

## United States Department of the Interior

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AESO/ES  
2-21-96-F-190

August 8, 2001

John M. McGee  
Forest Supervisor  
Coronado National Forest  
300 West Congress  
Tucson, Arizona 85701

Dear Mr. McGee:

This biological opinion responds to your request for consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request for formal consultation was dated March 22, 2001, and received by us on March 24, 2001. At issue are impacts that may result from a proposed land exchange. Lands located in the upper watersheds of the San Pedro and Santa Cruz Rivers belonging to the Lone Mountain Ranch would be exchanged for National Forest lands adjacent to Ranch headquarters (Fig. 1). Lands exchanged and received are all on the Sierra Vista Ranger District of the Coronado National Forest. These impacts may affect the following listed species: Huachuca water umbel, *Lilaeopsis schaffneriana* var. *recurva*; Mexican spotted owl, *Strix occidentalis lucida*; Lesser long-nosed bat, *Leptonycteris curasoae yerbabuena*; and Sonora tiger salamander, *Ambystoma tigrinum stebbinsi*; and critical habitat for the Huachuca water umbel.

The Coronado National Forest (Forest) requested concurrence from the Service that the proposed action may affect but is not likely to adversely affect the Mexican spotted owl, Lesser long-nosed bat, Chiricahua leopard frog, and Sonora tiger salamander. The Service concurs with the Forest's determination for these species. Rationale for our concurrence is detailed in Appendix A.

This biological opinion was prepared using information from the following sources: your December 12, 2000, biological assessment (BA) for the project ( Coronado National Forest 2000), and our files. Literature cited in this biological opinion is not a complete bibliography of all literature available on the affected species. A complete administrative record of this consultation is on file in our office.

## CONSULTATION HISTORY

Informal consultation on this project began on February 20, 1996, with a letter from the Forest to the Service, requesting input on the species that could be affected by the proposed land exchange. The Service responded in a letter dated April 5, 1996, with a list of species and some concerns that should be addressed in the biological assessment. The Service visited the parcels with the Forest on September 3, 1996. The Forest's request for concurrence and their BA were received in our office on January, 23, 2001. Service biologists responded by phone to Forest staff and biologists that we could not concur with a may affect, not likely to adversely affect determination for Huachuca water umbel. The Forest requested formal consultation on March 22, 2001, using the same BA provided in January 2001.

## BIOLOGICAL OPINION

### DESCRIPTION OF PROPOSED ACTION

Lone Mountain Ranch (Ranch) would offer to the United States 10 parcels totaling 538.6 ha (1330 acres) of land in the upper watersheds of the San Pedro and Santa Cruz rivers. The United States would grant to the Ranch 749.2 ha (1850 acres) of National Forest land adjacent to Ranch headquarters. Brief descriptions of the parcels are outlined below. Other detailed information, including the management guidelines for the parcels the Forest is acquiring, can be found in the Forest's BA (December 2000) and are included here by reference.

Private Parcel 1: contains Madrean oak woodland, mixed encinal, Mexican pine-oak woodland, and mixed broadleaf riparian bottoms. Scotia Canyon is mostly perennial. Three springs were developed into ponds of less than 1 acre each. Area is 71.3 ha (176 acres).

Private Parcel 2: contains Madrean oak woodland and mixed broadleaf riparian bottom. Limited portions of Scotia Canyon are perennial. Area is 30.3 ha (75 acres).

Private Parcel 3, 4, 5, and 8: contain Madrean oak woodlands, plains grasslands, and desert willow/rabbit brush bottoms. Intermittent water is found in portions of Sunnyside, School, and Parker canyons. Included are 2 stock ponds that hold water year round. Area is 258 ha (637 acres).

Private Parcel 6: contains Madrean oak woodland, mixed broadleaf riparian woodlands, and scattered conifers. A few pools in Cave Canyon are perennial except in the driest years. Area is 64.8 ha (160 acres).

Private Parcel 7: contains mixed coniferous forest and ponderosa pine-oak forest. Located in Bear Canyon near the crest of the Huachuca Mountains. Area is 81 ha (20 acres).

Private Parcels 9 and 10: contains Madrean oak woodlands, mixed broadleaf riparian woodlands, and desert willow/rabbit brush bottoms. Portions of Parker Canyon are perennial. Area is 106.1 ha (262 acres).

Forest Service Parcel: contains Madrean oak woodland and savannah and mixed broadleaf riparian woodlands. Most of Joaquin Canyon is perennial. Lower Bear Canyon is mostly perennial while small portions of middle Bear are wet. Area is 748.5 ha (1848 acres).

Forest lands passing to private ownership would be managed for livestock production. The owner of the Lone Mountain Ranch also desires to block land up around headquarters for privacy and create a more efficient grazing operation on private land. Subdivision is always a possibility with any future owner.

### ***ANALYSES BY SPECIES:***

#### **Huachuca Water Umbel** STATUS OF THE SPECIES

The Huachuca water umbel was listed as an endangered species on January 6, 1997. Critical habitat was designated on the upper San Pedro River, Garden Canyon on Fort Huachuca, and other areas of the Huachuca Mountains, San Rafael Valley, and Sonoita Creek on July 12, 1999. The umbel is an herbaceous, semiaquatic perennial plant with slender, erect leaves that grow from creeping rhizomes. The leaves are cylindrical, hollow with no pith, and have septa (thin partitions) at regular intervals. The yellow/green or bright green leaves are generally 1-3 mm (0.04-0.12 inch) in diameter and often 3-5 cm (1-2 inches) tall, but can reach up to 20 cm (8 inches) tall under favorable conditions. Three to ten very small flowers are borne on an umbel that is always shorter than the leaves. The fruits are globose, 1.5-2 mm (0.06-0.08 inch) in diameter, and usually slightly longer than wide (Affolter 1985). The species reproduces sexually through flowering and asexually from rhizomes, the latter probably being the primary reproductive mode. An additional dispersal opportunity occurs as a result of the dislodging of clumps of plants which then may reroot in a different site along aquatic systems.

Huachuca water umbel was first described by Hill (1926) based on the type specimen collected near Tucson in 1881. Hill applied the name *Lilaeopsis recurva* to the specimen, and the name prevailed until Affolter (1985) revised the genus. Affolter applied the name *L. schaffneriana* ssp. *recurva* to plants found west of the continental divide.

Huachuca water umbel has been documented from 27 sites in Santa Cruz, Cochise, and Pima counties, Arizona, and in adjacent Sonora, Mexico, west of the continental divide (Haas and Frye 1997, Saucedo 1990, Warren *et al.* 1989, Warren *et al.* 1991, Warren and Reichenbacher 1991, Service files). The plant has been extirpated from 6 of the 27 sites. The 21 extant sites occur in four major watersheds - San Pedro River, Santa Cruz River, Rio Yaqui, and Rio Sonora. All sites are between 1,148-2,133 m (3,500 to 6,500 feet) elevation.

Huachuca water umbel has an opportunistic strategy that ensures its survival in healthy riverine systems, cienegas, and springs. In upper watersheds that generally do not experience scouring floods, the umbel occurs in microsites where interspecific plant competition is low. At these

sites, the umbel occurs on wetted soils interspersed with other plants at low density, along the periphery of the wetted channel, or in small openings in the understory. The upper Santa Cruz River and associated springs in the San Rafael Valley, where a population of Huachuca water umbel occurs, is an example of a site that meets these conditions. The types of microsites required by the umbel were generally lost from the main stems of the San Pedro and Santa Cruz rivers when channel entrenchment occurred in the late 1800's to early 1900's. Habitat on the upper San Pedro River is recovering, and Huachuca water umbel has recently been found along short reaches of the main channel.

In stream and river habitats, Huachuca water umbel can occur in backwaters, side channels, and nearby springs. After a flood, it can rapidly expand its population and occupy disturbed habitat until interspecific competition exceeds its tolerance. This response was recorded at Sonoita Creek in August 1988, when a scouring flood removed about 95 percent of the Huachuca water umbel population (Gori *et al.* 1990). One year later, the umbel had recolonized the stream and was again codominant with watercress, *Rorippa nasturtium-aquaticum* (Warren *et al.* 1991). The expansion and contraction of Huachuca water umbel populations appear to depend on the presence of "refugia" where the species can escape the effects of scouring floods, a watershed that has an unaltered hydrograph, and a healthy riparian community that stabilizes the channel.

Density of umbel plants and size of populations fluctuate in response to both flood cycles and site characteristics. Some sites, such as Black Draw, have a few sparsely-distributed clones, possibly due to the dense shade of the even-aged overstory of trees, dense nonnative herbaceous layer beneath the canopy, and deeply entrenched channel. The Sonoita Creek population occupies 14.5 percent of a 500.5 square meter (5,385 square foot) patch of habitat (Gori *et al.* 1990). Some populations are as small as 1-2 square meters (11-22 square feet). The Scotia Canyon population, by contrast, has dense mats of leaves. Scotia Canyon contains one of the larger Huachuca water umbel populations, occupying about 57 percent of the 1,450 meter (4,756 foot) perennial reach (Gori *et al.* 1990, Falk and Warren 1994).

While the extent of occupied habitat can be estimated, the number of individuals in each population is difficult to determine because of the intermeshing nature of the creeping rhizomes and the predominantly asexual mode of reproduction. A "population" of Huachuca water umbel may be composed of one or many genetically distinct individuals.

Overgrazing, mining, hay harvesting, timber harvest, fire suppression, and other activities in the nineteenth century led to widespread erosion and channel entrenchment in southeastern Arizona streams and cienegas when above-average precipitation and flooding occurred in the late 1800's and early 1900's (Bahre 1991, Bryan 1925, Dobyns 1981, Hastings and Turner 1980, Hendrickson and Minckley 1984, Martin 1975, Sheridan 1986, Webb and Betancourt 1992, Hereford 1993). A major earthquake near Batepito, Sonora, approximately 40 miles south of the upper San Pedro Valley, resulted in land fissures, changes in groundwater elevation and spring flow, and may have preconditioned the San Pedro River channel for rapid flood-induced entrenchment (Hereford 1993, Geraghty and Miller, Inc. 1995). These events contributed to

long-term or permanent degradation and loss of cienega and riparian habitat on the San Pedro River and throughout southern Arizona and northern Mexico. Much habitat of the Huachuca water umbel and other cienega-dependent species was presumably lost at that time.

Wetland degradation and loss continues today. Human activities such as groundwater overdrafts, surface water diversions, impoundments, channelization, improper livestock grazing, chaining, agriculture, mining, sand and gravel operations, road building, nonnative species introductions, urbanization, wood cutting, and recreation all contribute to riparian and cienega habitat loss and degradation in southern Arizona. The local and regional effects of these activities are expected to increase with the increasing human population.

Dredging extirpated the Huachuca water umbel from House Pond, near the extant population in Black Draw (Warren *et al.* 1991). The umbel population at Zinn Pond in St. David near the San Pedro River was probably lost when the pond was dredged and deepened. This population was last documented in 1953 (Warren *et al.* 1991).

Livestock grazing can affect the umbel through trampling and changes in stream hydrology and loss of stream bank stability. However, existence of the umbel appears to be compatible with well-managed livestock grazing (Service 1997). In overgrazed areas, stream headcutting can threaten cienegas where the umbel occurs. Such headcutting occurs at Black Draw just south of the international boundary and at Los Fresnos, in the San Rafael Valley, Sonora. Groundwater pumping has eliminated habitat in the Santa Cruz River north of Tubac, and threatens habitat in the San Pedro River. Portions of the San Pedro River occupied by the umbel could be dewatered within a few years unless measures are implemented very soon to halt or mitigate groundwater pumping in the Sierra Vista-Fort Huachuca area (ASL 1998). Severe recreational impacts in unmanaged areas can compact soils, destabilize stream banks, and decrease riparian plant density, including densities of the Huachuca water umbel. Populations in Bear Canyon in the Huachuca Mountains have been impacted by trampling and off-highway vehicles.

A suite of nonnative plant species has invaded wetland habitats in southern Arizona (Stromberg and Chew 1997), including those occupied by the Huachuca water umbel (Arizona Department of Water Resources 1994). In some cases their effect on the umbel is unclear. However, in certain microsites, the nonnative Bermuda grass, *Cynodon dactylon*, may directly compete with the umbel. Bermuda grass forms a thick sod in which many native plants are unable to establish. Watercress is another nonnative plant now abundant along perennial streams in Arizona. It is successful in disturbed areas and can form dense monocultures that can outcompete Huachuca water umbel populations.

Limited numbers of populations and the small size of populations make the Huachuca water umbel vulnerable to extinction as a result of stochastic events that are often exacerbated by habitat disturbance. For instance, the restriction of this taxon to a relatively small area in southeastern Arizona and adjacent Sonora increases the chance that a single environmental catastrophe, such as a severe tropical storm or drought, could eliminate populations or cause

extinction. Populations are in most cases isolated, as well, which makes the chance of natural recolonization after extirpation less likely. Small populations are also subject to demographic and genetic stochasticity, which increases the probability of population extirpation (Shafer 1990, Wilcox and Murphy 1985).

## ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, and the anticipated impacts of all proposed federal actions in the action area that have undergone formal or early section 7 consultation. It also includes the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action under consultation.

### **Status of Huachuca Water Umbel in the Project Area**

There are populations of the umbel on Private Parcels 1 and 2. Private Parcel 1 contains 955 m (3,133.3 feet) of habitat along upper Scotia Canyon with a frequency of 53% for the umbel. There are also 3 ponds in Parcel 1, with a total surface area of 0.06 ha (0.1 acre), with an estimated umbel density of 500 stems/square meter. Parcel 1 is contiguous with occupied umbel habitat in Scotia Canyon on Forest Service lands. Parcel 2, located in middle Scotia Canyon, has 800 m (2624.8 feet) of habitat with a frequency of 5% for the umbel.

The umbel is also located on the Forest Service parcels to be exchanged. There is 572 m (1,876.7 feet) of habitat in Middle Bear Canyon with a frequency of 12.7% for umbel, 1120 m (3,674.7 feet) in lower Bear Canyon with a frequency of 7.1 %, and 992 m (3,254.7 feet) with an umbel frequency of 55.1 %.

Prior to this opinion, the Service had issued two opinions on Huachuca water umbel in this area. On March 2, 1999, the Service issued a biological opinion to the Coronado National Forest on the proposed Lone Mountain Prescribed Fire. The Service determined that the proposed action was not likely to jeopardize the continued existence of the Huachuca water umbel, lesser long-nosed bat, and Sonora tiger salamander. Nor was the proposed action likely to result in destruction or adverse modification of proposed critical habitat for the water umbel. On July 29, 1999, the Service issued a biological opinion to the Forest on livestock grazing activities on the entire Forest. The Lone Mountain allotment was covered for a ten year period. The Service determined that the proposed action was not likely to jeopardize the continued existence of the Huachuca water umbel nor likely to result in adverse modification or destruction of critical habitat.

## EFFECTS OF THE PROPOSED ACTION

The Forest Service would dispose of 922 m (3,025.1 feet) of stream bottom in Joaquin Canyon and 1,692 m (5,551.4 feet) in Bear Canyon of occupied umbel habitat to the Ranch. The frequency of umbel in the Bear Canyon reach was 9.9%. The frequency of umbel in the Joaquin

Canyon reach was 55.1%. Both of these sites are downstream from occupied sites on Forest Service lands. The Forest manages the upper portion of Bear Canyon and associated headwaters. There is a permanent monitoring transect for the umbel in upper Bear Canyon, 1425 m (4,675.4 feet), with an relative umbel frequency of 46%.

Lands acquired by the Ranch would be fenced at some later date. In the interim, the livestock will be managed through a private land permit. Requirements contained in the Lone Mountain allotment management plan will apply to the private lands under the private land permit. Once the private lands are fenced, the owner can chose to withdraw those lands from the private land permit. In this case, requirements within the Lone Mountain allotment plan would not apply to private lands. The land immediately around Ranch headquarters is not part of a private land permit. The Ranch has not stated its intention for the disposal land (T. Deecken, pers. comm. 2001). The Ranch would also likely prohibit public access to private lands around their headquarters, including portions of Bear and Joaquin Canyons where the umbel occurs. All of the monitoring data through 1998 indicates that the metapopulations of umbel in Scotia and Bear Canyons are stable. There has been turnover in individual patches, but within an entire drainage, the metapopulation remains relatively constant (Falk, 1998). These areas were subject to livestock grazing in the past and will continue to receive some use, primarily in the winter, if adequate precipitation allows for livestock grazing. The umbel can withstand some grazing use. If the lands acquired by the Ranch are managed in a sustainable fashion, umbel should persist within those drainages acquired by the Ranch. If the lands are sold at a later time, the umbel site will be lost, with an unknown effect on the long-term viability of the metapopulations in the Huachuca Mountains. The loss could also reduce gene flow between known occupied habitat in Mexico and sites in the southeast Arizona.

The Forest would be acquiring 1755 m (5,758.1 feet) of suitable and occupied habitat, along with 3 ponds, in upper Scotia Canyon. The relative frequency of the umbel in this stretch of habitat (53%) is very similar to the contiguous habitat on the Forest (50.5%). The ponds in Parcel 1 are a very important addition to the Forest because they, along with the springs that feed them, form the headwaters for the Scotia Canyon drainage. It is highly desirable to have this area under one land manager. Private Parcels 1 and 2 would increase the amount of occupied and suitable habitat on Forest lands. Private Parcel 1 increases the area to the north and Private Parcel 2 increases the area to the south (Fig. 2). The umbel functions as a metapopulation within the Scotia Canyon drainage. Individual patches colonize suitable microsites within the drainage and then move around to other suitable sites with flood events. A key to the long term survival of the metapopulation is to provide enough suitable habitat for the species to reoccupy after disturbance. These two parcels will be valuable additions for this reason. The entire reach between Parcels 1 and 2 is currently occupied by the umbel and forms the core of the metapopulation in Scotia Canyon.

The Forest monitors the umbel in Scotia Canyon. A permanent transect has been set up and the entire stream reach is sampled, using frequency of the umbel as an indicator of density. As stated previously, the frequency of umbels encountered in Parcel 1 (53%) is similar to the frequency on

Forest lands (50.5%). In 1999, the monitoring transect was enlarged to include the stream reach in Parcels 1 and 2. Monitoring will be continued by the Forest Service as part of their proposed action for the Lone Mountain grazing allotment (Coronado Grazing Biological Opinion, 1999).

Lands acquired by the Forest Service would be managed under the direction of the Forest Plan and the Lone Mountain Allotment Management Plan (AMP). Refer to Consultation 2-21-98-F-399 for those details (Coronado Grazing Opinion, 1999).

### Effects to Critical Habitat

Effects analyses must determine if the proposed action would destroy or adversely modify proposed critical habitat. "Destruction or adverse modification" means a direct or indirect alteration that appreciably diminishes the value of proposed critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical (50 CFR 402.02). The primary constituent elements identified in the final rule (U. S. Fish and Wildlife Service 1999a) as necessary for the survival and recovery of the Huachuca water umbel include, but are not limited to, the habitat components which provide the following:

- (1) Sufficient perennial base flows to provide a permanently wetted substrate for growth and reproduction of Huachuca water umbel;
- (2) A stream channel that is stable and subject to periodic flooding that provides for rejuvenation of the riparian plant community and produces open microsites for water umbel expansion;
- (3) A riparian plant community that is stable over time and in which nonnative species do not exist or are at a density that has little or no adverse effect on resources available for water umbel growth and reproduction; and
- (4) Refugial sites in each watershed and in each stream reach, including but not limited to springs or backwaters of mainstem rivers, that allow each population to survive catastrophic events and recolonize larger areas.

Within the proposed action area (the parcels designated for exchange) critical habitat is located only in one area, Scotia Canyon. All of Scotia Canyon within Parcel 1, approximately 0.61 km (0.38 mile) is designated critical habitat, and under the proposed action, would come under Forest ownership. The remaining 4.8 km (3.1 miles) of critical habitat in Scotia Canyon is already under Federal ownership. Therefore, under this proposal, all of the critical habitat for the umbel in Scotia Canyon would come under Forest ownership. Again, this is important for the long-term survival of the species. Management of critical habitat under one owner is much more likely to result in unified strategies that will enhance the recovery of the species in this canyon.

There is no critical habitat on the parcel to be disposed of by the Forest Service and, thus, there will be no loss of critical habitat from federal ownership into private ownership through this land exchange. In fact, there will be an addition to critical habitat that will come under the ownership of the Forest.

#### Cumulative Effects

Cumulative effects include the effects of future State, tribal, or local private actions that are reasonably certain to occur in the project area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. Effects of past Federal and private actions are considered in the Environmental Baseline. Because of the extent of Federal lands in the project area, few non-Federal activities are expected occur. Exceptions include grazing activities on inholdings of the Lone Mountain ranch, private lands at the historic townsite of Sunnyside, and at other scattered private parcels. No State lands are known to occur in the project area.

#### CONCLUSION

After reviewing the current status of the Huachuca water umbel, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Huachuca water umbel. Nor is the proposed action likely to result in adverse modification and destruction of critical habitat. We present these conclusions for the following reasons:

- 1) The Forest Service would be acquiring the springs and associated moist habitat at the headwaters of Scotia Canyon. This will enable the Forest Service to manage Scotia Canyon as one ecological unit. This should benefit the overall management of water umbel in Scotia Canyon.
- 2) The addition of Parcels 1 and Parcels 2 to Forest ownership will provide additional suitable habitat for water umbel. This will increase the probability of long term survival of the metapopulation in Scotia Canyon by providing additional areas for recolonization after disturbance events.
- 3) The loss of federal ownership of one parcel to the Ranch with occupied umbel habitat will have unknown effects on the metapopulations on the Forest. The majority of known sites are all under Federal ownership, as are the management of the headwaters for all metapopulations, on the Forest.
- 4) Lands acquired by the Ranch are most likely to be used for livestock grazing. With sustainable livestock management practices, the populations of water umbel on this parcel should persist through time. It is possible that future owners may sell the land for development. In this case, the occupied habitat would be lost.

5) There would be a gain in critical habitat under Forest management. There will be no loss of critical habitat from federal ownership.

Note that in regard to “take” of listed species in sections 7(b)(4) and 7(o)(2) of the Act, these sections generally do not apply to listed plant species, thus no incidental take statement is included here for the Huachuca water umbel. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of Federally listed endangered plants and malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law.

### **CONSERVATION RECOMMENDATIONS**

Section 2(c) and 7(a)(1) of the Act direct Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of listed species. Conservation recommendations are discretionary agency activities to minimize or avoid effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information on listed species. The recommendations provided here do not necessarily represent complete fulfillment of the agency's section 2(c) or 7(a)(1) responsibilities for the Huachuca water umbel. In furtherance of the purposes of the Act, we recommend implementing the following actions:

- 1) The Coronado should provide assistance to the Service in developing a recovery plan for the Huachuca water umbel.
- 2) The Coronado should work with the owners of the Lone Mountain Ranch to develop a conservation easement for the portions of Joaquin and Bear Canyons on their private property. This would insure the continued survival of the umbel on these tracts of land, along with preserving riparian areas for other species and conserving valuable open space.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species, the Service requests notification of implementation of any conservation actions.

### **CLOSING STATEMENT**

This concludes formal consultation on the Coronado National Forest’s proposed Lone Mountain Land Exchange, Cochise County, Arizona. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may adversely affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a manner that causes an effect to a listed species

or critical habitat that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation, if it is determined that the impact of such taking will cause an irreversible and adverse impact to the species. Any questions or comments should be directed to Mima Falk (520) 670-4550 or Sherry Barrett (520) 670-4617.

Sincerely,

/s/ David L. Harlow  
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM  
Steve Gunzel, District Ranger, Sierra Vista Ranger District, Hereford, AZ

Director, Arizona Game and Fish Department, Tucson, AZ

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## Appendix A

### CONCURRENCES

In the December 12, 2000, request for formal consultation, the Forest concluded that the proposed Lone Mountain Land Exchange is not likely to adversely affect the Mexican spotted owl, Sonora tiger salamander, Chiricahua leopard frog, and Lesser long-nosed bat. The Service concurs with these findings based on the following reasons:

#### **Mexican spotted owl (*Strix occidentalis lucida*):**

- there are seven designated spotted owl protected activity centers on the Forest within 1.6 km (1 mile) of Private Parcels 6 and 7. The vegetation within these parcels are of the type that owls would use for foraging (Madrean oak woodland, broadleaf riparian woodlands and stream bottoms, mixed conifer forest and ponderosa pine-oak forest);
- the management of the acquired lands would be consistent with the standards and guidelines of the Forest Plan, as well as direction in the Mexican Spotted Owl Recovery Plan (U.S. Fish and Wildlife Service, 1996);
- the exchange will bring these parcels under Forest ownership and allow for unified management of these ecologically sensitive areas; and
- the Forest Parcel to be acquired by the Ranch does not represent habitat for Mexican spotted owl (Tom Deecken, pers. obs.). The area is composed of ridges of plains grasslands scattered with oak and juniper; canyon bottoms have small ash and willow with deergrass along the channel.

#### **Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*):**

- the species has been historically recorded in stock ponds in Private Parcels 4,5 and 8 and immediately adjacent to Private Parcels 1 and 9;
- possible reintroduction sites are also found in Private Parcel 1, and these parcels are coming under Forest management;
- Private Parcels acquired by the Forest would be managed under the standards and guidelines of the Forest Plan. In addition, the Forest manages stock ponds under directions from two previous biological opinions issued to the Forest (1998, 1999b);

- the Forest is committed to implementing the recovery plan for Sonora tiger salamander when it is finalized, and;
- there are no records for the species on the land to be disposed of by the Forest Service.

**Lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*):**

- no known roost sites occur within the project area;
- surveys were done on all the parcels to estimate agave densities; the average estimated density on the Private Parcels is 91.4 plants/ha (37 plants/acre). The estimated density of agaves on the Forest Parcel is 74.1 plants/ha (30 plants/acre);
- the age class distribution of agaves is similar between the Private Parcels and the Forest Parcel, but browsing of agave stalks is higher on the Forest parcel (65.7%) compared with the Private Parcels (25%);
- the Forest service would be acquiring lands that have a higher overall density of agaves than the land to be acquired by the Ranch, in addition, there are three very dense stands of agaves located within Private Parcels 1, 5 and 6;and
- the effect to foraging bats of this land exchange is expected to be insignificant and discountable as the food resource will still be available and the Forest lands are to be managed to be in compliance with the terms and conditions for lesser long-nosed bat in the Coronado grazing opinion (U.S. Fish and Wildlife Service 1999b).

**Chiricahua leopard frog (*Rana chiricahuensis*):**

The Chiricahua leopard frog is currently proposed for listing as a threatened species (FR Vol. 65:115). The Forest determined that the proposed action is not likely to jeopardize the continued existence of the frog. In addition, the Forest concluded that the proposed action may affect, but is not likely to adversely affect the Chiricahua leopard frog. The Service concurs with this determination for the following reasons:

- there are records of Chiricahua leopard frogs from the action area (Private Parcels) that will come under the management of the Forest, but the frogs have not been seen recently;
- lands acquired by the Forest would be managed according to standards and guidelines of the Forest Plan;

- in addition, grazing utilization levels in riparian areas will be limited to less than 30% use of woody plants and not to exceed 45% use of herbaceous vegetation;
- livestock use of riparian areas in water umbel critical habitat are under stricter restrictions that will also benefit the frogs;
- the Forest will apply the guidelines for stock pond maintenance and fire suppression in regards to Sonora tiger salamander; these will also benefit the frog; and
- there is one historic record (1976) of Chiricahua leopard frog on the parcel to be disposed of by the Forest Service, but the frogs have not been seen recently.

# LONE MOUNTAIN LAND EXCHANGE

## Location of *Lilaeopsis* Transects Scotia Canyon

2.64 inches = 1 mile



Transect



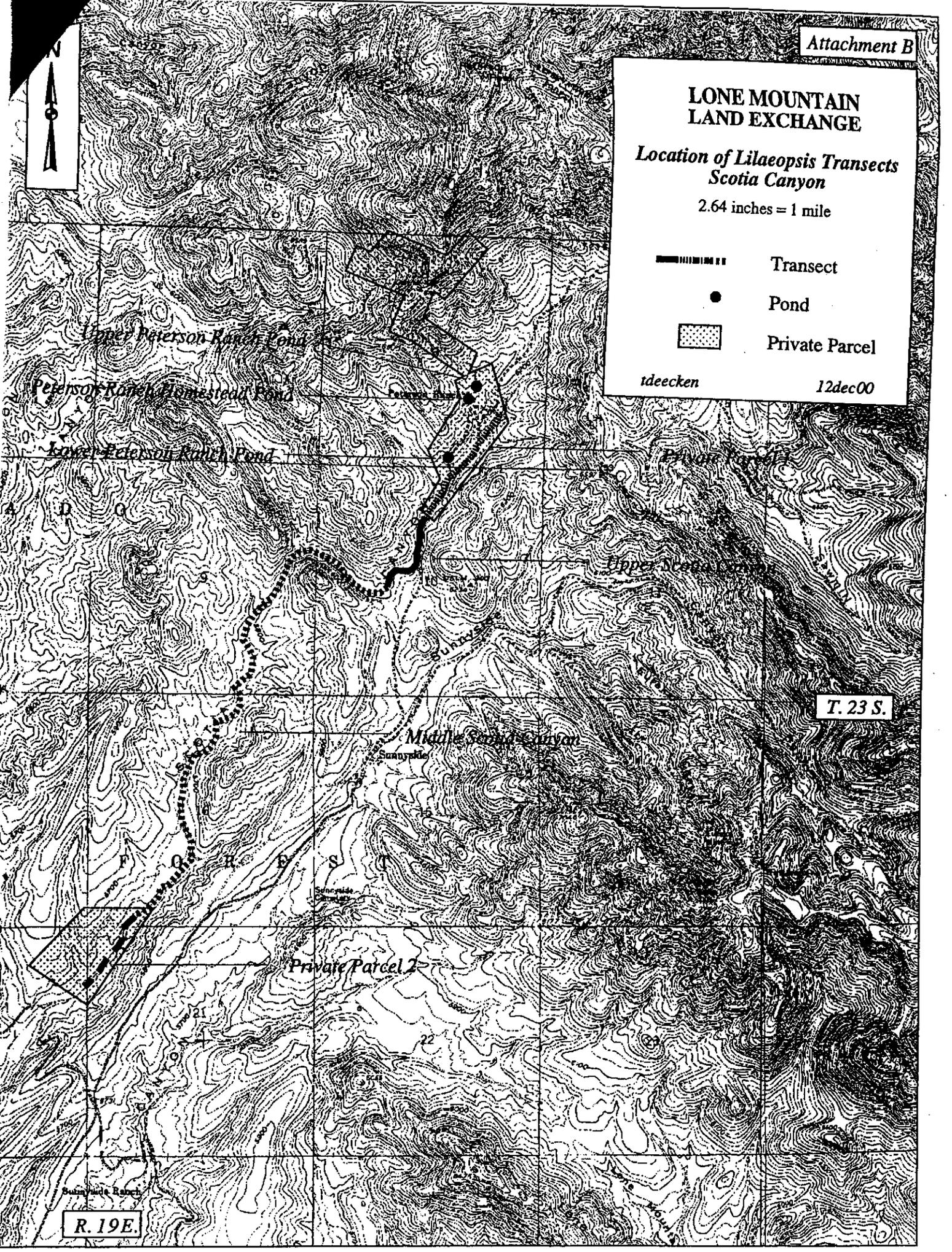
Pond



Private Parcel

rdcecken

12dec00



T. 23 S.

R. 19 E.

Figure 1.

