



# United States Department of the Interior

U.S. Fish and Wildlife Service

Arizona Ecological Services Office

2321 West Royal Palm Road, Suite 103

Phoenix, Arizona 85021-4951

Telephone: (602) 242-0210 Fax: (602) 242-2513



In reply refer to:

AESO/SE

02EAAZ00-2014-F-0431

02EAAZ00-2015-SLI-0573

August 26, 2015

Karla S. Petty, Arizona Division Administrator  
U.S. Department of Transportation  
Federal Highway Administration  
4000 North Central Avenue, Suite 1500  
Phoenix, Arizona 85012-3500

Dear Ms. Petty:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated July 15, 2015 and received by us via electronic mail (email) on the same day. The biological evaluation (BE) for the proposed action, dated July 13, 2015, was also received on July 15, 2015. At issue are the effects of bridge deck resurfacing and pier scour retrofitting on the east- and west-bound Interstate 10 (I-10) bridges over the San Pedro River just east of Benson, Arizona, in Cochise County. You concluded that the proposed action "may affect and is likely to adversely affect" the threatened northern Mexican gartersnake (*Thamnophis eques megalops*) (gartersnake), and requested formal consultation. You also concluded that the action will not adversely modify proposed critical habitat for the northern Mexican gartersnake and requested an informal conference. We concur with your determination that the proposed action will not adversely modify gartersnake critical habitat and provide our rationale in Appendix A.

This biological opinion (BO) is based on information provided in the July 13, 2015 BE, email correspondence, telephone conversations, and other sources of information found in the administrative record supporting this biological opinion. In addition, we have discussed the project with Arizona Department of Transportation (ADOT), the Bureau of Land Management (BLM), and Arizona Game and Fish Department (AGFD) species experts. Literature cited in this biological opinion is not a complete bibliography of all literature available on the species of concern, bridge construction on streams or rivers and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Karla S. Petty

## CONSULTATION HISTORY

- May 14, 2014 We received your April 30, 2014 request for informal consultation on effects of the proposed action to the northern Mexican gartersnake (at that time proposed as threatened), and its proposed critical habitat.
- July 8, 2014 We published the final rule listing the northern Mexican gartersnake as threatened (effective August 7, 2014).
- August 7, 2014 We concurred in conference that the action would not adversely affect the threatened northern Mexican gartersnake or the species' critical habitat, given that surface flows would be absent in the river bed during construction activities.
- July 15, 2015 We received the July 13, 2015 revised BE outlining changes to the proposed action that may be required due to recent surface flows in the San Pedro River, and your requests for formal consultation on effects to the threatened northern Mexican gartersnake and informal conference on proposed critical habitat.
- August 24, 2015 We sent you our draft BO.

## BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

The following summary of the proposed action is taken from the BE. Maps, photographs, and diagrams of the action area, the bridges, the river bed, and adjacent vegetation at the I-10 crossing are included in the BE and are incorporated herein by reference.

The purpose of the project is to improve the structural integrity of two bridges over the San Pedro River. Bridge deck rehabilitation and scour retrofits will occur at I-10 Milepost 306.75. Each bridge (one eastbound and one westbound) consists of two through lanes with 12-foot (ft)-wide outside shoulders and 6-ft-wide inside shoulders. An 80-ft-wide natural median separates the eastbound and westbound roadways. The bridge decks over the San Pedro River are deteriorated, and the pier foundations are vulnerable to scour. The scope of work consists of:

- Removing and replacing the I-10 concrete bridge decks over the San Pedro River;
- Reconstructing the concrete roadway approaches to match the new bridge decks, as needed;
- Installing gabion baskets around the piers within the San Pedro River;
- Removing and replacing concrete barriers and guardrail, as needed;
- Installing a piezometer in the riverbed prior to construction to gauge depth to groundwater for determining dewatering needs for gabion basket installation.

Karla S. Petty

Work is expected to occur from October 15, 2015, to June 15, 2016 (work to be completed prior to the start of the 2016 monsoon season). Work in the San Pedro River channel is anticipated to take up to 4 weeks. The San Pedro River in this area is mapped as an intermittent stream by the Arizona Department of Water Resources (ADWR 2012), so surface flows may or may not be present when work begins. Surface flows could also occur at any time during construction. If surface water is flowing in the San Pedro River at the time of project construction, the following measures will be implemented:

- The river channel will be contoured using material from the riverbed to channel water to one side of the river.
- Pipe(s) will be laid in the river to carry surface water through the project area. Pipe(s) will be covered with material from the riverbed and remain in place throughout the duration of the project.

A construction staging/stockpiling area approximately 0.20-acre (ac) in extent will be established within a disturbed portion of the ADOT right-of-way immediately south of the I-10 eastbound lanes and approximately 600 ft west of the eastbound bridge. A temporary access road will be cleared on the west side of the eastbound bridge to provide access to the river bed. It is estimated that there will be 0.28 ac of permanent disturbance (associated with installation of gabion baskets) and 0.79 ac of temporary disturbance in the river channel. The temporary access road will result in approximately 0.30 ac of disturbance in uplands outside the channel. Some vegetation removal will be required to allow construction of the temporary access road. Some trees may be removed, and other trees may be trimmed. All areas located outside waters of the U.S. disturbed by construction will be reseeded. If necessary, the contractor will use dewatering wells to pump groundwater away from the piers in order to install the gabion baskets. Water would be pumped just downstream of the piers within the project footprint (see definition under *Action Area*). Dewatering needs will be determined based on preconstruction data from a piezometer installed in the river channel. The piezometer will be installed to a depth of 12 ft using a rubber track mounted drill rig. Cement grout will be used to backfill the piezometer hole upon completion of the installation. Piezometer installation will require less than one day of work in the river channel. No equipment will remain in the river channel during extended periods when the equipment is not being used for construction.

### **Conservation Measures**

The proposed action includes general conservation measures that address erosion issues, control and spread of noxious and nonnative plants, use of herbicides, and other concerns. General measures are discussed in detail in the BE and will include use of erosion control products such as straw wattles, reseeded of areas where ground disturbances occur with native plant species, and inspection of earthmoving and hauling equipment before entering and leaving the project footprint (defined under *Action Area*), and removal of all attached plant debris, soil, and mud, to prevent the spread of nonnative plants. Before construction begins, an ADOT contractor will control noxious plants already present in the project area; however, disturbances to native plants will be avoided to the extent possible. ADOT and its contractors will follow all conservation measures at all times during all proposed actions.

Karla S. Petty

The proposed action also includes conservation measures specific to the gartersnake, as follows:

- No erosion control products (e.g., wattles), containing netting with an opening of 0.25 inches (in) or greater will be used within the project limits in order to protect gartersnakes. Mesh size greater than 0.25 in could cause direct mortality of young gartersnakes due to entanglement.
- Qualified biologists will provide environmental awareness training to all personnel who will be on-site, including, but not limited to, contractors, contractors' employees, supervisors, inspectors, and subcontractors. Awareness training will include, at a minimum, information regarding the biology and status of the northern Mexican gartersnake and a summary of the protective measures. Workers will be informed that it is illegal to touch, pick up, disturb, harass, or collect northern Mexican gartersnakes.

### **Action Area**

The U.S. Fish and Wildlife Service (FWS) defines the action area as all areas to be affected directly or indirectly by the proposed action, and not merely the immediate area involved in the action (50 CFR § 402.02). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment, focusing on, but not exclusive to, the I-10/San Pedro River bridges in Cochise County, Arizona.

Throughout ADOT's biological evaluation (BE), and in this biological opinion (BO), we use the term "footprint" to represent the area where ground disturbances will occur during repair and re-construction of the bridges. The "project area" includes the footprint and lands immediately adjacent to the footprint.

### **STATUS OF THE SPECIES**

The Federal Register notice listing the northern Mexican gartersnake as threatened under the Act was published on July 8, 2014 (USFWS 2014). Critical habitat was proposed on July 10, 2013 (USFWS 2013) and has not yet been designated. Please refer to these rules for more in-depth information on the ecology and threats to the species and critical habitat, including references. The final listing and proposed critical habitat rules are incorporated herein by reference.

The northern Mexican gartersnake ranges in color from olive to olive-brown or olive-gray with three lighter-colored stripes that run the length of the body, the middle of which darkens towards the tail. It may occur with other native gartersnake species and can be difficult for people without specific expertise to identify because of its similar appearance to sympatric gartersnake species. The snake may reach a maximum length of 44 in.

Throughout its rangewide distribution, the northern Mexican gartersnake occurs at elevations from 130 to 8,497 ft (Rossman et al. 1996) and is considered a "terrestrial-aquatic generalist" by Drummond and Marcías-García (1983). The northern Mexican gartersnake is often found in riparian habitat, but has also been found up to a mile away from any surface water. The subspecies has been commonly associated with the following habitat types: 1) source-area wetlands (e.g., cienegas or stock tanks); 2) large-river riparian woodlands and forests; and 3) streamside gallery forests (Hendrickson and Minckley 1984, Rosen and Schwalbe 1988).

Karla S. Petty

Emmons and Nowak (2013), when surveying in the upper Verde River region, found this subspecies most commonly in protected backwaters, braided side channels and beaver ponds, isolated pools near the river mainstem, and edges of dense emergent vegetation that offered cover and foraging opportunities. In the northern-most part of its range, the northern Mexican gartersnake appears to be most active during July and August, followed by June and September.

The northern Mexican gartersnake is an active predator and is thought to heavily depend upon a native prey base (Rosen and Schwalbe 1988). Northern Mexican gartersnakes forage along vegetated streambanks, searching for prey in water and on land, using different strategies (Alfaro 2002). Primarily, its diet consists of amphibians and fishes, such as adult and larval (tadpoles) native leopard frogs, as well as juvenile and adult native fish (Rosen and Schwalbe 1988), but earthworms, leeches, lizards, and small mammals are also taken. In situations where native prey species are rare or absent, this snake's diet may include nonnative species, including larval and juvenile bullfrogs, western mosquitofish (Holycross et al. 2006, Emmons and Nowak 2013), or other soft-rayed fishes.

Native predators of the northern Mexican gartersnake include birds of prey, other snakes, wading birds, mergansers, belted kingfishers, raccoons, skunks, and coyotes (Rosen and Schwalbe 1988, Brennan et al. 2009). Historically, large, highly predatory native fish species such as Colorado pikeminnow may have preyed upon northern Mexican gartersnakes where they co-occurred. Native chubs may also prey on neonatal gartersnakes.

Sexual maturity in northern Mexican gartersnakes occurs at two years of age in males and at two to three years of age in females (Rosen and Schwalbe 1988). Northern Mexican gartersnakes are viviparous (bringing forth living young rather than eggs). Mating has been documented in April and May followed by the live birth of between 7 and 38 newborns in July and August (Rosen and Schwalbe 1988, Nowak and Boyarski 2012).

The northern Mexican gartersnake historically occurred in every county and nearly every subbasin within Arizona, from several perennial or intermittent creeks, streams, and rivers as well as lentic wetlands such as cienegas, ponds, or stock tanks (Brennan and Holycross 2006, Cotton et al. 2013). In New Mexico, the gartersnake had a limited distribution that consisted of scattered locations throughout the Upper Gila River watershed in Grant and western Hidalgo Counties (Price 1980, Fitzgerald 1986, Degenhardt et al. 1996, Holycross et al. 2006). Within Mexico, northern Mexican gartersnakes historically occurred within the Sierra Madre Occidental and the Mexican Plateau, comprising approximately 85 percent of the total rangewide distribution of the subspecies (Rossman et al. 1996).

The only viable northern Mexican gartersnake populations in the United States where the subspecies remains reliably detected are all in Arizona: 1) The Page Springs and Bubbling Ponds State Fish Hatcheries along Oak Creek; 2) lower Tonto Creek; 3) the upper Santa Cruz River in the San Rafael Valley; 4) the Bill Williams River; and, 5) the middle/upper Verde River. In New Mexico and elsewhere in Arizona, the northern Mexican gartersnake may occur in extremely low population densities within its historical distribution; limited survey effort is inconclusive to determine extirpation. The status of the northern Mexican gartersnake on tribal lands, such as those owned by the White Mountain or San Carlos Apache Tribes, is poorly known. Less is

Karla S. Petty

known about the current distribution of the northern Mexican gartersnake in Mexico due to limited surveys and limited access to information on survey efforts and field data from Mexico.

We have concluded that in as many as 23 of 33 known localities in the United States (70 percent), the northern Mexican gartersnake population is likely not viable and may exist at low population densities that could be threatened with extirpation or may already be extirpated. Only five populations of northern Mexican gartersnakes in the United States are considered likely viable where the species remains reliably detected. Harmful nonnative species are a concern in almost every northern Mexican gartersnake locality in the United States and the most significant reason for their decline. Harmful nonnative species can contribute to starvation of gartersnake populations through competitive mechanisms, and may reduce or eliminate recruitment of young gartersnakes through predation. Other threats include alteration of rivers and streams from dams, diversions, flood-control projects, and groundwater pumping that change flow regimes, reduce or eliminate habitat, and favor harmful nonnative species; and effects from climate change and drought (USFWS 2014).

## **ENVIRONMENTAL BASELINE**

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and 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 now under consultation.

### **Description of the Action Area**

The San Pedro River is the last undammed desert river in the American Southwest. However, flows are subject to depletion through groundwater pumping, water diversions, and other factors (Arizona Department of Water Resources [ADWR] 2010). Currently, groundwater pumping and diversions are in excess of recharge, and as a result the San Pedro River is ephemeral in many reaches.

ADWR has classified the reach of the San Pedro River in the project area as an intermittent stream (ADWR 2012). The river bed was dry during ADOT site visits on October 7, 2013 and January 8, 2014. The nearest upstream perennial reach is 25 miles south of the San Pedro River bridges. Downstream, groundwater is forced to the surface several miles north of Cascabel (approximately 30 miles from the project area), resulting in perennial flows (U.S. Geological Survey [USGS] 1973). Surface flow upstream of the project area, when present, is diverted into St. David Ditch about 7 miles south of St. David (at the location of USGS Gage No. 09471565) and into Pomerene Canal, approximately 4.5 miles south of the project area (USGS 1973).

Depth to groundwater in wells along the San Pedro River near Benson ranged from 36 feet to 82 feet in 2003–2004, declining 1 to 15 feet since 1990–1991 (ADWR 2012). The nearest gage downstream of the project area (USGS Gage No. 09471800) occurs approximately 16 miles downstream of I-10, in a reach referred to as the “Narrows.” The San Pedro River at the

Karla S. Petty

Narrows flows only in direct response to precipitation (USGS 1973). Based on monthly averages from 2006 to 2010 (period of available data for USGS Gage No. 09471800) (USGS 2014), surface flows are consistently recorded at this gage from July through September and are likely the result of monsoon storm events and runoff contributed in part by the Rincon Mountains to the west. However, depending on winter and spring precipitation levels in conjunction with summer rains, surface flows can occur in the San Pedro River channel during nearly any month of the year in the project area. For example, no surface water or indications of recent surface flows were present at the I-10 bridges during ADOT site visits on October 7, 2013, and January 8, 2014. However, surface flows were present within the project limits during a substantial portion of spring 2015 (April and May), a period when gartersnakes are mating and have heightened surface activity.

### **Status of the Species Within the Action Area**

The project area has not been surveyed for the presence of gartersnakes; however, it is not within the five general areas in Arizona, described under Status of the Species, where this gartersnake is still reliably found. There are historical and current records of this species from the upper reaches of the San Pedro River and from the Babocomari River near its confluence with the San Pedro River. The nearest gartersnake detections occurred approximately 25 miles upstream (south) of the project area. There are no historical or current records from the San Pedro River downstream of the Babocomari River confluence (AGFD 2012b) but there have only been collectively, fewer than 12 person-search hours and no trap hours invested in surveying for them downstream of I-10 (Rosen et al. 2001, Appendix I). Further, the gartersnake's secretive and cryptic nature makes it difficult to detect in any environment. Individuals may occur intermittently in the proposed action area when dispersing to areas with perennial water, or when prey is present as a result of recent rains, or during periods of heightened surface activity associated with the species' mating period in April and May when the channel through the project area could be wetted.

Plant species present along the reach of the San Pedro River in the project area attest to the generally intermittent nature of surface flows. On the US Army Corps of Engineers (Corps) National Wetland Plant List (Corps 2013), cocklebur and velvet mesquite are considered upland species, desertbroom a facultative upland species, and saltcedar a facultative species. Goodding's willow is classified as a facultative wetland species. Fremont cottonwood, formerly considered a facultative wetland species (Stromberg et al. 1996), is now identified as *P. deltoides* ssp. *fremontii* and listed as a facultative species on the Corps National Wetland Plant List. Saltcedar, Goodding's willow, and cottonwood can be deeply rooted species that are not necessarily indicative of shallow groundwater conditions, and current conditions may not be indicative of those under which individuals of these species became established. Depth to groundwater (i.e., effective rooting depth) for these species can range from 8 feet for mature saltcedars to more than 16 feet for mature Fremont cottonwoods. A number of the cottonwoods growing in the project area appear moribund (highly stressed or dying) (see Appendix E of the BE).

Karla S. Petty

## EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

This portion of the San Pedro River at the project area contains no perennial flows to support gartersnake aquatic and riparian habitat. Because there is no permanent water, there are no persistent, viable prey populations to attract gartersnakes to the area. The nearest upstream perennial reach of the San Pedro River and the nearest records of the species begin approximately 25 miles upstream of the project area. The nearest downstream perennial reach is about 30 miles from the project area, and there are no recent or historic records of this species from the San Pedro River between the Babocomari River confluence and the Gila River confluence. The limited extent of project activities in the streambed (i.e., at and only at the bridges) will not have any measurable effect on perennial reaches of the San Pedro River upstream or downstream of the project area. However, gartersnakes may move through the crossing when they are foraging during wet periods or dispersing between more suitable habitat areas, when intermittent flows occur. At these times, the chances of gartersnake prey being present and the chances of gartersnake use would likely increase.

Bridge repairs will be undertaken even if surface flows occur within the project area at the time construction is scheduled to begin (October 15, 2015). Although these activities will not affect the overall gartersnake habitat condition in this reach of the San Pedro River, areas immediately below and adjacent to the bridges will be completely (but temporarily) dewatered via channel contouring and pipe installation. Dewatering will continue for a maximum of 4 weeks while channel work proceeds. Construction of temporary equipment access routes, channel contouring, pipe installation, clearing around bridge piers and abutments, and installation of rock gabions will result in the initial loss of 1.07 acres of potential protective cover and structural terrestrial features that also constitute gartersnake habitat, such as vegetation, channel banks, overhangs, and rock crevices within the project limits. These impacts will be temporary, and once construction is complete, it is expected that terrain and channel conditions that could provide temporary protective cover for dispersing gartersnakes will return to a natural state over time. The project will not result in the permanent loss of protective cover and structural terrestrial features.

Once project activities cease, snakes can use interstices in the rocks contained in the gabion baskets for temporary cover and escape. This protective cover will be immediately available following construction. Moreover, the prey base for northern Mexican gartersnakes will not be diminished by project activities and these activities will not increase or introduce harmful nonnative aquatic or semi-aquatic species.

Karla S. Petty

Work in the river channel is not anticipated to exceed 4 weeks in duration. Project activities are unlikely to affect the dispersal or movement of northern Mexican gartersnakes between known population areas. The lack of perennial water and the implementation of conservation measures should effectively avoid the chance of death or injury to gartersnakes. We are reasonably certain that the likelihood of individuals being directly affected by the proposed action (e.g., crushed by vehicles) is small, and the proposed action would have no effects at the population level. In addition, the proposed bridge repair is a short-term, one-time event; thus, any effects to the species would be limited to the time that construction activities occur, would be temporary, and would cease with the completion of the proposed project.

## CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. 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 ESA.

Habitat for the gartersnake in the action area includes areas of State, tribal, and private lands where livestock grazing could occur. Livestock grazing could lead to direct fatality of gartersnakes (by trampling of individuals), and could further degrade the watersheds and habitats of the riparian areas on which the species depends, due to trampling of vegetation and the establishment and spread of invasive plants. However, direct effects of grazing in riparian areas on State lands would not occur because grazing is not permitted in the floodplains or within adjacent riparian woodlands. Other unregulated activities could include trespass livestock, inappropriate OHV use, other recreational activities, and cross-border activities from Mexico. These and other human activities may result in habitat loss or damage to riparian areas.

## CONCLUSION

The conclusions of this biological opinion are based on full implementation of the project as described in the *Description of the Proposed Action* section of this document, including the *Conservation Measures* that were incorporated into the project design.

After reviewing the current status of the gartersnake, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the gartersnake. We base these conclusions on the following:

- The likelihood of individuals being directly affected is small, considering the relatively small area that will be affected by the project, the lack of permanent water and prey populations that could attract gartersnakes to the project area, and the relatively short duration of the project that occurs largely within the cooler winter months. We expect that habitat in the project area, which may be used for movements and dispersal, will continue to remain functional into the future.

## INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm," is defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. 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 to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

### AMOUNT AND EXTENT OF TAKE

We do not anticipate that implementation of the proposed action is reasonably certain to result in incidental take of any gartersnakes because:

- Conservation measures will ensure that direct effects to gartersnakes are avoided by use of appropriate erosion control products and mesh size.
- Although very little information exists on gartersnake occurrence in the action area, the lack of perennial flows and available prey in this reach of the San Pedro River make it unlikely that gartersnakes would occur at these crossings except intermittently.

### CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

#### Northern Mexican Gartersnake

We recommend that Federal Highway Administration and ADOT work with us and AGFD to participate in recovery planning and implementation of conservation actions for the gartersnake, particularly on efforts to remove harmful nonnative species from occupied gartersnake habitats.

### REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request, and no further section 7 consultation is required for this project at this time. As provided in 50 CFR 402.16, reinitiation

Karla S. Petty

of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (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 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 the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

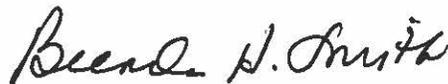
Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (BGEPA). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. The BGEPA prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and BGEPA, please visit the following websites. More information on the MBTA and available permits can be retrieved from <http://www.fws.gov/migratorybirds> and <http://www.fws.gov/migratorybirds/mbpermits.html>. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (<http://www.fws.gov/southwest/es/arizona/BaldEagle.htm>), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

The FWS appreciates your efforts to identify and minimize effects to listed species from this project. We encourage you to coordinate the review of this project with AGFD. We also appreciate your ongoing coordination during implementation of this program. In keeping with our trust responsibilities to American Indian Tribes, we are providing copies of this biological opinion to the Bureau of Indian Affairs (BIA) and are notifying affected Tribes.

For further information please contact Robert Lehman (602) 242-0210 (x217) or Brenda Smith at (928) 556-2157. In all future correspondence on this project, please refer to consultation numbers 02EAAZ00-2014-I-0431 and 02EAAZ00-2014-SLI-0573.

Sincerely,



 Steven L. Spangle  
Field Supervisor

Karla S. Petty

cc (electronic):

Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ (Attn: Jeff Servoss)  
Environmental Planning Group, Arizona Department of Transportation, Phoenix, AZ (Attn:  
Joshua Fife, Kris Gade, Justin White)  
Environmental Coordinator, Federal Highway Administration (Attn: Tremaine Wilson)

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ  
Regional Supervisor, Arizona Game and Fish Department, Region 5  
Manager, Cultural Affairs, Tohono O'odham Nation, Sells, AZ  
Assistant Tribal Attorney General, Pascua Yaqui Tribe, Tucson, AZ  
Director, San Carlos Tribal Historic Preservation and Archaeology Dept., San Carlos, AZ  
Environmental Specialist, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ

W:\Bob Lehman\Brendas signature\I-10 SP River Final BO.docx.cgg

Karla S. Petty

### LITERATURE CITED

- Alfaro, M. E. 2002. Forward attack modes of aquatic feeding garter snakes. *Functional Ecology* 16:2004-215.
- Arizona Department of Water Resources (ADWR). 2010. Arizona Water Atlas. Volume 3: Southeastern Arizona Planning Area. Phoenix, Arizona.
- Arizona Department of Water Resources (ADWR). 2010. Arizona Water Atlas. Volume 3: Southeastern Arizona Planning Area. Phoenix, Arizona.
- Alfaro, M. E. 2002. Forward attack modes of aquatic feeding garter snakes. *Functional Ecology* 16:2004-215.
- Brennan, T. C. and A. T. Holycross. 2006. A Field Guide to Amphibians and Reptiles in Arizona. Arizona Game and Fish Department, Phoenix. 150 pp.
- \_\_\_\_\_, P. C. Rosen, and L. Hellekson. 2009. *Diadophis punctatus regalis* (regal ring-necked snake) diet. *Sonoran Herpetologist* 22(11): 123.
- Cotton, T. B., J. D. Miller, and D. D. Grandmaison. 2013. Geographic distribution: *Thamnophis eques* (Mexican gartersnake). *Herpetological Review* 44(1):111.
- Degenhardt, W. G., C. W. Painter, and A. H. Price. 1996. Amphibians and Reptiles of New Mexico. University of New Mexico Press, Albuquerque. 431 pp.
- Drummond, H. and C. Marcias Garcia. 1983. Limitations of a generalist: a field comparison of foraging snakes. *Behaviour* 108(1/2):23-43.
- Emmons, I., and E. Nowak. 2013. Northern Mexican gartersnake surveys 2012: interim report. Colorado Plateau Res. Station, Northern Arizona Univ. Flagstaff, Arizona.
- Fitzgerald, L. A. 1986. A preliminary status survey of *Thamnophis rufipunctatus* and *Thamnophis eques* in New Mexico. Unpubl. report to New Mexico Department of Game and Fish, Albuquerque, New Mexico.
- Hendrickson, D. A. and W. L. Minckley. 1984. Cienagas - vanishing climax communities of the American Southwest. *Desert Plants* 6(3):131-175.
- Holycross, A. T., W. P. Burger, E. J. Nigro, and T. C. Brennan. 2006. Surveys for *Thamnophis eques* and *Thamnophis rufipunctatus* along the Mogollon Rim and New Mexico. A Report to Submitted to the Arizona Game and Fish Department. 94 pp.
- Nowak, E. M. and V. L. Boyarski. 2012. *Thamnophis eques megalops* (Northern Mexican Gartersnake). Reproduction: Litter size. *Herpetological Review* 43(2):351-352.

Karla S. Petty

- Price, A. H. 1980. Geographic Distribution Notes: *Thamnophis eques megalops*. Herpetological Review 11(2):39.
- Rosen, P. C. and C. R. Schwalbe. 1988. Status of the Mexican and narrow-headed garter snakes (*Thamnophis eques megalops* and *Thamnophis rufipunctatus rufipunctatus*) in Arizona. Unpubl. report from Arizona Game and Fish Dept. (Phoenix, Arizona) to U.S. Fish and Wildlife Service, Albuquerque, New Mexico. iv + 50 pp + appendices.
- Rosen, P. C., E. J. Wallace, and C. R. Schwalbe. 2001. Resurvey of the Mexican Garter Snake (*Thamnophis eques*) in Southeastern Arizona Pp. 70-94 in P. C. Rosen and C. R. Schwalbe. 2002. Conservation of wetland herpetofauna in southeastern Arizona. Final Report to the Arizona Game and Fish Department (Heritage Grant #I99016) and U.S. Fish and Wildlife Service. 160 pp.
- Rossmann, D. A., N. B. Ford, and R. A. Seigel. 1996. The Garter Snakes. University of Oklahoma Press: Norman, Oklahoma. 332 pp.
- U.S. Fish and Wildlife Service (USFWS). 2014. Endangered and threatened wildlife and plants; threatened status for the northern Mexican gartersnake and narrow-headed gartersnake; final rule. Federal Register 79(130) 38678-38746.
- \_\_\_\_\_. 2013. Endangered and threatened wildlife and plants; designation of critical habitat for the northern Mexican gartersnake and narrow-headed gartersnake; proposed rule. Federal Register 78(132) 41550-41608.
- U.S. Geological Survey (USGS). 1973. Hydrologic conditions in the San Pedro River Valley, Arizona 1971. Arizona Water Commission Bulletin No. 4, March 1973.
- \_\_\_\_\_. 2014. Surface water data for USA: USGS surface water monthly statistics, <http://waterdata.usgs.gov/nwis/monthly?> Monthly average discharge for USGS Gage No. 09471800: San Pedro River Near Benson, Arizona. Accessed February 24, 2014.

## APPENDIX A: CONFERENCE REPORT

This appendix contains our concurrence with your determination that the proposed action will not likely adversely modify critical habitat for the northern Mexican gartersnake.

### DESCRIPTION OF THE PROPOSED ACTION

The proposed action is described above in the Biological Opinion (BO) and is incorporated herein by reference. In summary, the proposed action involves bridge deck resurfacing and pier scour retrofitting on the east- and west-bound Interstate 10 bridges over the San Pedro River just east of Benson, Arizona, in Cochise County. The purpose of the project is to improve the structural integrity of two bridges and assure public safety.

### Proposed Critical Habitat

Critical habitat for the northern Mexican gartersnake has been proposed in 14 units in portions of Arizona and New Mexico totaling 421,423 ac. Within these areas, the primary constituent elements (PCEs) of the physical and biological features essential to gartersnake conservation are:

1. Aquatic or riparian habitat that includes:
  - a. Perennial or spatially intermittent streams of low to moderate gradient that possess appropriate amounts of in-channel pools, off-channel pools, or backwater habitat, and that possess a natural, unregulated flow regime that allows for periodic flooding or, if flows are modified or regulated, a flow regime that allows for adequate river functions, such as flows capable of processing sediment loads; or
  - b. Lentic wetlands such as livestock tanks, springs, and cienegas; and
  - c. Shoreline habitat with adequate organic and inorganic structural complexity to allow for thermoregulation, gestation, shelter, protection from predators, and foraging opportunities (e.g., boulders, rocks, organic debris such as downed trees or logs, debris jams, small mammal burrows, or leaf litter); and
  - d. Aquatic habitat with characteristics that support a native amphibian prey base, such as salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants absent or minimally present at levels that do not affect survival of any age class of the gartersnake or the maintenance of prey populations.
2. Adequate terrestrial space (600 ft lateral extent to either side of bankfull stage) adjacent to designated stream systems with sufficient structural characteristics to support life-history functions such as gestation, immigration, emigration, and brumation.
3. A prey base consisting of viable populations of native amphibian and native fish species.
4. An absence of nonnative fish species of the families Centrarchidae and Ictaluridae, bullfrogs, and/or crayfish (*O. virilis*, *P. clarki*, etc.), or occurrence of these nonnative species at low enough levels such that recruitment of northern Mexican gartersnakes and maintenance of viable native fish or soft-rayed, nonnative fish populations (prey) is still occurring.

Karla S. Petty

### Conservation Measures

- Following the completion of channel work, all actions to dewater the channel will be reversed; thus, no permanent dewatering or reduction in water will exist at this site.
- Areas outside waters of the U.S. ground disturbances occur will be reseeded with native plant species.

### DESCRIPTION OF EFFECTS

Here we focus on a subunit of one of the 14 units proposed as gartersnake critical habitat: The San Pedro River Subunit includes 22,669 ac of critical habitat along 158.4 mi of the river, from its confluence with the Gila River at Winkelman, upstream (south) to the International Border, in Cochise, Pima, and Pinal Counties, Arizona. The subunit occurs predominately on private lands, with remaining lands managed by the Bureau of Land Management. Native fish and lowland leopard frogs occur throughout the San Pedro River and provide a prey base for gartersnakes, with prey population densities increasing in the downstream direction (north). Crayfish, bullfrogs, and nonnative, spiny-rayed fish occur predominately upstream (south) of the I-10 crossing.

Our examination of aerial photographs at the I-10/San Pedro River crossing and site visits by ADOT on October 7, 2013, and January 8, 2014, indicate that the project area is usually a dry creek bed. Water is present here probably only in response to rain events. As described in the BO, aquatic and riparian habitat associated with gartersnake proposed critical habitat does not occur in the action area.

Thus, the San Pedro River crossing appears to have few of the PCEs of gartersnake critical habitat: there are no perennial flows; no aquatic or riparian habitat; and probably no permanent, viable prey populations, native or nonnative. However, gartersnakes may move through the crossing when they are foraging or dispersing between more suitable habitat areas, in spite of the lack of perennial flows. When intermittent flows occur, the chances of gartersnake prey being present and the chances of gartersnake use would likely increase.

Bridge repairs will be undertaken even if surface flows occur within the project area at the time construction is scheduled to begin (October 15, 2015). Although these activities will not affect the overall hydrology in this reach of the San Pedro River, areas immediately below and adjacent to the bridges will be completely (but temporarily) dewatered via channel contouring and pipe installation. Dewatering will continue for a maximum of 4 weeks while channel work proceeds. Construction of temporary equipment access routes, channel contouring, pipe installation, clearing around bridge piers and abutments, and installation of rock gabions will result in the initial loss of 1.07 acres of potential protective cover and structural terrestrial features, such as vegetation, channel banks, overhangs, and rock crevices within the project limits. These impacts will be temporary, and once construction is complete, it is expected that terrain and channel conditions providing protective cover and features will inevitably return to a natural state over time. The project will not result in the permanent loss of protective cover and structural terrestrial features.

Karla S. Petty

Once installed and project activities cease, terrestrial space adjacent to the channel will be available. Gartersnakes can use interstices in the rocks contained in the gabion baskets for temporary cover and escape. This protective cover will be immediately available following construction. The prey base for northern Mexican gartersnake will not be diminished and project activities will not increase or introduce harmful nonnative species, particularly aquatic and semiaquatic species.

#### DETERMINATION

We concur with your determination that the proposed action will not likely adversely modify or destroy proposed northern Mexican gartersnake critical habitat for the following reasons:

- The San Pedro River crossing is usually dry and has few of the PCEs of proposed gartersnake critical habitat.
- Dewatering of the San Pedro River in the project area and ground disturbances will be temporary, and we expect that proposed critical habitat in the project area, which is used primarily for movements and dispersal, will continue to remain functional into the future.