



UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
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Phoenix, Arizona 85019

2-21-91-F-135

May 6, 1991

MEMORANDUM

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

FROM: Acting Field Supervisor

SUBJECT: Biological Opinion, Amendment to a Right-of-Way (A-24943) for the Arizona Department of Transportation near Beaver Dam

This responds to your request of January 29, 1991, for formal consultation pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended, on a proposed amendment (A-24943) of 10.8 acres to a right-of-way (A-8830) for an Arizona Department of Transportation (ADOT) highway maintenance facility near Beaver Dam, Mohave County, Arizona. The species of concern is the threatened desert tortoise (Gopherus agassizii). The 90-day consultation period began on February 1, 1991, the date your request was received in our office.

The following biological opinion is based on information provided in the January 29, 1991, biological evaluation, data in our files, and other sources of information.

BIOLOGICAL OPINION

It is my biological opinion that issuance of the proposed right-of-way and expansion of the ADOT highway maintenance facility is not likely to jeopardize the continued existence of the threatened desert tortoise and is not likely to destroy or adversely modify its critical habitat.

BACKGROUND INFORMATION

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 and all desert tortoises in southern Nevada, northwestern Arizona, and southwestern Utah, including the Beaver Dam slope.

Desert tortoises potentially occur in the United States throughout much of the Mojave and Sonoran deserts of California, Nevada, Arizona, and southwestern Utah, and in Mexico from Sonora to northern Sinaloa.

The desert tortoise is a large, herbivorous reptile. It is generally active during spring, early summer, and autumn when annual plants are the most common. Desert tortoises usually spend the remainder of the year in burrows or dens to escape the extreme weather conditions of the desert. Burrowing habits of desert tortoises vary greatly in different geographic locations. Burrows may be located under bushes, in the banks or beds of washes, in rock outcrops, or in caliche caves. Further information on the range, biology, and ecology of the desert tortoise can be found in Berry, ed. (1984), Burge (1978), Burge and Bradley (1976), Hovik and Hardenbrook (1989), Karl (1983), Luckenbach (1982), and Weinstein et al. (1987).

Project Description

The proposed project is the issuance of a right-of-way by the Bureau of Land Management (BLM) to ADOT for the expansion of a highway maintenance facility. The existing facility is located east of and adjacent to U.S. Highway 91 on 80 acres. The additional right-of-way would add 10.8 acres to be used for storage space for highway maintenance materials and to allow space for future growth. Site preparation would include clearing, leveling, grading, and fencing, using heavy equipment. Construction would begin in spring 1991.

No mitigation measures for potential project effects have been incorporated into the proposal.

Site Description

The proposed site is composed of gravelly sandy loams on a 4 to 10 percent slope with a southern aspect. The primary vegetation consists of creosotebush (Larrea tridentata), white bursage (Ambrosia dumosa), big galleta (Hilaria rigida), Indian rice grass (Oryzopsis hymenoides), and various cacti.

Due to its proximity to the highway and human habitation, the site has extensive human disturbance such as vehicle tracks, material piles, grading, and scattered trash.

The site was surveyed for tortoise sign by BLM on December 11, 1990. The survey coverage included 100 percent of the site, plus 100 yards of perimeter strip. No tortoises or sign were found on or near the proposed project site.

EFFECTS OF THE ACTION

Direct and Indirect Effects of the Proposed Action

The proposed project is not expected to have any major impacts to the desert tortoise. No tortoises are known to use the site. The site is already relatively disturbed and its location near a well used highway, human residences, and an existing highway maintenance facility, result in a low suitability for desert tortoises. The area is designated as a Category 3 desert tortoise habitat in the draft Arizona Strip Resource Management Plan (BLM 1990). Because of the small nature of the site and its location near an existing barrier to tortoise movement, the proposed project is not expected to result in fragmentation or isolation of desert tortoise habitat or to create any additional movement barriers.

However, a possibility does exist for individual desert tortoises to be present on the site while moving to and from more suitable habitat. Category 1 desert tortoise habitat is located within one mile to the north and east. Tortoise densities in that habitat are estimated at 50 per square mile (Hohman and Ohmart 1980, Duck and Snider 1988). Incidental take of transitory desert tortoise individuals could occur during construction and operation of the facility, primarily by crushing under heavy equipment.

No indirect impacts are expected from the proposed action. The presence of the maintenance facility will not promote additional population in the area or increased human uses of the area surrounding the site.

Cumulative Effects of the Proposed Action

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered or 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 and, therefore, are not considered cumulative in the proposed action.

The area surrounding the towns of Beaver Dam and Littlefield is growing in population. Construction of residences and tourist facilities is expected to continue to destroy desert tortoise habitat. Other impacts of that growth include increasing off-road vehicle use, shooting and other vandalism of tortoises, collecting of tortoises, and various other adverse activities.

A 210-acre parcel of BLM land immediately to the south of the ADOT facility is proposed for disposal to Mohave County to be developed for public community purposes. This proposed action would be subject to future Section 7 consultation.

INCIDENTAL TAKE

Section 9 of the Act, as amended, prohibits any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any 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. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action, is not considered a prohibited taking provided that such taking is in compliance with the 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.

The Fish and Wildlife Service (FWS) anticipates that the proposed project will result in incidental take of desert tortoise as follows:

1. Direct mortality of one desert tortoise during construction as a result of wandering onto the site from adjacent areas.
3. Permanent loss of 10.8 acres of low quality desert tortoise habitat.
4. Harrassment of four desert tortoises through removal from the site.

Reasonable and Prudent Measures

The FWS believes the following reasonable and prudent measures are necessary and appropriate to minimize the incidental taking authorized by this biological opinion:

1. Measures shall be taken to minimize harm to tortoises by any project-related activity.
2. Offsite measures shall be implemented to minimize tortoise habitat disturbance.

Terms and Conditions for Implementation

In order to be exempt from the prohibitions of Section 9 of the Act, BLM is responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above.

1. To implement reasonable and prudent measure number 1, the following terms and conditions shall be implemented:
 - a. ADOT, through BLM, shall designate an individual as contact representative who will be responsible for overseeing compliance with the protective stipulations for the desert tortoise and providing coordination with the BLM and the FWS.
 - b. A qualified desert tortoise biologist will be on-site during all construction activities to ensure that desert tortoises are not inadvertently harmed.

- c. The entire 90.8-acre (existing 80 plus additional 10.8 acres) site shall be fenced with a tortoise-proof fence prior to construction activities and clearances. This fence will remain in place through the life of the facility. A tortoise biologist will inspect the fence line prior to construction to ensure that tortoises are not in harm's way.

As an alternative to fencing the ADOT facility, a tortoise-proof fence may be placed in a location mutually agreed upon by the BLM, FWS, and ADOT. Such a fence must prevent desert tortoises from accessing the ADOT maintenance facility.

- d. Following construction of tortoise-proof fence, the site will be searched by the qualified biologist and all tortoises found within the fencing will be removed, using procedures in Appendix A. The search will include three examinations of the site. If no tortoises are found on the second pass, then the search may be terminated.
- e. The tortoise-proof fence shall be monitored at least quarterly, particularly following precipitation, and maintained throughout the life of the maintenance facility. Monitoring and maintenance shall include regular removal of trash and sediment accumulation and restoration of zero clearance between the ground and the bottom of the fence.
- f. All foremen, construction workers, and other employees involved in the construction or use of this maintenance facility will be informed about the desert tortoise. Information will be provided by BLM on the life history of the desert tortoise, its protected status, protocols for dealing with tortoises when and if they are encountered, the definition of take, and the potential penalties for taking a threatened species. They shall also be informed of the terms and conditions included in this biological opinion. The contents of the education program shall be submitted to the FWS for review and approval prior to its implementation. The information shall also be presented to all supervisory personnel involved with the project. All such persons shall sign a statement indicating that they have completed the education program and understand fully its provisions and the terms and conditions included in this biological opinion.

- g. During construction, garbage and food will be removed daily from the site and will not be dumped on adjacent lands but will be disposed of in authorized garbage dumps or sanitary landfills. During the life of the operation of the facility, trash and garbage will be kept in closed containers to prevent use by tortoise predators.
2. To implement reasonable and prudent measure number 2, the following terms and conditions shall be implemented:
- a. All habitat disturbance shall be restricted to within the fenced boundaries. All vehicle traffic shall be restricted to existing access routes or within the fenced boundary.

Reporting Requirements

Upon locating a 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 specimens to ensure effective 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.

Prior to construction, BLM shall make arrangements with the institution 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 desert tortoises or preservation of biological materials from a dead tortoise, BLM has the responsibility to ensure that evidence relative to the date, time, and location of the tortoise when found, and possible cause of injury or death 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 each occurrence. Within 30 days of completion of the project, BLM shall provide the FWS with a report detailing all tortoise related activities undertaken in association with this project, including tortoise biologist activities, actual number of tortoises injured, killed, or moved, and the effectiveness of the terms and conditions provided in this opinion.

If, during the course of the action, the amount or extent of the incidental take limit is reached, BLM must reinitiate consultation with the FWS immediately to avoid violation of Section 9. Operations must be stopped in the interim period between the initiation and completion of the new consultation, if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 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 carrying out conservation programs for the benefit of endangered and threatened species. The term conservation recommendations has 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 the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibility for these species.

1. Because a significant percentage of the habitat occupied by the desert tortoise is on public lands, the BLM should prepare a cumulative effects analysis of its actions of 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).

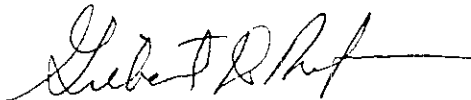
In order for the FWS to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

CONCLUSION

This concludes formal consultation on the proposed ADOT highway maintenance facility right-of-way expansion as outlined in your January 29, 1991 request. As required by 50 CFR 402.16, reinitiation 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 the listed species or critical habitat that was not considered in this opinion; or (3) a new species is listed or critical habitat designated that may be affected by the action.

If we can be of further assistance, please contact Sally Stefferud or Sam F. Spiller, Field Supervisor (Telephone: 602/379-4720 or FTS 261-4720).

Sincerely,



Gilbert D. Metz
Acting Field Supervisor

cc: Director, Arizona Game and Fish Department
Regional Director, Fish and Wildlife Service, Albuquerque, New Mexico
(FWE/HC)
Director, Fish and Wildlife Service, Washington, D.C. (HC)
Field Supervisor, Fish and Wildlife Service, Reno, Nevada
Field Supervisor, Fish and Wildlife Service, Salt Lake City, Utah
Office Supervisor, Fish and Wildlife Service, Ventura, California
Field Supervisor, Fish and Wildlife Service, Laguna Niguel, California

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Appendix A

Desert Tortoise Handling and Overwintering Procedures

(Note: Much of the information contained herein was obtained from Chapter III, Protocols for Handling Live Tortoises, in the Interim Techniques Handbook for Collecting and Analyzing Data on Desert Tortoise Populations and Habitats. This handbook is a cooperative effort among federal and state agencies. Primary editor is Dr. Cecil Schwalbe of the University of Arizona, Tucson, Arizona. The information on handling tortoise eggs was developed by the Reno Field Station in consultation with Dr. Schwalbe, Betty Burge of Las Vegas, Nevada, and the Service's Ventura Field Office.)

1. All desert tortoises shall be handled in a careful manner. This includes lifting the animal slowly, fully supporting the animal in an upright position, and completing various measurements in the minimum amount of time. A tortoise can be damaged or die of intestinal torsion. If a tortoise must be turned over on its back, this should be done gently. The fieldworker should turn the tortoise over by carefully rolling it over on its side to its back, and return the tortoise to the upright position by rolling it back in the same direction. The tortoise should not be rolled end over end, side over side, or spun.

Tortoises, especially females, may be fatally damaged by blows, butting, or overturning, which results in egg yolk peritonitis brought on by seepage of egg yolk or breakage of shelled eggs into the peritoneal cavity. Handling of potentially gravid females should be done very carefully.

To prevent hyperthermia, on warm days a tortoise must be kept in the shade (of the fieldworker, a pack, other equipment, etc.) except during photography. Tortoises should not be weighed, measured, etc. when air temperatures exceed 90°F (32°C) at 1.5 m (4.9 ft) above ground. CAUTION! TEMPERATURES ARE MUCH HIGHER NEARER THE GROUND. Take extreme caution to avoid overheating a tortoise whenever surface temperatures exceed 86°F (30°C). Shield the bulb of the thermometer from direct solar radiation and wind when measuring temperatures.

2. Because of the threat of Upper Respiratory Disease Syndrome (URDS), all tortoises shall be handled so as to minimize the chances of spreading the disease, even if URDS has not been documented in a given locality. All personnel handling tortoises shall wear disposable latex or plastic gloves to prevent transmission of diseases among tortoises. Not more than one tortoise shall be handled with each pair of gloves.

All equipment that comes in contact with any tortoise shall be sterilized before it is used on another tortoise. For example, triangular files for notching, calipers for measuring shell length, rules, and other equipment should be sterilized by soaking in 95% isopropyl or ethyl alcohol for at least 20 minutes before using on another tortoise. A 25% solution of

chlorine bleach may also be used, but bleach is extremely corrosive and may damage many types of equipment. Wooden rules should not be used; they are difficult to sterilize because of the porosity of the wood. Use metal or plastic rules instead.

To avoid sterilizing spring scales or weighing straps prior to weighing each tortoise, use individual "T-shirt" bags, the plastic bags with two handles that are used to bag groceries. The handles of the bag can be used to suspend the tortoise during weighing.

The fieldworker's clothes should be changed completely, including shoes, before visiting other tortoise sites. Always visit the site with known occurrence of URDS last to minimize the chance of spreading the disease. Vehicles, especially tires and undercarriage, should be washed between sites in areas where URDS is known or suspected to occur.

When transported by vehicle or confined, each tortoise should be contained in a newly-purchased, clean cardboard box of an appropriate size. Boxes should be discarded after use. Tortoises should never be placed in automobile trunks or on floorboards in an unconfined manner. Tortoises should never be placed in the bed of a truck over the catalytic converter as this area of the metal bed may become extremely hot. Tortoises must not be left unattended in vehicles; this measure is intended to eliminate accidental mortality caused by overheating. Truck beds and floorboards must be padded and travel should be at speeds which eliminate unnecessary vibrations.

3. All tortoises removed from the project area and released into the wild as a result of mitigation measures for this project should be individually marked, per BLM standards. Notching and tagging are the current preferred methods for long-term marking and are supplemented with photographs and drawings. All four methods should be used to insure that over time the tortoise can be properly identified in future years.

Notching: "V" shaped notches are placed in the marginal scutes using a triangular file or, in the case of young tortoises, a nail clipper. We recommend that you do not notch the bridge marginal scutes, that is, those marginal scutes that connect the carapace to the plastron (M4 through M7) because of the difficulty in identifying the shallow notches in later years. Care should be taken to avoid deep cuts that could cause bleeding. Generally, bleeding does not occur unless notches pass through the bony tissue. If notches are too deep and bone is damaged, regeneration of the tissue may occur and the area notches will be sloughed. For example, several tortoises notched in 1980 and recaptured in 1987 have barely recognizable notches. For information on how to properly notch a desert tortoise, please refer to Chapter III, Protocols for Handling Live Tortoises from the Interim Techniques Handbook for Collecting and Analyzing Data on Desert Tortoise Populations and Habitats.

Tagging: Tagging was originally used in 1977 and appears to be as effective or better than notching for a long-term marking technique. Place a small dot of white paint on the fourth left costal scute; wait for the paint to dry. Write the identifying number for that tortoise on the dry dot using permanent black ink. Wait for the ink to dry and cover the dot and the ink with quick-drying clear epoxy. Note that the epoxy should not touch the suture lines between the scutes. We also recommend that the numbers not be placed in the middle of the scute as this area may be sloughed or rubbed depending on the age of the tortoise and habitat in which it occurs.

In addition a photograph (35mm slide) of the carapace, and fourth left costal scute should be taken. If possible dust off the tortoise with a small brush to remove mud or dust from the scutes. Remember the brush must be either sterilized or disposed of after each use. Place a small piece of white paper (15 mm x 90 mm) on the edge of the shell with information on the study site name, date, and tortoise number. The tortoise shell area and fourth costal scute should fill the slide frame. Drawings should be made showing any anomalies (e.g., extra or missing marginal, costal, or vertebral scutes) or injuries (e.g., punctures holes from canines, tooth scrapes).

The BLM should develop its own cataloging format to enable it and others to track tortoises handled as a result of development projects.

4. A standard data sheet should be developed to record the following information:

- A. Name of person collecting the animal.
- B. Exact location and date of collection, using District maps for the project.
- C. The individual number assigned to that animal.
- D. The over-wintering location of the tortoise.
- E. The release site and date of release of the animal.
- F. Health condition of the tortoise, including measured weight and length at initial capture and release. In addition to this information complete the URDS checklist.
- G. Photographs of carapace, plastron, and fourth left costal scute.
- H. The information specified in 4.A. through 4.G. must be supplied to the BLM and the Fish and Wildlife Service (Service) immediately after cessation of both tortoise clearing and release activities. The information should be provided in the form of a report accompanied by data sheets.

5. Tortoises found actively moving on the surface, and to be removed from the project site and released into the wild, should be placed under a shrub on the far side of the tortoise-proof fence between 300 and 1000 feet from the fence. Should the capture occur late in the day so the animal will not have sufficient time to find a suitable burrow for the night, the tortoise should be placed in a clean cardboard box as described above and held in an appropriate place safe from predators and danger of hyperthermia, until release can occur in the morning.

6. If tortoises found in burrows, and to be removed from the project site and released into the wild, are removed from burrows between November 1 and March 15, should be transported in cardboard boxes to the approved over-wintering site. Each tortoise should be placed in an artificial burrow within a fenced enclosure with one tortoise per enclosure. Each enclosure must be separate from adjacent pens so that one tortoise can not place its head or limbs through the fence and physically contact a tortoise in an adjacent enclosure. Fencing does not need to be buried but should be stable enough to preclude escape.

The main chamber of the burrow should be constructed of plywood and the roof placed approximately 2.5 feet below the soil surface. The burrow's tunnel should be eight to 10 feet long with a gentle slope (e.g., about 4:1). The tunnel should be stabilized on the top with PVC pipe cut in half. The diameter of the pipe should be sufficient to permit the tortoise to easily turn around in the tunnel. After placement of the tortoise in the burrow, the entrance of the tunnel should be partially blocked with loose topsoil.

7. If any tortoise excavated is underweight, as determined by comparison to regressions developed by Dr. Michael Weinstein for the tortoises at the Honda project, the tortoise should be placed in a room at a temperature of 90° to 100°F and allowed to soak in fresh water for two to three hours. After rehydration and drying, the tortoise should be cooled to hibernation temperature slowly and placed in an artificial burrow. This procedure should be implemented only by persons instructed in this manner of treatment.

8. Beginning in February, activity of the tortoises within the artificial burrows should be monitored to determine an appropriate release time. Tortoises should be released in the morning hours when temperatures are conducive to activity. The appropriate time for release will probably occur in the third week of March.

9. Each tortoise should be released between 300 and 1000 feet from the boundary fence nearest the capture point. Released tortoises should be placed under a shrub in the shade. Releases should occur at a temperature that is suitable for activity, with reasonable expectation that the temperature will remain within the tortoise's thermal preference long enough for the tortoise to adjust to its surroundings. Tortoises should be monitored at the release site until they are exhibiting normal behavior. To facilitate this measure, each tortoise must be accompanied by one of the approved biologists. There shall be no mass releases of animals.

10. Tortoise eggs shall be moved to artificial nests either in the wild or at an approved facility. Biologists must receive special training in the procedures outlined below, but such training can be obtained after a nest is actually found. If this is done, the nest should be carefully covered with soil so as not to move the eggs and protected until on-site training is provided. The BLM should ensure that this training is made available.

Any nest that is found shall be carefully excavated by hand at a time of day when the air temperature 6 inches above the ground is approximately equal to the soil temperature at egg level. Immediately upon finding a nest, large tool use should be discontinued and the nest excavated by the biologist using his or her hands. Before disturbance of nest contents, each egg shall be gently marked with a small dot on the top using a felt-tipped pen to establish the egg's orientation in the nest. In handling nest contents, eggs must be maintained in this orientation at all times. Because egg shells become extremely fragile in the last few weeks before hatching, special care should be taken with eggs found from August to mid-October. Because these eggs are very fragile, some may break during handling. This will be lethal to egg contents. Such an accident can be expected to occur until techniques are developed to avoid this type of incident. Broken eggs should be buried nearby and left in the field, or the contents preserved and provided to qualified researchers.

The biologist should measure and record the depth of the nest below the soil surface, the location of the nest in relation to any adjacent shrub (ie, whether on the north, south, east, or west side of the shrub), the species of shrub and its approximate foliage volume, and the soil type. Place approximately one inch of soil from the nest area in a bucket and carefully transfer the eggs to the bucket, maintaining egg orientation. Cover the eggs with soil that is free of cobbles and pebbles, to a depth equivalent to that in the original nest.

If good tortoise habitat is available in the general area, the eggs should be relocated at a distance of 300 to 1,000 feet from boundary of the gravel pit. Prepare a nest with the same depth, orientation, location in relation to a specific shrub species, and in the same soil type as the original nest. Carefully transfer the eggs, maintaining their original orientation, to the new nest. The eggs should be replaced so that they touch one another. Gently cover with soil from which cobbles and pebbles have been removed so that all the air spaces around the eggs are filled.

If a suitable site for a new nest is not available in the wild, the eggs should be prepared for incubation in a suitable holding facility. Place a small amount of soil in a bucket and transfer the eggs to the bucket using the technique specified above, making sure the eggs are touching one another. Carefully fill the bucket to the depth of the original nest, but leave the top of the soil layer 3 inches below the rim of the bucket so that future hatchlings cannot escape. Bury the bucket in soil in a safe location at an approved holding facility.

The biologist shall record in detail all the procedures used in moving eggs. Personnel caring for incubating eggs at a facility shall maintain a record of where the eggs were found, method of incubation, length of time and conditions under which the eggs were incubated, observations of eggs during the

incubation period, information about hatchling health and behavior, and disposition of the hatchlings.

11. Relocated nests in the wild shall be monitored by a qualified biologist. The monitoring program shall be developed in consultation with the Service.

12. Should any deviation from the procedures outlined above be necessary, the approved biologist should contact the Fish and Wildlife Service as soon as possible.

13. A final report, containing all the information noted above and including release information, must be supplied to the Service and the BLM within one month of the final releases or disposition of tortoises.