat previously surveyed (Knight 1990, pp. 12-13) was not revisited in 2002.

The Ash Valley, California, population of *Potentilla basaltica* occurs both on private land and within the Ash Valley ACEC/RNA managed by the Alturas Field Office of the BLM. The total acreage on private land is unknown.



Distribution of *Potentilla basaltica* at Soldier Meadow, Nevada, based on information in Service files. Location of Soldier Meadow shown as red "X" in inset; Ash Valley, California, population not shown.

Population Estimates/Status: *Potentilla basaltica* has been documented from 11 small occurrences in Soldier Meadow that were estimated to support 84,650 individuals in 1990 (Knight 1990, p. 17). Qualitative surveys of the known occurrences in 2002 estimated a total between 75,000 and 133,500 individuals and habitat conditions appeared stable; an 11th small population was also discovered in 2002 (Glenne 2002; Roger Farschon, BLM, pers. comm., 2003). Maximum population sizes were estimated to vary greatly, with two populations of about 27,000-29,000 individuals, four populations of about 17,000 individuals, three populations of 2,700 individuals, and the remaining two populations of 500 or fewer individuals (Glenne 2002). The northeastern California population of *P. basaltica* was estimated at fewer than 1,000 individuals in 1993 (CNDDB 2002, p. 1). The portion of this population on public land comprises 50 individuals on 0.25 ac (0.1 ha) (BLM 2007, p. 2-105).

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range. Nevada populations of *Potentilla basaltica* occur in an area popular for recreation and affected by livestock grazing. Various impacts to *P. basaltica* populations and habitat have occurred in past years and many of these impacts continue to affect the species to various degrees, including stream channelization, diversion of spring outflows for livestock and recreational uses; trampling by livestock; degradation or conversion of habitat for agriculture and recreation; development of

hot springs and camping areas; and roads and vehicles (Knight 1990, p. 19).

The physical alteration of the spring systems and upland habitats in Soldier Meadow for ranching activities began well over 100 years ago (Service 1997, pp. 17-18). Many modifications to the landscape were made to accommodate these uses. Changes to the hydrological regime through permanent and seasonal water diversions have resulted in an unquantifiable loss or alteration of *Potentilla basaltica* habitat, as well as habitat that once supported the threatened desert dace (Service 1997, p. 18). At present, we have insufficient data on which to assess the threat, if any, these physical alterations pose to the long-term viability of *P. basaltica*, but we do not believe that the threat is significant.

The spring systems and riparian areas that provide habitat for the species are attractive to native and domestic animals due to the presence of water, succulent vegetation adjacent to streams, and gentle topography (Minshall *et al.* 1989, p. 118). Trampling by livestock and wildlife occurred throughout *Potentilla basaltica* habitat until recently. Soldier Meadow is part of an active grazing allotment, although the central portion which supports much of the habitat for the sensitive species, including many of the *P. basaltica* populations was fenced in 2004 to exclude domestic livestock, wild horses, and other large mammals (BLM 2003a, p. 11). Cattle are still trailed through the exclosure in April and September of each year enroute to other pastures in the allotment, but are restricted to certain routes and must be continuously herded until they reach the outside boundary of the exclosure within 4 hours (Service 2003, p. 46). The Service is working with BLM and the grazing permittee to eliminate the trailing of cattle through the exclosure and anticipate that this change in grazing strategy may be completed in the near future. At this time, we have no evidence to indicate, and do not believe, that current livestock management poses a significant threat to the viability of *P. basaltica*. A monitoring program to assess the effects of the exclusion of livestock, wild horse and burro, and other wildlife from *P. basaltica* habitats is being developed.

Vehicle counts and observed visitor use data show that during the summer of 1990, approximately 2,800 people visited the Black Rock Desert. Between 1994 and 1995, visitor use had increased by 3,000-4,000 12-hour visitor days (BLM 1998, p. 22). In 2002, recreational use of the Soldier Meadow area was estimated at 6,134 12-hour visitor days (BLM 2003a, p. 57). The highest use of Soldier Meadow occurs on Memorial Day weekend and the opening day of chukar (*Alectoris chukar*) hunting season; in 2003, about 26 separate hunting camps were counted with an estimated 100 people (R. Farschon, pers. comm., 2005). The visibility of the area has also increased since the designation of the NCA in 2000 (R. Farschon, pers. comm. 2002; BLM 2004a, p. 1-1).

Recreational uses in the area include bathing in the thermal springs and camping in the immediate vicinity of the spring outflows. Users have constructed rock dams and excavated the outflows to create deep pools that accumulate silt and sand (Service 1997, pp. 18-19). Due to their proximity to the springs, *Potentilla basaltica* plants and their habitat are subject to direct damage associated with these activities (Nachlinger 1991, p. 20). August through October is the highest recreational use period for this area, when the species is still flowering and beginning to produce fruit. Increased use of the spring systems for bathing and the upland sites for camping

has resulted in the severe degradation of several *P. basaltica* sites (Knight 1990, p. 20; Nachlinger 1991, p. 20). In some areas, the landscape has been denuded of vegetation and soils have been compacted, offering little opportunity for reestablishment of the species (J. Fraser, pers. obs. 2002; S. Werdon, Service, pers. comm., 2002). In fall 2004, the BLM constructed a central campground away from the habitats for sensitive species at Soldier Meadow, and implemented a campground host system during the period of peak visitor use in accordance with the Soldier Meadows Recreation Plan (BLM 2004b, pp. 10, 14; M. Varner, BLM, pers. comm., 2005). Recreational use of the pools still occurs, but it is now managed to preclude camping in sensitive habitats and to direct foot traffic to areas where it will have minimal impacts on sensitive habitats. While monitoring has not yet been implemented, we believe that these efforts to minimize the impacts of recreational use on *P. basaltica* have reduced the significance of the threat to populations in high-use areas. Moreover, some populations of the plant do not receive recreational use and are not, therefore, presently at risk from such uses.

To gain access to various areas within Soldier Meadow, recreational users and allotment permittees previously utilized a network of roads, many of which were not authorized or maintained. This resulted in habitat degradation and fragmentation. In addition, vehicle tracks have been observed in the meadows where users have traversed the area to reach a spring or campsite (Nachlinger 1991, p. 20; Fraser 2002; S. Werdon, pers. comm., 2002). Consistent with the Soldier Meadows Recreation Plan (BLM 2004b, p. 8), the BLM in 2004 closed many of these routes and restricted vehicles to designated routes. This has reduced the magnitude of threat posed by vehicle traffic to *Potentilla basaltica* and its habitat to a level that we believe currently poses no significant threat to the viability of the species or its habitat.

The Soldier Meadow area was subject to intensive geothermal exploration in the 1970's. The maximum temperature of the aquifer was deemed insufficient to support economic development at that time (BLM 1983, pp. 1-18). Some portions of the species' habitat were protected from exploration and development activities through an ACEC/RNA designation for the desert dace (Service 1997, p. 22). Federal lands within the NCA were withdrawn from the authority of the 1970 Geothermal Steam Act by the legislation that established the NCA (P.L. 106-554, Sec. 6(a); BLM 2003b, p. 2-15). We no longer consider geothermal development a significant threat.

Summary of Factor A

The most significant remaining threats to the species in the recent past have been recreational use of spring outflows for bathing, camping in the upland areas, off-road vehicle use, and trampling by livestock, wild horses and burros, and other large mammals. Actions have recently been taken to address these threats, including the construction of a designated camping area outside of sensitive species habitat, closing and blocking of roads in sensitive species habitats, and the construction of an fence to exclude livestock, wild horses and burros, and other large mammals. All of these actions serve to reduce both the magnitude and imminence of threats to *Potentilla basaltica*. However, monitoring needs to be implemented to assess the short- and long-term effects of these management actions. See the discussion of Conservation Measures Planned or Implemented below for further discussion of ongoing actions to mitigate these impacts.

Trampling by livestock or wild horses, and recreational activities, include camping and off-road-vehicle use, may also pose a threat to the Ash Valley, California, population (BLM 2007a, pp. 9-10; BLM 2007b, p. 3-91). The allotment with the pasture containing *Potentilla basaltica* is rested from grazing one year out of four; grazing during the other years is during May in two out of four years and in June in one out of the four years (Schmidt 2007, p. 1). Observations that *P. basaltica* is more prevalent in years during which the pasture is grazed suggest that some grazing may benefit it by reducing competition from other meadow grasses and forbs (Schmidt 2007, p. 1). No information on the significance of the threat posed by recreational activities to this population is available. See the discussion of Conservation Measures Planned or Implemented below for further discussion of proposed conservation actions to mitigate these impacts.

B. Overutilization for commercial, recreational, scientific, or educational purposes. None identified.

C. Disease or predation. *Potentilla basaltica* is not known to be palatable to livestock or wildlife. No herbivory has been noted at any of the Soldier Meadow occurrences (Knight 1990, p. 20; G. Glenne, pers. comm. 2002; J. Fraser, pers. obs. 2002). *Potentilla basaltica* is host to the teliospore stage of the rust *Phragmidium ivesiae*, most frequently found on *Potentilla gracilis* and *P. recta* (Tiehm and Ertter 1984, p. 86). Although the rust may affect individuals of *P. basaltica*, we do not consider it a significant threat to the species.

D. The inadequacy of existing regulatory mechanisms. *Potentilla basaltica* was designated as a category 1 candidate species on February 21, 1990 (55 FR 6184). On July 26, 1995, this species was reassigned to category 2 candidate status as a result of portions of the habitat coming under Federal (BLM) jurisdiction in 1993. It was subsequently dropped from candidacy (February 28, 1996, 61 FR 7462) and reinstated as a candidate on June 13, 2002 (67 FR 40657).

The BLM manages *Potentilla basaltica* and its habitat as a sensitive species in accordance with BLM Manual 6840 Release 6-125, revised on December 12, 2008 (BLM 2008b). BLM policy is to manage candidate species as sensitive species, defined as "species that require special management or considerations to avoid potential future listing" (BLM 2008b, Glossary p. 5). The stated objective for sensitive species is to initiate proactive conservation measures that reduce or eliminate threats to minimize the likelihood of and need for listing (BLM 2008b, Section 6840.02). Conservation, as it applies to BLM sensitive species, is defined as "the use of programs, plans, and management practices to reduce or eliminate threats affecting the status of the species, or improve the condition of the species' habitat on BLM-administered lands" (BLM 2008b, Glossary p. 2). Conservation actions for the Soldier Meadow population were identified in the NCA Resource Management Plan (RMP) (BLM 2003b, Chapter 2) and have recently been implemented (see Conservation Measures Planned or Implemented below). Conservation actions have also been identified for the Ash Valley population (BLM 2007, pp. 9-10).

Potentilla basaltica is not currently listed by the State of Nevada. It is on the California Native Plant Society's (CNPS) 1B list (plants considered rare, threatened, or endangered in California and elsewhere). All plant species on the CNPS 1B list meet the definitions under the Native Plant Protection Act (Section 1901, Chapter 10) and the California Endangered Species Act

(CESA; Sections 2062 and 2067) of the California Department of Fish and Game Code, and are eligible for State listing. The species is not listed by California under CESA, but plants on the CNPS 1B list must be fully considered during the environmental documentation process under the California Environmental Quality Act (CEQA) (CNPS 2001). However, CEQA only requires disclosure of a project's impacts on the species and does not provide protective management.

E. Other natural or manmade factors affecting its continued existence. *Eleagnus angustifolia* (Russian olive) has been introduced at the ranch house at Soldier Meadow and has spread to alkali seep and alkali marsh habitats (Knight 1990, p. 15; Nachlinger 1991, pp. 14, 24). Other introduced plants present in the marshes, seeps and meadows include, but are not limited to, *Bassia hyssopifolia* (bassia), *Lepidium perfoliatum* (tall peppergrass), *Cardaria draba* (hoary cress), *Medicago sativa* (alfalfa), *Sonchus olearceus* (sow-thistle) and *Xanthium strumarium* (cocklebur) (Nachlinger 1991, pp. 12, 14). These nonnative species may compete with or displace native species including *Potentilla basaltica* in disturbed areas or under conditions that favor their growth (Service 1997, p. 21). The magnitude of the threat posed by these species to *P. basaltica* is uncertain, but not considered to be imminent. The introduced trees tend to occur only on the margins of the wetland communities or in previously disturbed areas (Nachlinger 1991, p. 14). These invasive species have also been identified as potential threats to the Ash Valley population (BLM 2007, p. 9).

The Service was informed in June 2009 about the presence of *Cardaria draba*, an invasive noxious weed, at Soldier Meadow (Fite 2009, pp. 1-6). In a conference call on June 30, 2009, Service and BLM staff discussed immediate treatment options to control the spread of invasive weeds that would have no effect on listed and candidate species at Soldier Meadow. The Service concurred with a proposal by a BLM weed management specialist that there would be no effect to these species if: 1) the herbicide imazapyr was not used within 25 ft (82 m) of any aquatic habitat, 2) imazapyr would not be applied with a spray applicator in any areas in which *Potentilla basaltica* was found, and 3) standard best management practices were employed (Service 2009, p. 1). The BLM agreed to immediately treat all areas of *C. draba*.

On July 30, 2009, Service and BLM staff met at Soldier Meadow to assess the effectiveness of the treatments and the risk posed by *Cardaria draba* to the ecosystem. We found small infestations at geographic locations provided by Fite (2009, pp. 1-6); all infestations had been treated with chemical controls and none of the infestations were located within 25 ft (82 m) of aquatic habitats. One of the treated infestations was located near a known *Potentilla basaltica* occurrence, but we found no evidence of damage to any individuals from the treatment. The aboveground stems of all *C. draba* were dead but many still held seeds. We agreed that BLM staff would collect the seed-bearing portions of the weeds immediately to prevent seed release into the meadow habitats. We also agreed that follow-up chemical control should be planned for early in the 2010 growing season and treatments should be continued until full eradication is achieved (Service 2009, p. 2). A single plant of *Lepidium latifolium* (tall whitetop), also an invasive noxious weed, was observed in July 2009, which we agreed should be treated with the same protocol. The Service believes that these treatments have reduced the significance of this new threat to the meadow ecosystem. The BLM agrees that early detection and treatment is critical to the control of invasive weeds and has agreed to continue to coordinate with the Service

to ensure that the integrity of the Soldier Meadow ecosystem is maintained and enhanced (BLM 2009, p. 2).

Fire suppression activities have been identified as a potential direct and indirect threat to the Ash Valley population through equipment compaction of the ground or ground disturbance from fire-line construction (BLM 2007, p. 9). No assessment of the significance of this potential threat is available.

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

The BLM issued a Record of Decision (ROD) on the RMP and Final Environmental Impact Statement for the NCA, which encompasses the Soldier Meadow area and addresses many threats and conservation needs (BLM 2004a, ROD-1 to ROD-13). In accordance with the terms of the 2004 Final Multiple Use Decision for the Soldier Meadow Allotment, 3,000 ac (1.214 ha) were fenced in 2004 to exclude livestock and wild horses from the majority of *Potentilla basaltica* habitat (BLM 2004c, p. 12).

In May 2004, the BLM completed a draft Environmental Assessment for the Soldier Meadow Recreation Management Plan (BLM 2004b, pp. 1-78). The plan implemented numerous conservation actions identified in the ROD (BLM 2004a, ROD-1 to ROD-13) for the listed and candidate species of Soldier Meadow that closed access roads to the spring, riparian and wetland areas, limits vehicles to designated roads and trails, established a central campground away from sensitive habitats, and proposes a monitoring program to assess the effects of these actions on listed, candidate, and sensitive species. It also included the installation of educational signage and an increased presence of BLM staff, including law enforcement, and a volunteer site steward during the 6-month primary public use period. The steward directly interacts with the visitors to provide public outreach. All of these actions, with the exception of the monitoring program, were fully implemented and are reported to have been successful at reducing recreational impacts to the habitats of sensitive species, including that of *Potentilla basaltica* (Varner 2005, p. 1).

The Alturas Field Office, BLM, issued a ROD on the Alturas RMP and Final Environmental Impact Statement in April 2008 (BLM 2008a, A-1 to A-10). The RMP includes actions that may benefit *Potentilla basaltica*, including not allowing livestock salting within 1,320 ft (402 m) of springs (BLM 2007, p. 2-40), restricting camping within 200 ft (61 m) of the springs (BLM 2007, p. 2-45), considering habitat for the species on private lands as an acquisition priority, and pursuing research on the life history and ecological requirements to inform management of the species (BLM 2007, p. 10). The RMP identifies actions that include establishing a long-term monitoring plot for the *P. basaltica* population within the Ash Valley ACEC/RNA and limiting off-highway-vehicle travel in the ACEC to designated routes (BLM 2007, p. 2-105). If the monitoring data suggest a decline in numbers or reproductive viability, livestock grazing would be excluded by fencing (BLM 2007, p. 2-106). The ACEC would also be closed to salable minerals (BLM 2007, p. 2-57) and recommended for withdrawal from mineral entry (BLM 2007, p. 2-35).

As noted above under Factor E, the establishment and spread of invasive weeds presents an

ongoing challenge to the integrity of the meadow ecosystems on which *Potentilla basaltica* depends. Because of this threat the Service and BLM will continue to monitor for the presence of noxious weeds and implement appropriate treatment controls when they are detected. Early detection and treatment should be effective in preventing the spread of noxious weeds and ensuring the ecological integrity of the meadow ecosystems.

SUMMARY OF THREATS (including reasons for addition or removal from candidacy, if appropriate)

Actions have now been taken by the BLM that reduce or eliminate the magnitude of direct threats to *Potentilla basaltica* and its habitat. Many of the actions that have impacted the habitat of *P. basaltica* in the past, however, are likely to have resulted in changes in the ability of the habitats to support the species. While the magnitude of threat has been reduced through the reduction or elimination of direct threats, a moderate to low magnitude of threat still exists from the ongoing effects of past actions. In addition, while some of the actions, such as the fence built to exclude livestock and other large mammals, are expected to benefit the species in the short-term they may also have unanticipated long-term effects especially since invasive plant species are known to occur in the area. Without monitoring data that shows short-term effects and assesses the potential long-term effects of current management, it would be premature to remove *P. basaltica* from candidate status. We find that *P. basaltica* is warranted for listing throughout all its range, and, therefore, find that it is unnecessary to analyze whether it is threatened or endangered in a significant portion of its range.

For species that are being removed from candidate status:

____Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

RECOMMENDED CONSERVATION MEASURES

Short-term and long-term monitoring of the effects of current management on *Potentilla basaltica* should be implemented as soon as possible. The monitoring should identify specific indicators that will be monitored, set clear management objectives, and specify the management response given a range of alternative results (Elzinga *et al*. 1998, p. 41). Other actions required on an annual basis, such as increased staff presence and the site steward at the campground should be continued. Compliance with the designated route system should also be monitored.

LISTING PRIORITY

THREAT			
Magnitude	Immediacy	Taxonomy	Priority

High	Imminent	Monotypic genus Species Subspecies/population	1 2 3
	Non-imminent	Monotypic genus Species Subspecies/population	4 5 6
Moderate to Low	Imminent	Monotypic genus Species Subspecies/population	7 8 9
	Non-imminent	Monotypic genus **Species** Subspecies/population	10 **11*** 12

Rationale for listing priority number:

Magnitude: Conservation measures recently implemented by the BLM have substantially reduced or eliminated the magnitude of the direct threats to *Potentilla basaltica* and its habitat. These conservation measures include the installation of fencing to minimize trampling impacts of domestic livestock and other large mammals; the closing of road access to spring, riparian, and wetland habitats that support *P. basaltica*; restriction of vehicles to designated routes; the establishment of a designated camping area; installation of educational signage, and an increased BLM presence, including law enforcement, and a campground host.

Imminence: Threats to the *Potentilla basaltica* are largely indirect, such as long-term changes in the habitats supporting *P. basaltica* that may result from past recreation, grazing, trampling, and hydrologic alteration, impacts or the potential for increased competition from invasive plant species. We continue to consider these threats to be non-imminent.

Rationale for Change in Listing Priority Number (insert if appropriate)

___ Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed? Yes

Is Emergency Listing Warranted? No

DESCRIPTION OF MONITORING

Some permanent monitoring transects were established at Soldier Meadow in the past, but the data collected have not been relocated and the adequacy of these data for establishing trend it is not known. Boundaries of all occurrences have been mapped and qualitative population estimates for each occurrence have been made. We are currently working with the BLM to develop a multi-phase strategy for long-term monitoring of the trend of various occurrences designed to assess the effectiveness of the conservation measures. A pilot study will be implemented in the summer of 2009. The BLM also proposes to establish long-term monitoring

of the small occurrence of *P. basaltica* on public land in the Ash Valley population in California.

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: None

Indicate which State(s) did not provide any information or comments: California and Nevada

Neither Nevada nor California addresses plants in their State Wildlife Action Plans, although measures to conserve the desert dace, an action plan species, may benefit *Potentilla basaltica*.

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APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: _____
Regional Director, Fish and Wildlife Service Date 6-7-2010

Concur: _____
ACTING
Director, Fish and Wildlife Service Date: October 22, 2010

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks:

Date of annual review: April 2010
Conducted by: Steve Caicco

FY 2010, R8 CNOR: Soldier Meadow cinquefoil, basalt cinquefoil