



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES
3616 W. Thomas, Suite 6
Phoenix, Arizona 85019

2-21-91-F-016

January 22, 1991

MEMORANDUM

TO: District Manager, Arizona Strip District, Bureau of Land Management, St. George, Utah

FROM: Field Supervisor

SUBJECT: Lease Extension for the Beaver Dam/Littlefield Landfill -
Biological Opinion

This Biological Opinion responds to your memorandum dated October 18, 1990, which requested formal consultation with the Fish and Wildlife Service (FWS) pursuant to Section 7 of the Endangered Species Act of 1973, as amended (Act). The FWS received your request on October 22, 1990. The action under consultation involves a lease extension of three years (AR-034401) for Mohave County to continue operation of a landfill for disposal of commercial and residential waste on Bureau of Land Management (BLM) lands north of Beaver Dam, Arizona and its impacts on the desert tortoise (Gopherus agassizii), a Federally listed threatened species.

This Biological Opinion was prepared using the best project description and on-site biological information available at the time of consultation, including the Section 7 Evaluation (October 18, 1990b), an on-site inspection on September 6, 1990, discussions with your staff, and information contained in our files. The Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan (Rangewide Plan) was used as guidance for determining management objectives for tortoise habitat, especially Rangewide Plan Objective 7 (BLM 1988).

BIOLOGICAL OPINION

It is my Biological Opinion that the proposed action for the three-year lease extension for the Beaver Dam/Littlefield Landfill is not likely to jeopardize the continued existence of the desert tortoise.

BACKGROUND INFORMATION

Project Description

The BLM currently leases 10.0 acres of public land (Figure 1) to Mohave County for use as a landfill by the residents of Beaver Dam and Littlefield, Arizona under the Recreation & Public Purposes Act (R&PPA). The original

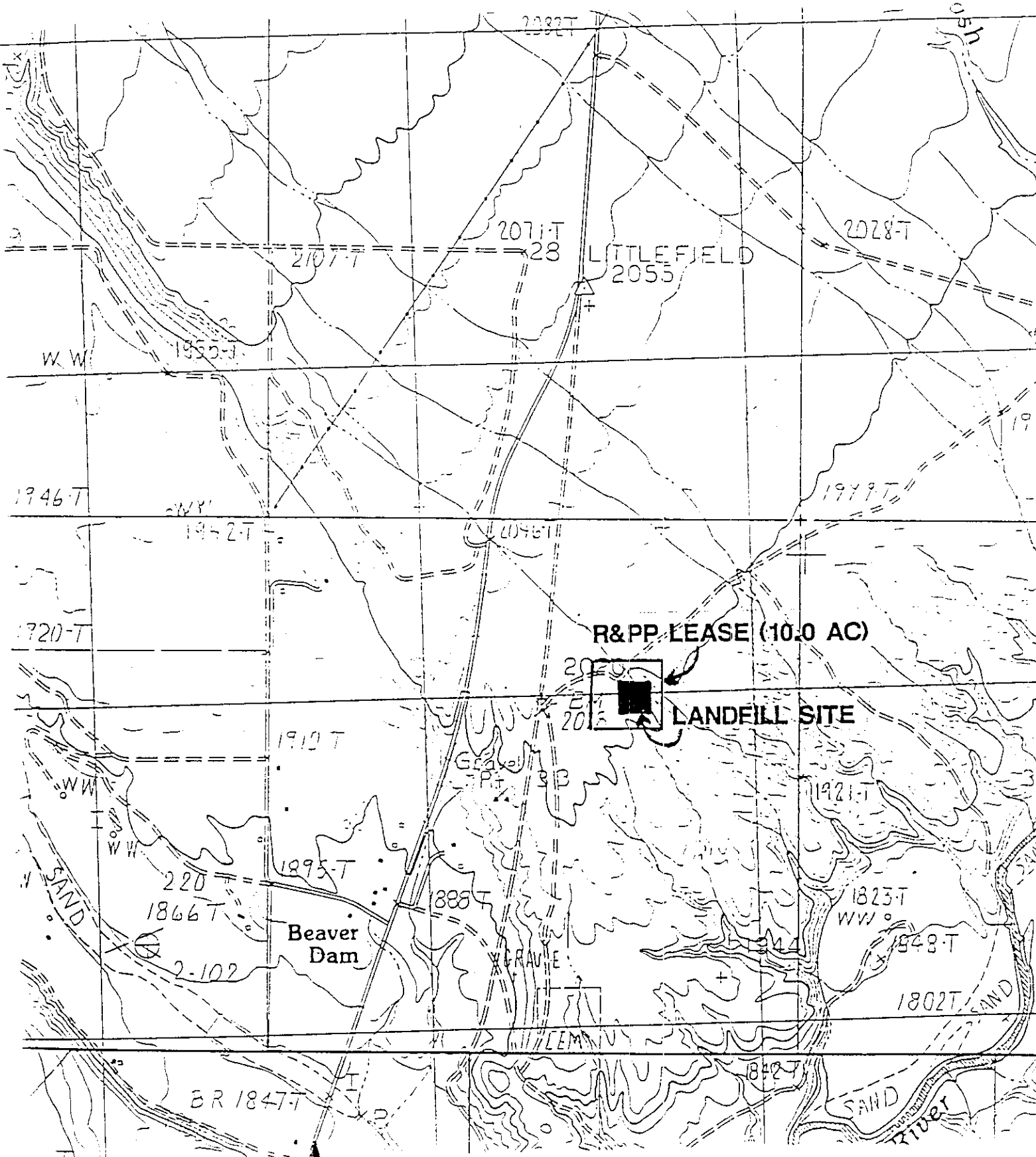


Figure 1. BEAVER DAM LANDFILL SITE
 T. 41N R. 15W SECTION 33 G&SRM

lease was for a period of 25 years beginning in 1965. The site is located in T.41 N., R. 15 W., Sec. 33, NE1/4 SW1/4 NE1/4. The landfill is currently maintained by Mohave County and is accessed by an 1100-foot graded dirt road off of Highway 91 near the Arizona Department of Transportation Maintenance Facility.

The landfill currently occupies approximately 5 acres of the 10-acre lease site (T. Duck, pers. comm.) and is partially fenced with 4-strand barbed wire. The landfill does not have an on-site operator and is open 24 hours each day, seven days each week. The operation of the landfill involves a trench or pit approximately 50 feet in length and 10 to 15 feet deep into which material such as household garbage, vegetation, appliances, tires, and other trash are deposited. The landfill has been evaluated at various times by the BLM and state agencies. These assessments did not find evidence of toxic or hazardous materials but did report concerns about the operating procedures at the landfill.

The BLM proposes to extend the lease for a period of three years to allow Mohave County to pursue other solid waste disposal alternatives and for Federal regulations under Subtitle D of the Resource Conservation and Recovery Act of 1976 (RCRA) to be published. These regulations will guide management if an alternative cannot be found and developed. Additional road development will not occur as a result of this proposed action but existing traffic will continue.

Mitigation measures proposed by BLM (October 18, 1990b) for the lease extension on the landfill are as follows:

1. A qualified biologist will be responsible for informing all landfill employees about the desert tortoise (which will include information provided by the BLM on the life history of the tortoise, its protected status, protocols for dealing with tortoises if and when they are encountered, and the definition of take). All workers will also be instructed to check under all vehicles before moving such vehicles (tortoises often take cover under vehicles).
2. The lands to be developed within the proposed action site will be fenced with a tortoise-proof fence (as specified by the Authorized Officer) which will remain in place throughout the life of the lease. The main entrance to the landfill will consist of a lockable gate. A biologist will inspect the fenceline prior to construction to ensure that tortoises are not in harm's way. Mohave County will be responsible for fence construction and maintenance. The fence will be of a design that minimizes the amount of wind-blown trash that can escape the landfill site.
3. A tortoise survey will be conducted by a qualified biologist no less than 15 days prior to any new surface disturbance between the period from March 1 through October 31 and no less than 30 days prior to any new surface disturbance activity between the period November 1 through February 28. Surveys will include 100% coverage (transects will be no greater than 10 meters wide) of proposed surface disturbance sites.

4. Desert tortoises encountered during clearances or during fence construction will be relocated by the qualified biologist a minimum of 150 yards into an off-site burrow on BLM land. If a burrow is not available, one must be constructed by the biologist.
5. Desert tortoises encountered experiencing heat stress will be placed in a tub with 1/2 inch of water in an environment with a temperature between 76°F and 95°F.
6. Desert tortoises moved by the qualified biologist in the winter (i.e. November 1 through February 28) must be placed into an adequate burrow; if one is not available, one will be constructed by hand using the following restrictions.
 - a. the burrow will be 8-10 feet long,
 - b. the burrow will be 2.5 feet deep,
 - c. PVC pipe, of a width approximately equal to the width of the desert tortoise, will be used for the burrow, and
 - d. the temporary burrow should be covered over with the excavated material so that at least 2.5 feet of the back end of the burrow is covered.
7. All trash will be covered each evening the landfill is open to minimize use by tortoise predators such as ravens. The entrance gate will be locked each evening after the trash has been covered.

Species Description:

The Beaver Dam Slope population of the desert tortoise, located in southwestern Washington County, Utah, was Federally listed as a threatened species with 39 square miles of critical habitat on August 20, 1980. Subsequently, the Mojave population of the desert tortoise was listed by emergency rule as endangered on August 4, 1989, and by final rule as threatened on April 2, 1990. The Mojave population includes all desert tortoises north and west of the Colorado River in California, southern Nevada, northwestern Arizona, and southwestern Utah, including the Beaver Dam Slope.

The burrowing habits of tortoises, which vary greatly with their geographic locality (Burge 1978, Luckenbach 1982), represent unique adaptations to the extreme environs they occupy. Burrows function primarily as thermo-regulatory aids and may also serve to aid in water conservation and protection from predators. Shelter sites may be located under bushes, in the banks or beds of washes, in rock outcrops, or in caliche caves.

Desert tortoise growth averages 9 millimeters (mm) per year, with the greatest amount of growth following winters of high precipitation and the resultant increase in production of winter annuals in the spring (Medica et al. 1975). Turner et al. (1987) estimated that sexual maturity is attained at an age of 17-20 years. Egg laying occurs from May through July. Nests are dug in sandy soil and usually resemble undisturbed ground. Females often

urinate on the nest before and after filling it (Patterson 1971). Clutch size varies from 2 to 14 eggs (5 to 6 being the mean), with larger females generally having larger clutches (Grant 1936, Ernst and Barbour 1972). Forage must be sufficient to allow females to accumulate energy reserves for egg production (Turner et al. 1986). Tortoises are able to increase egg production in good rainfall years by increasing the number of clutches (Turner et al. 1984). The quality and quantity of food available is also important in clutch success (Mayhew 1968).

Incubation apparently varies from 90 to 120 days in the wild, with hatching occurring from August to October. Observations by Luckenbach (1982) indicate that hatchlings spend little time on the surface, as they either dig or find an existing burrow and begin dormancy shortly after hatching, ignoring food and water. In some cases, eggs do not hatch in autumn but remain over the winter, with hatchlings emerging in the spring.

Peak tortoise activity usually coincides with the abbreviated period of annual bloom in the spring. Luckenbach (1982) considers this spring bloom to be critically important to tortoise survival and reproduction. Tortoises prefer some plants over others and will go out of their way to consume them even when the plant is in low abundance. It is important that tortoises vary their diet because few forage species supply a good balance of nutrients (Urness and McCulloch 1973).

Average home ranges of tortoises can vary from 11 to 53 hectares (ha), (Berry 1986). Berry also reported extreme long distance movements of 7.2 kilometers (km) over a 15-month period. Additional information on the biology of the desert tortoise can be found in Berry (1984) and Woodbury and Hardy (1948).

Studies in nearby section 27 have indicated that the highest densities of desert tortoise on the Arizona Strip occur there (Hohman and Ohmart 1980, Duck and Snider 1988). The landfill site is on the edge of category 1 desert tortoise habitat (USDI, BLM 1990a, Draft). Although this Category 1 habitat area has been previously affected by other human activities including off-road vehicle use, mineral exploration and development, grazing, trash dumping, and urban and agricultural development, it is proposed to be managed as an Area of Critical Environmental Concern (ACEC) in the Draft Arizona Strip District Resource Management Plan. The focus of the ACEC is the desert tortoise.

The landfill site, designated as Category 3 habitat, has received substantial use and has been adversely affected by past activities. Casual observations of tortoises have been made at the landfill site by local residents but no tortoise is currently residing there (USDI, BLM memorandum, October 18, 1990b).

The soils on the site are composed of gravelly, fine, sandy loams with 2 to 6 percent slopes on a south aspect. The site is crossed by several steep-sloped washes which remain dry except under heavy rain. The primary vegetation consists of creosotebush (Larrea tridentata), white bursage (Ambrosia dumosa), big galleta (Hilaria rigida), Indian ricegrass (Oryzopsis hymenoides), range ratany (Krameria parvifolia), and bladdersage (Salazaria mexicana). The area shows signs of extensive human disturbance as indicated by dirt roads, vehicle tracks, and trash.

EFFECTS OF THE ACTION

Approximately 5 acres of the 10-acre landfill site have been altered such that their value as tortoise habitat has been lost (USDI, BLM memorandum, October 18, 1990b). The potential exists for individual tortoises to be killed or injured by vehicles and heavy equipment travelling to and from the landfill site on the access road or at the site.

The access road also provides improved access to the Category 1 desert tortoise habitat to the north. Vehicles leaving the roadway could damage tortoise habitat through crushing of vegetation, soil compaction, disturbance of the soil's crust and reductions in structural variability in desert vegetation (Bury 1980). Additional indirect impacts may occur from noise produced by vehicles (Bury et al. 1977).

Trash from the site that is blown from the landfill site onto the adjacent BLM lands leads to general habitat deterioration. Brightly colored plastic trash which is blown into adjacent tortoise habitat could be ingested by tortoises, leading to injury or death. Toxic or hazardous materials could be illegally dumped at the landfill with deleterious impacts on nearby tortoise populations. Smoke from burning trash is blown into tortoise habitat and could adversely affect tortoises.

Tortoise predators such as common ravens (Corvus corax), coyotes (Canis latrans), and kit foxes (Vulpes macrotis) may use landfills as sources of food. Ravens especially are attracted to trash generated by human activity (USDI, BLM 1990). On January 15, 1991, 121 ravens were observed at the Beaver Dam/Littlefield Landfill (T. Duck, pers. comm.). The food source available at the landfill may increase predator levels to above-normal population levels leading to increased mortality of tortoises, particularly hatchling and small tortoises.

Tortoises may be trapped in open pits or trenches or covered by trash or fill dirt and killed. At times the landfill is set on fire and this could result in death of tortoises in the trench or pit. Individual tortoises may also be collected illegally by users of the landfill, either at the landfill site or along the road.

The FWS does not believe the impacts described above are sufficient to jeopardize the continued existence of the species. We present this conclusion for the following reasons:

1. The BLM will require Mohave County to fence the currently disturbed portion of the lease site (5 acres) to exclude tortoises from entering the landfill site, prevent vehicles from accessing the adjacent desert, and reduce the amount of trash blown into tortoise habitat.
2. The BLM will require Mohave County to fence the access road to prevent tortoises from crossing the road and to prevent vehicles from accessing the adjacent desert.
3. The landfill site exists on previously disturbed habitat.

Cumulative Effects

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities 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 the land north and east of the landfill is Federal land managed by the BLM. Any future activities on these lands will be subject to Section 7 consultation. Certain actions on public lands, such as unauthorized livestock use, off-road vehicle use, and dumping are difficult to control and may contribute to continued habitat loss and degradation. Ongoing actions on private lands, such as mining, oil and gas leases, sand and gravel operations, grazing, off-road vehicle use, and urbanization may also contribute to continued habitat loss and degradation.

Lands to the south and west of the landfill are in private ownership and some have been developed. Due to the land ownership pattern and the history of the area, there is an increased likelihood that there will be urbanization of the general area in the future. The urban development will include single family dwellings, mobile home trailer parks, public service and recreational facilities, roads, schools, and stores. This urbanization will have indirect effects on tortoise habitat quality and quantity, and increase the potential for incidental take and habitat fragmentation, especially incidental take due to vehicular traffic. Another adverse effect caused by urbanization is the increased harassment and mortality to desert tortoises by domestic dogs (Canis familiaris).

INCIDENTAL TAKE

Section 9 of the Endangered Species Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species 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. Under the terms of Section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered taking within the bounds of the Act, provided that such taking is in compliance with this incidental take statement. The measures described below are nondiscretionary and must be undertaken by the agency or made a binding condition of any grant or permit issued to the applicant, as appropriate.

Based on the analysis of impacts provided above, the FWS anticipates that the following take could occur as a result of the activities associated with construction of the proposed county road:

1. One tortoise may be taken during construction of the fence in the form of harassment through removal of the tortoise from harm's way.

2. A total of 5 acres of disturbed tortoise habitat may be taken for continued operation of the landfill over the next three years.

No take should occur in conjunction with operation and maintenance of the landfill if the proper mitigation measures (i.e. the tortoise-proof fence) are implemented and properly maintained.

The FWS is assuming that the stipulations contained in this Opinion, as Reasonable and Prudent Measures and Terms and Conditions to reduce take, will reduce the potential for take of both individual tortoises and tortoise habitat as a result of the proposed action. These stipulations include measures developed by the BLM, where terms and conditions are not more restrictive. This Opinion does not authorize take in the form of the collection of tortoises for pets. Any person found engaging in such an activity will be liable for prosecution.

Reasonable and Prudent Measures

The FWS believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize the incidental taking authorized by this Biological Opinion:

1. Habitat loss, degradation, and fragmentation shall be minimized and compensated.
2. Desert tortoise mortality due to operation of the landfill shall be minimized.
4. Potential for violations of Terms and Conditions shall be minimized.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Act, the BLM and the project proponent, Mohave County, are responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. Several of the Terms and Conditions were included in the BLM's Section 7 Evaluation (October 18, 1990b) for this project and are reiterated here for clarity. These Terms and Conditions are as follows:

- 1a. The BLM shall require Mohave County to construct a chainlink fence around the perimeter of the 5 acres currently disturbed for the landfill (Figure 2). The fence shall be designed to exclude tortoises from entering the landfill site, prevent vehicles from accessing the adjacent desert, and minimize trash blown into the desert. The main entrance to the landfill shall consist of a lockable gate.
- 2a. A tortoise survey shall be conducted by a qualified biologist no less than 15 days prior to the surface disturbance activity between the period from March 1 through October 31 and no less than 30 days prior to surface disturbance activity between the period November 1 through February 28. Surveys will include 100 percent coverage (transects will be no greater than 10 meters wide) of the proposed surface disturbance

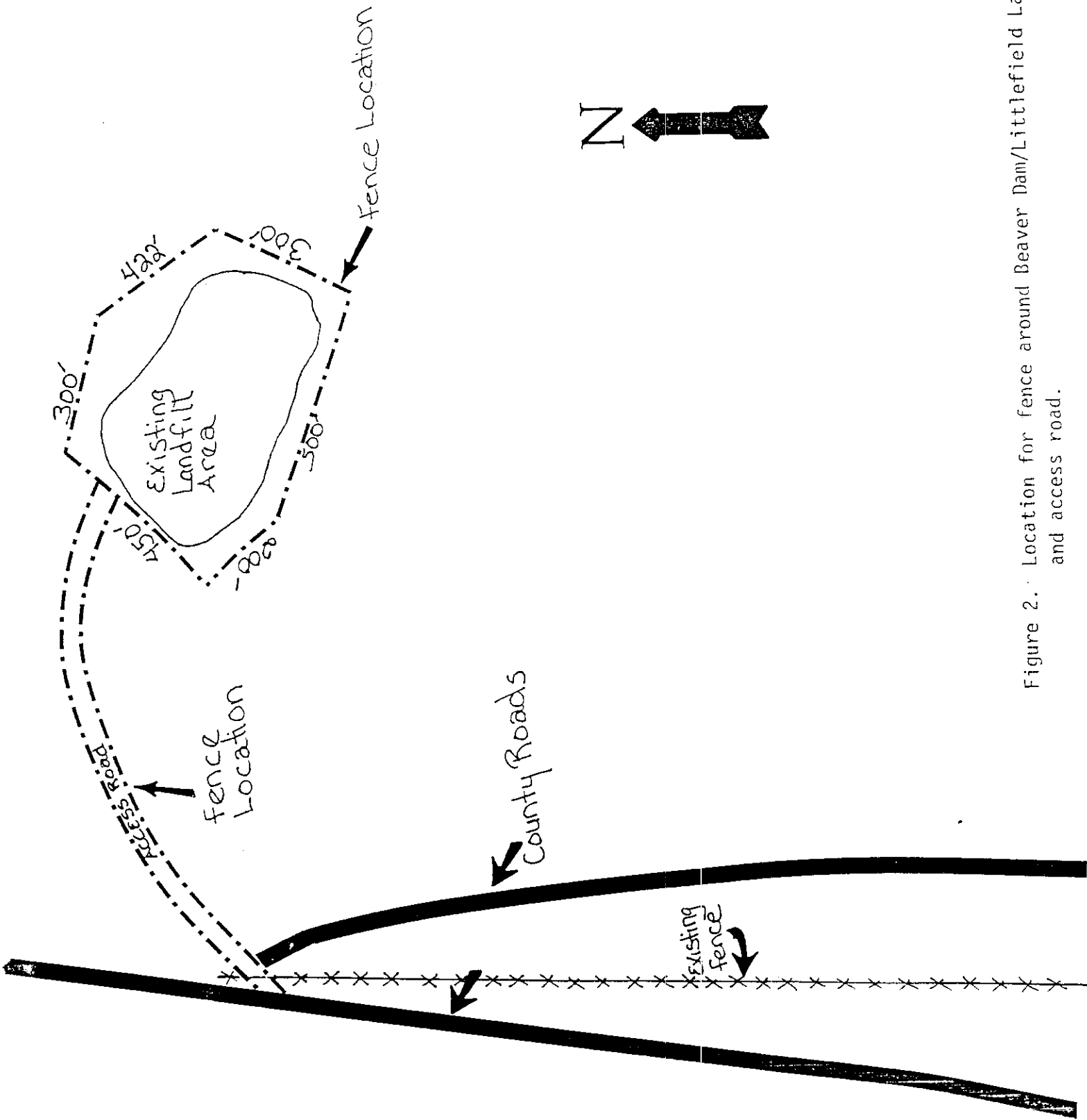


Figure 2. Location for fence around Beaver Dam/Littlefield Landfill and access road.

sites. Sheltersites which cannot be avoided shall be excavated by hand during this time period. All excavation of desert tortoise burrows shall be in accordance with the desert tortoise handling procedures (Appendix 1). Measures shall be taken to prevent tortoises from re-occupying the burrow sites. Burrows shall be excavated and tortoises handled only by authorized biologists.

- 2b. All tortoises which are found on the project site, whether above ground or in excavated burrows, shall be placed at a minimum of 150 yards to the north of the right-of-way. Tortoises shall be placed in a burrow on BLM land. If a burrow is not available, one must be constructed by the biologist. Disposable latex gloves shall be used to handle all tortoises. Cardboard boxes used to transport and hold tortoises shall be purchased new, used once, and discarded. All materials which come into contact with tortoises shall be used only once and then properly discarded to minimize contact with the causative factor(s) for Upper Respiratory Disease Syndrome. Tortoises shall be kept upright at all times and handled in a secure but gentle manner to minimize stress, including possible voiding of the bladder.
- 2c. Tortoises shall be purposefully moved only by authorized personnel, solely for the purpose of moving tortoises out of harm's way. If a tortoise is endangered by any form of construction activity, that activity shall cease until a biologist, as described above, is able to move the tortoise to safety.
- 2d. A permanent tortoise-proof fence shall be constructed along both sides of the access road from the landfill site to the road junction (0.15 mile). The fence shall be secured to a right-of-way fence or shall be constructed in a manner that would function as a "drift fence" to direct tortoises away from the road or through a culvert under the road (Figure 2). The fence shall be designed to prevent tortoises from entering the right-of-way and to prevent vehicles from accessing the undisturbed desert. The tortoise-proof fence shall be constructed within three months following the issuance of this Opinion.
- 2e. A qualified tortoise biologist shall be on-site during construction of the tortoise-proof fence to ensure that construction activities do not harm tortoises. Any tortoises in the path of construction shall be moved in the manner described in Appendix 1.
- 2f. The tortoise-proof fence shall be monitored regularly, including at least twice yearly, and maintained for the life of the project. Monitoring and maintenance shall include, but not be limited to, regular observations to determine whether trash, sediment accumulation, or erosion is compromising the fence's function. Any indications of fence failure shall be reported to the FWS within 30 days of its finding. The tortoise-proof fence shall also be monitored to determine its effectiveness in excluding tortoises from entering the access road and landfill site.

- 2g. All trash within the landfill shall be covered each evening the landfill is open to minimize use by tortoise predators such as the common raven. The entrance gate shall be locked each evening after the trash has been covered.
- 3a. Mohave County shall designate an individual as a contact representative who will be responsible for overseeing compliance with protective stipulations for the desert tortoise and coordination with the BLM.
- 3b. All landfill employees shall be informed of the status of the desert tortoise, its life history, protocols for dealing with tortoises if and when they are encountered, and the definition of take. They shall also be advised as to the potential impacts to tortoises and potential penalties (up to \$25,000 in fines per violation and one year in prison) for taking a threatened species.
- 3c. The landfill shall have an on-site operator at all times during operation to ensure proper use of the area and that no hazardous or toxic materials are deposited in the landfill.

Reporting Requirements

Upon locating dead, injured, or sick desert tortoises, initial notification must be made to the FWS' Division of Law Enforcement, Federal Building, Room 8, 26 North McDonald, Mesa, Arizona, (Telephone: 602/261-6443). Instructions for proper handling and disposition of such specimens will be issued by the Division of Law Enforcement. Care must be taken in handling sick or injured animals to ensure proper treatment and care, and in handling dead specimens to preserve biological material in the best possible state. All tortoise remains shall be frozen immediately and provided to one of the following institutions holding appropriate Federal and State permits per their instructions:

Museum of Vertebrate Zoology, University of California, Berkeley, California
 Los Angeles County Museum of Natural History, Los Angeles, California
 San Bernardino County Museum, San Bernardino, California
 University of Nevada, Department of Biology, Las Vegas, Nevada
 University of New Mexico, Albuquerque, New Mexico.

Arrangements shall be made with the institution by the BLM prior to construction regarding proper disposition of potential museum specimens. Should none of the above institutions want the tortoise specimens, the remains may be disposed of in any appropriate manner. In conjunction with the care of sick or injured tortoises, or the preservation of biological materials from a dead tortoise, the BLM has the responsibility to ensure that photographs and information relative to the date, time, and location of the tortoise when found, and possible cause of injury or death of each tortoise be recorded and provided to the FWS. Should injured animals be treated by a veterinarian and survive, the FWS should be contacted regarding final disposition of these tortoises.

The BLM will notify the FWS of all tortoises killed, injured, or removed from within the project area within three days of the completion of the construction. The BLM shall submit to the FWS a report on all tortoise-

related activities undertaken due to the fence construction, including tortoise biologist activities and number of tortoises killed or injured, within 30 days after completion of construction.

If, during the course of the action, the amount or extent of the incidental take limit is reached, the BLM must immediately reinstate consultation with the FWS to avoid violation of Section 9 of the Act. Operations must be stopped in the interim period between the initiation and completion of the new consultation if the FWS determines that the impact of additional taking will cause an irreversible and adverse impact on the species, as required by CFR 402.14(i). The BLM should provide an explanation of the causes of the taking.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by implementing conservation programs for the benefit of endangered and threatened species. Conservation recommendations have been defined as FWS suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, or regarding development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's Section 7(a)(1) responsibility for these species.

1. The BLM should monitor levels of predators associated with the landfill and assess impacts that such predators have on desert tortoise populations in the area.
2. The BLM should consider changing the existing landfill to a transfer station to reduce impacts associated with landfills on public lands.
3. Because a significant percentage of the habitat occupied by the desert tortoise occurs on BLM lands, the BLM should prepare a cumulative effects analysis of its actions on the desert tortoise throughout its range. This program could include development of a model to assess the effects of past, ongoing, and future projects on the tortoise and its habitat through the use of the Geographical Information System (GIS).

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

CONCLUSION

This concludes formal consultation on the Beaver Dam/Littlefield Landfill lease extension. As required by 50 CFR 402.16, reinstatement of formal consultation is required if: 1) the amount or extent of incidental take is reached, 2) new information reveals effects of the agency action that may

impact 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, and 4) a new species is listed or critical habitat designated that may be affected by the action.

The FWS appreciates the assistance and cooperation of your staff throughout this consultation process. If we may be of further assistance, please contact Sherry Barrett or me (Telephone: 602/379-4720 or FTS 261-4720).



Sam F. Spiller

Attachment

cc: Field Supervisor, Fish and Wildlife Service, Reno, Nevada
Field Supervisor, Fish and Wildlife Service, Salt Lake City, Utah
Field Supervisor, Fish and Wildlife Service, Ventura, California
Office Supervisor, Fish and Wildlife Service, Laguna Niguel, California
State Director, Bureau of Land Management, Phoenix, Arizona
Director, Arizona Game and Fish Department, Phoenix, Arizona
Regional Director, Fish and Wildlife Service, Albuquerque, New Mexico
(FWE/HC)
Director, Fish and Wildlife Service, Washington, DC (EHC)

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