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## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
NEVADA ECOLOGICAL SERVICES FIELD OFFICE  
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Reno, Nevada 89502-5093

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March 24, 1993  
File No. 1-5-93-F-98

Resouces

## Memorandum

To: District Manager, Las Vegas District, Bureau of Land Management, Las Vegas, Nevada

From: Field Supervisor, Ecological Services, Reno, Nevada

Subject: Biological Opinion for the Proposed Ash Meadows Wild Horse Removal

This Biological Opinion responds to your request dated January 6, 1993, for formal consultation with the Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act). The Service will analyze possible impacts to 11 species listed as threatened or endangered under the Act and their critical habitats (Table 1) that may result from the Bureau of Land Management's (Bureau) proposal to gather and remove wild horses from the Service's Ash Meadows National Wildlife Refuge (Refuge), Ash Meadows, Nye County, Nevada. The Service concurs with the Bureau's determination that the proposed wild horse removal will not affect the endangered Devil's Hole pupfish (Cyprinodon diabolis) because this species occurs only within Devil's Hole where fencing protects it from any potential impact. Your request was received in this office and formal consultation was initiated on January 7, 1993. This formal consultation was conducted pursuant to the regulations governing interagency cooperation under the Act (50 CFR Part 402).

This Biological Opinion was prepared using information contained in the Bureau's Section 7 Biological Evaluation dated December 17, 1992; the Bureau's draft Wild Horse Removal Plan for Ash Meadows and draft Environmental Assessment for the Ash Meadows Wild Horse Removal, both issued for public comment on December 2, 1992; Bureau memoranda dated January 6, 1993, and March 9, 1993; a memorandum from the Project Leader of the Service's Desert Refuge Complex to the Bureau dated January 5, 1993; conversations with your staff; and information in the Nevada Ecological Services Field Office files.

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LAND MANAGE

Table 1: Threatened and endangered species of Ash Meadows, Nye County, Nevada which may be adversely affected by the proposed wild horse removal.

Common Name	Status	Critical
Scientific Name		Habitat
Ash Meadows Amargosa pupfish <u>Cyprinodon nevadensis mionectes</u>	Endangered	Yes
Warm Springs pupfish <u>Cyprinodon nevadensis pectoralis</u>	Endangered	No
Ash Meadows speckled dace <u>Rhinichthys osculus nevadensis</u>	Endangered	Yes
Ash Meadows naucorid <u>Ambrysus amargosus</u>	Threatened	Yes
Ash Meadows milk-vetch <u>Astragalus phoenix</u>	Threatened	Yes
Spring-loving centaury <u>Centarium namophilum</u>	Threatened	Yes
Ash Meadows sunray <u>Enceliopsis nudicaulis corrugata</u>	Threatened	Yes
Ash Meadows gumplant <u>Grindelia fraxino-pratensis</u>	Threatened	Yes
Ash Meadows ivesia <u>Ivesia eremica</u>	Threatened	Yes
Ash Meadows blazing star <u>Mentzelia leucophylla</u>	Threatened	Yes
Amargosa niterwort <u>Nitrophila mohavensis</u>	Endangered	Yes

### Description of the Proposed Action

Under the authority of an existing cooperative agreement between the Bureau and the Service, and under terms of the Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195), the Bureau is responsible for wild horses using the Refuge because the horses freely move on and off the Refuge. As part of the cooperative agreement, the Bureau has agreed to remove all horses from the Refuge and assume the lead for section 7 consultation as required by the Act. On July 25, 1985, the Service issued a Biological Opinion (File Number 1-5-85-F-40) to the Bureau on the impacts of removing wild horses from Ash Meadows. The Service concluded that the removal of the horses would promote the conservation of the listed and candidate species of Ash Meadows. The Bureau removed approximately 150 wild horses in 1985.

The Bureau estimates that approximately 100 horses have migrated into Ash Meadows since 1985. The Bureau proposes to capture and remove all wild horses from the Refuge during 1993 to protect federally threatened and endangered plants and animals and their habitats, restore and maintain the range in a thriving natural ecological balance, and prevent further deterioration of the rangeland resources. The Bureau has established an appropriate management level of zero horses for the Ash Meadows area. The proposed Ash Meadows removal area includes the Refuge, adjacent Bureau land, and small, private inholdings.

Once initiated, the proposed wild horse removal will last approximately 2 weeks. The horses will be captured in a humane manner using helicopters to herd the animals into winged traps. Horsemen stationed near the trap will assist in herding the animals into the corrals. The horses will then be transferred to the holding facility where they will be sorted based on specific criteria, and then transported to a processing center away from the removal area. Carcasses of horses that die or must be destroyed will be disposed of on public land outside the Refuge boundaries. Unadoptable horses will be released in the Spring Mountain Herd Management Area at a sufficient distance from the Refuge so they will not return. After the removal, the Bureau will conduct periodic monitoring to determine if other horses or burros move onto the Refuge. In addition, Refuge personnel will notify the Bureau of movement of horses or burros into the area. Future removals will be conducted in the manner proposed for 1993 and consistent with this Biological Opinion as the need arises and funding is available.

The Bureau estimates that two trap sites, one holding corral, and one helicopter staging area, each consisting of 1 to 1.5 acres, will be required to accomplish the removal. Potential sites include, but are not limited to, the areas south of Point of Rocks Spring, south of Fairbanks Spring, and near the Refuge headquarters. Final selection of all sites will be made with input from the Refuge staff.

None of the selected sites will be in designated critical habitat or any other area occupied by federally listed threatened or endangered species. When possible, the facilities will be located along existing roads or in previously disturbed areas, such as abandoned agricultural fields. Traps will be placed away from springs and their outflow streams and known populations of listed plants to minimize trampling of stream habitats and individual plants during herding.

Special emphasis will be placed on avoiding adverse impacts to the Ash Meadows naucorid. The Bureau will coordinate with Refuge staff to ensure that wild horses do not trample the eastern outflow of Point of Rock Springs. If horses are in close proximity to Point of Rocks Springs and it appears they may run through the spring outflows during capture efforts, the Point of Rocks area will be avoided or a barrier will be erected to prevent the horses from trampling the spring outflows. If a barrier is constructed, all threatened, endangered, or candidate plant species in the area will be avoided during such construction.

If the traps need to be camouflaged, only nonnative vegetation species, such as Russian olive (Elaeagnus angustifolia) or tamarisk (Tamarix ramosissima), will be used. Motorized equipment will remain on existing roads or disturbed areas approved by the Refuge staff.

#### Status of the Species/Environmental Baseline

A summary of information available regarding the life history and habitat requirements of each of the following species can be found in Knight and Clemmer (1987), Soltz and Naiman (1978), and Service (1990). Since the establishment of the Refuge in 1984, populations of listed species within Ash Meadows have generally stabilized with some expansion of both numbers and distribution.

The Service determined the Ash Meadows Amargosa pupfish to be an endangered species and designated its critical habitat in September 1983 (48 Federal Register 40178). This action was taken because the subspecies is restricted to the Ash Meadows region and was facing increasing threats from land development, ground water pumping, and diversion of surface waters. Critical

habitat (Figure 1) includes the following springs, portions of their outflows, and surrounding land areas for a distance of 50 meters from the springs and their outflows: Fairbanks Spring, Rogers Spring, Longstreet Spring, three unnamed springs southeast of Longstreet Spring (also referred to as Five Springs), Crystal Pool, Bradford Springs, Jack Rabbit Spring, Big Spring, and Point of Rocks Spring. This fish occurs in all critical habitats as well as the following additional waters: Tubbs Spring, Clay Pits Spring, Forest Spring, Crystal Reservoir, lower Crystal Marsh, and Peterson Reservoir (Service 1990). Known constituent elements of critical habitat include warmwater springs, their outflows, and surrounding land areas that provide vegetation for cover and habitat for insects and other invertebrates on which the species feeds. Ash Meadows Amargosa pupfish occupy a wide variety of warmwater habitats including deep and shallow spring pools and outflow streams. Populations vary in each habitat and fluctuate seasonally due to the short lifespan and high reproductive capacity of the species.

The Warm Springs pupfish was listed as an endangered species in October 1970 (35 Federal Register 16047) in response to agricultural development and ground water pumping which threatened the viability of its habitats. Critical habitat has not been designated for this fish which occupies six small springs (North and South Scruggs Springs, Marsh Spring, North and South Indian Springs, and School Spring) within an area encompassing less than 1 square kilometer. Warm Spring pupfish occupy a wide variety of warmwater habitats including deep and shallow spring pools and outflow streams. Despite this flexibility, all populations are small because of limited available resources and, as such, are vulnerable to habitat perturbations.

The Service determined the Ash Meadows speckled dace to be an endangered species and designated its critical habitat in September 1983 (48 Federal Register 40178). This action was taken because the subspecies is restricted to the Ash Meadows region and was facing increasing threats from land development, groundwater pumping, and diversion of surface waters. Critical habitat (Figure 2) includes each of the following springs, portions of their outflows, and surrounding land areas for a distance of 50 meters from each spring and its outflow: Bradford Springs, Jack Rabbit Spring, and Big Spring. This fish currently occupies all critical habitats and Tubbs Spring, although it historically occupied all waters inhabited by Ash Meadows Amargosa pupfish (Service 1990). Ash Meadows speckled dace occupy primarily stream habitats where they feed on drifting invertebrates. This species is vulnerable to modifications of the spring outflow streams.

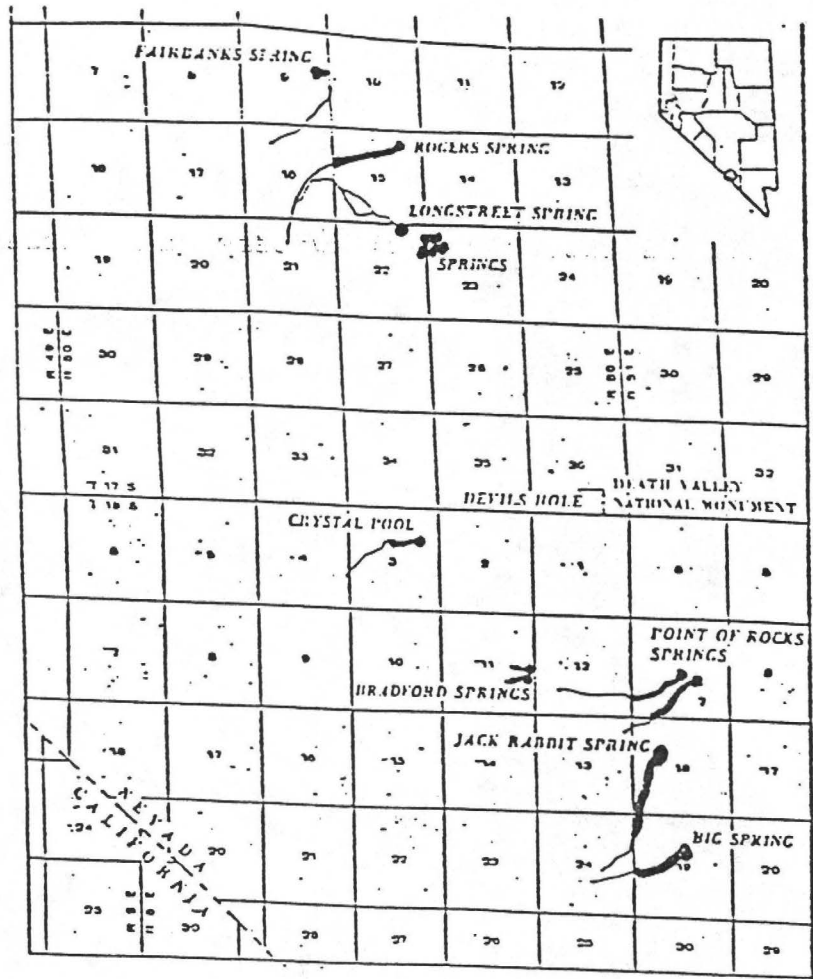


Figure 1: Ash Meadows Amargosa pupfish critical habitat (taken from Service 1990).

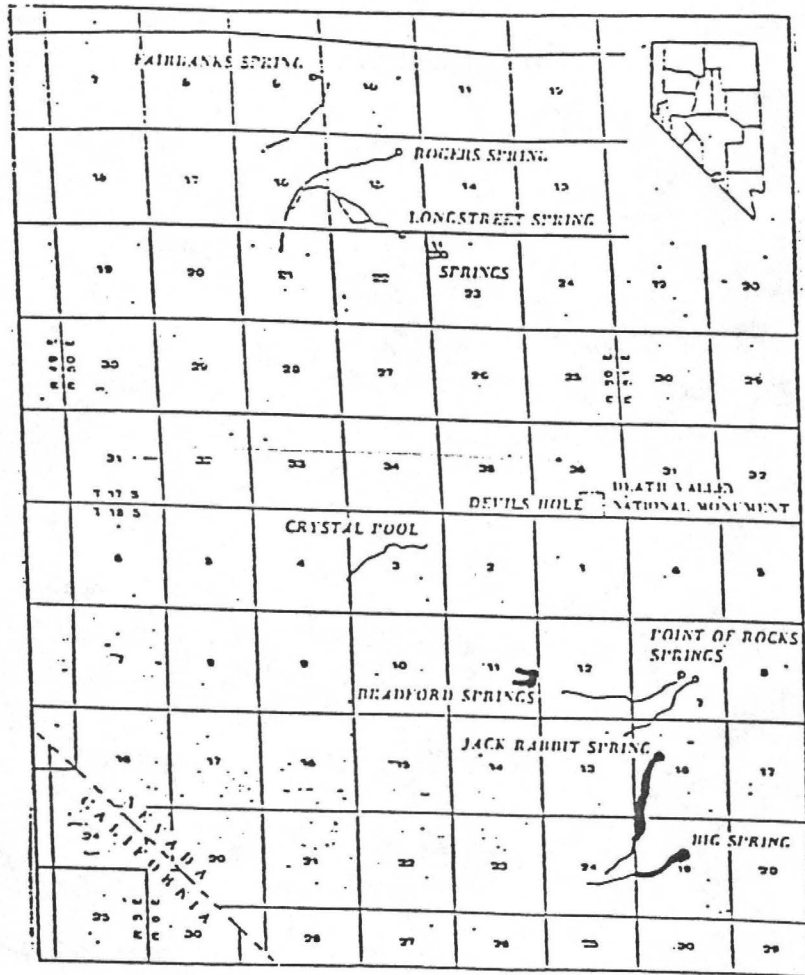


Figure 2: Ash Meadows speckled dace critical habitat (taken from Service 1990).

The Service determined the Ash Meadows naucorid to be a threatened species and designated its critical habitat in May 1985 (50 Federal Register 20777). Critical habitat (Figure 3) consists of approximately 10 acres at Point of Rocks Springs and their immediate outflows in Nye County, Nevada, and provides primary constituent elements of warmwater flowing over rock and gravel substrates. The entire population of this flightless insect persists in an extremely restricted habitat in the uppermost portion of the eastern Point of Rock Spring's outflow stream. The population is currently at a precariously low level due to the combined effects of several habitat modifications imposed between 1964 and 1984 (Polhemus 1992). The majority of the habitat historically occupied by the Ash Meadows naucorid has been so severely altered that it no longer meets the species' needs.

The Service determined seven Ash Meadows plants (Table 1) to be threatened or endangered species and designated their critical habitats in May 1985 (50 Federal Register 20777) because the species are restricted to the Ash Meadows region in Nye County, Nevada, and Inyo County, California, and their habitats were being threatened by groundwater pumping and surface-disturbing activities such as agriculture, municipal development, and mining. Critical habitats for many of these plants overlap.

Ash Meadows milk-vetch critical habitat (Figure 4) consists of 1,200 acres in nine separate areas in Nye County, Nevada, which contain the known primary constituent elements of dry, hard, white, barren, saline, clay soils on flats, knolls, and slopes. This long-lived, low, matted perennial forms mounds 40 to 50 centimeters across; grows only in areas of mineral-encrusted soils; and flowers from late April through May (Mozingo and Williams 1980). Knight and Clemmer (1987) reported that six subpopulations of this edaphic, endemic plant persist out of one historically widespread unit. These six subpopulations occupy areas which extend beyond, and sometimes connect, critical habitat areas.

Spring-loving centaury critical habitat (Figure 5) consists of 1,840 acres in 11 separate areas in Nye County, Nevada, which contain the known constituent elements of moist to wet clay soils along the banks of streams and in seepage areas in highlyalkaline soils. Historically, this species existed at two locations in California, but is now extant only in Ash Meadows. This erect annual herb grows up to 45 centimeters tall and flowers from July to September (Mozingo and Williams 1980). Spring-loving centaury are widespread in Ash Meadows and abundant where they occur. Knight and Clemmer (1987) defined six general populations which occupy critical habitat areas but also included additional populations in disjunct areas.



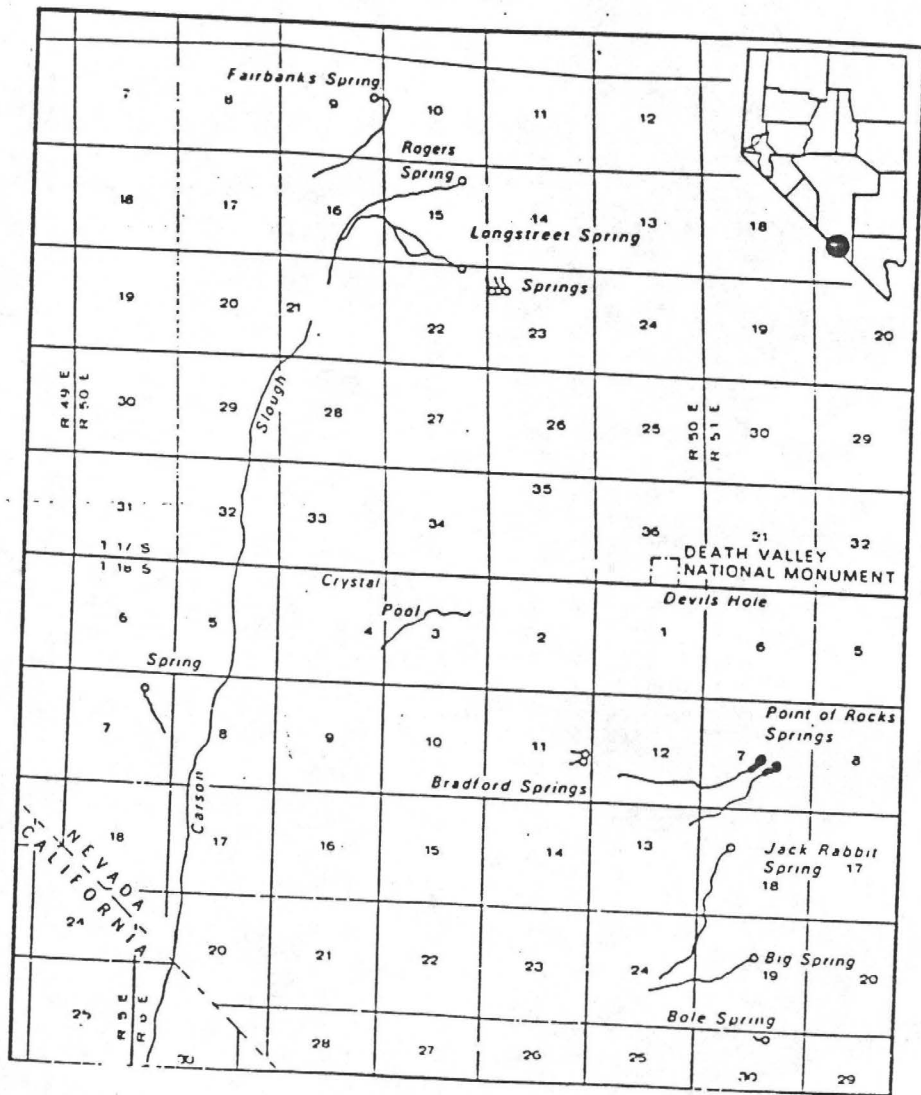


Figure 3: Ash Meadows naucorid critical habitat (taken from Service 1990).

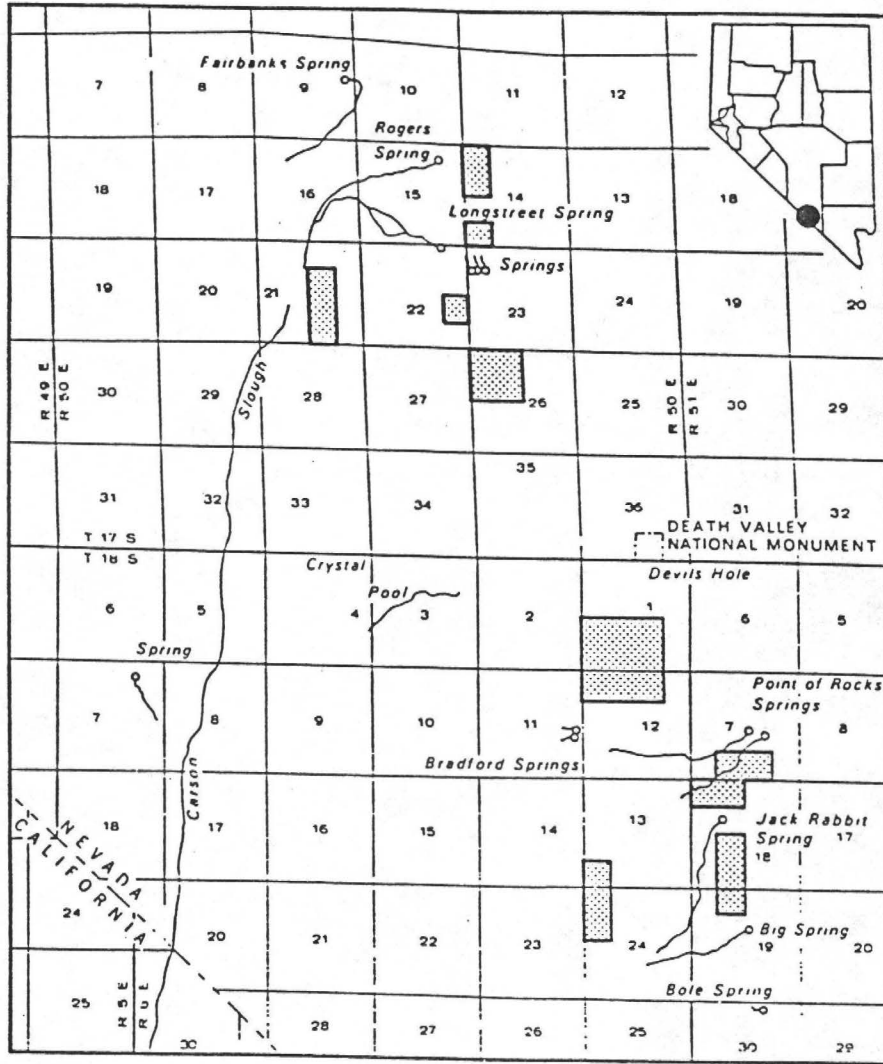


Figure 4: Ash Meadows milk-vetch critical habitat (taken from Service 1990).

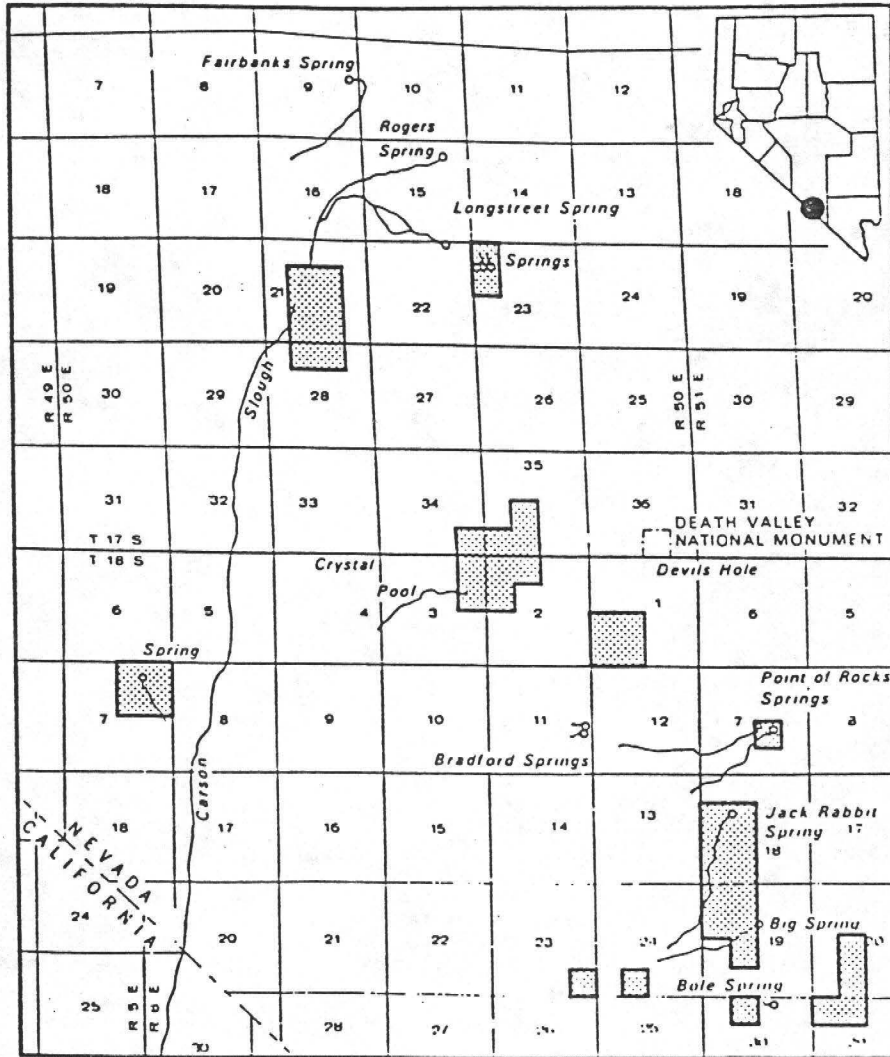


Figure 5: Spring-loving century critical habitat (taken from Service 1990).

Ash Meadows sunray critical habitat (Figure 6) consists of 1,760 acres in nine separate areas in Nye County, Nevada, which contain the known constituent elements found in dry washes or areas of whitish, saline soil associated with outcrops of pale, whitish limestone. This perennial grows from a woody rootstock and forms low, rounded mounds from which flower stalks extend 10 to 40 centimeters in April and May (Mozingo and Williams 1980). The Ash Meadows sunray is the most abundant and widespread of all the endemic Ash Meadows plants, occupying dry, upland areas outside the influence of water. Knight and Clemmer (1987) defined three populations, the largest of which extends from Longstreet Spring to Point of Rock Springs. This plant is distributed throughout the Refuge and is not restricted to the areas designated as critical habitat.

Ash Meadows gumplant critical habitat (Figure 7) consists of 1,968 acres in 14 separate areas in Inyo County, California, and Nye County, Nevada, which contain saltgrass (*Distichlis* sp.) meadows along streams and pools or in drier areas with alkali clay soils. This erect biennial or perennial, herbaceous plant grows from a woody rootstock, may be 70 to 100 centimeters tall, grows best in saturated soil, flowers from June to October, and can establish in disturbed soils (Mozingo and Williams 1980). Ash Meadow gumplant is distributed widely throughout Ash Meadows with nine major populations centered around moist areas. The current distribution of this plant generally corresponds to critical habitat areas and their immediate vicinity (Knight and Clemmer 1987).

Ash Meadows ivesia critical habitat (Figure 8) contains 880 acres in five areas in Nye County, Nevada, which possess the known primary constituent elements of saline seep areas within light colored clay uplands. This prostrate perennial has an erect, thick, woody root-crown that bears a basal tuft of leaves. It grows on alkali clay soils that are heavily saturated by seeps and springs, and flowers from August to October (Mozingo and Williams 1980). Knight and Clemmer (1987) identified seven small populations of Ash Meadows ivesia. One population is completely disjunct from any critical habitat area, while two others share and expand portions of one critical habitat area. All others are within critical habitat.

Ash Meadows blazing star critical habitat (Figure 9) includes 1,240 acres in four areas in Nye County, Nevada, which provide the known primary constituent elements of sandy or saline clay soils along canyon washes and near springs and seeps. This biennial or short-lived perennial is composed of one to several stems 50 centimeters long growing from a short tap root, and flowers from June to September (Mozingo and Williams 1980). It

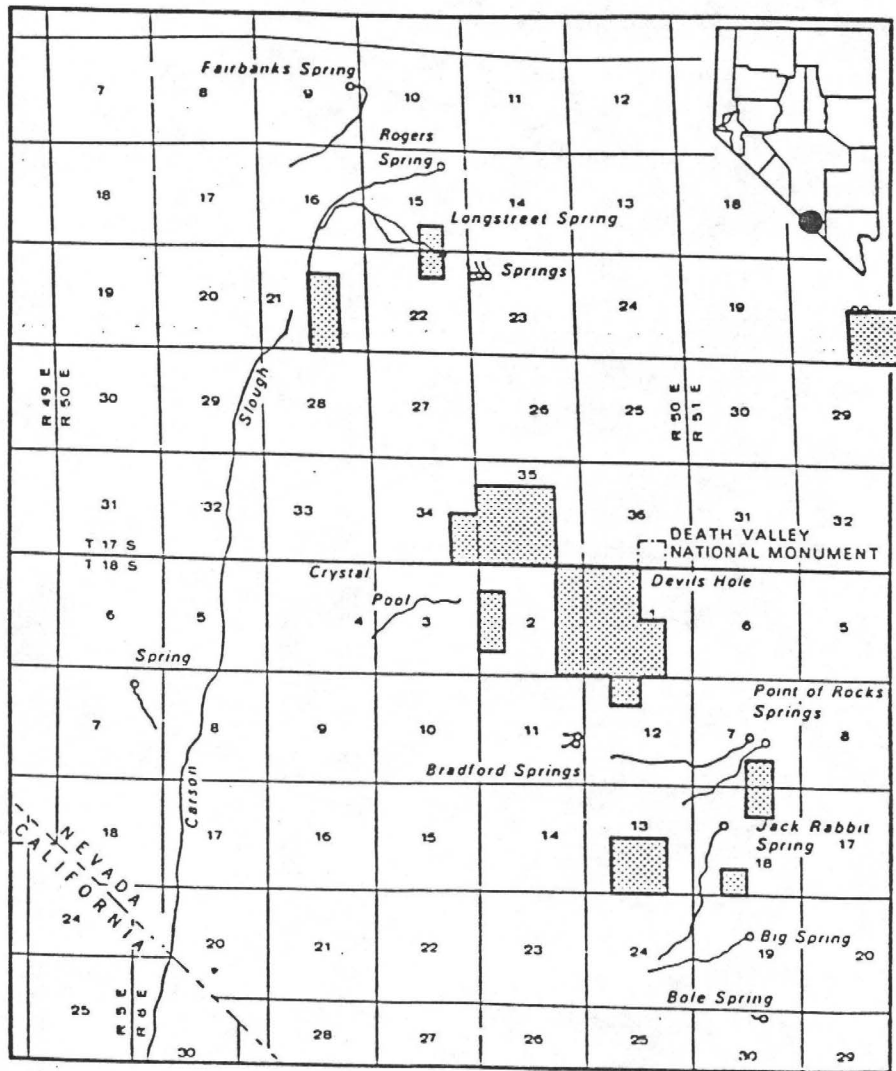


Figure 6: Ash Meadows sunray critical habitat (taken from Service 1990).

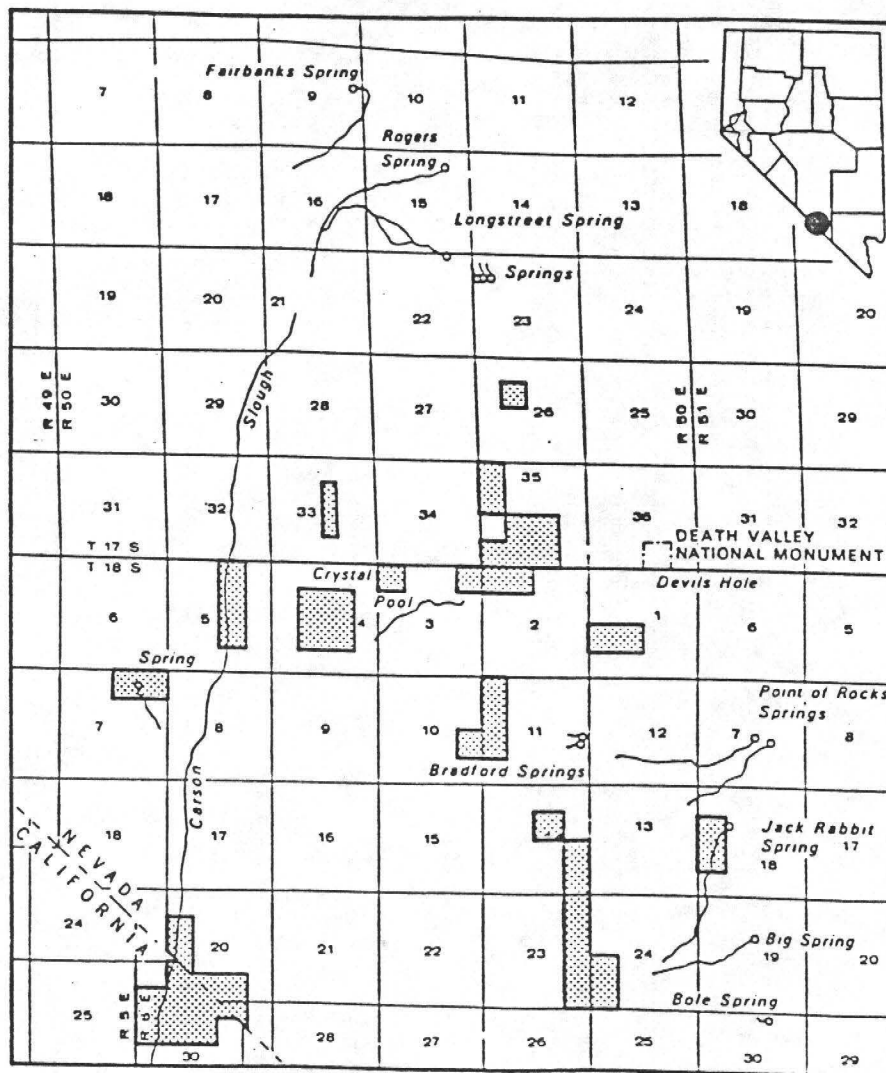


Figure 7: Ash Meadows gupliant critical habitat (taken from Service 1990).

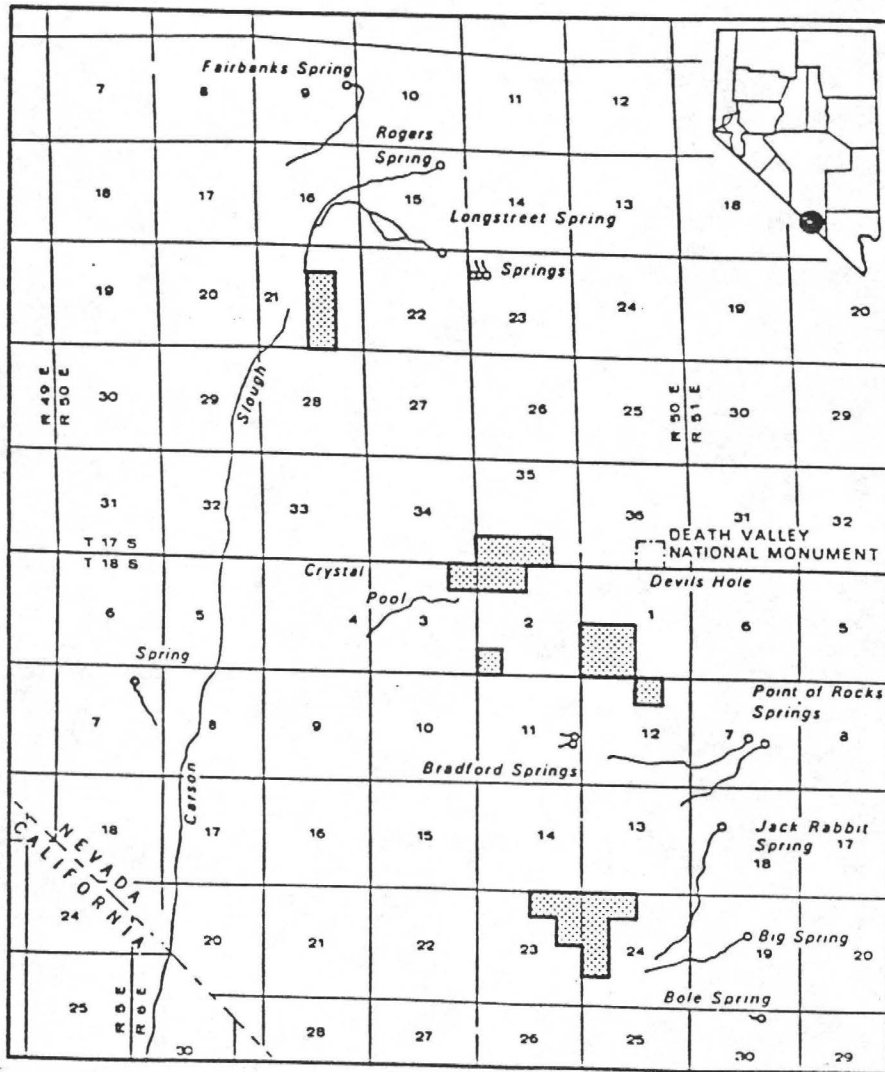


Figure 8: Ash Meadows *Ivesia* critical habitat (taken from Service 1990).

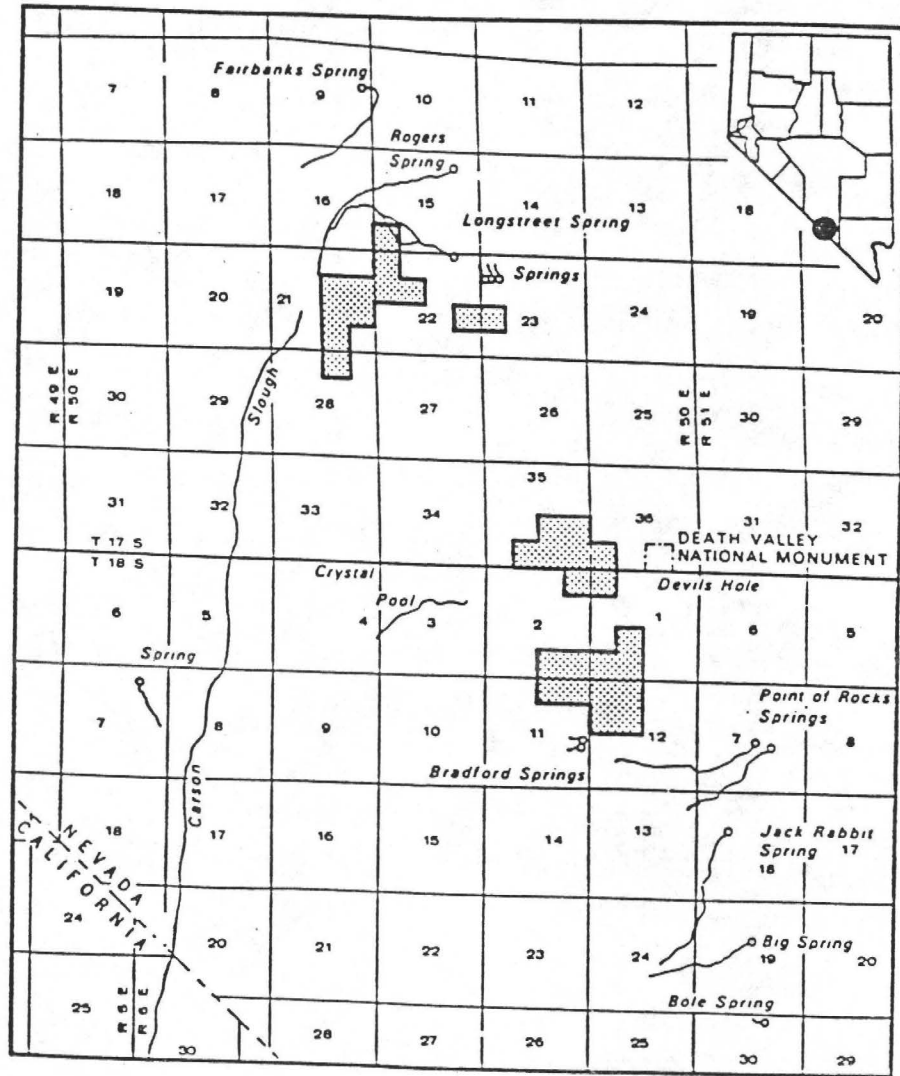


Figure 9: Ash Meadows blazing star critical habitat (taken from Service 1990).



occurs on hard, dry, undisturbed soils in arroyos, canyon washes, and near spring areas, but is not associated with saturated soils. The Ash Meadows blazing star is probably the rarest taxon in Ash Meadows. Only a few individuals occur at any one site and the total population in 1986 was estimated at less than 200 individuals (Knight and Clemmer 1987). Of the four populations identified by Knight and Clemmer (1987), two correspond with critical habitat, one combines two areas of critical habitat, and the fourth is disjunct from any critical habitat.

Amargosa niterwort critical habitat (Figure 10) includes 1,200 acres in one area in Inyo County, California, which contains the known primary constituent elements of salt-encrusted alkaline flats. This erect, long-lived perennial plant is restricted to heavily alkaline, moist clay soils in the Carson Slough area of Ash Meadows in California and Nye County, Nevada, but is abundant and dominant where found. Two large populations, one in California and one in Nevada, are documented, but they may actually be portions of one extensive population (Knight and Clemmer 1987). This species flowers from late April through June and fruits from June to September and is generally the only species growing in the immediate habitat (Knight and Clemmer 1987). This species does not reinvade sites where the salt crust has been disturbed.

#### Effects of the Proposed Action on the Listed Species

Removal of wild horses from Ash Meadows will ultimately benefit all listed species and aid in recovery of the entire ecosystem. The Service (1990) recognized that recovery of the Ash Meadows ecosystem requires preventing the reestablishment of a wild horse population, among other items. The adverse impacts of improperly managed livestock on various vegetative communities have been well documented (U.S. General Accounting Office 1988; Chaney, et al. 1990; Clary and Webster 1989; Berger 1986). Improper livestock management may reduce or eliminate native vegetation and lead to accelerated soil erosion and invasion of nonnative vegetation species. Livestock trampling of stream banks and overgrazing of riparian vegetation results in wide, shallow streams with increased turbidity and temperature. Wild horses adversely affect the listed plant species of Ash Meadows directly by browsing on and trampling individual plants and indirectly by disturbing the soil crust (Mozingo and Williams 1980; Service 1990). The listed aquatic species are indirectly affected by stream bank trampling and resultant water quality degradation.

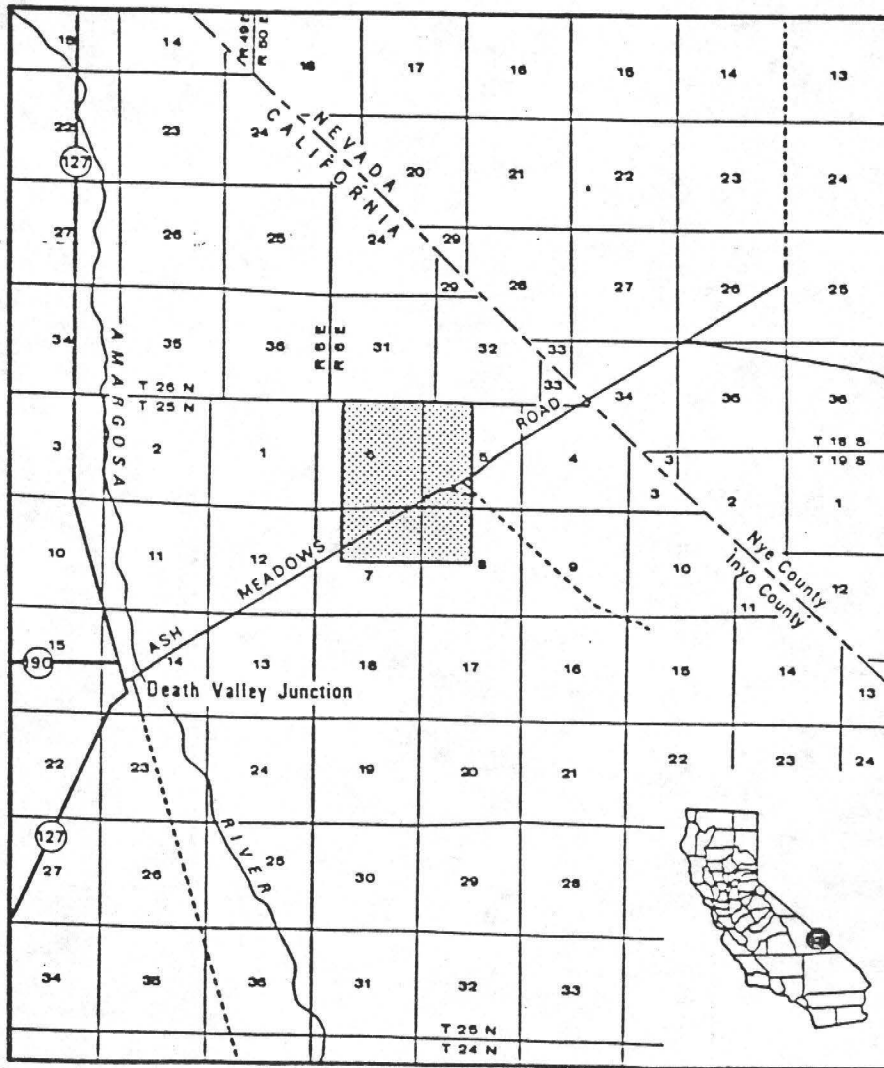


Figure 10: Amargosa niterwort critical habitat (taken from Service 1990).

The process of removing the wild horses from Ash Meadows may, however, result in loss of individual plants and temporary degradation of critical habitats of all listed species due to trampling during herding. The extent of the potential impact is undeterminable due to the nature of the proposed activity. Horses will be herded from wherever they are found within Ash Meadows to the nearest trap site. Due to the broad distribution of the listed species in Ash Meadows, areas occupied by listed species or designated as critical habitat may have to be crossed before reaching the trap site.

The Service has determined that impacts described herein will not reduce appreciably the likelihood of survival and recovery of 11 threatened and endangered species or destroy or adversely modify their critical habitats because the trampling which may occur during the removal is short-term and not expected to be significantly more than that created by the wild horses during their current normal daily activities. The impacts will be restricted to narrow corridors and not be widespread throughout Ash Meadows. No species should experience disturbance to a significant portion of its habitat. A helicopter will be used to herd the animals with the only ground support coming from horsemen at the trap sites. Efforts will be made to herd the wild horses down existing roads. The horses will be driven as slowly as possible to prevent injury to the horses and maintain control of the herd. These factors will minimize trampling damage to soil crusts, stream banks, and individual plants. All trap sites, holding facilities, and helicopter staging areas will be located outside critical habitat and in areas not occupied by listed species. Vehicles will be restricted to existing roads or those approved for use by Refuge staff.

#### Cumulative Effects

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered and threatened species or critical habitat that are reasonably certain to occur during the course of the Federal activity subject to consultation. Future Federal actions are subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed action.

The majority of Ash Meadows is Federal land, being managed either by the Service or the Bureau. The Service has an active program to acquire the remaining private inholdings within the Refuge boundary. The Service is aware of no private activities within the immediate Ash Meadows area which may affect listed species. Spring discharge information collected by Refuge staff indicate a slight but noticeable loss of spring flow volume over the last few years. The cause(s) of this decline is not known but may be

related to the ongoing regional drought and groundwater pumping from the aquifer supporting the springs at Ash Meadows. Groundwater is currently used to support private agriculture and mining activities, and Federal activities at the Nevada Test Site. The loss of spring flow has not yet had a perceptible adverse effect on the listed species at Ash Meadows, but impact may occur if the trend continues.

#### Biological Opinion

It is our Biological Opinion that the proposed action to gather and remove all wild horses within Ash Meadows is not likely to jeopardize the continued existence of 11 threatened or endangered plants and animals. Critical habitats will not be destroyed or adversely modified to the extent that the constituent elements are appreciably diminished and the habitats no longer serve their role in the survival and recovery of the species.

#### Incidental Take

Sections 4(d) and 9 of the Act prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct) of listed species of fish and wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3).

Sections 7(b)(4) and 7(o)(2) of the Act do not apply to the incidental take of listed plant species. However, the protection of listed plants is provided to the extent that the Act requires a Federal permit for removal or reduction to possession of endangered plants from areas under Federal jurisdiction, or any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law. The Bureau has a continuing duty to regulate the activity that is covered by this incidental take statement.

The Service does not anticipate that the proposed action will result in any incidental take of Ash Meadows Amargosa pupfish, Warm Springs pupfish, Ash Meadows speckled dace, or Ash Meadows naucorid therefore none is authorized by the incidental take statement.

### Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary Federal agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, or regarding the development of information.

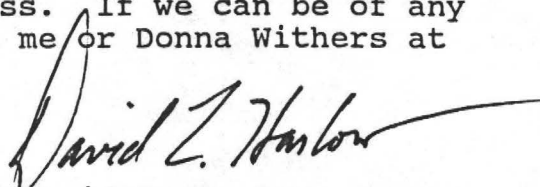
1. The Bureau should encourage wild horse removal personnel to make all possible attempts to avoid herding the horses through designated critical habitats, especially that of Ash Meadows blazing star (Figure 10).
2. The Bureau should incorporate the removal of wild horses from Ash Meadows at regular intervals into its long-term planning and budgeting processes.

In order for the Service to be kept informed of actions that either minimize or avoid adverse effects, or that benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

### Reinitiation Requirement

This concludes formal consultation on the proposed action outlined in your January 6, 1993, request. As required by 50 CFR § 402.16, reinitiation of formal consultation is required if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the Federal agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Biological Opinion; (3) the Federal agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Biological Opinion; (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations that are causing such take must be stopped in the interim period between the reinitiation and completion of the new consultation if any additional taking is likely to occur.

We appreciate the assistance and cooperation of your staff throughout this consultation process. If we can be of any further assistance, please contact me or Donna Withers at (702) 784-5227.

  
David L. Harlow

cc:

Southern Nevada Project Office, The Nature Conservancy,  
Las Vegas, Nevada  
Director, Nevada Department of Wildlife, Reno, Nevada  
Regional Manager, Nevada Department of Wildlife, Las Vegas,  
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Chief, Division of Endangered Species, Fish and Wildlife Service,  
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Assistant Regional Director, Ecological Services, Portland,  
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Senior Resident Agent, Division of Law Enforcement, Fish and  
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