

The following is a synopsis of Fort Huachuca's Biological Opinion (BO) that was issued October 29, 1999. Included in this synopsis are the first few pages of the BO to include the Table of Contents, Appenix 2 of the BO that summarizes the opinion and a Memorandum of Agreement between Fort Huachuca and the United States Fish and Widlife Service that is also part of the BO. Anyone needing additional information concerning the Biological Opinion may request a copy of the opinion from the Fort Huachuca Public Affairs Office at (520) 533-1287.

In Reply Refer To:
AESO/ES
2-21-98-F-266

October 27, 1999

Michael W. Boardman, Colonel, U.S. Army
Garrison Commander, U.S. Army Garrison
U.S. Army Intelligence Center and Fort Huachuca
Fort Huachuca, Arizona

Dear Colonel Boardman:

This biological opinion responds to your request for consultation with the U.S. Fish and Wildlife 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 30, 1998, and received by us on April 1, 1998. By mutual written agreement, the consultation period was extended to October 29, 1999. At issue are impacts that may result from activities authorized, carried out, or funded by the Department of the Army at and near Fort Huachuca (Fort), Arizona. These impacts may affect the following listed species: Huachuca water umbel, *Lilaeopsis schaffneriana* var. *recurva*; southwestern willow flycatcher, *Empidonax traillii extimus*; Mexican spotted owl, *Strix occidentalis lucida*; lesser long-nosed bat, *Leptonycteris curasoae yerbabuena*; Sonora tiger salamander, *Ambystoma tigrinum stebbinsi*; and critical habitat designated for the southwestern willow flycatcher and the Huachuca water umbel. Your March 30, 1998, letter also requested consultation on the American peregrine falcon, *Falco peregrinus anatum*. The peregrine falcon was recently delisted (U.S. Fish and Wildlife Service 1999a), removing the section 7 consultation requirement. Although not considered in this opinion, the Service appreciates Fort Huachuca's continuing commitment to the conservation of this species, as demonstrated by planned conservation measures outlined in Appendix 1. Through a phone call between Jim Hessil of your staff and Jim Rorabaugh of my staff on April 1, 1998, the Fort also requested conferencing on Chiricahua dock, *Rumex orthoneurus*, proposed as threatened. The proposal to list the Chiricahua dock was withdrawn during the consultation (U.S. Fish and Wildlife Service 1999b); thus conferencing is no longer needed, and Chiricahua dock is not further addressed herein.

The Fort requested concurrence from the Service that the proposed action may affect, but is not likely to adversely affect, spikedace, *Meda fulgida*; loach minnow, *Tiaroga cobitis*; and Canelo Hills ladies' tresses, *Spiranthes delitescens*. The Service concurs with the Fort's determinations for these species. Rationale for our concurrences is detailed in the "CONCURRENCES" section. The Fort also requested

concurrence on determinations that the action would not affect several other species. Service policy is that we do not comment on agency “no effect” determinations unless we believe the action would adversely affect a listed species or its critical habitat, in which case the Service would request that the agency enter into formal consultation on species adversely affected [50 CFR 402.14(a)]. Information available to us does not warrant such a request in this instance. However, we recommend that the Fort maintain a complete administrative record documenting the decision process and supporting information for “no effect” determinations.

This biological opinion was prepared using information from the following sources: your March 30, 1998, request for consultation; the March 1998 biological assessment for the project [Science Applications International Corporation (SAIC) 1998a]; a Memorandum of Agreement between the Service and the Fort, numerous hydrological studies, discussion and correspondence with the United States Geological Survey (USGS); and our files. Literature cited in this biological opinion is not a complete bibliography of all literature available on the affected species, nor is it a complete review of the effects of military activities on these species. A complete administrative record of this consultation is on file in our office.

The Service finds that activities proposed by the Department of the Army at and near Fort Huachuca over the next 10 years are not likely to jeopardize the continued existence of the Huachuca water umbel, southwestern willow flycatcher, Mexican spotted owl, lesser long-nosed bat, or Sonora tiger salamander, and are not likely to result in adverse modification or destruction of critical habitat designated for the flycatcher and Huachuca water umbel. Incidental take statements are provided for all animal species except the southwestern willow flycatcher. Note that this opinion is intended to provide comprehensive compliance with section 7 of the Act for most or all Army activities at and near Fort Huachuca. However, aspects of the Fort’s activities not described in the “Description of the Proposed Action” and not evaluated in the “Effects of the Proposed Action” herein are not covered by this opinion.

Because of the length and complexity of this opinion, a Table of Contents is included on the following pages. A summary of the biological opinion appears as Appendix 2.

TABLE OF CONTENTS

	Page
Consultation History	5
Biological Opinion	12
Description of the Proposed Action	12
Proposed Mitigation Measures	59
Scope of the Consultation	67
Analyses by Species	69
Huachuca Water Umbel	70
Status of the Species	70
Environmental Baseline	73
Effects of the Proposed Action	99
Conclusion	123

Conservation Recommendations	124
Southwestern Willow Flycatcher	125
Status of the Species	125
Environmental Baseline	127
Effects of the Proposed Action	130
Conclusion	144
Incidental Take Statement	145
Conservation Recommendations	146
Mexican Spotted Owl	147
Status of the Species	147
Environmental Baseline	150
Effects of the Proposed Action	152
Conclusion	166
Incidental Take Statement	167
Conservation Recommendations	169
Lesser long-nosed bat	170
Status of the Species	170
Environmental Baseline	172
Effects of the Proposed Action	176
Conclusion	188
Incidental Take Statement	189
Conservation Recommendations	192
Sonora tiger salamander	192
Status of the Species	192
Environmental Baseline	195
Effects of the Proposed Action	196
Conclusion	201
Incidental Take Statement	201
Conservation Recommendations	204
Disposition of Dead or Injured Listed Animals	205
Concurrences	205
Spikedace	205
Status of the Species	205
Environmental Baseline	207
Effects of the Proposed Action	211
Conclusion	212
Loach minnow	212
Status of the Species	212
Environmental Baseline	213
Effects of the Proposed Action	214
Conclusion	214
Canelo Hills ladies' tresses	215
Status of the Species	215
Environmental Baseline	217
Effects of the Proposed Action	217
Conclusion	217
Closing Statement	218

References Cited	220
Appendix 1 - Memorandum of Agreement and Supporting Documents	242
Memorandum of Agreement	243
Appendix A - Army Water Resources Management Plan	248
Appendix B - Army Requirements from Current Formal Consultation	252
Appendix 2 - Summary of Biological Opinion	281
Appendix 3 - Letter from U.S. Geological Survey	284
Appendix 4 - Supporting information for calculation of water use attributable to Fort Huachuca	288

21-98-F-266

SUMMARY: PLAN-LEVEL BIOLOGICAL OPINION FOR LAND USE, MILITARY OPERATIONS, AND TRAINING RANGE UTILIZATION AT FORT HUACHUCA

Date of Opinion: October 27, 1999

Action Agency: US Army, Fort Huachuca, Arizona

Project: Land use, ongoing and planned training activities, construction activities, administrative and support actions, recreation, fire management, and other activities proposed by the Army at Fort Huachuca and adjacent areas for a 10-year period from the date of this opinion. The Fort and the Service developed a Memorandum of Agreement in which the Fort committed to water resources planning that will maintain and protect populations of listed species and their habitats, including those on the San Pedro River. The MOA also includes comprehensive mitigation measures for listed species that occur on post.

Listed/Proposed Species and Critical Habitat Affected: Huachuca water umbel, *Lilaeopsis schaffneriana* var. *recurva* (with critical habitat); southwestern willow flycatcher, *Empidonax traillii extimus*, (with critical habitat); the Mexican spotted owl, *Strix occidentalis lucida*; lesser long-nosed bat, *Leptonycteris curasoae yerbabuena*; and Sonora tiger salamander, *Ambystoma tigrinum stebbinsi*.

Biological Opinion: The Service determined that the proposed action is not likely to jeopardize the continued existence of the listed species considered, and is not likely to result in adverse modification and destruction of critical habitat designated for the flycatcher and the water umbel. Although this is a “plan-level” biological opinion, in that it addresses a range of programs and projects, all aspects of the Army’s activities at Fort Huachuca discussed with specificity are covered herein to the project level for 10 years from the date of the final opinion. The opinion also includes concurrences that the proposed action may affect but is not likely to adversely affect the Canelo Hills ladies’ tresses, *Spiranthes delitescens*, spikedace, *Meda fulgida*; and loach minnow, *Tiaroga cobitis*.

Incidental Take Statement:

Level of take anticipated: One or more forms of take is anticipated for each of the animal species with the exception of the southwestern willow flycatcher.

Reasonable and Prudent Measures, Terms and Conditions: Draft reasonable and prudent measures and terms and conditions were adopted by the Fort as mitigation measures to their proposed action. Thus, in the incidental take statements, the Service only requires that these measures be implemented. The mitigation measures include a variety of actions to reduce incidental take, such as modifying actions that result in take of individual animals, education of project personnel, preconstruction surveys, and monitoring of take and habitat loss.

Conservation Recommendations: Conservation measures are recommended for all listed species. Suggested measures include implementation of recovery tasks, clarification of a species range or distribution, further studies into the effects of military activities, and other related matters.

Draft/

MEMORANDUM OF AGREEMENT
BETWEEN
U.S. ARMY AND THE U.S. FISH AND WILDLIFE SERVICE

SUBJECT: WATER RESOURCES IN THE SIERRA VISTA SUBWATERSHED OF THE UPPER SAN PEDRO RIVER BASIN

1. Purpose. As of the date that this Memorandum of Agreement (MOA) is signed, the U. S. Army and the U.S. Fish and Wildlife Service (Service) are actively engaged in Section 7 formal consultation under the Endangered Species Act (ESA), consultation number 2-21-98-F-266, concerning the potential effects of ongoing and future operations at Fort Huachuca. The Army and the Service agree that water conservation and/or water augmentation may be required to address the potential impact of groundwater pumping on populations of Huachuca water umbel and southwestern willow flycatcher and critical habitat in the Sierra Vista Subwatershed of the Upper San Pedro River Basin (subwatershed). In order to mitigate the potential effects of groundwater pumping, the Army and Service agree to take an active role in water conservation and recharge efforts in the subwatershed, as outlined in this MOA.
2. Reference. This MOA is hereby made and entered into by and between the Army and the Service under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), as amended; the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e), as amended; the Economy Act of 1932 (31 U.S.C. 1535); the Sikes Act of 1960 (16 U.S.C. 670a-670o), as amended; and other laws, as applicable.
3. Problem. A consensus of scientific opinion concludes that continued and projected aggregate pumping may impact portions of the San Pedro River and consequently, may threaten listed species and critical habitat. The Army and the Service recognize that current groundwater pumping in the subwatershed exceeds natural recharge, which creates a deficit situation. This issue is an important regional concern and cannot be addressed by the Army alone, or by any one party.
4. Scope. The Army and the Service are committed to conserving and recovering endangered and

threatened species, conserving ecosystems and maintaining native biological diversity in the subwatershed. The subwatershed includes the San Pedro River National Conservation Area (SPRNCA), which includes critical habitat for the southwestern willow flycatcher and the Huachuca water umbel, two endangered species.

5. Understanding, agreements, support and resource needs.

a. General Obligations of the Army and Service. By entering into this MOA, the Service and the Army will:

(1) Support the Upper San Pedro Partnership (USPP) goals in sustaining base flows in the San Pedro River. The Service and the Army agree that the USPP is presently the best regional planning organization through which to address indirect, interrelated, and interdependent effects of the proposed action, as well as cumulative effects from all sources on listed species and critical habitat along the San Pedro River. The Army and the Service will encourage the USPP to appoint a regional water manager and to adopt as a goal maintenance of base flows in the San Pedro River sufficient to sustain species and habitat protected by the Endangered Species Act. To attain this goal may require acquiring and retiring water rights in the area, balancing water use with conservation and recharge projects, importing water, or any combination of these and other yet to be identified methods for attaining a balance between groundwater withdrawals and recharge sufficient to ensure continued baseflows.

(2) Develop and implement an Army Water Resources Management Plan (AWRMP), which the Army will seek to have incorporated into an USPP Plan. This MOA and its appendices are part of the Army's proposed action and will be incorporated as an appendix to the Biological Opinion issued by the Service.

(3) Work towards recovery of the Huachuca water umbel and southwestern willow flycatcher and their habitats within the subwatershed.

(4) Develop and implement measures and projects concerning all species addressed in the Biological Assessment (BA) and Biological Opinion (BO). For easy reference, the measures and projects concerning all species addressed in the BA and BO are listed in Appendix B.

(5) “. . . conserve (A) fish or wildlife which are listed as endangered species or threatened species . . . or (B) plants . . . (C) the ecosystems upon which endangered species and threatened species depend . . .” (Endangered Species Act of 1973, 16 U.S.C. 1534);

(6) Allow the Secretary of Interior to “. . . administer (ESA) directly or in accordance with cooperative agreements . . . and in accordance with such rules and regulations for the conservation, maintenance, and management of wildlife, resources thereof, and its habitat thereon . . .” (Fish and Wildlife Coordination Act, 16 U.S.C. 664);

(7) Meet jointly as needed for any federal action that may affect endangered, threatened or proposed species or their habitats. These meetings will constitute informal consultation between the Service and the Army.

(8) Fully fund all obligations of the Service and the Army arising under this MOA. Both parties

agree to seek sufficient funding to fulfill their obligations under the MOA; however, any requirement for the payment or obligation of funds by either party established by the terms of the MOA will be subject to the availability of funds, and no provision herein will be interpreted to require obligation or payment of funds in violation of the Antideficiency Act, 31 U.S.C. section 1341. In cases where payment or obligation of funds would constitute a violation of the Antideficiency Act, the dates established requiring the payment or obligation of such funds will be appropriately adjusted.

(9) Develop an annual work plan to identify actions for implementation to fulfill the purposes of this MOA. This annual work plan will be developed jointly by the Army and the Service within two months of Fort Huachuca receiving its annual environmental operating budget allocation for each fiscal year.

b. Specific Obligations of the U.S. Fish and Wildlife Service. The Service will:

(1) Provide information on habitat quality and sensitivity for listed species for the development of Army endangered species management plans.

(2) Annually review the AWRMP with the Army. This includes project status and associated changes in water consumption.

(3) As appropriate for the purposes of this MOA, conduct, assist, and/or support surveys, censuses, and population monitoring of endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Army.

(4) As appropriate for the purposes of this MOA, conduct, assist, and/or support surveys and censuses of the distribution and condition of the habitats for endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Army.

(5) As appropriate for the purposes of this MOA, conduct, assist, and/or support research on the ecology and limiting factors of endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Army.

(6) Explore appropriate means to participate in the USPP and to fund projects.

(7) Join the Army in promoting the successful implementation of water conservation and recharge projects, thereby, encouraging the public and other federal, state, and local agencies to join in efforts associated with sustaining the San Pedro River and working toward recovery of listed species.

(8) The Service will fully consider the views of the Army, as appropriate, in carrying out the consultation process under Section 7 of the Endangered Species Act.

c. Specific Obligations of the U.S. Army. The Army will:

(1) Develop and begin implementation of an AWRMP within three years (Appendix A).

(2) Continue to implement water management projects.

(3) Review the AWRMP with the Service within two months of Fort Huachuca receiving its annual environmental operating budget allocation for each fiscal year. This includes project status and associated changes in water consumption. The Army will provide a synopsis of the annual review meeting for approval by both parties.

(4) As appropriate for the purposes of this MOA, conduct, assist, and/or support surveys, censuses, and population monitoring of endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Service.

(5) As appropriate for the purposes of this MOA, conduct, assist, and/or support surveys and censuses of the distribution and condition of the habitats for endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Service.

(6) As appropriate for the purposes of this MOA, conduct, assist, and/or support research on the ecology and limiting factors of endangered and threatened species, proposed and candidate species, and other rare native species in coordination with the Service.

(7) Provide access to the employees of the Service who require access to Army lands on a regular basis for purposes related to this MOA. The Army may temporarily suspend access to certain areas for emergency or national defense purposes or for situations/purposes declared necessary by the Commander, U.S. Army Intelligence Center and Fort Huachuca.

(8) Participate in the USPP and implement projects. The Army will actively participate in the Upper San Pedro Partnership (USPP), which includes assisting the development of an USPP Regional Water Resources Management Plan (USPP Plan) and supporting hydrologic research in the subwatershed.

(9) Assign a senior level person to oversee implementation of this MOA and commit appropriate resources, as necessary, to support the purposes of the MOA.

(10) Keep the public informed of projects implemented to conserve water and increase recharge, and will periodically solicit public input in accordance with requirements of the National Environmental Policy Act (NEPA).

(11) Take an active role in water conservation and recharge efforts by implementing some or all of the proposed projects found in Appendix A, which is hereby incorporated in and made part of this MOA.

(12) Implement all measures and projects listed in Appendix B.

(13) Consult with the Service on any action authorized, funded, or carried out, in whole or in part, by the Army that may affect endangered and threatened species or critical habitat as provided for in 50 C.F.R. 402, Interagency Cooperation under the Endangered Species Act of 1973, as amended.

6. Terms of this MOA.

- a. Nothing in this MOA will be interpreted to diminish the authorities or responsibilities of the Army

or the Service to comply with 50 C.F.R. 402, Interagency Cooperation under the Endangered Species Act of 1973, as amended, or any other relevant statutes or regulations.

b. This MOA authorizes the transfer of funds to support purposes related to this agreement.

c. This MOA will not affect either party's rights or responsibilities, to include, but not limited to, claims or objections in a statewide water rights adjudication titled, "In re General Adjudication of All Rights to Use Water in the Gila River System and Source" and, "In re Fort Huachuca, No W1-11-605 (Arizona Super. Ct., filed 7 May 1992).

d. Any proposed amendment or modification to this MOA must be in writing and signed by both parties.

7. Effective date. In witness whereof, each party hereto has caused this MOA to be executed by an authorized official on the day and year set forth by their signature. This MOA will become effective upon the date of the final signature.

John D. Thomas, Jr.
Major General, U.S. Army
Commander
U.S. Army Intelligence Center
and Fort Huachuca

Nancy F. Kaufman
Regional Director, Southwest Region
U.S. Fish and Wildlife Service
Albuquerque, New Mexico

Date: _____

Date: _____