



United States Department of the Interior

Fish and Wildlife Service

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In reply refer to:

AESO/SE

02EAAZ00-2014-F-0463

March 1, 2016

Neil Bosworth
Forest Supervisor
Tonto National Forest
2324 E. McDowell Rd.
Phoenix, Arizona 85006

RE: Biological Opinion for the Tonto National Forest Travel Management Rule

Dear Mr. Bosworth:

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, dated August 18, 2015 and the August 2015, Biological Assessment (BA), were received by us on August 24, 2015. At issue are impacts that may result from the proposed designation of an existing system of motorized roads, trails, areas, zones, and corridors on the Tonto National Forest (Tonto NF) to comply with the Travel Management Rule (36 CFR 212, Subpart B) in Gila, Maricopa, Pinal, and Yavapai counties, Arizona. The proposed action will require amendments to the Tonto NF Land and Resource Management Plan. You concluded that the proposed action "may affect, is likely to adversely affect" the endangered southwestern willow flycatcher (*Empidonax traillii extimus*) and its designated critical habitat, the threatened Western Distinct Population Segment of the yellow-billed cuckoo (*Coccyzus americanus*) and its proposed critical habitat, the threatened narrow-headed gartersnake (*Thamnophis rufipunctatus*) and its proposed critical habitat, and the threatened northern Mexican gartersnake (*Thamnophis eques megalops*) and its proposed critical habitat.

You also concluded that the proposed action "may affect, but is not likely to adversely affect" ten species: the endangered Arizona cliffrose (*Purshia subintegra*), the endangered Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*), the threatened Chiricahua leopard frog (*Lithobates chiricahuensis*) and its designated critical habitat, the endangered Gila chub (*Gila intermedia*) and its designated critical habitat, the endangered Gila topminnow (*Poeciliopsis occidentalis occidentalis*), the proposed threatened headwater chub (*Gila nigra*), the threatened Mexican spotted owl (*Strix occidentalis lucida*) and its designated critical habitat, the endangered ocelot (*Leopardus pardalis*), the proposed threatened roundtail chub (*Gila robusta*), and the endangered Yuma clapper rail (*Rallus longirostris yumanensis*). You also requested our concurrence that the effects of the proposed action are not likely to jeopardize the continued existence of the experimental, non-essential population of the Mexican wolf (*Canis*

lupus baileyi). We concur with your determinations for these species and provide our rationales in Appendix A.

Your letter requested our concurrence for the candidate Sonoran desert tortoise (*Gopherus morafkai*). On October 6, 2015, the FWS published a final rule determining that listing the tortoise as an endangered or threatened species was not warranted (USFWS 2015a) thus removing the species from the candidate list. We anticipate that any negative impacts on the tortoise from the implementation of the proposed action would be offset by your agency's commitment to implement management actions that reduce stressors to the species, as described in the Sonoran desert tortoise Candidate Conservation Agreement.

Additionally, after further discussions with our agency, you determined that the proposed action will have "no effect" on six species: the endangered desert pupfish (*Cyprinodon macularius*), the endangered loach minnow (*Tiaroga cobitis*) and its designated critical habitat, the endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), the endangered razorback sucker (*Xyrauchen texanus*), the endangered spikedace (*Meda fulgida*) and its designated critical habitat, and the experimental, non-essential population of the Colorado pikeminnow (*Ptychocheilus lucius*). Species with "no effect" determinations do not require review by the FWS and are not addressed further in this correspondence.

This biological and conference opinion (BO/CO) is based on information provided in the final August 2015 BA, the June 2014 Draft Environmental Impact Statement (DEIS) and the associated specialist reports, Tonto NF Geographic Information System (GIS) data, meetings between our agencies, telephone conversations, and other sources of information. Literature cited in this BO/CO is not a complete bibliography of all literature available on the species of concern or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at our office. According to the Tonto NF, the Travel Management Rule is a one-time action with a final publication of a Motor Vehicle Use Map lasting for perpetuity. Our analysis however, is for a 10-year period because analyzing effects to listed species beyond this period would be too speculative and would weaken the robustness of our opinion.

CONSULTATION HISTORY

- May 27, 2014: We met with the Acting Wildlife Program Lead to discuss the proposed alternatives described in the DEIS for the Travel Management Rule. We also received a copy of the May 2014, Final Biological Evaluation for review.
- March 30, 2015: We met with your staff to discuss changes to the latest proposed action which occurred since the July 2012 Draft BA and the January 2012 Draft Environmental Assessment.
- September 8, 2014: We submitted agency comments on the June 2014, DEIS.

- April 3, 2015 to May 29, 2015: We reviewed draft copies of the effects analyses for birds, reptiles, amphibians, mammals, and plants and provided comments in preparation for the final BA.
- August 13, 2015: We met with your staff to discuss the alternatives for the closure of Forest Road 393 in the Mazatzal Wilderness Area and access to the Gila topminnow recovery population, review the final proposed action for the southwestern willow flycatcher, resolve any last consultation questions or concerns, and set consultation timelines for project completion.
- August 24, 2015: We received your request for formal consultation and an electronic copy of the final BA.
- September 20, 2015: We received all of the required information and initiated formal consultation.
- January 8, 2016: We provided your staff with a draft BO for their review.
- January 29, 2016: We received your January 26, 2016, letter that you had reviewed the draft BO and no further clarification is needed.
- February 6, 2016: You provided GIS data on the proposed personal fuelwood gathering areas for all species considered in the consultation.

BIOLOGICAL AND CONFERENCE OPINION

DESCRIPTION OF THE PROPOSED ACTION

The Tonto NF proposes to designate a system of roads and motorized trails, in addition to prohibiting motorized cross-country travel, except in designated motorized areas, designating spur routes to access dispersed campsites, and fixed distance corridors solely for the purpose of motorized big game retrieval, on the entire forest. The proposed action will result in the publication of a Motor Vehicle Use Map showing those roads, trails and areas that are designated for motor vehicle use. Once the map is released to the public, travel off the designated route system will be prohibited unless authorized by permit or as allowed by the Travel Management Rule and the designated responsible Tonto NF official.

The Tonto NF currently does not have a forest-wide designated road or trail system. The purpose of this action is to comply with the National Forest Service's Travel Management Rule (36 CFR 212, 251, 261, and 295) by providing a system of roads, trails, and areas designated for motor vehicle use by class of vehicle and time of year. There is a need to determine which, if any, authorized National Forest System roads currently open should be closed to motorized travel; a need to determine which, if any, authorized roads currently closed should be open; a need to identify any restrictions on allowed uses, classes of vehicles, and/or seasons of use for specific routes; and a need to determine which, if any, unauthorized routes should be added to

the National Forest System as trails or roads open for motorized access. No new roads or motorized trails will be constructed as a result of the proposed action. The proposed action does not include road maintenance, which will be addressed through the Tonto NF's Land and Resource Management Plan.

Furthermore, there is a need to determine if, when, where, and how far motor vehicles may be driven off designated roads for the sole purpose of motorized big game retrieval and collection of forest products. Finally, there is a need to amend the Forest Plan, in part, to prohibit motor vehicle use off designated National Forest System roads, trails, and areas except as shown on the Motor Vehicle Use Map and to revise wording for consistency regarding definitions to comply with the Travel Management Rule, *36 CFR 261.13*.

Roads and Trails Designated for Motor Vehicle Use

The proposed action will designate approximately 1,311 miles of roads and 2,337 miles of motorized trails to be open for public access (Table 1). Approximately 167 miles of roads and 411 miles of motorized trails will be restricted to authorized use only for administrative purposes by the Tonto NF or for other permitted activities. Designated National Forest System roads and motorized trails within existing seasonal closure areas will be seasonally designated for motor vehicle use. Approximately 1,276 miles of roads are proposed for decommissioning; some of these roads may already be effectively obliterated on the ground from lack of use or due to previous road closure efforts.

Table 1. Comparison between the Existing Conditions and the Proposed Action

Proposed Action	Existing Condition	Proposed Action	Change from Existing Condition
Roads Open to Vehicles (miles)	2,952.39	1,310.95	-1641.44
Motorized Trails (miles)	0	2,337.17	+2,340.67
Administrative Use Only Roads (miles)	0	166.69	+166.69
Administrative Use Only Motorized Trail (miles)	0	410.53	+410.53
User Created & Forest Service Roads Open to Public (miles)	2,678.54	0	-2,678.54
Decommissioned & Closed Roads (miles)	0	1,276.08	+1,276.08
Total Motorized Open to Public (miles)	4,958.58	3,601.28	-1,357.30
Total Motorized System (miles)	4,958.58	4,178.40	-780.18
Density of designated routes open to public (miles per square mile)	1.33	1.13	-0.20
Density of designated routes (miles per square mile)	1.07	0.90	-0.17
Areas designated for motorized vehicle use (acres)	703,618*	2,091	-701,527
Permit zones (acres)	34,720	116,798	+82,708
Motor vehicle use for big game retrieval – elk and bear (acres)	703,618*	1,933,288	+1,255,423
Motor vehicle use for dispersed camping (acres)	703,618	516.38	-703,101
Motor vehicle use for personal use fuelwood gathering and other forest products (acres)	1,345,998*	1,309,329	-36,669

*The number of acres refers to the Payson and Pleasant Valley Ranger Districts, which currently have unrestricted motorized cross-country travel.

Areas Designated for Motor Vehicle Use

The proposed action will limit motorized cross-county travel to four off-highway vehicle (OHV) areas (Table 2). These areas will total approximately 2,051 acres and include: specific locations around Bartlett Lake between the variable water level and the high water mark; Golf Course; specific locations around Roosevelt Lake between the variable water level and the high water mark; and Sycamore. In addition, there will be four proposed “tot lots” totaling approximately 11 acres. These areas would be limited to children and allow them to learn OHV use and safety without the presence of other motorized users.

Table 2: Proposed Off-Highway Vehicle Areas and Tot Lots by Ranger District and Acreage

Name of OHV Area	Ranger District	Acres
Bartlett Lake	Cave Creek	177.1
Golf Course	Globe	17.3
Roosevelt Lake	Tonto Basin	525
Sycamore	Mesa	1,331.9
Tot Lot Areas		
532	Cave Creek	0.8
Sycamore	Mesa	3.0
The Rolls	Mesa	6.0
Wildcat	Cave Creek	1.6
Total		2062.7

Permit Zones

There would be four designated permit zones: Bulldog Canyon OHV Area, Desert Vista, The Rolls, and St. Clair (Table 3). Despite having “area” in the names, cross-country travel is not allowed in the permit zones. Motorized vehicle users will be required to get a permit to access these areas and stay on designated routes. These areas will have locked gates and barriers restricting non-permitted access. The Bulldog Canyon OHV Area is currently an existing permit zone and its continued use would be authorized under the proposed action.

Table 3: Proposed Permit Zones by Ranger District and Acreage

Name of Permit Zone	Ranger District	Acres
Bulldog Canyon	Mesa	34,720.0
Desert Vista	Cave Creek	33,479.3
The Rolls	Mesa	24,143.7
St. Clair	Cave Creek	24,454.9
Total		116,798

Motor Vehicle Use for Big Game Retrieval (MBGR)

The proposed action would allow for motor vehicle use, up to one mile on both sides of all designated roads and motorized trails within Arizona Game and Fish Department (AGFD) Game Management Units (GMU) (including 21, 22, 23, 24A, and 24B) solely for the purpose of retrieving legally harvested elk and bear for all hunts. Limitations to this corridor would be within congressionally designated areas where motorized travel is not permitted (i.e., wilderness areas) and other areas that would remain closed from existing closure orders. This results in approximately 1,933,288 acres where motorized big game retrieval would be permitted.

The AGFD conducted an analysis to approximate the number of individuals that may use a motorized vehicle off designated roads and motorized trails to retrieve an elk or bear that was legally harvested. The AGFD estimated the approximate number of motorized trips that would be taken yearly based on the GMU and the species (Table 4). Not all motorized trips are expected to require the full length of the entire allowed mileage for retrieval of big game.

Table 4: Estimated Number of Elk and Bear Retrieval on Tonto National Forest

Game Management Unit	Elk	Bear	Combined (rounded)
21	*	0.90	1
22	103.02	2.74	106
23	90.58	9.16	100
24A	*	2.37	2
24B	*	0.40	1
Total	193.60	15.57	210

*Permits for hunting elk are not issued for these units or elk harvested in these units on the Tonto NF and subsequent motorized big game retrieval is negligible.

Bear Harvest

Information provided from the AGFD on bear hunting permits described that the majority of permits are issued during the fall hunt seasons that begin in August and run through the end of December. The majority of black bears harvested on the Tonto NF occur during the fall from August through October. Based on data collected between 1998 and 2002, 57.6% of black bears harvested in Arizona were killed in areas located primarily south of the Mogollon Rim, and most (55%) were harvested in September (AGFD 2014). The harvest locations of bears on the Tonto NF are often at elevations less than 6,000 feet with temperatures sometimes exceeding 80 degrees Fahrenheit during those months. The five year average black bear harvest on the Forest is 69 animals, and the annual motorized big game retrievals for black bear are estimated at 15 trips.

Tonto NF requires that motorized big game retrieval will adhere to the following stipulations:

- Hunters will be required to use the most direct and least ground disturbing route in and out of the area to accomplish the retrieval.
- Motorized big game retrieval would not be allowed in existing off-road travel restricted areas, or when conditions are such that travel would cause damage to natural and/or cultural resources.

- Motorized vehicles for big game retrieval would not be permitted to cross riparian areas, creeks, and rivers except at hardened crossings or crossings with existing culverts.

Motor Vehicle Use for Dispersed Camping

The proposed action will designate approximately 94 miles of motorized trails for use by full-sized vehicles to access the 2,741 existing dispersed camping sites on the forest (Table 5). Before these routes will be shown on the Motor Vehicle Use Map and made available for public use, they will need to be surveyed for cultural resources. One hundred twenty three routes leading into critical habitat for federally listed species will be closed. These routes currently exist on the ground and are likely unauthorized routes used to access camping sites. Routes that pose a threat to cultural resources may not be designated or may need to be rerouted to protect cultural and prehistoric sites. The average length of these spur routes for accessing dispersed camping is 173 feet.

Table 5: Number and Miles of Spur Routes to Access Dispersed Campsites

Ranger District	Total Number of Spur Routes	Total Miles for Dispersed Campsite Access
Cave Creek	236	6.1
Globe	467	27.0
Mesa	237	10.6
Payson	611	15.1
Pleasant Valley	538	15.2
Tonto Basin	775	19.8
Total	2,864	93.8

Personal Use Fuelwood Gathering and Other Forest Products

Personal use fuelwood gathering and other forest products will be largely similar to the current system used on the Tonto NF. Permits for personal use fuelwood gathering will be limited to the Globe, Payson, Pleasant Valley, and Tonto Basin Ranger Districts (RDs). For those with a personal use fuelwood permit, the use of a motorized vehicle for gathering fuelwood would not be limited so long as they are within a woodcutting permit area. This area is approximately 1,309,329 acres, which is slightly less than existing conditions as nearly 37,000 acres were removed to eliminate potential effects to several federally listed species and their habitats. Each year approximately 1,500 permits are issued on the Tonto NF. The permit does not allow cutting on other public land or on private land. Rules for permit holders include: do not cut or remove wood from wilderness and experimental areas, campgrounds and picnic areas, restricted areas, administrative sites, ongoing commercial fuelwood or timber sales, special personal use areas, or non-harvest areas identified on the permit maps attached to the permit; and no fuelwood cutting is allowed on Mesa or Cave Creek RDs.

The standard fuelwood gathering season is March 1st to December 31st. Where fuelwood cutting is permitted, the following stipulations apply:

- Locate fuelwood before moving vehicle off route; take the most direct route to the product.
- Do not damage other vegetation in route to product location.

- Return to the designated road on the same direct path used; cover your route with slash or other available debris.
- If there is no good route; do not attempt to collect that fuelwood.
- Do not go off road when soils are wet or rutting may occur.
- Motorized vehicles are not permitted to cross riparian areas, creeks, and rivers except at hardened crossings or crossings with existing culverts.

Additional forest products, such as seeds, cones, branches of shrubs, and driftwood, will require a permit to be gathered on the forest. The permits for most of these products are within existing permitted fuelwood gathering areas. Outside of these permitted areas, gathering additional forest products would only be allowed using a motor vehicle on designated roads and in areas where motorized cross-country travel is permitted (OHV areas only). Further restrictions for fuelwood gathering occur within proposed and designated critical habitat for listed species along riparian areas and the Three Bar Wildlife area southwest of Roosevelt Lake.

Collection of Forest Resources by Tribal Members

The proposed action will continue to permit the collection of forest resources by tribal members and will not change from the existing conditions. Currently, the Tonto NF's policy (in compliance with the *American Indian Religious Freedom Act* and the U.S. Forest Service Policy toward American Indians and Alaska Natives) requires a permit for timber products to be used for religious purposes. No Forest Service permit is required for the collecting of minor quantities of medicinal and ceremonial plants, acorns, pinyon nuts, agave, tree boughs, water, plants, quartz crystals, other minerals, soil, invertebrate fossil remains, rocks, trees less than six feet in height, and other food plants or other resources for personal (noncommercial) use in traditional cultural or religious activities, provided those activities are in accordance with *Executive Order 13007*, applicable laws and regulations, and Forest Service policies regarding special forest products and botanical products. For tribal members, no artifacts or other cultural items or remains may be collected from archaeological sites without a permit. Motorized use for the gathering of forest resources is only allowed on designated roads. A permit does not allow cross-country vehicle travel.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

The jeopardy analysis in this BO/CO relies on four components in our evaluation for each species: (1) the *Status of the Species*, which evaluates the species' range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the species in the planning area, the factors responsible for that condition, and the relationship of the planning area to the survival and recovery of the species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and, (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the planning area on the species.

The jeopardy analysis in this BO/CO places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the planning area in the survival and recovery of the species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

The adverse modification analysis in this BO/CO relies on four components: 1) the *Status of Critical Habitat*, which evaluates the range-wide condition of designated critical habitat for the species in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; 2) the *Environmental Baseline*, which evaluates the condition of the critical habitat in the planning area, the factors responsible for that condition, and the recovery role of the critical habitat in the planning area; 3) the *Effects of the Action*, which determine the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how they will influence the recovery role of affected critical habitat units (CHUs); and, 4) *Cumulative Effects*, which evaluate the effects of future, non-Federal activities in the planning area on the PCEs and how they will influence the recovery role of affected CHUs.

For purposes of the adverse modification determination, the effects of the proposed Federal action on each species' critical habitat are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the species. Adverse effects to critical habitat that do not remove a site's ability to maintain or develop PCEs in the future do not lead to an adverse modification determination.

Description of the Action Area

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (*50 CFR section 402.02*). In delineating the action area, we evaluated the farthest reaching physical, chemical, and biotic effects of the action on the environment. The action area for this project is the entire Tonto NF, which includes portions of land in Gila, Maricopa, Pinal, and Yavapai counties. This area totals 2,964,308 acres and ranges in elevation from 1,400 feet in the Sonoran Desert to more than 7,400 feet in the ponderosa pine forest near the Mogollon Rim. The Tonto NF is administratively divided into six RDs: Cave Creek, Globe, Mesa, Payson, Pleasant Valley, and Tonto Basin. The action area does not include State, Tribal, or privately-owned land. The consultation for the Travel Management Rule is based on changes to route designations and cross-country travel across the entire Forest from the existing conditions to the proposed action; dispersed camping is also analyzed as an interrelated-interdependent action.

The Tonto NF currently has approximately 4,959 miles of designated and documented unauthorized (user-created) routes. These are comprised of approximately 2,952 miles of public roads, approximately 1,739 miles of roads closed to vehicle use, and 267 miles of decommissioned routes. After reviews of satellite imagery, gathering of on-the-ground

information from ranger district personnel, Forest Service Law Enforcement Officers, and AGFD employees, the Tonto NF determined that many of the decommissioned routes and routes which are closed to vehicles are likely still being used by the public (USFS 2014). On the Payson and Pleasant Valley RDs, motorized cross-country travel is currently authorized yearlong across approximately 703,618 acres of land unless otherwise restricted. Cross-country travel is currently restricted on the Cave Creek, Globe, Mesa, and Tonto Basin RDs, unless posted open. However, according to the Recreational Report (Jones 2014), illegal cross-country travel is known to occur. Off-highway vehicle use has occurred off forest system routes, in sensitive riparian areas, through heritage sites, in threatened or endangered species habitat, into designated wilderness areas, through streams and up stream banks, and across highly erodible slopes, creating an extensive network of unauthorized routes.

Therefore, the Tonto NF used the 5,000 miles of routes as the baseline for this project with the assumption that all roads are currently in use, and roads in listed species' habitats are likely having an effect on those species. However, any effects from the existing conditions are not described in the BA. We considered effects currently occurring from OHV use as part of the environmental baseline and discuss these effects for each species where information is available.

Species Assumptions

The Tonto NF's method for the effects analysis is described in their BA. For the purpose of this consultation, we provided some of the keys point about their process below:

1. Roads, motorized trails, and areas with negative impacts to wildlife or wildlife habitat that could not be mitigated to acceptable levels were excluded from designation. The "acceptable level" meant that the degree of impact from a road, motorized trail, or area does not result in jeopardy or an adverse modification determination.
2. Whenever possible, species-specific habitat and occurrence GIS data were used for this analysis. Where specific occurrence information was lacking, the Tonto NF worked with our agency to identify species-habitat relationships and used designated and proposed critical habitat and the Forest's Potential Natural Vegetation Types (PNVT) GIS layers to assist in analyses.
3. Miles and density of roads by type are derived from the Tonto NF GIS database and reflects the best available information. Only roads under Tonto NF authorization were analyzed in this document. While all efforts were made to digitize unauthorized roads, the Tonto NF GIS data layer is unlikely to include every mile on the ground. It is unknown how many miles of unauthorized routes have been missed, but the number of new routes is assumed to be expanding every year due to increased motorized vehicular use on the Tonto NF. Implementation of the Travel Management Rule under the proposed action will provide legal backing for enforcement of travel restrictions under the Rule.

The Tonto NF also made several assumptions in their species' effects evaluation in the BA. Some of these include:

1. No new roads or motorized trails will be constructed as a result of the proposed action.
2. Designation of a road or motorized trail under the proposed action will not result in an increase in effects over the current level the road or trail is having on listed species and their habitats. Routes now designated have been in use for over a decade or more. The proposed action reduces the number of miles and acres of habitat affected for listed species when compared to current conditions.
3. During the regular hunting season, MBGR would not be allowed till late August after the Mexican spotted owl breeding season.
4. Designating the approximately 2,091 acres of OHV areas in the proposed action will not result in effects over the current level unauthorized uses are having on listed species and their habitats. These areas are located at sites that are already highly disturbed by unauthorized cross-country travel and other uses and provide limited habitat for listed species.
5. Designating the route to a dispersed campsite will not result in effects over the current level the campsite is having on listed species and their habitats. Routes to dispersed campsites within critical habitat for listed species will be closed.

We treated the effects from all routes equally except those that are being proposed for decommissioning. Although all routes are currently in use and any adverse effects to listed species are already occurring or have occurred in the past, these routes have not been previously analyzed under another Federal action such that, any adverse effects that have occurred are treated as part of the species environmental baseline. Our analysis examines the continued use of the designated route or the decommissioning of the route on the species known occurrence, its habitat or potential habitat given lack of survey data, and it's proposed or designated critical habitat.

SPECIES ACCOUNTS

NARROW-HEADED GARTERSNAKE

Status of the Species

The narrow-headed gartersnake was listed as threatened on July 8, 2014 (USFWS 2014a). Critical habitat was proposed on July 10, 2013 (USFWS 2013) and as of yet, has not been finalized. The narrow-headed gartersnake is a small to medium-sized gartersnake with a maximum total length of 44 inches (Painter and Hibbitts 1996). Its eyes are set high on its unusually elongated head, which narrows to the snout, and it lacks striping on the dorsum (top) and sides, which distinguishes its appearance from other gartersnake species with which it could co-occur (Rosen and Schwalbe 1988). The base color is usually tan or grey-brown (but may darken) with conspicuous brown, black, or reddish spots that become indistinct towards the tail

(Rosen and Schwalbe 1988; Boundy 1994). The scales are keeled. Degenhardt *et al.* (1996), Rossman *et al.* (1996), and Ernst and Ernst (2003) further describe the species.

Habitat and Natural History

The narrow-headed gartersnake, distributed across the Mogollon Rim of Arizona and New Mexico, is widely considered to be one of the most aquatic of the gartersnakes (Drummond and Marcias Garcia 1983; Rossman *et al.* 1996). This species is strongly associated with clear, rocky streams, using predominantly pool and riffle habitat that includes cobbles and boulders (Rosen and Schwalbe 1988; Degenhardt *et al.* 1996; Rossman *et al.* 1996; Nowak and Santana-Bendix 2002; Ernst and Ernst 2003). Rossman *et al.* (1996) also noted the species has been observed using lake shoreline habitat in New Mexico. Narrow-headed gartersnakes occur at elevations from approximately 2,300 to 8,000 feet, inhabiting Petran Montane Conifer Forest, Great Basin Conifer Woodland, Interior Chaparral, and the Arizona Upland subdivision of Sonoran Desertscrub communities (Rosen and Schwalbe 1988; Brennan and Holycross 2006). Despite their highly aquatic behavior, narrow-headed gartersnakes in Oak Creek have been shown to use upland habitat within 328 feet during early fall and spring months, strongly associated with boulders in the floodplain during summer months, and use upland habitat up to 656 feet out of the floodplain as hibernation sites (Nowak 2006).

Narrow-headed gartersnakes eat fish (Rosen and Schwalbe 1988; Degenhardt *et al.* 1996; Rossman *et al.* 1996; Nowak and Santana-Bendix 2002; Nowak 2006) and are considered prey-specialists in this regard. Native fish species considered as prey for the narrow-headed gartersnake include Sonora sucker (*Catostomus insignis*), desert sucker (*C. clarki*), speckled dace (*Rhinichthys osculus*), roundtail chub, Gila chub, and headwater chub (Rosen and Schwalbe 1988; Degenhardt *et al.* 1996). Nonnative predatory fish species in their fingerling size classes are also used as prey by narrow-headed gartersnakes, including brown trout (*Salmo trutta*) (Rosen and Schwalbe 1988; Nowak and Santana-Bendix 2002; Nowak 2006), green sunfish (Flehart 1967), and smallmouth bass (*Micropterus dolomieu*). Reports suggest that brown trout are consumed more frequently than smallmouth bass. Nonnative fish with spiny dorsal fins are not generally considered suitable prey items due to the risk of injury to the gartersnake during ingestion and because of where they tend to occur in the water column (Nowak and Santana-Bendix 2002).

Native predators of the narrow-headed gartersnake include birds of prey, such as black-hawks (Etsel *et al.* 2014), other snakes such as regal ring-necked snakes (Brennan *et al.* 2009), wading birds, mergansers, belted kingfishers, raccoons (Rosen and Schwalbe 1988), and possibly other generalist mammalian predators. Historically, large, highly predatory native fish species such as Colorado pikeminnow may have preyed upon narrow-headed gartersnakes where the species co-occurred. Native chubs (*Gila* spp.) may also prey on neonatal gartersnakes.

Sexual maturity in narrow-headed gartersnakes occurs at 2.5 years of age in males and at 2 years of age in females (Degenhardt *et al.* 1996). Narrow-headed gartersnakes are viviparous. They breed annually and females give birth to 4 to 17 offspring from late July into early August, perhaps earlier at lower elevations (Rosen and Schwalbe 1988). They may live as long as 10 years in the wild (Rosen and Schwalbe 1988).

Historical Distribution

The historical distribution of the narrow-headed gartersnake ranged across the Mogollon Rim and along associated perennial stream drainages from central and eastern Arizona, southeast to southwestern New Mexico at elevations ranging from 2,300 to 8,000 feet (Rosen and Schwalbe 1988; Rossman *et al.* 1996; Holycross *et al.* 2006). The species was historically distributed in headwater streams of the Gila River subbasin that drain the Mogollon Rim and White Mountains in Arizona, and the Gila Wilderness in New Mexico. Major subbasins in its historical distribution included the Salt and Verde River subbasins in Arizona, and the San Francisco and Gila River subbasins in New Mexico (Holycross *et al.* 2006). Holycross *et al.* (2006) suspect the species was likely not historically present in the lowest reaches of the Salt, Verde, and Gila Rivers, even where perennial flow persists. Numerous records for the narrow-headed gartersnake (through 1996) in Arizona are maintained in the AGFD's Heritage Database.

Current Distribution and Population Status

As of 2011, the only remaining narrow-headed gartersnake populations where the species could reliably be found were located at: (1) Whitewater Creek (NM), (2) Tularosa River (NM), (3) Diamond Creek (NM), (4) Middle Fork Gila River (NM), and (5) Oak Creek Canyon (AZ). However, populations found in Whitewater Creek and the Middle Fork Gila River were likely significantly affected the large Whitewater-Baldy Complex Fire, which occurred in June 2012, and their current population status is less certain. As of 2014, in as many as 31 of 41 known localities (76 percent), the narrow-headed gartersnake population is likely not viable and may exist at low population densities that could be threatened with extirpation or may already be extirpated.

Factors Associated with Population Declines and Range Retractions

The best available commercial and scientific information confirms that harmful nonnative species such as bass (*Micropterus* sp.), flathead catfish (*Pylodictis* sp.), channel catfish (*Ictalurus* sp.), bullheads (*Ameiurus* sp.), sunfish (*Lepomis* sp.), crappie (*Pomoxis* sp.), brown trout, American bullfrogs (*Lithobates catesbeiana*), and crayfish (northern (virile) crayfish (*Orconectes virilis*) and red swamp crayfish (*Procambarus clarkii*) are the most significant threat to narrow-headed gartersnakes and their prey bases, and have had a profound role in their rangewide decline. Complex ecological interactions between these harmful nonnative species and the native aquatic community have resulted in direct predation on gartersnakes; shifts in biotic community structure from largely native to largely nonnative; and competition for a diminished gartersnake prey base that can ultimately result in the injury, starvation, or death of individual narrow-headed gartersnakes followed by reduced recruitment within populations, subsequent population declines, and ultimately local and regional extirpations. The native fish communities that serve as a prey base for narrow-headed gartersnakes have been severely affected by harmful nonnative species such that native aquatic ecosystems are on the verge of collapse in many regions (USFWS 2014a).

Activities that reduce flows or dewater habitat, such as dams and diversions (Ligon *et al.* 1995; Turner and List 2007), flood-control projects, and groundwater pumping (Stromberg *et al.* 1996; Rinne *et al.* 1998; Voeltz 2002; Haney *et al.* 2009; USGS 2013), seriously threaten the physical habitat of the gartersnakes and are second only to harmful nonnative species in their scope and magnitude of effect on the narrow-headed gartersnake. This is because fish must have water to

survive and without this prey base, narrow-headed gartersnakes will not persist. These structures alter the timing, duration, intensity, and frequency of flood events which favors harmful nonnative species and leads to shifts in entire fish communities (Rinne *et al.* 1998; 2005; Propst *et al.* 2008) which compounds their effect on narrow-headed gartersnake populations. Human population growth has resulted in increased water demands and exacerbated the magnitude and scope of these effects on narrow-headed gartersnake populations.

Sedimentation can adversely affect fish populations used as prey by narrow-headed gartersnakes by: (1) Interfering with respiration; (2) reducing the effectiveness of fish's visually based hunting behaviors; and (3) filling in interstitial (spaces between cobbles, etc., on the stream floor) spaces of the substrate, which reduces reproduction and foraging success of fish (Wheeler *et al.* 2005). Siltation of the rocky interstitial spaces along stream bottoms decreases the dissolved oxygen content where fish lay their eggs, resulting in depressed recruitment of fish and a subsequent reduction in prey abundance for narrow-headed gartersnakes through the loss of prey microhabitat (Nowak and Santana-Bendix 2002). The underwater foraging ability of narrow-headed gartersnakes (de Queiroz 2003) is largely based on vision and is also directly compromised by excessive turbidity caused by sedimentation of water bodies. Suspended sediment in the water column may reduce the narrow-headed gartersnake's visual hunting efficiency from effects to water clarity, based on research conducted by de Queiroz (2003) that concluded the species relied heavily on visual cues during underwater striking behaviors.

The presence of adequate interstitial spaces along stream floors may be particularly important for narrow-headed gartersnakes. Hibbitts *et al.* (2009) reported the precipitous decline of narrow-headed gartersnakes in a formerly robust population in the San Francisco River at San Francisco Hot Springs from 1996 to 2004. The exact cause for this decline is uncertain, but the investigators suspected that a reduction in interstitial spaces along the stream floor from an apparent conglomerate, cementation process may have affected the narrow-headed gartersnake's ability to successfully anchor themselves to the stream bottom when seeking refuge or foraging for fish (Hibbitts *et al.* 2009). These circumstances would likely result in low predation success and eventually starvation.

Many other factors have contributed to the decline of the narrow-headed gartersnake, and in some cases, continue to present a significant threat to low-density populations through synergistic mechanisms, including: climate change and drought; development and recreation within riparian corridors; indirect effects from fisheries management activities; road construction, use, and maintenance; adverse human interactions with gartersnakes; environmental contaminants; and mortality from entanglement hazards such as erosion control products (USFWS 2014a).

Narrow-headed Gartersnake Proposed Critical Habitat

In July, 2013, we proposed 210,189 acres, along 1,503 stream miles as critical habitat for the narrow-headed gartersnake in Arizona and New Mexico (USFWS 2013). These areas are within six proposed critical habitat units located in the following: (1) Upper Gila River Subbasin; (2) Middle Gila River Subbasin; (3) San Francisco River Subbasin; (4) Salt River Subbasin; (5)

Tonto Creek Subbasin; and (6) Verde River Subbasin. All proposed critical habitat units are considered occupied at the time of listing.

Within these areas, the Primary Constituent Elements (PCEs) of the physical and biological features essential to narrow-headed gartersnake conservation are:

(1) Stream habitat, which includes:

- a. Perennial or spatially intermittent streams with sand, cobble, and boulder substrate and low or moderate amounts of fine sediment and substrate embeddedness, and that possess appropriate amounts of pool, riffle, and run habitat to sustain native fish populations;
- b. 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;
- c. Shoreline habitat with adequate organic and inorganic structural complexity (e.g., boulders, cobble bars, vegetation, and organic debris such as downed trees or logs, debris jams), with appropriate amounts of shrub- and sapling-sized plants to allow for thermoregulation, gestation, shelter, protection from predators, and foraging opportunities; and
- d. Aquatic habitat with no pollutants or, if pollutants are present, levels that do not affect survival of any age class of the narrow-headed gartersnake or the maintenance of prey populations.

(2) Adequate terrestrial space (600 feet) 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 fish species or soft-rayed, nonnative fish species.

(4) An absence of nonnative fish species of the families Centrarchidae and Ictaluridae, bullfrogs (*Lithobates catesbeianus*), and/or crayfish (*Orconectes virilis*, *Procambarus clarki*, etc.), or occurrence of these nonnative species at low enough levels such that recruitment of narrow-headed gartersnakes and maintenance of viable native fish or soft-rayed, nonnative fish populations (prey) is still occurring.

ENVIRONMENTAL BASELINE

Status of the species and Proposed Critical Habitat in the Action Area

The narrow-headed gartersnake occurs in the East Verde, Salt, and Verde Rivers and Canyon, Haigler, Houston, and Tonto Creeks on the Cave Creek, Globe, Payson, Pleasant Valley, and Tonto Basin RDs. Approximately 29,931 acres of habitat occur on the Tonto NF with 14,219 acres (48%) located in the Hellsgate, Mazatzal, and Salt River Canyon wilderness areas. Populations of narrow-headed gartersnakes on the Forest are considered “likely not viable” meaning the species is not reliably found with minimal to moderate survey effort, and threats exist which suggest the population may be at low density or could be extirpated, but there is

insufficient evidence to support extirpation of the area (USFWS 2014b).

Canyon Creek—The first historical record for the narrow-headed gartersnake appears to be from 1986, from approximately 2.25 miles upstream of the confluence with the Salt River on White Mountain Apache Tribal lands. Additional reports to the AGFD's Heritage Database document the species in upper and lower Canyon Creek during the 1980s, and as late as 1991. Holycross *et al.* (2006) conducted three surveys of Canyon Creek, upstream of White Mountain Apache Tribe lands in 2004–2005, with no detections of narrow-headed gartersnakes. Native fish were detected, as were nonnative trout (Holycross *et al.* 2006), which serve as prey species. No nonnative, predatory fish, crayfish, or bullfrogs were detected in these surveys efforts (Holycross *et al.* 2006). The physical habitat looked “ideal” for narrow-headed gartersnakes, with cobble stream substrates and adequate streamside vegetation that included watercress and willow (Holycross *et al.* 2006). Individuals from the Salt River may disperse into Canyon Creek and augment the population.

Upper Salt River—Narrow-headed gartersnakes were historically seen in “large numbers” along Gleason Flat, upstream of the Arizona State Highway 288 crossing, on the upper Salt River. Rosen and Schwalbe (1988) surveyed the upper Salt River in 1986 and did not detect any narrow-headed gartersnakes. Holycross *et al.* (2006) surveyed the upper Salt River during 2004 and 2005 but had no detections of the species. The Salt River represents a large, complex, and difficult area to survey, which makes detections difficult and population status difficult to confirm. Native fish and lowland leopard frogs occur, as do nonnative, predatory fish species and crayfish. Populations in the White River, Black River, Carrizo Creek, and Canyon Creek may contribute individuals to the upper Salt River population through dispersal mechanisms.

Haigler Creek—There are three unvouchered, but reliable, observational records of narrow-headed gartersnakes from Haigler Creek during the early 1990s (Holycross *et al.* 2006). In 2008, surveys in Haigler Creek resulted in a photo voucher, with the hand-capture of an adult male narrow-headed gartersnake (Kern and Burger 2008). The fish community in Haigler Creek consists of both native fish (desert sucker, longfin dace, speckled dace, and headwater chub) and rainbow trout, which indicates a prey base for the narrow-headed gartersnake is present, but crayfish were also present in numbers (Kern and Burger 2008). Narrow-headed gartersnakes may disperse into Haigler Creek from occupied Tonto Creek and augment the population. It is likely that the narrow-headed gartersnake is still present along Haigler Creek, likely as a low-density population.

Tonto Creek (tributary to Salt River)—One neonate narrow-headed gartersnake was captured approximately 4.5 stream miles downstream of the Rye Creek confluence, above the confluence with Gun Creek (2005), and another specimen from approximately 4.25 stream miles above Kayler Butte, above the Gun Creek confluence (1988). Holycross *et al.* (2006) surveyed for the species in Tonto Creek from the headwaters to approximately Gisela in 2004 and 2005 with approximately 302 person-search hours and 21,200 trap-hours that resulted in the detection of a single neonatal narrow-headed gartersnake. In 2008, AGFD surveyed for narrow-headed gartersnakes in Tonto Creek from Bear Flat Campground to the confluence with Haigler Creek, but did not detect any narrow-headed gartersnakes. Structurally, the habitat was considered generally suitable for narrow-headed gartersnakes by the surveyors, and Holycross *et al.* (2006) suggested that significant declines in the narrow-headed gartersnake population have occurred in

Tonto Creek since the 1980s, demonstrated by their significant survey effort and limited captures.

Houston Creek—There is one photo-vouchered record for narrow-headed gartersnakes in Houston Creek from 2005. Houston Creek was surveyed in 2004 and 2005 for a total of 15 person-search hours and no narrow-headed gartersnakes were detected, but native fish, crayfish, and nonnative, predatory fish were observed. Survey conditions were poor in 2004, with limited visibility in the water due to recent flooding. Houston Creek is largely dry above Gibson Creek, but presents physically suitable narrow-headed gartersnake habitat below that point. Narrow-headed gartersnakes may disperse into Houston Creek from occupied Tonto Creek and augment the population.

Upper/Middle Verde River—Above Horseshoe Dam, there are several recent and vouchered records of the narrow-headed gartersnakes in the upper Verde River as well as, several unvouchered record. All of these records of the narrow-headed gartersnake are outside of the action area. The Verde River represents a large, complex, and difficult area to survey. The recent records document that at least a low-density, but reproducing, population of narrow-headed gartersnakes occurs within of the upper and middle reaches of the Verde River but we are unable to conclude the population is currently viable. It is likely that a small population occurs in the lower Verde River near its confluence with the East Verde River but is likely also not viable.

East Verde River—We are aware of a single historical museum record in 1981 of narrow-headed gartersnakes from the East Verde River, but numerous observation records are reported from 1985–1986 (n=12) (Rosen and Schwalbe 1988) and 1992 (n=1) (Sredl *et al.* 1995). These records indicate the species once occurred in the East Verde River, but has apparently declined. Rosen and Schwalbe (1988) invested approximately 20 person-search hours from 1985–1986 surveying the East Verde River, which produced 12 observation records for narrow-headed gartersnakes. There was a lack of recruitment of narrow-headed gartersnakes in the East Verde River during the mid-1980s, evidenced by detections that were dominated by the largest age class. Holycross *et al.* (2006) spent 182 person-search hours and 20,757 trap-hours from 2004–2005 surveying the East Verde River with no observations of narrow-headed gartersnakes. Narrow-headed gartersnakes may disperse into the East Verde River from the occupied Verde River. This population likely occurs as a low to very low density population and is likely not viable.

Proposed Critical Habitat

Approximately 29,931 acres, in seven subunits of critical habitat are proposed in the action area. These subunits are considered to be occupied at the time the species was listed.

- *Salt River Subunit*—From its intersection with State Highway 288, upstream for approximately 33.0 stream miles (5,369 acres) to the Tonto NF boundary. The land in this segment is primarily managed by the Tonto NF with remaining parcels under private ownership.

- *Canyon Creek Subunit*—From the Tonto NF boundary with the White Mountain Apache Tribe near Hells Canyon, upstream for approximately 7.0 stream miles (1,026 acres) to the boundary with Apache-Sitgreaves National Forest. The land in this segment is primarily managed by the Tonto NF with remaining parcels under private ownership.
- *Haigler Creek Subunit*—From its confluence with Tonto Creek upstream for approximately 21.8 stream miles (3,035 acres) to its origin at the east end of Naeglin Canyon, west of Cherry Creek. The land in this area is primarily managed by the Tonto NF with remaining parcels under private ownership.
- *Houston Creek Subunit*—From its confluence with Tonto Creek upstream for approximately 14.7 stream miles (2,044 acres) to its origin below Walnut Flat north of the town of Star Valley. The land in this area is primarily managed by the Tonto NF with remaining parcels under private ownership.
- *Tonto Creek Subunit*—From its confluence with an unnamed tributary northeast of Punkin Center upstream for approximately 54.1 stream miles (about 7,712 acres) to the forest boundary with Coconino and Apache Sitgreaves Nation Forests. The land in this area is primarily managed by the Tonto NF with remaining parcels under private ownership.
- *Verde River Subunit*—From its confluence with Red Creek southwest of Wet Bottom Mesa, upstream for approximately 27.0 stream miles (3,426 acres) to Tonto NF boundary with the Prescott and Coconino National Forests. The land in this segment is primarily managed by the Tonto NF with remaining parcels under private ownership.
- *East Verde River Subunit*—From the confluence with the Verde River upstream for approximately 53.3 stream miles (7,354 acres) to its origin south of Rim Road along the Mogollon Rim, in Gila County. The land in this area is primarily managed by the Tonto NF with remaining parcels under private ownership.

Factors Affecting the Species and Proposed Critical Habitat within the Action Area

The primary factors affecting the narrow-headed gartersnake on the Tonto NF are the presence and introduction of harmful nonnative aquatic species (bullfrogs, predatory, warm water fish, brown trout, and crayfish) that compete with and prey upon both the narrow-headed gartersnake and its native prey species, and the decline of the native fishes that are the gartersnake's primary prey. These prey species include the Sonoran sucker, desert sucker, speckled dace, roundtail chub, Gila chub, and headwater chub, which have declined in the waterways occupied by the gartersnake and have led to subsequent decline in distribution and density of the gartersnake. Other factors affecting the gartersnake include but are not limited to: heavy recreation such as unauthorized off road vehicle use in riparian corridors; development or construction activities that trample, remove or degrade suitable stream bank habitat such as along the East Verde River; water diversions or other water-related actions that decrease water quantity and quality that would limit native fish needed in gartersnake diets; and improper livestock grazing levels if it reduces habitat quality for native fish or riparian habitat structure needed by gartersnakes.

Some reaches along Tonto Creek experience seasonal drying as a result of regional groundwater pumping, while others are affected by diversions or existing or planned flood control projects. Development along private reaches of Tonto Creek may also affect terrestrial characteristics of narrow-headed gartersnake habitat. Mercury has been detected in fish samples within Tonto Creek, and further research is necessary to determine if mercury is bioaccumulating in the resident food chain.

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 that 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.

The BA included Forest GIS data for the narrow-headed gartersnake as of April 2015. The BA analyzed effects to the narrow-headed gartersnake based on “potential habitat” that is defined as proposed critical habitat (600-foot lateral extent to either side of bankfull stage). Areas where a stream flows between the Tonto NF and another land owner (Salt River, Canyon Creek, and Verde River), only the area on the Tonto NF was buffered at 600-feet. Routes hydrologically connected to within 300 feet of waterways were also addressed (USFS 2015). Although there is no current survey information for all areas that may be occupied by the narrow-headed gartersnake, for the purpose of our analysis, we considered all habitats that could be occupied or become occupied during the consultation period due to presence of perennial or spatially intermittent water and availability of gartersnake prey species

Routes Designated for Motor Vehicle Use

Under the proposed action, approximately 37.16 miles of existing routes would be designated in narrow-headed gartersnake habitat (Table 6). The proposed designated routes are located within the river or creek channel, floodplain or adjacent upland area with 26 existing perennial stream crossings (three on Canyon Creek, 13 on the East Verde River, two on Haigler Creek, two on Houston Creek, one on Mail Creek, and five on Tonto Creek). The BA states that all but one of the stream crossings is a current system route and many have hardened low water crossings. About 53% of the proposed designated routes would continue to provide recreational access to the East Verde River, Canyon, Haigler, Houston, and Tonto creeks by passenger vehicles on the Payson and Pleasant RDs.

Portions of 32 routes totaling 5.96 miles will be decommissioned, reducing the existing density of routes by 14% in gartersnake habitat (Table 7). These routes are those that the Tonto NF deemed unneeded. Their closure is expected to benefit the gartersnake by indirectly improving the habitat adjacent to riparian areas because decommissioned routes are anticipated to be obliterated and re-vegetated over time from lack of use. In addition, the Forest will ensure that these routes remain in a non-use state in order to protect gartersnake habitat.

Table 6. Changes for the seven analysis factors between existing conditions and the proposed action in potential habitat for the narrow-headed gartersnake

Analysis Factor	Existing Condition	Proposed Project	Change
Routes designated for motor vehicle use (miles)	43.12	37.16	-5.96
Density of designated routes (miles per square mile)	0.92	0.79	-0.13
Decommissioned and closed routes (miles)	0.00	5.96	+5.96
Areas open to motorized vehicle use (acres)	10,080	0.00	-10,080
Motor vehicle use for big game retrieval (acres)	10,080*	2,316	+12,396*
Motor vehicle use for dispersed camping (acres)	10,080	14.16	-10,068
Personal use fuelwood gathering (acres)	9,453	0.00	-9,453

*The values calculated for MBGR under the proposed action include areas that have perennial water and would not be accessible by motorized vehicle. Since the amount of water can vary from year to year and season to season, these values represent the maximum area open to MBGR under the driest conditions.

Table 7. Comparison of Existing Routes and Decommissioned Routes per Ranger District

Ranger District	River System	No. of Existing Routes	Miles of Existing Routes	No. of Proposed Decomm. Routes	Miles of Proposed Decomm. Routes
Cave Creek	Verde River	3	0.48	0	0.00
Globe	Salt River	6	1.09	3	0.54
Payson	East Verde, Tonto, Houston Creeks	75	26.54	15	3.34
Pleasant Valley	Haigler, Canyon Creek	28	12.50	9	1.28
Tonto Basin	Tonto Creek	17	2.52	5	0.80
Total		129	43.12	32	5.96

Although all of the proposed designated routes currently exist, effects of those routes on the narrow-headed gartersnake have not been previously analyzed by the Tonto NF or described in the BA. We expect that the gartersnake and its habitat have been impacted by the use of these roads and anticipate that some direct and indirect effects will occur from the continued use of the ninety-seven proposed routes (37.16 miles). By designating routes within gartersnake habitat, there is the possibility of gartersnakes being killed or injured by vehicles when gartersnakes are crossing a road because of the road's location within the river or creek channel, floodplain, or adjacent upland areas that they may use. For example, at Bubbling Ponds Hatchery in Yavapai County, fatality data for the gartersnake has been collected since 2006. Of the 15 dead narrow-headed gartersnakes that were found, eight individuals had been struck by vehicles on roads within or adjacent to hatchery ponds, possibly while crossing between the ponds and roads to forage (USFWS 2014).

Effects to the narrow-headed gartersnake may also occur from continued use of the 26 perennial stream crossings. Vehicles traveling through streams can degrade narrow-headed gartersnake habitat adjacent to the crossing, impact its prey species, and potentially cause fatalities. Narrow-headed gartersnakes have been observed basking and or foraging on low water crossings and

could be accidentally injured or killed by vehicles, particularly in high recreational areas on Haigler, Houston, or Tonto creeks. The use of these stream crossings may also cause changes in water quality and contribute to levels of sediment or other pollutants entering the water that affect riffle and pool habitat used by its prey (USFS 2015). Because all but one of the crossings is an existing route, we anticipate that any habitat in these areas is likely degraded, and the continued use of the stream crossings will prevent any natural recovery of the immediate area from occurring. Low stream crossings on the East Verde River were removed from the channel, which also removed any effects vehicles were having on gartersnakes and its habitat in that area.

No routes would be designated in narrow-headed gartersnake habitat that is within the Hellsgate, Mazatzal, and Salt River Canyon wilderness areas. Additionally, no motorized permit zones would be located within 15 miles of potential narrow-headed gartersnake habitat, and therefore no effects would occur on the gartersnake, its habitat, or prey in these areas.

Areas Designated for Motor Vehicle Use

No designated OHV areas or “tot lots” are proposed within five miles of narrow-headed gartersnake habitat. Therefore, no effects will occur from designation of OHV areas. Under the proposed action, there would be a 100% decrease in acres previously opened to unrestricted cross-county travel by OHVs, not related to MGBR or personal fuelwood gathering. Forested and riparian areas in gartersnake habitat that are currently impacted by unrestricted cross-country travel are expected to improve in the future by restricting OHV areas.

Motor Vehicle Use for Big Game Retrieval

Approximately 12,396 acres of narrow-headed gartersnake habitat could be impacted by MBGR. The 12,396 acres includes 10,080 acres of narrow-headed gartersnake habitat on the Payson and Pleasant Valley RDs where unrestricted cross-country travel is currently authorized. The other 2,316 acres represents the maximum amount of area adjacent to a riverbank or creek that, when water levels are low such as under drought conditions, enables a motor vehicle to drive across. These acres include habitat on the Cave Creek, Globe, and Tonto Basin RDs where cross-country travel has been prohibited but under the proposed action, would be authorized for MBGR. Narrow-headed gartersnake habitat is located in portions of GMUs 21, 22, 23, 24A, and 24B. Game retrievals in these five GMUs total approximately 1,933,288 acres with an estimated 210 out and back trips (194 for elk and 16 for bear) expected in a given year (AGFD 2014). Most elk and bear occur in GMUs 22 and 23 that include approximately 11,933 acres of gartersnake habitat. The remaining 463 acres of gartersnake habitat are in GMUs 21, 24A, and 24B, where the Forest anticipates four retrievals of bear would occur per year.

Effects from MBGR include the potential for direct fatality of a narrow-headed gartersnake by vehicles driving through riparian habitat and crossing a waterway. Narrow-headed gartersnakes tend to stay in or near the active channel where they may be foraging in streamside vegetation, in water, or basking on bedrock or boulders and could potentially be killed or injured by motorized vehicles traveling through riparian habitat and crossing the channel (Rosen *et al.* 2012; Cotten 2015, pers. comm.). Although MBGR would not be allowed until late August, which is after the period when female gartersnakes give birth (late July – early August), gartersnakes are typically active through November. Cross-country travel would cause ground disturbances in watersheds

or stream corridors that contain narrow-headed gartersnakes and its prey and result in either being killed or injured by vehicles during this time.

There is also the potential for vehicles to destroy or degrade riparian vegetation, contribute to stream bank erosion or degradation, soil compaction, and increased sediment or pollutants entering the water that may impact gartersnake prey (Holycross and Rosen 2011; USFS 2015). The limited number of trips estimated to retrieve elk or bear across GMUs 22 and 23 when compared to the amount of gartersnake habitat that overlaps with these GMUs is expected to result in short-term, temporary effects through soil compaction and crushing of understory vegetation. At least 40% of narrow-headed gartersnake habitat is below 3,500 feet and is outside the range for elk in Arizona (largely those areas on the Cave Creek, Globe, and Tonto Basin RDs). In these areas, MBGR would likely occur for bear only. These 463 acres represent 0.001% of the total acres included in these three units, indicating a very small chance of a bear retrieval impacting gartersnake habitat. The requirements of the proposed action for hunters to use the most direct and least ground disturbing route, to make one back and forth trip to retrieve an animal using the same route, and only cross riparian areas, creeks, and rivers at hardened crossings or crossings with existing culverts, should help to minimize any adverse effects to the gartersnake.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, a number of spur routes would be designated to 29 existing dispersed camping sites in narrow-headed gartersnake habitat. Motor vehicles must stay on these routes and are not authorized to travel outside of these routes to access a campsite. Campers may park along a route and walk into the Forest to set up a tent but cannot drive off-road to access the site. The Tonto NF estimates that approximately 14.16 acres of habitat would be used as dispersed camping sites.

Dispersed campsites that would have designated spur roads for access under the proposed action include:

- **East Verde River** – Spur roads to 16 campsites are being designated. These campsites are located on the opposite side of routes from the river or are in the uplands 300 feet or more from the floodplain, or at the top of a slope above the stream. The spur routes would continue to support the heavy recreational demand (e.g., camping, swimming, and picnicking between May and October) in this area on the Payson RD.
- **Tonto Creek** – Spur roads to two campsites are being designated along Tonto Creek. One campsite is above the stream channel and vehicles must stay within 75 feet of the road. The second site is along the designated route and not immediately adjacent to the creek. Both are located on the Payson RD, an area popular for camping, swimming, and picnicking through the warmer months.
- **Haigler Creek** – Spur roads to 10 campsites are being designated on Haigler Creek and above its headwaters in gartersnake habitat on the Payson and Pleasant Valley RDs. Eight of these sites are located more than 2.5 miles from the perennial portion of the creek, so would not contribute to potential effects from noise or human presence. This area is also popular for camping as well as fishing and hunting.

- Salt River at Gleason Flat – A spur road would be designated to one campsite. The site is located outside of the floodplain and riparian vegetation.
- Verde River – No dispersed campsites in narrow-headed gartersnake habitat are being designated. Another campsite would be available on the Verde River but is beyond 600 feet from the stream bank to protect gartersnake habitat. The spur route to the site would remain.

Forty-nine dispersed campsites were eliminated in narrow-headed gartersnake habitat as part of the proposed action. Those sites include: 38 sites on the East Verde River that are located immediately adjacent to the stream channel or in riparian vegetation; nine sites on Tonto Creek that are located immediately adjacent to the stream channel; and two sites on the Verde River because they were also immediately adjacent to the river and inside the Verde Scenic River boundary. All 10 sites on Haigler Creek were retained. At two sites vehicles are required to stay within 50 to 100 feet of the road to reduce potential effects of sediment and other pollutants entering the creek. The portion of the route that crosses the creek will be decommissioned. The remaining eight sites are located above the headwaters of Haigler Creek where the stream is intermittent and habitat does not support the narrow-headed gartersnake.

The proposed action to only designate spur roads to campsites located next to roads in the uplands or at least 600 feet away from the active channel, and to require vehicles to park within 50 to 100 feet of the road is expected to help streamside vegetation recover and regenerate over time, benefitting the gartersnake. These campsites are currently in use and no longer provide any habitat for the gartersnake. The BA specifies that any routes to dispersed campsites within critical habitat for a listed species would be closed. Based on using proposed gartersnake critical habitat as a surrogate for the species' habitat, no routes to a dispersed campsite would occur within narrow-headed gartersnake habitat as part of the proposed action, and therefore designation of a spur route would have no effect on the gartersnake or its habitat. The decision of the Tonto NF to close 49 dispersed campsites is intended to protect and improve riparian habitat in order to support the gartersnake in the future, and thus would be beneficial to the species.

Personal Use Fuelwood Gathering and Other Forest Products

No use of motorized vehicles for gathering personal fuelwood or forest products would be authorized in narrow-headed gartersnake habitat along portions of the East Verde and Salt rivers and Canyon, Haigler, Houston, and Tonto creeks. Therefore, no effects from personal use fuelwood gathering will occur to the gartersnake.

Effects of the Action on Narrow-Headed Gartersnake Proposed Critical Habitat

In our analysis of the effects of the action on proposed critical habitat, we consider whether or not a proposed action will result in the destruction or adverse modification of critical habitat. In doing so, we must determine if the proposed action will result in effects that appreciably diminish the value of critical habitat for the recovery of a listed species. To determine this, we analyze whether the proposed action will adversely modify any of the PCEs that were the basis for determining, or proposing, the habitat to be critical. To determine if an action results in

adverse modification of critical habitat, we must also evaluate the current condition of all designated or proposed critical habitat units, and the PCEs of those units, to determine the overall ability of all critical habitat to support recovery. Further, the functional role of each of the CHUs in recovery must also be considered because, collectively, they represent the best available scientific information as to the recovery needs of the species.

Routes Designated for Motor Vehicle Use

The proposed designation of 37.16 miles of routes, including 26 perennial stream crossings would be located in proposed critical habitat and may affect PCEs for aquatic or riparian habitat and adequate terrestrial space. Similar to the effects to the species, motor vehicles crossing through a waterway can contribute to streambank and streambed erosion and change water quality and quantity by enabling excess sediment and other pollutants to enter into the water. Additional sediment entering the stream could result in potential effects to prey species used by narrow-headed gartersnakes by altering prey species habitat through the deposition of fine sediment settling on the bottom of a streambed and filling in interstitial spaces between rock crevices and cracks that native fish use for cover. No new routes are being proposed and therefore, none would impact the PCEs.

Areas Designated for Motor Vehicle Use

No OHV areas would be designated within five miles of proposed narrow-headed gartersnake critical habitat. Therefore, no effects to proposed critical habitat will occur from this proposed activity.

Motor Vehicle Use for Big Game Retrieval

Approximately 12,396 acres of narrow-headed gartersnake proposed critical habitat could be impacted by motorized vehicles traveling one mile off any designated route to retrieve elk or bear. Cross-country travel may affect the PCEs from ground disturbing activities in stream corridors that result in sediment deposits into waterways, crushing of shoreline vegetation; potential harassment of gartersnake prey base that reduces prey availability; and disturbances to terrestrial space. However, we do not anticipate that adverse effects would impair the ability of PCEs to contribute to the conservation of the species because of the small number of one-mile trips expected to occur in a given year. The requirements that hunters use the most direct and least ground disturbing route to access the elk or bear; allowing only one vehicle trip; crossing riparian areas, streams and rivers only at hardened crossings or crossings with existing culverts is anticipated to reduce adverse effects to the PCEs. In addition, no effects from the proposed action would occur to proposed critical habitat (approximately 48%) for the narrow-headed gartersnake that are located in the wilderness areas.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, spur roads would be designated to 29 existing dispersed campsites in proposed narrow-headed gartersnake critical habitat. These campsites would occupy 14.16 acres in proposed critical habitat on the Cave Creek, Globe, Payson, Pleasant Valley, and Tonto Basin RDs and would result in a 99% decrease in the number of acres in proposed critical habitat where the public can currently travel cross-country on the Payson and Pleasant Valley RDs. By eliminating 49 campsites, some of which were adjacent to the water or in the floodplain, and moving them upland or closer to the road, we expect that any effects to the PCEs for aquatic or riparian habitat and adequate terrestrial space (600 feet from bankfull stage) will be reduced and

minimized. The BA specifies that any routes to dispersed campsites within critical habitat for a listed species would be closed. Therefore, no spur routes would be designated in proposed critical habitat and no PCEs would be affected by the action.

Personal Use Fuelwood Gathering and Other Forest Products

No cross-country travel for personal fuelwood gathering would be authorized in proposed critical habitat under the proposed action. Therefore, no effects from personal use fuelwood gathering will occur to proposed critical habitat.

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 Act.

Cumulative effects to the narrow-headed gartersnake and its proposed critical habitat may include negative interaction with people and gartersnakes. Routes that provide recreational opportunities within occupied riparian habitat also likely increases the number of human-gartersnake encounters and therefore the frequency of Forest users handling, collecting, injuring or killing gartersnakes, depending on the person's attitude towards snakes. Heavy recreation is believed to have contributed to the decline of the narrow-headed gartersnake at Oak Creek Canyon (Nowak 2006), and it likely contributes to negative impacts on the gartersnake on the Tonto NF. Continued stocking of non-native fish species that prey upon or compete with prey used by the narrow-headed gartersnake will continue to contribute to its decline.

CONCLUSION

After reviewing the current status of the narrow-headed gartersnake and its proposed critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that implementation of the Tonto NF's Travel Management Rule will not jeopardize the continued existence of the narrow-headed gartersnake or result in the destruction or adverse modification of proposed critical habitat. We base our conclusion on the following:

- All of the proposed designated routes currently exist and no new routes will be created within narrow-headed gartersnake habitat and proposed critical habitat. The decommissioning of 5.96 miles of routes and 14% reduction in the density of routes would serve to benefit the narrow-headed gartersnake and its habitat.
- We anticipate adverse effects from the continued use of routes and stream crossings, and cross-country travel for MBGR to the narrow-headed gartersnake and its habitat from interactions with the species and ground disturbance in stream corridors that contain the narrow-headed gartersnake and its prey. However, these effects are not expected to result in population-level effects to the species.

- Most of the dispersed campsites will be relocated or removed from proposed narrow-headed gartersnake critical habitat. This is anticipated to aid in improving hydrologic conditions within the watershed and maintain or improve the PCEs of proposed critical habitat in the long-term.
- Although some cross-country travel associated with MBGR will continue, the amount of proposed critical habitat potentially affected is small, and we expect that proposed critical habitat will continue to function for the conservation and recovery of the species.

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 or Extent of Take

We anticipate that the proposed action is reasonably certain to result in incidental take of the narrow-headed gartersnake. Activities that may result in direct mortality or reduce cover and availability of native fish for food are expected to adversely affect the snake. During the life of the proposed action, continued use of designated routes may cause the harm, harassment, and direct fatality of gartersnakes on routes. Cross-country travel for motorized big game retrieval may temporarily remove riparian vegetation needed by the narrow-headed gartersnake and cause harm or harassment to snakes within the stream channel, and reduction of prey availability due to vehicles crossing the channel. We anticipate that the total number of narrow-headed gartersnakes taken as a result of this action will be difficult to predict because finding a dead or impaired specimen will be difficult. However the level of incidental take can be anticipated by the information we have regarding observations of the narrow-headed gartersnake on the Tonto NF and the potential for them to be injured, or killed as a result of the proposed action.

We authorize the incidental take of two narrow-headed gartersnake in the form of direct mortality or injury as a result of vehicle strikes or during cross country travel for motorized big game retrieval. If more than two narrow-headed gartersnakes are injured or killed as a result of activities authorized under the Travel Management Rule, the amount or extent of incidental take would be exceeded.

Effects of Take

The FWS determines that take authorized in this BO/CO, if it does occur as a result of the implementation of this project in areas occupied by narrow-headed gartersnakes, is not likely to result in jeopardy to the narrow-headed gartersnake.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

The FWS believes the following reasonable and prudent measures are necessary and appropriate to minimize the effects of take of narrow-headed gartersnake.

1. Eliminate or minimize adverse effects to narrow-headed gartersnakes on the Tonto NF.
2. Monitor the impacts of the proposed actions being implemented on the narrow-headed gartersnake.

TERMS AND CONDITIONS

The following terms and conditions will implement reasonable and prudent measure 1:

- 1.1 The Tonto NF will install “Brake for Snakes” signs next to routes that are within narrow-headed gartersnake habitat to decrease the potential risk of motor vehicle impacts to narrow-headed gartersnakes.
- 1.2 The Tonto NF will provide narrow-headed gartersnake educational information to the public at recreational areas that are within its habitat to decrease negative human-snake encounters and protect the gartersnake from recreational impacts.
- 1.3 Tonto NF personnel are required to stop at any gartersnake that is injured or dead on a Forest Service Road and identify the specimen to species, take a photograph, record location coordinates, and report it to the Forest Biologist to improve detection.

The following terms and conditions will implement reasonable and prudent measure 2:

- 2.1 The Tonto NF shall monitor the impacts of incidental take resulting from implementation of the proposed action and report these findings to the FWS. Incidental take monitoring shall include information such as when the proposed activities were implemented, and whether the action was implemented as proposed and analyzed in the BO/CO, important life cycle period(s) over which the project occurred, relevant gartersnake survey information, and any other pertinent information as described in the BO/CO about the project’s effects on the species habitat.
- 2.2 Annual reports will describe actions taken under this proposed action and impacts to the narrow-headed gartersnake and its proposed critical habitat. The annual report shall be sent to the Arizona Ecological Services Office by March 1 of each year.

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. 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.

1. Work with the FWS and AGFD to develop and implement a monitoring plan to better determine the distribution, abundance, and trends of narrow-headed gartersnake populations on the Tonto NF.
2. Within narrow-headed gartersnake habitat, participate with the FWS and AGFD in controlling non-native aquatic organisms on the Tonto NF, particularly bullfrogs, fish, and crayfish.
3. Maintain active participation in the Gartersnake Conservation Working Group by ensuring Forest biologists attend meetings and coordinate in monitoring and recovery planning.
4. Work with the Arizona Department of Environmental Quality, or other suitable partners to install water-quality monitoring equipment at critical sites.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

NORTHERN MEXICAN GARTERSNAKE

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). Please refer to this rule for more in-depth information on the ecology and threats to the species, including references. Critical habitat was proposed on July 10, 2013 (USFWS 2013) and has not yet been designated. We expect to publish a modified re-proposal for critical habitat and an accompanying Notice of Availability announcing the draft Environmental Assessment and draft Economic Analysis in 2016. Details on critical habitat are provided below. The final listing and proposed critical habitat rules are incorporated herein by reference.

The northern Mexican gartersnake, which reaches up to 44 inches total length, 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 similarity of appearance to other native gartersnake species.

Throughout its rangewide distribution, the northern Mexican gartersnake occurs at elevations from 130 to 8,497 feet (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 hiding under cover in grassland habitat up to a mile away from any surface water (Cogan 2015, pers. comm.). The subspecies has historically been associated with three general 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). Emmons and Nowak (2013) found this subspecies most commonly in protected backwaters, braided side channels and beaver ponds, isolated pools near the river main stem, 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 nonnative fishes. In northern Mexican gartersnake populations where the prey base is skewed heavily towards harmful nonnative species, recruitment of gartersnakes is often diminished or nearly absent.

Natural predators of the northern Mexican gartersnake may 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 in their largest size class may also prey on neonatal gartersnakes, but has not been confirmed in the literature or through field observation.

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 (Rosen and Schwalbe 1988, Rosen *et al.* 2001; Holycross *et al.* 2006). Within Mexico, northern Mexican gartersnakes historically occurred within the Sierra Madre Occidental and the Mexican Plateau, comprising approximately 85% 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 of this highly secretive species. 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 understood. Less is 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%), 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 (Table 8). 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 significant concern in almost every northern Mexican gartersnake locality in the United States and the most significant reason for their decline. We consider harmful nonnative species to include, but not be limited to, fish in the families Centrarchidae and Ictaluridae, American bullfrogs (*Lithobates catesbeiana*), and any species of crayfish. 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).

Row	Location	Last Record	Suitable Physical Habitat Present	Native Prey Species Present	Harmful Nonnative Species Present	Predicted Population Status
1	Gila River (NM, AZ)	2013	Yes	Yes	Yes	Likely low density
2	Spring Canyon (NM)	1937	Yes	Possible	Likely	Likely extirpated
3	Mule Creek (NM)	1983	Yes	Yes	Yes	Likely low density
4	Mimbres River (NM)	Likely early 1900s	Yes	Yes	Yes	Likely extirpated
5	Lower Colorado River (AZ)	2015	Yes	Yes	Yes	Likely low density
6	Bill Williams River (AZ)	2012	Yes	Yes	Yes	Likely viable
7	Big Sandy River (AZ)	2015	Yes	Yes	Likely	Likely low density
8	Santa Maria River (AZ)	2015	Yes	Yes	Likely	Likely low density
9	Agua Fria River (AZ)	1986	Yes	Yes	Yes	Likely low density
10	Little Ash Creek (AZ)	1992	Yes	Yes	Yes	Likely low density
11	Lower Salt River (AZ)	1964	Yes	Yes	Yes	Likely extirpated
12	Black River (AZ)	1982	Yes	Yes	Yes	Likely low density
13	Big Bonito Creek (AZ)	1986	Yes	Yes	Yes	Likely low density
14	Tonto Creek (AZ)	2005	Yes	Yes	Yes	Likely viable
15	Upper /Middle Verde River (AZ)	2012	Yes	Yes	Yes	Likely viable

Row	Location	Last Record	Suitable Physical Habitat Present	Native Prey Species Present	Harmful Nonnative Species Present	Predicted Population Status
16	Oak Creek (AZ) (Page Springs and Bubbling Ponds State Fish Hatcheries)	2015	Yes	Yes	Yes	Likely viable
17	Spring Creek (AZ)	2014	Yes	Yes	Yes	Likely low density
18	Sycamore Creek (Yavapai/Coconino Co., AZ)	1954	Yes	Possible	Yes	Likely extirpated
19	Upper Santa Cruz River/San Rafael Valley (AZ)	2015	Yes	Yes	Yes	Likely viable
20	Redrock Canyon/Cott Drainage (AZ)	2008	Yes	Yes	Yes	Likely low density
21	Sonoita Creek (AZ)	2013	Yes	Possible	Yes	Likely low density
22	Scotia Canyon (AZ)	2009	Yes	Yes	No	Likely low density
23	Parker Canyon (AZ)	1986	Yes	Possible	Yes	Likely low density
24	Las Cienegas National Conservation Area and Cienega Creek Natural Preserve (AZ)	2015	Yes	Yes	No	Likely low density
25	Lower Santa Cruz River (AZ)	1956	Yes	Yes	Yes	Likely extirpated
26	Buenos Aires National Wildlife Refuge (AZ)	2000	Yes	Yes	Yes	Likely low density
27	Brown Canyon (AZ)	2014	Yes	Yes	No	Likely low density
28	Fort Huachuca (AZ)	1994	Yes	Yes	Yes	Likely low density
29	Bear Creek (AZ)	1987	Yes	Yes	Yes	Likely low density
30	San Pedro River (AZ)	1996	Yes	Yes	Yes	Likely low density
31	Babocomari River and Cienega (AZ)	1986	Yes	Possible	Yes	Likely low density
32	Canelo Hills-Sonoita Grasslands Area (AZ)	2015	Yes	Yes	Yes	Likely low density
33	San Bernardino National Wildlife Refuge (AZ)	1997	Yes	Yes	Yes	Likely low density

Notes: "Possible" means there were no conclusive data found. "Likely extirpated" means the last record for an area pre-dated 1980, and existing threats suggest the species is likely extirpated. "Likely low density" means there is a post-1980 record for the species, it is not reliably found with minimal to moderate survey effort, and threats exist which suggest the population may be low density or could be extirpated, but there is insufficient evidence to support extirpation. "Likely viable" means that the species is reliably found with minimal to moderate survey effort, and the population is generally considered to be somewhat resilient.

Northern Mexican Gartersnake 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 acres. Within these areas, the PCEs of the physical and biological features essential to northern Mexican 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 feet 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.

ENVIRONMENTAL BASELINE

Status of the Species and Proposed Critical Habitat in the Action Area

It is estimated that approximately 14,129 acres of northern Mexican gartersnake habitat occur on the Tonto NF with 7,425 acres (53%) located in the Hellsgate and Mazatzal wilderness areas. The northern Mexican gartersnake occurs in portions of the Upper Verde River on the Cave Creek RD and in portions of Tonto Creek on the Payson and Tonto Basin RDs. Its population on the Tonto NF is considered “likely viable” meaning the species is reliably found with minimal to moderate survey effort, and the population is viable. The species was once found in the Lower Salt River but is now believed to be extirpated (USFWS 2014, Appendix A).

Tonto Creek—The first record for northern Mexican gartersnakes from Tonto Creek was from 1995 in the vicinity of Kayler Butte at the Arizona State Highway 188 crossing (Holycross *et al.* 2006). Surveys in 2004 and 2005 resulted in the capture of 17 northern Mexican gartersnakes (Holycross *et al.* 2006). In July 2010, AGFD documented an additional three northern Mexican gartersnakes in Tonto Creek from Gisela south to near its confluence with Roosevelt Lake, while the Forest observed two northern Mexican gartersnakes near the A-Cross Road crossing. The Forest also observed an individual near the A-Cross Road crossing in 2011, and three more in 2012 (USFS 2011). These records of northern Mexican gartersnake observations from 2004–2012 confirm the species as extant in Tonto Creek and likely a viable population.

Upper/Middle Verde River—Above Horseshoe Dam, several historical and current records exist for northern Mexican gartersnakes. Rosen and Schwalbe (1988) documented records from 1986

at the Houston Creek confluence, one mile above the Verde River in Horse Creek (a tributary to Horseshoe Reservoir), and outside of the action area at Cottonwood (just below Dead Horse Ranch State Park) and Camp Verde. The AGFD staff were contracted to perform herpetofaunal surveys along the Verde River from Childs downstream to Sheep's Bridge in 2012, but these surveys yielded no detections of northern Mexican gartersnakes (SRP 2012). Emmons and Nowak (2012) conducted a sampling effort for northern Mexican gartersnakes outside of the action area in the upper Verde River area from May-September 2012. This survey effort resulted in the combined capture of 49 individual northern Mexican gartersnakes. The Verde River represents a large, complex, and difficult area to survey for a secretive subspecies such as the northern Mexican gartersnake, but these records document that a low-density, but reproducing and potentially viable, northern Mexican gartersnake population occurs within the upper and middle Verde River. We expect that the northern Mexican gartersnake also occur within the action area but in small numbers.

Proposed Critical Habitat

Approximately 14,129 acres of proposed critical habitat for the northern Mexican gartersnake occurs on the Tonto NF. Proposed critical habitat includes areas along the Verde River on the Cave Creek RD, and areas along Tonto Creek on the Payson, Pleasant Valley, and Tonto Basin RDs. Approximately 53% of proposed critical habitat is in the Hellsgate and Mazatzal wilderness areas.

Tonto Creek Subunit—proposed critical habitat in the action area includes 65.1 stream miles (8,936 acres) of critical habitat along of Tonto Creek, from its confluence with Roosevelt Lake upstream to its origin northeast of Tonto Spring, south of Rim Road, in Gila County, Arizona. Tonto Creek occurs predominately on lands managed by the Tonto National Forest. The remaining landownership is private. Some reaches along Tonto Creek experience seasonal drying as a result of regional groundwater pumping, while others are affected by diversions or existing or planned flood control projects. Development along private reaches of Tonto Creek may also affect terrestrial characteristics of northern Mexican gartersnake habitat. Mercury has been detected in fish samples within Tonto Creek, and further research is necessary to determine if mercury is bioaccumulating in the resident food chain.

Upper Verde River Subunit—proposed critical habitat in the action area includes approximately 139.8 stream miles (5,192 acres) of critical habitat along the Verde River, from its confluence with Horseshoe Reservoir, upstream to the Tonto NF boundary. All of the land in this portion of proposed critical habitat on the Verde River is managed by the Tonto NF.

Factors Affecting the Species and Proposed Critical Habitat within the Action Area

The primary factors affecting the northern Mexican gartersnake on the Tonto NF are the presence and introduction of harmful nonnative aquatic species (bullfrogs, crayfish, green sunfish, and other warm water sport fish) that compete with and prey upon both the northern Mexican gartersnake and its native prey species; as well as the loss and/or the decline of the gartersnake's primary prey species. Native prey species for the gartersnake include the lowland leopard frog (*Lithobates yavapaiensis*), Chiricahua leopard frog, juvenile and adult Gila topminnow, desert pupfish, roundtail chub, and Gila chub. Several of its prey species are also endangered or

threatened species or are proposed for listing and have declined in waterways occupied by the gartersnake, contributing to its decline in distribution and density.

Other factors affecting the gartersnake include but are not limited to: heavy recreation such as unauthorized off road vehicle use in riparian corridors along Tonto Creek or Haigler Creek; development or construction activities that tramples, removes or degrades suitable stream bank habitat; drought that may exacerbate potential impacts of nonnative species on native fish species, particularly in the portion of Tonto Creek (Gisela to Roosevelt Lake) due to its proximity to Roosevelt Lake; water diversions or other water-related actions that decrease water quantity and quality that would limit native fish needed in gartersnake diets; and improper livestock grazing levels if they reduce habitat quality for native fish or riparian habitat structure needed by gartersnakes.

Factors that may affect proposed critical habitat are competition with harmful nonnative species, water diversions, flood-control projects, and development of areas adjacent to or within Tonto Creek proposed critical habitat. In the Verde River, proposed groundwater pumping of the Big Chino Aquifer may adversely affect future base flow in the Verde River, reducing habitat and prey for the gartersnake. In addition, the elimination or reduction of crayfish, bullfrogs, and nonnative, spiny-rayed fish is needed as well as ensuring adequate flow is retained in the Verde River.

EFFECTS OF THE ACTION

The BA included Forest GIS data for the northern Mexican gartersnake as of April 2015. The BA analyzed effects to northern Mexican gartersnakes based on "potential habitat" that is defined as proposed critical habitat (600-foot lateral extent to either side of bankfull stage). Routes hydrologically connected to within 300 feet of waterways were addressed (USFS 2015). Although there is no current survey information for all areas that may be occupied by the northern Mexican gartersnake, for the purpose of our analysis, we considered all habitats that could be occupied or become occupied during the consultation period due to presence of perennial or spatially intermittent water and availability of gartersnake prey species.

Routes Designated for Motor Vehicle Use

Under the proposed action, approximately 10.49 miles of existing routes, including five perennial stream crossings on Tonto Creek, would be designated in northern Mexican gartersnake habitat (Table 9). This would include approximately 2.17 miles of routes designated for Administrative Use or Administrative Use Motorized Trail, 1.65 miles of routes designated for Motorized Trails Open to the Public or Motorized Trails with Administrative Use, and 6.66 miles for public motorized vehicle access including high-clearance or OHVs.

The proposed designated routes are located within the river or creek channel, floodplain or adjacent upland area with five existing perennial stream crossings on Tonto Creek. The BA states that all but one of the stream crossings is a current system route. About 62% of the proposed designated routes would continue to provide recreational access to areas along the Verde River and Tonto Creek. The proposed designated routes are located within the river or

creek channel, floodplain or adjacent upland areas with 5 existing perennial stream crossings on Tonto Creek. All but one of these stream crossings is a current system route.

Table 9. Changes for the seven analysis factors between existing conditions and the proposed action in habitat for northern Mexican gartersnake

Analysis Factor	Existing Condition	Proposed Project	Change
Routes designated for motor vehicle use (miles)	12.34	10.49	-1.85
Density of designated routes (miles per square mile)	0.56	0.48	-0.09
Decommissioned and closed routes (miles)	0.00	1.85	+1.85
Areas open to motorized vehicle use (acres)	1,176	0.00	-1,176
Motor vehicle use for big game retrieval (acres)	1,176*	5,492*	+4,316*
Motor vehicle use for dispersed camping (acres)	1,176	3.21	-1,173
Personal use fuelwood gathering (acres)	1,107	0.00	-1,107

*The values calculated for MBGR under the proposed action include areas that have perennial water and would not be accessible by motorized vehicle. Since the amount of water can vary from year to year and season to season, these values represent the maximum area open to MBGR under the driest conditions.

Portions of 11 routes totaling 1.85 miles will be decommissioned, reducing the existing density of routes by 16% in gartersnake habitat (Table 10). These routes are those that the Tonto NF deemed unneeded. Their closure is expected to benefit the gartersnake by indirectly improving the habitat adjacent to riparian areas because decommissioned routes are anticipated to be obliterated and re-vegetated over time from lack of use. In addition, the Forest will ensure that these routes remain in a non-use state in order to protect gartersnake habitat.

Table 10. Comparison of Existing Routes and Decommissioned Routes per Ranger District

Ranger District	River System	No. of Existing Routes	Miles of Existing Routes	No. of Proposed Decomm. Routes	Miles of Proposed Decomm. Routes
Cave Creek	Verde River	8	1.58	1	0.09
Payson	Tonto Creek	17	6.63	3	0.94
Tonto Basin	Tonto Creek	24	4.13	7	0.82
Total		49	12.34	11	1.85

Although all of the proposed designated routes currently exist, effects of those routes on the northern Mexican gartersnake have not been previously analyzed by the Tonto NF or described in the BA. We expect that the gartersnake and its habitat have been impacted by the use of these roads and anticipate that some direct and indirect effects will occur from the continued use of the thirty-eight proposed routes (10.49 miles of roads). Since many of the proposed routes are located within the river or creek channel, floodplain, or adjacent upland areas that gartersnakes may use, there is the possibility of a gartersnake being struck and killed by a vehicle when

crossing a road. It is also likely that a gartersnake may be injured or killed by vehicles from the continued use of the stream crossings, given the species is reliably found on Tonto Creek.

These crossings may also result in changes to water quality and contribute to increased levels of sediment or other pollutants entering the water and affecting riffle and pool habitat used by gartersnake prey species (USFS 2015). Because all but one of the crossings is an existing route, we anticipate that any habitat in these areas is likely degraded and the continued use of the stream crossing will prevent any natural recovery of the immediate area.

On that portion of the Verde River that is within the action area, we expect the northern Mexican gartersnake to occur in small numbers. While the gartersnake will likely be present in the action area during the consultation period, the likelihood of an individual being found on a designated route and killed by a motor vehicle is low because the majority of the land surrounding the lower Verde River is in a wilderness area where roads are prohibited. The remaining areas outside of the wilderness boundary have no roads within 600 feet of the shoreline and therefore, would not likely have an impact on the gartersnake.

No routes would be designated in northern Mexican gartersnake habitat that is within the Hellsgate and Mazatzal wilderness areas. Additionally, no motorized permit zones would be located within 7.5 miles of northern Mexican gartersnake habitat and therefore would have no effects on the gartersnake, its habitat, or prey.

Areas Designated for Motor Vehicle Use

No designated OHV areas or “tot lots” are proposed within 1.5 miles of northern Mexican gartersnake habitat. Therefore, no effects will occur from designation of OHV areas. Under the proposed action, there would be a 100% decrease in acres previously opened to unrestricted cross-county travel by OHVs, not related to MGBR or personal fuelwood gathering. Forested and riparian areas in gartersnake habitat that are currently impacted by unrestricted cross-country travel are expected to improve in the future by limiting OHV areas.

Motor Vehicle Use for Big Game Retrieval

Approximately 5,492 acres of northern Mexican gartersnake habitat would be opened to MBGR for elk or bear. These acres include 1,176 acres of northern Mexican gartersnake habitat on the Payson and Pleasant Valley RDs where unrestricted cross-country travel currently occurs. The other 4,316 acres represents the maximum amount of area adjacent to a riverbed or creek that, when water levels are low, such as under drought conditions, enables a motor vehicle to drive across. These acres include habitat on the Cave Creek and Tonto Basin RDs where cross-country travel has been prohibited but under the proposed action, cross-country travel would only be authorized for MBGR.

Northern Mexican gartersnake habitat is located in portions of GMUs 21, 22, and 23. Game retrievals in these GMUs total approximately 1,472,217 acres with an estimated 207 out-and-back trips (194 for elk and 13 for bear) expected in a given year (AGFD 2014). Most elk and bear occur in GMUs 22 and 23 that include approximately 4,956 acres of gartersnake habitat. The remaining 536 acres of gartersnake habitat is in GMU 21 where the Tonto NF anticipates a single bear retrieval would occur per year. Effects from MBGR include the potential for direct

fatality of a northern Mexican gartersnake by vehicles driving through riparian habitat and crossing a waterway. Because northern Mexican gartersnakes forage in dense emergent and riparian vegetation in and around water, they could be potentially killed or injured from motorized vehicles crossing through the channel. Their tendency to find refugia in cover sometimes associated with low water crossings or man-made structures (Cotten 2015, pers. comm.) may also place them at risk of being injured if those structures also support an OHV crossing across the creek. Although most of MBGR would occur outside of when female gartersnakes give birth (July -August), gartersnakes are typically active through November and could be killed or injured during this time.

There is also the potential for vehicles to destroy or degrade riparian vegetation and contribute to stream bank erosion or degradation, soil compaction, and increased sediment or pollutants entering the water that may impact gartersnake prey (Holycross and Rosen 2011; USFS 2015). The limited number of trips estimated to retrieve elk or bear across GMUs 22 and 23 when compared to the amount of gartersnake habitat that overlaps with these GMUs is expected to result in short-term, temporary effects through soil compaction and crushing of understory vegetation. At least 65% of northern Mexican gartersnake habitat is below 3,500 feet and is outside the range for elk in Arizona (largely those areas on the Cave Creek and Tonto Basin RDs). In these areas, MBGR would likely occur for bear only. These 536 acres represent 0.002% of the total acres included in GMU 21, indicating a very small chance of a bear retrieval impacting gartersnake habitat. The requirements for hunters to use the most direct and least ground disturbing route, to make one back-and-forth trip to retrieve an animal using the same route, to only cross riparian areas, creeks, and rivers at hardened crossings or crossings with existing culverts, should help minimize any adverse effects to the gartersnake.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, spur roads would be designated to four existing dispersed campsites in northern Mexican gartersnake habitat. Motor vehicles must stay on these routes and are not authorized to travel outside of these routes to access a camp site. Campers may park along a route and walk into the Forest to set up a tent but cannot drive off-road to access the site. The Tonto NF estimates that approximately 3.21 acres of habitat would be used as dispersed camping sites. This would result in a decrease in acreage of 99% from approximately 1,176 acres under existing conditions.

All of the campsites that would have designated spur roads for access under the proposed action are located in two locations:

- **Tonto Creek** – spur roads to two campsites are being designated along Tonto Creek. One campsite is above the stream channel and vehicles must stay within 75 feet of the road. The second site is along the designated route and not immediately adjacent to the creek. Both are located on the Payson RD, an area popular for camping, swimming, and picnicking through the warmer months.
- **Verde River near Sheep Bridge** – spur roads to two sites in northern Mexican gartersnake habitat would be designated along the Verde River above Horseshoe Reservoir near Sheep Bridge on the Cave Creek RD. These sites are located at the end of a Forest Service road and over 150 feet from the shoreline. These sites would provide camping

opportunity while also minimizing impacts to the riparian area. The Verde River is also popular for rafting and OHV use.

Thirteen dispersed campsites were eliminated as part of the proposed action. Those include: 10 sites on Tonto Creek that were located close to the shoreline and within proposed critical habitat; and three sites on the Verde River that were immediately adjacent to the river and inside the Verde Scenic River boundary.

The proposed action to only designate spur roads to campsites located next to roads in the uplands or at least 600 feet away from the active channel, and to require vehicles to park within 50 to 100 feet of the road is expected to help streamside vegetation recover and regenerate over time, benefitting the gartersnake. All of the four campsites are currently in use and no longer provide any habitat for the gartersnake. The BA specifies that any routes to dispersed campsites within critical habitat for a listed species would be closed. The decision of the Tonto NF to close thirteen sites is intended to protect and improve riparian habitat to support the northern Mexican gartersnake in the future and thus would be beneficial to the species.

Personal Use Fuelwood Gathering and Other Forest Products

No use of motorized vehicles for gathering personal fuelwood or forest products would be authorized in northern Mexican gartersnake habitat along Tonto Creek. Therefore, no effects from personal use fuelwood gathering will occur to the gartersnake.

Effects of the Action on Northern Mexican Gartersnake Proposed Critical Habitat

Routes Designated for Motor Vehicle Use

The proposed designation of 10.49 miles of routes, including five perennial stream crossings on Tonto Creek would be located in proposed critical habitat and may affect PCEs for aquatic or riparian habitat and adequate terrestrial space. Similar to the effects to the species, motor vehicles crossing through a waterway can contribute to stream bank and streambed erosion and change water quality and quantity by enabling excess sediment and other pollutants to enter into the water. Additional sediment entering the stream could result in potential effects to prey species used by northern Mexican gartersnakes by altering their habitat through the deposition of fine sediment settling on the bottom of a streambed and filling in interstitial spaces between rock crevices and cracks that native fish use for cover. No new routes are being proposed and therefore, none would impact PCEs.

Areas Designated for Motor Vehicle Use

No OHV areas would be designated within 1.5 miles of proposed northern Mexican gartersnake critical habitat, and therefore, no effects to proposed critical habitat will occur.

Motor Vehicle Use for Big Game Retrieval

Approximately 4,392 acres of northern Mexican gartersnake proposed critical habitat could be impacted by motorized vehicles traveling one mile off any designated route to retrieve elk or bear. Cross-country travel is likely to affect the PCEs for aquatic or riparian habitat by modifying stream habitat through sediment deposits into waterways, crushing of shoreline vegetation; potential harassment of gartersnake prey base that reduces prey availability; and

disturbances to terrestrial space. Adverse effects to PCEs are anticipated to be short-term because of the small number of one-mile trips expected to occur. In addition, 53% of proposed critical habitat occurs in the wilderness areas where MBGR is prohibited; and nearly 65% of proposed critical that is below 3,500 feet elevation would be for bear retrieval. The requirements that hunters use the most direct and least ground disturbing route to access the elk or bear; allowing only one vehicle trip; crossing riparian areas, streams and rivers only at hardened crossings or crossings with existing culverts is anticipated to reduce adverse effects to the PCEs.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, spur roads would be designated to four existing dispersed campsites in proposed northern Mexican gartersnake critical habitat. These campsites would occupy 3.21 acres in proposed critical habitat on the Cave Creek, Payson, and Tonto Basin RDs and would result in a 99% decrease in the number of acres in proposed critical habitat where the public can currently travel cross-country on the Payson and Pleasant Valley RDs. By eliminating thirteen campsites, some of which were adjacent to the water or in the floodplain, and moving them upland or closer to the road, we expect that any effects to the PCEs for aquatic or riparian habitat and adequate terrestrial space (600 feet from bankfull stage) will be reduced and minimized. The BA specifies that any routes to dispersed campsites within critical habitat for a listed species would be closed. Therefore, no spur routes would be designated in proposed critical habitat and no PCEs would be affected by the action.

Personal Use Fuelwood Gathering and Other Forest Products

No cross-country travel for personal fuelwood gathering would be authorized in proposed critical habitat under the proposed action. Therefore, no effects from personal use fuelwood gathering will occur to proposed critical habitat.

CUMULATIVE EFFECTS

Cumulative effects to the northern Mexican gartersnake and its proposed critical habitat may include negative interaction with people and gartersnakes. Routes that provide recreational opportunities within occupied riparian habitat also likely increase the number of human-gartersnake encounters and therefore the frequency of Forest users handling, collecting, injuring or killing gartersnakes, depending on the person's attitude towards snakes. Adverse human interactions would be more likely to occur along the Tonto Creek drainage where northern Mexican gartersnakes have been observed and heavy recreation occurs. Continued stocking and introduction of non-native fish species that prey upon or compete with prey used by the northern Mexican gartersnake may also continue to contribute to its decline.

CONCLUSION

After reviewing the current status of the northern Mexican gartersnake and its proposed critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that implementation of the Tonto NF's Travel Management Rule will not jeopardize the continued existence of the northern Mexican gartersnake or result in the destruction or adverse modification of proposed critical habitat. We base our conclusion on the following:

- All of the proposed designated routes currently exist and no new routes will be created within northern Mexican gartersnake habitat and proposed critical habitat. The decommissioning of 1.85 miles of routes and 16% reduction in the density of routes would serve to benefit the northern Mexican gartersnake and its habitat.
- We anticipate adverse effects from the continued use of routes and stream crossings, and cross-country travel for MBGR to the northern Mexican gartersnake and its habitat from interactions with the species and ground disturbance in stream corridors that contain the northern Mexican gartersnake and its prey. However, these effects are not expected to result in population-level effects to the species.
- Most of the dispersed campsites will be relocated or removed from proposed northern Mexican gartersnake critical habitat. This is anticipated to aid in improving hydrologic conditions within the watershed and maintain or improve the PCEs of proposed critical habitat in the long-term.
- Although some cross-country travel associated with MBGR will continue, the amount of proposed critical habitat potentially affected is small, and we expect that proposed critical habitat will continue to function for the conservation and recovery of the species.

INCIDENTAL TAKE STATEMENT

Amount or Extent of Take

We anticipate that the proposed action is reasonably certain to result in incidental take of the northern Mexican gartersnake. Activities that may result in direct mortality or reduce cover and availability of native fish for food are expected to adversely affect the snake. During the life of the proposed action, continued use of designated routes may cause the harm, harassment, and direct fatality of gartersnakes on routes. Cross-country travel for motorized big game retrieval may temporarily remove riparian vegetation needed by the northern Mexican gartersnake and cause harm or harassment to snakes within the stream channel, and reduction of prey availability due to vehicles crossing the channel. We anticipate that the total number of northern Mexican gartersnakes taken as a result of this action will be difficult to predict because finding a dead or impaired specimen will be difficult. However the level of incidental take can be anticipated by the information we have regarding observations of the northern Mexican gartersnake on the Tonto NF and the potential for them to be injured, or killed as a result of the proposed action.

We authorize the incidental take of two northern Mexican gartersnake in the form of direct mortality or injury as a result of vehicle strikes or during cross country travel for motorized big game retrieval. If more than two northern Mexican gartersnakes are injured or killed as a result of activities authorized under the Travel Management Rule, the amount or extent of incidental take would be exceeded.

Effect of Take

The FWS determines that take authorized in this BO/CO, if it does occur as a result of the implementation of this project in areas occupied by northern Mexican gartersnakes, is not likely to result in jeopardy to the northern Mexican gartersnake.

REASONABLE AND PRUDENT MEASURES AND TERMS AND CONDITIONS

The FWS believes the following reasonable and prudent measures are necessary and appropriate to minimize the effects of take of northern Mexican gartersnake.

1. Eliminate or minimize adverse effects to northern Mexican gartersnakes on the Tonto NF.
2. Monitor the impacts of the proposed actions being implemented on the northern Mexican gartersnake.

TERMS AND CONDITIONS

The following terms and conditions will implement reasonable and prudent measures 1:

- 1.1 The Tonto NF will install "Bake for Snakes" signs next to routes that are within northern Mexican gartersnake habitat to decrease the potential risk of motor vehicle impacts to northern Mexican gartersnakes.
- 1.2 The Tonto NF will provide northern Mexican gartersnake educational information to the public at recreational areas that are within its habitat to decrease negative human-snake encounters and protect the northern Mexican gartersnake from recreational impacts.
- 1.3 Tonto NF personnel are required to stop at any gartersnake that is injured or dead on a Forest Service Road and identify the specimen to species, take a photograph, record location coordinates, and report it to the Forest Biologist to improve detection.

The following terms and conditions will implement reasonable and prudent measure

- 2.1 The Tonto NF shall monitor the impacts of incidental take resulting from implementation of the proposed action and report these findings to the FWS. Incidental take monitoring shall include information such as when the proposed activities were implemented, whether the action was implemented as proposed and analyzed in the BO/CO, important life cycle period(s) over which the project occurred, relevant gartersnake survey information, and any other pertinent information as described in the BO/CO about the project's effects on the species habitat.
- 2.2 Annual reports will describe actions taken under this proposed action and impacts to the narrow-headed gartersnake and its proposed critical habitat. The annual report shall be sent to the Arizona Ecological Services Office by March 1 of each year.

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. 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.

1. Work with the FWS and AGFD to develop and implement a monitoring plan to better determine the distribution, abundance, and trends of northern Mexican gartersnake populations on the Tonto NF.
2. Within northern Mexican gartersnake habitat, participate with the FWS and AGFD in controlling non-native aquatic organisms on the Tonto NF, particularly bullfrogs, fish, and crayfish.
3. Maintain active participation in the Gartersnake Conservation Working Group by ensuring Forest biologists attend meetings and coordinate in monitoring and recovery planning.
4. Work with the Arizona Department of Environmental Quality, or other suitable partners to install water-quality monitoring equipment.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

SOUTHWESTERN WILLOW FLYCATCHER

Status of the Species and Critical Habitat

The southwestern willow flycatcher is a small grayish-green passerine bird (Family Tyrannidae) measuring approximately 5.75 inches. The song is a sneezy "fitz-bew" or a "fit-a-bew", the call is a repeated "whit." It is one of four currently recognized willow flycatcher subspecies (Phillips 1948; Unitt 1987; Browning 1993). It is a neotropical migrant that breeds in the southwestern U.S. and migrates to Mexico, Central America, and possibly northern South America during the non-breeding season (Phillips 1948; Stiles and Skutch 1989; Peterson 1990; Ridgely and Tudor 1994; Howell and Webb 1995). The historical breeding range of the southwestern willow flycatcher included southern California, Arizona, New Mexico, western Texas, southwestern Colorado, southern Utah, extreme southern Nevada, and extreme northwestern Mexico (Sonora and Baja) (Unitt 1987).

Legal Status

The southwestern willow flycatcher was listed as endangered, without critical habitat on February 27, 1995 (USFWS 1995). Critical habitat was later designated on July 22, 1997 (USFWS 1997a). A correction notice was published in the Federal Register on August 20, 1997 to clarify the lateral extent of the designation (USFWS 1997b).

On May 11, 2001, the 10th circuit court of appeals set aside designated critical habitat in those states under the 10th circuit's jurisdiction (New Mexico). The FWS decided to set aside critical habitat designated for the southwestern willow flycatcher in all other states (California and Arizona) until it could re-assess the economic analysis.

On October 19, 2005, the FWS re-designated critical habitat for the southwestern willow flycatcher (USFWS 2005). A total of 737 river miles across southern California, Arizona, New Mexico, southern Nevada, and southern Utah were included in the final designation. The lateral extent of critical habitat includes areas within the 100-year floodplain.

On August 15, 2011, the FWS proposed a revision to the critical habitat designation, identifying stream segments in each of the 29 Management Units where there are recovery goals (USFWS 2011). These segments totaled 2,090 stream miles. Similar to the 2005 rule, the lateral extent of critical habitat includes only the riparian areas within the 100-year floodplain. About 790 stream miles were identified as areas we will consider for exclusion from the final designation under section 4(b)(2) of the Act.

On January 3, 2013, the FWS completed its flycatcher critical habitat revision by designating approximately 1,227 stream miles as critical habitat. These areas are designated as stream segments, with the lateral extent including the riparian areas and streams that occur within the 100-year floodplain or flood-prone areas encompassing a total area of approximately 208,973 acres. About 948 stream miles of proposed critical habitat were excluded from the final revised designation.

A final recovery plan for the southwestern willow flycatcher was signed by the FWS Region 2 Director and released to the public in March, 2003 (USFWS 2002). The Plan describes the reasons for endangerment, current status of the flycatcher, addresses important recovery actions, includes detailed issue papers on management issues, and provides recovery goals. Recovery is based on reaching numerical and habitat related goals for each specific Management Unit established throughout the subspecies range and establishing long-term conservation plans (USFWS 2002).

The five-year review for the flycatcher was completed in August 2014 by the Arizona Ecological Services Field Office and is posted on the Field Office's web site (<http://www.fws.gov/southwest/es/arizona/Southwes.htm>).

Habitat

The southwestern willow flycatcher breeds in dense riparian habitats from sea level in California to approximately 8,500 feet in Arizona and southwestern Colorado. Historical egg/nest collections and species' descriptions throughout its range describe the southwestern willow

flycatcher's widespread use of willow (*Salix* spp.) for nesting (Phillips 1948; Phillips *et al.* 1964; Hubbard 1987; Unitt 1987; San Diego Natural History Museum 1995). Currently, southwestern willow flycatchers primarily use Geyer willow (*Salix geyeriana*), coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), boxelder (*Acer negundo*), saltcedar (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolius*), and live oak (*Quercus agrifolia*) for nesting. Other plant species less commonly used for nesting include: buttonbush (*Cephalanthus* sp.), black twinberry (*Lonicera involucrata*), cottonwood (*Populus* spp.), white alder (*Alnus rhombifolia*), blackberry (*Rubus ursinus*), and stinging nettle (*Urtica* spp.). Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher: monotypic willow, monotypic exotic, native broadleaf dominated, and mixed native/exotic (Sogge *et al.* 1997).

The flycatcher's habitat is dynamic and can change rapidly: nesting habitat can grow out of suitability; saltcedar habitat can develop from seeds to suitability in about four to five years; heavy runoff can remove/reduce habitat suitability in a day; or river channels, floodplain width, location, and vegetation density may change over time. The flycatcher's use of habitat in different successional stages may also be dynamic. For example, over-mature or young habitat not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial southwestern willow flycatchers (McLeod *et al.* 2005, Cardinal and Paxton 2005). Flycatcher habitat can quickly change and vary in suitability, location, use, and occupancy over time (Finch and Stoleson 2000).

Tamarisk is an important component of the flycatcher's nesting and foraging habitat in the central part of the flycatcher's breeding range in Arizona, southern Nevada and Utah, and western New Mexico. In 2001 in Arizona, 323 of the 404 (80 percent) known flycatcher nests (in 346 territories) were built in a tamarisk tree (Smith *et al.* 2002). Tamarisk had been believed by some to be a habitat type of lesser quality for the southwestern willow flycatcher, however comparisons of reproductive performance (USFWS 2002), prey populations (Durst 2004) and physiological conditions (Owen and Sogge 2002) of flycatchers breeding in native and exotic vegetation has revealed no difference (Sogge *et al.* 2005).

The introduced tamarisk leaf beetle was first detected affecting tamarisk within the range of the southwestern willow flycatcher in 2008 along the Virgin River in St. George, Utah. Initially, this insect was not believed to be able to move into or survive within the southwestern United States in the breeding range of the flycatcher. Along this Virgin River site in 2009, 13 of 15 flycatcher nests failed following vegetation defoliation (Paxton *et al.* 2010). As of 2012, the beetle has been found in southern Nevada/Utah and northern Arizona/New Mexico within the flycatcher's breeding range. It was detected along the Colorado River below Hoover Dam in 2012. Because tamarisk is a component of about 50 percent of all known flycatcher territories (Durst *et al.* 2008), continued spread of the beetle has the potential to significantly alter the distribution, abundance, and quality of flycatcher nesting habitat and impact breeding attempts.

Rangewide distribution and abundance

There are currently 288 known southwestern willow flycatcher breeding sites in California, Nevada, Arizona, Utah, New Mexico, and Colorado (all sites from 1993 to 2007 where a territorial flycatcher has been detected) holding an estimated 1,299 territories (Durst *et al.* 2008)

(Table 11). It is difficult to arrive at a grand total of flycatcher territories since not all sites are surveyed annually. Numbers have increased since the bird was listed and some habitat remains unsurveyed; however, after nearly a decade of intense surveys, the existing numbers are just past the upper end of Unit's (1987) estimate of 20 years ago (500-1000 pairs). About 50 percent of the 1,299 estimated territories throughout the subspecies range are located at four general locations (Cliff/Gila Valley – New Mexico, Roosevelt Lake - Arizona, San Pedro River/Gila River confluence – Arizona, Middle Rio Grande, New Mexico).

Table 11. Estimated rangewide population for the SWFL based on 1993 to 2007 survey data for Arizona, California, Colorado, New Mexico, Nevada, Utah, and Texas¹.				
State	Number of sites with SWFL territories 1993-07 ²	Percentage of sites with SWFL territories 1993-07	Number of territories ³	Percentage of total territories
Arizona	124	43.1 %	459	35.3 %
California	96	33.3 %	172	13.2 %
Colorado	11	3.8 %	66	5.1 %
Nevada	13	4.5 %	76	5.9 %
New Mexico	41	14.2 %	519	40.0 %
Utah	3	1.0 %	7	0.5%
Texas	?	?	?	?
Total	288	100 %	1,299	100 %

¹Durst *et al.* 2008.
²Site boundaries are not defined uniformly throughout the bird's range.
³Total territory numbers recorded are based upon the most recent years survey information from that site between 1993 and 2007.

Arizona distribution and abundance

While numbers have significantly increased in Arizona (145 to 459 territories from 1996 to 2007) (English *et al.* 2006, Durst *et al.* 2008), overall distribution of flycatchers throughout the state has not changed much. Currently, population stability in Arizona is believed to be largely dependent on the presence of three population centers (Roosevelt Lake, San Pedro/Gila River confluence, upper Gila River). Therefore, the result of catastrophic events or losses of significant populations either in size or location could greatly change the status and survival of the bird. Conversely, expansion into new habitats or discovery of other populations would improve the known stability and status of the flycatcher.

Southwestern Willow Flycatcher Critical Habitat

The primary constituent elements of designated critical habitat are based on riparian plant species, structure and quality of habitat and insects for prey.

1. Primary Constituent Element 1— *Riparian vegetation*. Riparian habitat along a dynamic river or lakeside, in a natural or manmade successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include

Gooddings willow, coyote willow, Geyer's willow, arroyo willow, red willow, yewleaf willow, pacific willow, boxelder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:

- (a) Dense riparian vegetation with thickets of trees and shrubs that can range in height from about 6 to 98 feet. Lower-stature thickets (6 to 13 feet tall) are found at higher elevation riparian forests and tall-stature thickets are found at middle and lower-elevation riparian forests;
 - (b) Areas of dense riparian foliage at least from the ground level up to approximately 13 feet above ground or dense foliage only at the shrub or tree level as a low, dense canopy;
 - (c) Sites for nesting that contain a dense (about 50% to 100%) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);
 - (d) Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.25 acre or as large as 175 acre.
2. Primary Constituent Element 2—*Insect prey populations*. A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, which can include: flying ants, wasps, and bees (*Hymenoptera*); dragonflies (*Odonata*); flies (*Diptera*); true bugs (*Hemiptera*); beetles (*Coleoptera*); butterflies, moths, and caterpillars (*Lepidoptera*); and spittlebugs (*Homoptera*).

The physical and biological features of flycatcher critical habitat are the principal biological or physical elements essential to flycatcher conservation which may require special management considerations or protection (USFWS 2013). We primarily identified the features and functions of rivers that generate flycatcher habitat and its food such as low gradient/broad floodplains, water, saturated soil, hydrologic regimes, elevated groundwater, and fine sediments, etc. (USFWS 2013).

Past Consultations

Since listing in 1995, at least 227 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range. This list of consultation can be found in the administrative record for this consultation. We concluded in our biological opinion for the Southwestern Regional Land Resource Management Plan (LRMP) (USFWS 2005a, #2-22-03-F-366) that ongoing upland grazing associated with Management Area 6J (Code 1423) of Tonto Creek on the Tonto National Forest would cause a sub-lethal response (-2) to the flycatcher. The conclusion in the LRMP that continued grazing can facilitate decreased bank stabilization, increased run-off, increased sedimentation, increased erosion, and reduced capacity of soils to hold water. These factors would reduce the occurrence, longevity, and quality of the habitat-based PCEs of flycatcher critical habitat. The LRMP was completed prior to the Forest Service adopting a policy of rangeland adaptive management in Chapter 90 of FSH 2209.13. Since flycatcher critical habitat was finalized in 2005, at least 33 formal opinions have been

completed in Arizona (within and outside designated critical habitat). While many opinions were issued for the previous critical habitat designation, the stream reaches and constituent elements have changed.

Activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Introduced tamarisk eating leaf beetles were not anticipated to persist within the range of the southwestern willow flycatcher. However, they were detected within the breeding habitat (and designated critical habitat) of the flycatcher in 2008 along the Virgin River near the Town of St. George, Utah. In 2009, beetles were also known to have been detected defoliating habitat within the range of flycatcher habitat in southern Nevada, and along the Colorado River in the Grand Canyon and near Shiprock in Arizona. Stochastic events also continue to change the distribution, quality, and extent of flycatcher habitat.

ENVIRONMENTAL BASELINE

Status of the Species and Critical Habitat in the Action Area

Surveys for the southwestern willow flycatcher on the Tonto NF have been conducted since the species was listed. Pairs have been detected on Tonto Creek, Salt River, and Cherry Creek on the Tonto Basin and Globe RDs, and along the Verde River, including Horseshoe Reservoir on the Cave Creek RD.

Roosevelt Lake Complex

Southwestern willow flycatchers were first detected nesting on Tonto Creek and the Salt River within the conservation space of Roosevelt Lake in 1993 (USFWS 2013). In this area, occupied and suitable habitat for the flycatcher consists of dense riparian vegetation that can contain native willow and cottonwood stands, mixtures of native willow/cottonwood and exotic salt cedar, and stands comprised mostly of exotic salt cedar. However, water level fluctuations at Roosevelt Lake periodically inundate much of the habitat and many flycatcher territories, which limits the number of territories that can be sustained around the lake over time. As a result, Tonto Creek and the Salt River drainages, in combination with the lakebed where conditions are suitable, provide habitat that allow flycatcher territories to persist over time due to dynamic river and lake flooding events.

The AGFD conducted extensive flycatcher surveys and nest monitoring at Tonto Basin (Tonto Creek, Roosevelt Lake, and Salt River) from 1996 to 2006 under contract to the Bureau of Reclamation (Reclamation) as part of the biological opinion for the raising of Roosevelt Dam (Ellis *et al.* 2008). Water levels in Roosevelt Lake from 1996 to 2004 were low due to reduced rainfall, and this resulted in increased flycatcher habitat. The Roosevelt Lake population grew from 38 to 209 territories, becoming one of the largest in Arizona. In 2005, Roosevelt Lake was almost at full water capacity and territories declined to 153, and then to 111 in 2006 (Ellis *et al.* 2008)

In 1996, the AGFD detected 22 territories at the Salt River. In 2002, territories increased to 119 and reached a high of 140 in 2004. Breeding flycatchers were mainly concentrated within the conservation pool of Roosevelt Lake during these years. In 2005, when water levels in the lake reached near capacity (2,151 feet elevation), much of the habitat that was occupied in 2004 was inundated. As a result, flycatchers moved farther upstream from the Salt River inflow and colonized new areas from Cottonwood Acres I and II to Meddler Pont, sites that had not been occupied for several years. The number of territories declined to 69 in 2005 and then to 50 territories in 2006 due to the quality and quantity of habitat associated with flooding and recovery. Breeding flycatchers are currently detected in the Salt River drainage at the inflow at Roosevelt Lake and upstream to Gleason Flat, as well as along Pinto Creek, Cherry Creek,

Lower Cherry Creek, and Coon Creek

On Tonto Creek, flycatchers occupied areas near the inflow in 1996 as habitat was created because of reduced water levels in Roosevelt Lake. As water levels continued to recede from 1996 to 2004, territories at or near the inflow increased from 16 in 1996 to 28 in 2000 as flycatchers moved further downstream to occupy new areas at Orange Peel and Bermuda Flats. In 2005 when the water levels in the lake reached full capacity, these occupied areas were inundated. Flycatchers moved back to colonized areas near the inflow as well as further upstream to Bar X Road. Approximately 84 territories were detected in 2005 and 61 in 2006. Currently, breeding flycatchers are detected in the Tonto Creek drainage from the inflow upstream to Gisela, including Rye Creek, with high detections around Punkin Center.

Following the completion of the contract with Reclamation in 2006, the Tonto NF became the primary agency evaluating flycatcher distribution and abundance within 15.5 miles of known occupied habitat within the Roosevelt Lake Complex (USFS 2007). While the Forest did not have the same dedicated resources as AGFD, they tracked the presence or absence of flycatcher territories primarily on Tonto Creek, Roosevelt Lake, upper Salt River, and Cherry Creek. Other sites that were surveyed included Lower Pinto Creek, the mouth of Chalk Creek, 288 Bridge, Diversion Dam, Horseshoe Bend, Gleason Flats, Rye Creek, and Gisela. Only some of these sites were surveyed during the breeding season and not to protocol. The Tonto NF visited most sites one time, usually in June, but not all potential habitats have been visited.

In 2007, the Forest surveyed 25 sites on the Salt River and Tonto Creek drainages. Ten of these sites were not surveyed three times as required by protocol due to time limitations, personnel constraints, changing priorities, and terrain that was initially observed to be unsuitable for flycatchers. The Forest detected 84 resident flycatchers in 53 territories at 10 sites. The Salt River had the most resident flycatchers with the greatest concentration (42%) at Cottonwood Acres, followed by Shangri-La. The Bar X site on Tonto Creek was the next site where numerous flycatchers were found with at most 29 residents and 20 territories.

In 2008, the Forest surveyed 19 sites on the Salt River and Tonto Creek drainages. Other areas surveyed included Lower Pinto Creek, Cherry Creek, and Horseshoe Bend; an unnamed area of the Salt River; the mouth of Chalk Creek in the Salt River drainage; and Kayler Spring, Rye Creek, and Gisela in the Tonto Creek drainage. The Forest detected 65 resident flycatchers residing in 46 territories at 7 surveyed sites. The Tonto Creek drainage contained 66.2% residents and 58.7% of the territories with the greatest concentration at the Bar X site with a high

of 28 residents and 16 territories. All of the sites that were occupied on the Salt River in 2007 were inundated during the entire survey in 2008. Most of the southwestern willow flycatchers were found in older stands of monotypic tamarisk with stems above the water level (USFS 2008).

In 2009, the Forest surveyed 13 sites on the Salt River and Tonto Creek drainages; six of the sites were not surveyed three times as required by protocol. They detected 102 resident flycatchers residing in 63 territories at 9 sites. The Tonto Creek drainage contained 55.9% of the residents and 44.4% of the territories with the greatest concentration of birds at the A-Cross survey site. Resident flycatchers were also detected at Orange Peel/Tonto Creek inflow and in the Gisela, Rye Creek and Mouth of Chalk Creek survey areas for the first time in 2009. Flycatchers on the Salt River were again detected at Cottonwood Acres site.

In 2010, the Forest detected 101 flycatchers residing in 60 resident territories at 11 sites, mostly in Tonto Creek with A-Cross having the greatest proportion of flycatchers overall. Flycatchers were detected at Gleason Flats, Cherry Creek, the Mouth of Coon Creek, the Mouth of Pinto Creek and Mazatzal Bay on Apache Lake survey areas for the first time that year.

In 2011, the Forest detected 134 flycatchers residing in 85 resident territories at 8 sites. The Tonto Creek drainage area contained 70% of the resident adults. The Salt River drainage area contained 30% of the resident adults. The A-Cross survey site in the Tonto Creek drainage contained the greatest proportion of flycatchers with 34% of detected resident adults.

Archaeological Consulting Services (ACS) also conducted some monitoring within Tonto Basin at the potential Tonto Creek Bridge Crossing Site and at Rockhouse Farms by the Salt River Project (SRP). SRP also began tracking the overall amount and suitability of flycatcher habitat within the conservation space of Roosevelt Lake in support of their Roosevelt Habitat Conservation Plan (HCP) (SRP 2003). Westland Resources also evaluated flycatchers along lower Pinal Creek on private land, adjacent to USFS land.

Survey information from the Tonto Basin RD in 2012 reported 44 territories at the Roosevelt Lake area. In 2014, they reported 19 territories along Tonto Creek at Quartz Ledge, Rye Creek and Gisela. At Roosevelt Lake and the Salt River, they detected nine territories at Cottonwood Acres near Medler Point with a territory at the mouth of Coon Creek. Two males were heard calling near Punkin Center, but no territories were recorded during the survey (ACS 2014). SRP has also been surveying flycatchers on their Rockhouse Demonstration Project site for the habitat suitability model. No territories were detected here in 2009. In 2014, the site had 42 flycatchers and 22 territories, which climbed to 49 flycatchers and 25 territories with 3 nests in 2015.

Verde River

We identified a large flycatcher nesting population along the Verde River within Yavapai, Gila, and Maricopa Counties, Arizona. Flycatchers were first detected nesting on the Verde River in 1993; a total of six breeding sites are known and are spread out from the Verde Valley near the towns of Clarkdale and Camp Verde and downstream near Horseshoe Lake (Sogge and Durst 2008).

SRP conducted surveys for the flycatcher per requirements of their HCP for ongoing management of Horseshoe Reservoir. They surveyed the area from Sheep's Bridge downstream to Horseshoe Dam, an area that is known to have large territorial populations. In 2002, SRP detected 6 territories, then 11 in 2003, 17 in 2004, and a high of 20 in 2005. Territory numbers then decreased to 18 in 2006, 13 in 2007, and 7 in 2008. The increases and decreases of territory numbers correspond with fluctuations in water levels and the availability of habitat. No surveys were conducted in 2009 and 2010, but 11 territories were detected in 2011. In 2015, EcoPlan surveyed the area from Sheep's Bridge downstream to Horseshoe Dam and Horseshoe Dam to Davenport Wash; 13 territories and 9 pairs were detected.

Migratory southwestern willow flycatchers can also be found throughout the Tonto NF during the months of April/May and August/September, using areas temporarily for shelter and foraging. During migration, flycatchers are typically found in riparian areas, but the quality of habitat they use can vary. As a result, they can be found in areas with much broader habitat quality and in more unpredictable locations than during the breeding season.

Critical Habitat

Approximately 12,380 acres of designated critical habitat for southwestern willow flycatchers occur on the Tonto NF. Critical habitat includes areas along the Verde River on the Cave Creek RD, along the Salt River on the Tonto Basin and Globe RDs, and along Tonto Creek on the Tonto Basin and Payson RDs. Approximately 24% of flycatcher designated critical habitat occurs within the Mazatzal and Salt River Canyon Wilderness Areas.

Verde Management Unit—Verde River

We designated two segments of the Verde River on the Tonto NF as critical habitat. The Middle Verde North segment includes 28.8 miles (1,829 acres) of stream that extends from the East Verde River confluence down to the upper end of Horseshoe Lake. The Middle Verde South segment includes 4.2 miles (802 acres) of stream from Horseshoe Dam and ends a short distance downstream to the U.S. Geological Survey gauging station and cable crossing. These river segments are anticipated to provide flycatcher habitat for metapopulation stability, gene connectivity through this portion of the flycatcher's range, protection against catastrophic population loss, and population growth and colonization potential. As a result, these river segments and associated flycatcher habitat are anticipated to support the strategy, rationale, and science of flycatcher conservation in order to meet territory and habitat-related recovery goals.

Roosevelt Management Unit—Salt River and Tonto Creek—

At Roosevelt Lake, we designated a segment of lower Tonto Creek and a segment of the Upper Salt River as flycatcher critical habitat. The lower Tonto Creek segment extends for 30.5 miles (5,570 acres) and occurs from the south end of the Town of Gisela downstream to the western high-water-mark side of the conservation space of Roosevelt Lake. On the eastern side of Roosevelt Lake, we designated a 24.2 mile (3,680 acres) segment of the Salt River from the confluence with Cherry Creek downstream to the high water mark of the conservation space of Roosevelt Lake. These segments are within the geographical area known to be occupied by flycatchers at the time of listing, and contain the physical or biological features essential to the conservation of the species that may require special management considerations or protection, as

described above. These segments of Tonto Creek and the Salt River were identified as having substantial recovery value in the Recovery Plan (USFWS 2002).

These segments are anticipated to provide flycatcher habitat for metapopulation stability, gene connectivity through this portion of the flycatcher's range, protection against catastrophic population loss, and population growth and colonization potential. As a result, these river segments and associated flycatcher habitat are anticipated to support the strategy, rationale, and science of flycatcher conservation in order to meet territory and habitat-related recovery goals. Migrant and unpaired male southwestern willow flycatchers are also found during breeding surveys and likely occur elsewhere within the Tonto NF.

Factors Affecting the Species and Critical Habitat within the Action Area

Actions on and off the Tonto NF have influenced the condition of flycatcher habitat and their population distribution and abundance within the Tonto NF. Actions such as water diversion, groundwater pumping, habitat clearing, flood control, urban/agricultural development, dam building, and dam operations have changed surface and subsurface stream flows, and in combination with historical and current land uses such as livestock grazing, road developments, heavy OHV use around Roosevelt Lake, Tonto Creek and the Salt River, have altered the quality, distribution, abundance, and longevity of riparian vegetation (USFWS 2002).

Riparian habitats by nature are dynamic, with their distribution and quality governed mostly by flood events and flow patterns. Current conditions along southwestern rivers and streams throughout much of the Tonto NF are such that normal flow patterns have been modified, flood events are more severe as a result of degraded watershed conditions, stream channels are degraded, floodplains and riparian communities have been reduced in extent, wildfires in riparian habitats are increasing, and riparian communities are more flammable due to water management that limits flows in these areas and the associated increase of exotic plant species. Habitat loss and fragmentation can lead to increased brood parasitism and nest predation. These conditions have diminished the potential for southwestern rivers and streams to develop suitable nesting habitat for the southwestern willow flycatcher and for those habitats to remain intact and productive for nesting flycatchers (USFWS 2002).

Suitable and nesting flycatcher habitat at the Roosevelt Lake conservation area is impacted by heavy recreation. There are numerous illegal routes from people driving off-road to create a campsite or to recreate next to the lake or along the Salt River that have caused degradation of riparian habitat that flycatchers use for nesting and likely have prevented the development of riparian vegetation. Currently, there are 63 campsites in flycatcher habitat with some located adjacent to a territory. Although flycatchers continue to nest in the area, the Tonto Basin RD has not investigated nest success. Additionally, there has been abundant OHV use in and around A-Cross Road where nesting flycatchers occur. It is reasonable to conclude that OHV use has altered the development and persistence of riparian habitat in this immediate area.

From 2002 through 2007, the Tonto Basin RD implemented the Roosevelt Endangered Species Area Restriction (Order 12-167-2R). The special restriction prohibited possessing or using a motor vehicle on the bed of Roosevelt Lake below the 2,151 foot level and closed routes in the

arms of Salt River and Tonto Creek. Forest Order 12-4 also prohibited any motor vehicle from traveling off Forest Service roads in these Endangered Species Areas. Together, these restrictions prevented motor vehicle damage into key habitat areas during the flycatcher breeding season to reduce the likelihood of disturbance to flycatchers and alteration of habitat from off-road use and/or accidental fires.

Additionally, SRP entered into an agreement with the Tonto NF in 2005 to fund a Forest Protection Officer (FPO) in conjunction with their implementation of the HCPs for the operation of Roosevelt Dam at the Roosevelt Lake conservation area. The FPO would be responsible for flycatcher habitat protection, posting and maintaining signs and fences in restricted areas, issuing citations, and providing public education related to threatened and endangered species. Information in SRP's HCP annual reports indicates that 171 citations were issued in the area from 2006 through 2014. Fifty-seven citations were for OHV use or people driving off main Forest Service roads into the closure area despite heavy signage. The remaining citations were for abandoned campfires, one of which resulted in a small fire just outside flycatcher habitat; starting fires during the seasonal fire restrictions despite signage; littering in and around the water; cutting down trees without a permit; and discharging a firearm. The FPO position was renewed in 2015.

The Tonto NF will also implement the *Southwestern Willow Flycatcher Protection Closure Order*, that supersedes the Roosevelt Endangered Species Area Restriction (Order 12-167-2R), to protect flycatcher critical habitat for a 10-year period. The closure order will prohibit the gathering of fuelwood and building, maintaining, attending or using a fire or campfire at the Salt River arm and Tonto Creek arm of Roosevelt Lake.

Damage to flycatcher habitat from off-highway vehicle use also occurs at Needle Rock on the Cave Creek RD. The Forest Service is implementing measures to improve recreation management of the area from Needle Rock downstream to the Fort McDowell tribal boundary that may help reduce the use of vehicles and other habitat-altering activities in the floodplain, and improve the overall abundance of riparian habitat.

EFFECTS OF THE ACTION

In the BA, effects of the proposed action were evaluated against "potential flycatcher habitat" using designated critical habitat as a surrogate since these areas include currently occupied and suitable habitats. We agree with using critical habitat as a method to easily identify occupied areas; however, nesting flycatchers occur in several other areas that we excluded from designation as critical habitat. The Forest may not have considered these areas in their analysis, but they include: lower Cherry Creek, a portion of Pinal Creek, Needle Rock area on the Verde River, lower Tangle Creek, lower Red Creek and lower Rye Creek. Although, "potential habitat" has a different definition in the flycatcher Recovery Plan from how it is used in the BA, we considered "potential habitat" as flycatcher habitat in this consultation.

Routes Designated for Motor Vehicle Use

Under the proposed action, approximately 13.95 miles of routes would be designated in flycatcher habitat (Table 12). The designated routes are located within the river or creek

channel, floodplain or adjacent upland areas, and include five perennial stream crossings on Tonto Creek. The designation includes approximately 1.69 miles for Administrative Use or Administrative Use Motorized Trail, 6.64 miles for Motorized Trails Open to the Public or Motorized Trails with Administrative Use, and 5.61 miles for public motorized vehicle access including high-clearance or OHVs. An additional 12.27 miles would be designated within the 300-foot buffer, and another 27.01 miles would be designated within the 0.25-mile buffer. The majority of designated routes would continue to provide public access to recreational areas on Roosevelt Lake, the Salt River, and Tonto Creek on the Tonto Basin RD. Thirty-one percent of the roads designated under the proposed action would provide public access to the Verde River above and below Horseshoe Lake on the Cave Creek RD.

Table 12. Changes in conditions for the seven analysis factors between existing conditions and the proposed action in southwestern willow flycatcher habitat

Analysis Factors	Existing Condition			Proposed Action			Change		
	In Habitat	300ft	0.25mi	In Habitat	300ft	0.25 mi	In Habitat	300ft	0.25mi
Routes designated for motor vehicle use (miles)	23.41	40.60	79.11	13.95	26.22	53.23	-9.46	-14.38	-25.88
Density of designated routes (miles per square mile)	1.21	1.94	1.97	0.72	1.25	1.32	-0.49	-0.69	-0.65
Decommissioned and closed routes (miles)	0.00	0.00	0.00	9.46	14.38	25.88	+9.46	+14.38	+25.88
Areas open to motorized vehicle use (acres)	219.60	333.18	412.30	2.92 ¹	5.19 ¹	21.14 ¹	-216.68	-327.99	-391.16
Motor vehicle use for big game retrieval (acres)	219.60	333.18	412.30	8,236 ²	11,336 ²	21,784 ²	+8,016	+11,003	+21,371
Motor vehicle use for dispersed camping (acres)	219.60	333.18	412.30	11.23	13.31	17.13	-208.37	-319.87	-395.17
Personal use fuelwood gathering (acres)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

¹The polygons of the Roosevelt OHV area used for this analysis are approximations of those areas currently used by OHVs and would not include any sensitive resources inside its boundary when finalized. As a result, these numbers will decrease during implementation.

²The values calculated for MBGR under the proposed action include areas that have perennial water and would not generally be accessible by motorized vehicle. Since the amount of water can vary from year to year and season to season, these values represent the maximum area open to MBGR under the driest conditions.

The proposed action to eliminate many of the user-created routes and spur routes that occur within and that cross through riparian areas and streams on the Tonto NF (Tonto Basin and Verde River) is anticipated to reduce the impact to flycatchers and its habitat, and to and designated critical habitat. Portions of 34 routes, including a stream crossing on Tonto Creek that totals 9.46 miles will be decommissioned (Table 13). This will reduce the density of routes by 40% in flycatcher habitat. Many of these decommissioned routes are user-created motorized trails, with a large portion located at the inflows of the Salt River and Tonto Creek to Roosevelt Lake, and below Horseshoe Reservoir on the Verde River. Their closures are expected to help the riparian vegetation recover and regenerate habitat adjacent to riparian areas that may be used by flycatchers over time because decommissioned routes are anticipated to be obliterated and become re-vegetated over time from lack of use. No routes would be designated in 24% of

flycatcher habitat (portions of designated critical habitat) that are within the Mazatzal and Salt River Canyon wilderness areas.

Table 13. Comparison of Existing and Decommissioned Routes per Ranger District

Ranger District	River System	No. of Existing Routes	Miles of Existing Routes	No. of Proposed Decomm. Routes	Miles of Proposed Decomm. Routes
Cave Creek	Verde River	25	8.13	15	4.40
Globe	Salt River	3	0.07	2	0.07
Payson	Tonto Creek	3	1.57	2	1.10
Tonto Basin	Tonto Creek, Salt River	45	13.63	15	3.88
Total		76	23.40	34	9.46

While the overall implementation of the Travel Management Rule is anticipated to reduce the overall impacts to flycatcher habitat, the Tonto NF anticipates short-term habitat impacts within the first few years until Forest users adjust to any comply with the new Motor Vehicle Use Map. During this transitional period, we expect some users may drive off-road into riparian areas, create camp sites, and travel within flycatcher critical habitat. We expect the short-term impacts to flycatcher habitat during this transitional period will likely result in indirect impacts to flycatcher habitat from soil compaction, impacts to germination and growth of riparian vegetation, and impacts to understory herbaceous vegetation that preclude the development of new habitat. However, we cannot identify exactly where these transitional impacts will be, but we expect they will be minimized in their extent and duration due to the implementation, compliance, and enforcement of the program. We do not anticipate transitional vehicle impacts are likely to cause indirect or direct harassment or harm to flycatchers because of the closure of 29 campsites; and while motor vehicles driving off-road may disturb a flycatcher adjacent to an illegal spur route, these instances are anticipated to occur for only a short duration of the transitional period. We expect the majority of the public to comply with the Motor Vehicle Use Map. As the Travel Management Rule moves past its transitional period, the public improves its awareness and compliance, and the Motor Vehicle Use Map is fully enforced, we expect impacts to flycatcher habitat will decrease.

In addition to the proposed decommissioned routes, the *Southwestern Willow Flycatcher Protection Closure Order* will help to protect flycatcher critical habitat for a 10-year period. The closure order will prohibit the gathering of fuelwood and building, maintaining, attending or using a fire or campfire at the Salt River arm and Tonto Creek arm of Roosevelt Lake. Because these areas are popular for recreation, have a history of fire citations, and have a high density of flycatcher nests, we anticipate that this Closure Order will reduce or prevent the alteration, degradation, or destruction of nesting habitat as a result of escaped campfires.

A small portion of the St. Clair Permit Zone on the Cave Creek RD would be within 300 feet of flycatcher habitat. As described in the BA, the portion of the permit zone that overlaps flycatcher habitat would be between the KA Ranch and Devil's Hole. The BA indicated that the

closest flycatcher detection is estimated to be more than one mile upstream of this area on the Verde River. However, we believe the Permit Zone may be closer to flycatcher nesting and non-breeding sites (e.g., unpaired male) based on survey information and the Forest's GIS data. This flycatcher breeding site is also located outside of the Cliff Sensitive Species Area Seasonal Closure, not inside as the BA concludes. Despite the close proximity, we do not anticipate that noise disturbances from OHV use would significantly disturb nesting flycatchers as they do not appear to be sensitive to motor vehicle noise. We do not anticipate that the designation of the Permit Zone would impact flycatcher habitat because it is located outside of the riparian area.

Areas Designated for Motor Vehicle Use

There are 2.92 acres of flycatcher habitat within the Roosevelt OHV area near the Tonto Creek arm. The Tonto NF's proposed mapped polygon for this OHV area is an approximation of the location and would not actually include any sensitive resources such as listed species habitat or archaeological sites once the OHV area boundary is finalized (USFS 2015). As a result, the acres within flycatcher habitat and the 300-foot buffer were eliminated for this analysis. Therefore, we do not anticipate any effects to riparian habitat in these areas from OHV use.

Motor Vehicle Use for Big Game Retrieval

Approximately 8,236 acres of southwestern willow flycatcher habitat could be impacted by MBGR. These acres include all areas where unrestricted cross-country travel is currently authorized in flycatcher habitat. Depending on climatic conditions in a given year, some portion of these acres that support perennial water would not be accessible to motorized vehicles.

Southwestern willow flycatcher habitat is located in portions of GMUs 21, 22, 23, 24A, and 24B. Game retrievals in these five GMUs may occur on approximately 1,933,288 acres with an estimated 210 out and back trips (194 for elk and 16 for bear) expected in a given year (AGFD 2014). Since the normal range of elk occurrence in Arizona is above 5,500 feet, MBGR would likely only occur for bear since all flycatcher nesting habitat is below 3,500 feet. The number of acres for bear retrieval in flycatcher habitat represents a very small portion of the acres (0.004%) in the five GMUs. Under the proposed action, no MBGR would be allowed in the closure area around Roosevelt Lake.

The BA stated that nearly all MBGR would occur between June and August, which would overlap with the flycatcher breeding season (late April to mid-May through late August to mid-September). It is anticipated that no more than a few bear retrievals are expected across all five units in August, but retrievals could occur in September (AGFD 2011). While an increase in the number of acres authorized for big game retrieval could occur in flycatcher habitat, we anticipate that the likelihood of MBGR occurring in its habitat will be low. Bears tend to be found in chaparral and pine-oak woodlands with most retrievals known to occur near the Mogollon Rim or in canyon habitat (AGFD 2014), which does not exist around Roosevelt Lake and the confluence of the Salt River (GMUs 23 and 24B), or the Verde River (GMUs 21 and 22) where most breeding flycatchers occur. Additionally, flycatchers use dense riparian areas for nesting that would not be conducive for vehicular travel. Further, the proposed action specifies that hunters are required to use the most direct and least ground-disturbing route to access the bear; that only one vehicle trip is allowed; and that motorized vehicles are not allowed to cross riparian areas, streams and rivers except at hardened crossings or crossings with existing culverts. While it is possible that a limited number of bear

retrievals could occur in other suitable flycatcher habitat on Cherry, Coon, Pinal, Rye, and Tangle creeks, we anticipate that any effects to flycatcher habitat from MBGR would be minimal.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, a number of spur routes to approximately 36 existing dispersed campsites are proposed outside of potential flycatcher habitat but within 300 feet or 0.25 mile of potential habitat. Motor vehicle use for dispersed camping, in acres, will result in a decrease of 96% from 220 acres under existing conditions to 11.23 acres under the proposed action (Table 12). Motor vehicles are required to stay on designated routes. Campers may park along a route and walk into the Forest to set up a tent but cannot drive off-road to create a new camp site. Dispersed campsites that would have designated spur roads for access under the proposed action include:

- Salt River – Existing routes would provide access to approximately 11 campsites adjacent to the Salt River. These campsites are located near Roosevelt Lake, Eads Wash, the Diversion Dam, Horseshoe Bend, and Gleason Flat. The campsites are located next to or at the end of existing routes and outside of riparian vegetation and the floodplain. Nine campsites at Eads Wash and the Diversion Dam are located above the 2,151 foot elevation mark at Roosevelt Lake and in heavily disturbed areas. The Salt River supports heavy recreation that is very popular for fishing, camping, boating, and OHV use throughout the year, especially on weekends between May and September.
- Tonto Creek – Existing routes would provide access to approximately 17 existing campsites that occur along Tonto Creek that is outside of riparian vegetation. All of these campsites are adjacent to existing Forest Service routes with the majority located west of State Route (SR) 188. The Tonto Creek area is popular for camping, boating, and OHV use throughout the year.
- Verde River near Sheep Bridge – Existing routes would provide access to two campsites that would be designated at the end of FR269A near Sheep Bridge on the Cave Creek RD. These campsites are adjacent to flycatcher habitat and northern Mexican gartersnake habitat. This portion of the Verde River is also popular for camping and OHV use.
- Verde River below Horseshoe Dam – Existing routes would provide access to five campsites along the Verde River about one river mile below Horseshoe Dam on the Cave Creek RD. These sites are located along FR 205 on the southwestern side and away from the shoreline. This portion of the Verde River is popular for camping and OHV use.

Under the proposed action, 27 dispersed campsites in flycatcher habitat were eliminated. Those include: 10 sites on Tonto Creek eliminated because they were located immediately adjacent to the streambank; and 3 sites eliminated on the Verde River because they were immediately adjacent to the river and inside the Verde Scenic River boundary. The elimination of these dispersed campsites from within (some campsites were created at the shoreline where openings in the vegetation exist) or immediately adjacent to dense patches of riparian vegetation, were likely having adverse effects on the flycatcher. The proposed action is anticipated to help these heavily disturbed areas recover by allowing riparian vegetation to re-establish, alleviating soil

compaction and erosion where campsites were created, and removing the risk to flycatcher habitat from campers who fail to extinguish campfires, as previously described.

The Tonto NF will reduce the overall number of dispersed campsites but will maintain 36 designated campsites near (but outside of) riparian areas where flycatcher nesting habitat occurs on the Forest. Under the existing conditions, 63 dispersed campsites were created in flycatcher habitat (and designated critical habitat) by users driving off-road and next to the shoreline. By closing dispersed campsites that are immediately adjacent to the water or within the floodplain and designating the 36 campsites outside the stream channel and away from where flycatcher nesting habitat occurs, vehicle travel to these campsites and associated habitat impacts from cross country travel will be minimized. Therefore, we anticipate fewer vehicles moving into flycatcher habitat, thereby reducing soil compaction; erosion; risk of accidental fire; degradation to riparian plant establishment, germination, and growth; and direct impacts to existing flycatcher habitat.

The BA did not consider effects of the proposed action to migrating flycatchers that may be found in other areas not designated as critical habitat. While there is the possibility that areas used by migrating flycatchers may be affected by the designation of spur routes to dispersed campsites, we anticipate any effects to migrating flycatchers would be minimal. Most, if not all of the dispersed campsites have been removed or relocated outside of riparian areas to protect these areas and reduce ground disturbing impacts to other listed fish and aquatic species, including protections for proposed critical habitat for the narrow-headed and northern Mexican gartersnakes, all of which also benefit areas that migratory flycatchers may use.

Personal Use Fuelwood Gathering and Other Forest Products

No use of motorized vehicles for personal fuelwood gathering would occur within 0.5 mile of southwestern willow flycatcher habitat under the proposed action. Therefore, no effects to the flycatcher will occur from using a motorized vehicle for personal use fuelwood gathering or other forest products.

Effects of the Action on Southwestern Willow Flycatcher Critical Habitat

In the BA, the Tonto NF used designated critical habitat as a surrogate for flycatcher habitat. Therefore, effects to critical habitat will be similar to those described above for the species.

Routes Designated for Motor Vehicle Use

The proposed designation of 13.95 miles of routes, including five perennial stream crossings are located in designated critical habitat and their continued use is not expected to affect the PCEs for riparian vegetation and insect prey populations. The decommissioning of 9.46 miles of routes, including 3.56 miles of user-created routes and one stream crossing on Tonto Creek is expected to help riparian areas recover and allow development of new riparian vegetation that over time may provide suitable habitat for the flycatcher. The proposed action would not affect the 24% of critical habitat that is in wilderness areas where roads are prohibited.

As mentioned in the effects to the species, the Tonto NF anticipates illegal OHV use will continue to occur during the transitional period when Forest users familiarize themselves with

the Motor Vehicle Use Map and enforcement of the Travel Management Rule takes effect. During this period, we anticipate that some Forest users are reasonably likely to drive off-road into riparian habitat and adversely affect the PCEs for riparian vegetation by causing soil compaction, preventing plant regeneration, altering flow regime, and erosion that results in deterioration of the quality of riparian habitat. We expect that illegal OHV use within flycatcher critical habitat will result in temporary, short-term effects to the PCEs during this period. No new routes are proposed so there would not be any permanent loss of riparian habitat. In the long-term, this project is expected to improve the PCEs and the overall quality of flycatcher habitat.

The St. Clair Permit Zone would not be designated in critical habitat (USFS 2015); therefore, no effects to the PCEs are expected under the proposed action.

Areas Designated for Motor Vehicle Use

There are 2.92 acres of flycatcher habitat within the Roosevelt OHV area near the Tonto Creek arm. The final boundary for the portion of the Roosevelt OHV area near Tonto Creek would not include flycatcher critical habitat. Therefore, we do not anticipate any effects will occur to the PCEs from the proposed Roosevelt OHV area.

Motor Vehicle Use for Big Game Retrieval

Acres open to MBGR in flycatcher critical habitat under the proposed action would increase from 220 acres under existing conditions to 8,236 acres. This represent 0.004% of the acres open to MGBR in GMUs 21, 22, 23, 24A, and 24B. All acres currently open to unrestricted cross-country travel on the Payson RD would be included in acres open to MBGR under the proposed action. MBGR within flycatcher critical habitat is expected to be for bear only since all flycatcher critical habitat is below 3,000 feet in elevation, which is well outside the normal range of elk in Arizona. MBGR would also not be allowed in the designated closure areas for flycatchers. The proposed action specifies that hunters are required to use the most direct and least ground-disturbing route to access a downed bear; that only one vehicle trip is allowed; and that motorized vehicles are not allowed to cross riparian areas, streams and rivers except at hardened crossings or crossings with existing culverts, all of which would minimize any effects to flycatcher habitat. While there would be an increase in the number of acres where big game retrieval would be authorized in flycatcher habitat, we anticipate that motorized retrievals for bear would be unlikely to occur in this habitat. The PCEs of critical habitat are comprised of dense, riparian vegetation that would not be conducive to motor vehicle travel. Further, bear prefer different vegetation types and would be unlikely to be found in these areas. We therefore anticipate that any adverse effects to flycatcher critical habitat would be minimal.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, existing Forest Service routes would provide access to 36 designated dispersed campsites adjacent to flycatcher critical habitat. All of the 36 campsites are currently in use and are located outside of the floodplain and away from riparian vegetation that would support flycatchers. Proposed designated routes to dispersed campsites at Roosevelt Lake, including those at the confluence with Tonto Creek and the Salt River, are located outside designated critical habitat. No new spur routes or dispersed camping sites are proposed and therefore will have no effect on designated critical habitat.

Any effects to the PCEs from the creation of campsites and campfires will also be minimized by the implementation of the *Southwestern Willow Flycatcher Protection Closure Order*, which supersedes the Roosevelt Endangered Species Area Restriction (Order 12-167-2R). As previously mentioned for the species, the Closure Order will prohibit the gathering of fuelwood and building, maintaining, attending or using a fire or campfire at the Salt River arm and Tonto Creek arm of Roosevelt Lake for a 10-year period. While the proposed action would decommission routes within critical habitat, the Closure Order will reduce and/or prevent impacts from the risk of escaped campfires from altering, degrading, or destroying the PCEs associated with riparian vegetation and those physical and biological features of southwestern willow flycatcher critical habitat. However, during the transitional period some effects may occur to the PCEs from the use of the spur route to access campsites that are proposed to be closed. We anticipate that these effects will decrease over time with the implementation of the Closure Order and as compliance with the Motor Vehicle Use Map is enforced.

Personal Use Fuelwood Gathering and Other Forest Products

No use of motorized vehicles for personal fuelwood gathering would occur within 0.5 mile of designated critical habitat for flycatchers under the proposed action. Therefore, personal fuelwood gathering will have no effect on flycatcher critical habitat.

CUMULATIVE EFFECTS

Cumulative effects to the southwestern willow flycatcher and its critical habitat may include other recreational impacts such as illegal campfires or failing to extinguish a campfire within flycatcher critical habitat. Other cumulative effects may result from activities that displace flycatchers from habitat by actions occurring on private land and that result in disturbance to nesting birds or loss of riparian habitat. These activities include livestock grazing outside of federally-managed allotments, irrigated agriculture, groundwater pumping, stream diversions, bank stabilization, channelization, and recreation. Continued and future conversion of floodplains and riparian habitats also reduce the habitat available for flycatcher nesting. Livestock feeding stations, corrals, and other associated structures on private lands, which attract cowbirds, may increase cowbird nest parasitism rates and decrease flycatcher productivity. Water developments and diversions on private inholdings within the Tonto NF will likely continue to reduce surface water and influence flood regimes necessary to develop and maintain suitable riparian woodland habitat for flycatcher nesting.

CONCLUSION

After reviewing the current status of the southwestern willow flycatcher and its designated critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that implementation of the Tonto NF's Travel Management Rule will not jeopardize the southwestern willow flycatcher nor result in the destruction or adverse modification of designated critical habitat. We base our conclusion on the following:

- All of the proposed designated routes currently exist and no new routes would be created in southwestern willow flycatcher breeding habitat and designated critical habitat. All of the

designated spur routes to dispersed campsites that are proposed are located outside of southwestern willow flycatcher breeding habitat and designated critical habitat and therefore, effects to the flycatcher and its habitat would be reduced from existing conditions. The miles of decommissioned routes and reduced density of routes would serve to benefit the southwestern willow flycatcher, its breeding habitat, and critical habitat by maintaining and improving riparian habitat.

- We anticipate short-term adverse effects from the proposed action to southwestern willow flycatchers and critical habitat from the continued use of routes in riparian areas and stream crossings during the transitional period when the Travel Management Rule is implemented and Forest users familiarize themselves with the regulations. We anticipate these effects will decrease over time following the implementation and enforcement of the Motor Vehicle Use Map. These effects are not expected to alter the suitability of existing breeding habitat, will be localized to specific areas, and would not result in permanent impacts to the riparian vegetation.
- Although short-term effects to the species are anticipated, the long-term result of the implementation of this project is to reduce impacts to designated critical habitat. The elimination of dispersed campsites and decommissioning of spur routes within riparian habitat, and the implementation of the Southwestern Willow Flycatcher Protection Closure Order will help to maintain the PCEs such that critical habitat would function to support the flycatcher's conservation and recovery.

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 southwestern willow flycatcher. Although adverse effects will occur, we do not believe they would rise to the level of take. The Tonto NF believes that upon signing the Decision Notice for the Travel Management Rule, it will take a number of years before users comply with the Motor Vehicle Use Map. However, according to the BA, where and to what degree adverse effects would occur to the southwestern willow flycatcher during this transitional period is not clear. We recognize there will be an interim period between compliance and full implementation of this project when adverse effects to the species will continue to occur, but we expect that effects will occur during a short time period, within localized areas, and would not result in a permanent loss of riparian habitat. The proposed action of closing roads, controlling motor vehicle use in riparian areas, and implementing and enforcing the Southwestern Willow Flycatcher Protection Closure Order will help to protect important areas used by the southwestern willow flycatcher for breeding, and is expected to help riparian habitat recover and regenerate. Therefore, we cannot be reasonably certain the proposed action would result in incidental take of the southwestern willow flycatcher.

CONSERVATION RECOMMENDATIONS

1. Implement official protocol-level surveys on a regular basis to better determine the distribution, abundance, and trends of southwestern willow flycatcher populations on the Tonto NF.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

WESTERN YELLOW-BILLED CUCKOO

Status of the Species and Proposed Critical Habitat

The Western Distinct Population Segment of the yellow-billed cuckoo was listed as a threatened species on October 3, 2014 (USFWS 2014c). Critical habitat was proposed on August 15, 2014 (USFWS 2014d) and as of yet, has not been finalized.

Adult cuckoos have moderate to heavy bills, somewhat elongated bodies and a narrow yellow ring of colored bare skin around the eye. The plumage is grayish-brown above and white below, with reddish primary flight feathers. The tail feathers are boldly patterned with black and white below. They are a medium-sized bird about 12 inches in length, and about 2 ounces in weight. Males and females differ slightly; the males have a slightly smaller body size, smaller bill, and the white portions of the tail tend to form distinct oval spots. In females the white spots are less distinct and tend to be connected (Hughes 1999).

The cuckoo is a neotropical migrant that breeds in North America and winters in South America. It was formerly widespread throughout the western U.S. and British Columbia (American Ornithologists Union 1998, Hughes 1999), but may now be extirpated or is rare in much of its former range. The largest remaining breeding areas in the U.S. are in southern and central California, Arizona, and New Mexico. Estimates of the breeding population in the U.S. range from 350-495 pairs. In Arizona, estimates range from 170-250 breeding pairs, the largest number of pairs within the DPS's range (USFWS 2014c).

Cuckoos forage primarily by gleaning insects from vegetation, but they may also capture flying insects or small vertebrates such as frogs and lizards (Hughes 1999). They specialize on relatively large invertebrate prey, including caterpillars (*Lepidoptera* sp.), katydids (*Tettigoniidae* sp.), cicadas (*Cicadidae* sp.), and grasshoppers (*Caelifera* sp.) (Laymon *et al.* 1997). Their breeding season may be timed to coincide with outbreaks of insect species, particularly tent caterpillars (Hughes 1999; USFWS 2001) or cicadas (Johnson *et al.* 2007; Halterman 2009).

In the arid West, these conditions are usually found in cottonwood-willow and mesquite riparian associations along water courses and in Madrean Evergreen woodlands in the foothills and mountains of southeastern Arizona and southwestern New Mexico (Cornell Lab of Ornithology

2012; Westland Resources 2013a, 2013b; American Birding Association 2014). The arrival of birds and the timing of nesting are geared to take advantage of any short-term abundance of prey. Cuckoo's food availability is largely influenced by the health, density, and species of vegetation. Desiccated riparian sites produce fewer suitable insects than healthy moist sites. In Arizona, fledging occurred at the peak emergence of cicadas (Rosenberg *et al.* 1982). They have a long breeding season, usually from May 15 through the end of September.

Cuckoos breed in dense riparian woodlands, primarily of cottonwood (*Populus fremontii*), willow (*Salix* spp.), and mesquite (*Prosopis* spp.), along riparian corridors in otherwise arid areas (Laymon and Halterman 1989, Hughes 1999). Dense undergrowth may be an important factor in selection of nest sites. Occupied habitat in Arizona may also contain box elder (*Acer negundo*), Arizona alder (*Alnus oblongifolia*), Arizona walnut (*Juglans major*), Arizona sycamore (*Platanus wrightii*), oak (*Quercus* spp.), netleaf hackberry (*Celtis reticulata*), velvet ash (*Fraxinus velutina*), Mexican elderberry (*Sambucus mexicanus*), tamarisk (*Tamarix* spp.; also called salt cedar), and seepwillow (*Baccharis glutinosa*) (Corman and Magill 2000). Surveys conducted by the Arizona Breeding Bird Atlas (Corman and Wise-Gervais 2005) reported 68 percent of the cuckoo observations were in lowland riparian woodlands, often containing a variable combination of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk (Corman and Wise-Gervais 2005). Narrow bands of riparian woodland can contribute to the overall extent of suitable habitat. Adjacent habitat on terraces or in the upland (such as mesquite) can enhance the value of these narrow bands of riparian woodland.

The optimal size of habitat patches for the species are generally greater than 200 acres and have dense canopy closure and high foliage volume of willows and cottonwoods (Laymon and Halterman 1989) and thus provide adequate space for foraging and nesting. Tamarisk, a nonnative tree species, may be a component of the habitat, especially in Arizona and New Mexico. Sites with a monoculture of tamarisk are usually unsuitable habitat for the species. The association of breeding with large tracts of suitable riparian habitat is likely related to home range size. Individual home ranges during the breeding season average over 100 acres, and home ranges up to 500 acres have been recorded (Laymon and Halterman 1987; Halterman 2009; Sechrist and Ahlers 2009; McNeil *et al.* 2011; McNeil *et al.* 2012).

In addition to the dense nesting grove, cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and may be a mix of shrubs, ground cover, and scattered trees (USFWS, unpubl. data). Optimal breeding habitat contains groves with dense canopy closure and well-foliaged branches for nest building with nearby foraging areas consisting of a mixture of cottonwoods, willows, or mesquite with a high volume of healthy foliage (USFWS 2013b).

Riparian habitat is dynamic, and species may move from one area to another over time. Cuckoos may nest at more than one location in a year. Some individuals also roam widely (several hundred miles), apparently assessing food resources before selecting a nest site (Sechrist *et al.* 2012). During movements between nesting attempts cuckoos are found at riparian sites with small groves or strips of trees, sometimes less than 10 acres in extent (Laymon and Halterman 1989). These stopover and foraging sites can be similar to breeding sites, but are smaller, narrower, and lack understory vegetation when compared to nesting sites.

Water and Humidity

Humid conditions created by surface and subsurface moisture appear to be important habitat parameters for the cuckoo. The species has been observed as being restricted to nesting in moist riparian habitat in the arid West because of humidity requirements for successful hatching and rearing. Recent research on the lower Colorado River has confirmed that cuckoo nest sites had significantly higher daytime relative humidity (6-13% higher) and significantly lower daytime temperatures (2-4° F lower) than average forested sites (McNeil *et al.* 2011; McNeil *et al.* 2012).

Arizona

The population of the cuckoos in Arizona is the largest in the United States (USFWS 2013b). New information about their habitat associations continues to change our understanding of what types of habitat cuckoos use. For example, in southeastern Arizona, cuckoos have been detected in xeric riparian and upland habitat, including a mixture of dense to scattered oak (*Quercus* spp.), hackberry, mesquite, sycamore, acacia, juniper (*Juniperus* spp.), pinyon pine, manzanita, and other shrubs. Therefore, cuckoos may be found in central Arizona within other non-riparian areas but more survey information is needed.

Although Arizona contains the largest remaining cuckoo population among states west of the Rocky Mountains, the population has reportedly declined significantly in distribution and abundance over the past 80 years (Corman and Wise-Gervais 2005). During Arizona Breeding Bird Atlas surveys, nesting birds were found to be concentrated in western, central, and southeastern Arizona. According to Corman and Wise-Gervais (2005), cuckoos were found along most of the 25 drainages where they were reported historically but they are now much more local in distribution.

In a survey in 1999 that covered 265 miles of river and creek bottoms (a subset of statewide cuckoo habitat), 172 cuckoo pairs and 81 single birds were located in Arizona (Corman and Magill 2000). Cuckoo populations greater than 10 pairs are found in several major riverine systems including the Colorado River and Verde River, with smaller populations found at the Roosevelt Lake complex, Upper Tonto Creek, Pinto Creek, Pinal Creek, and many smaller drainages. However, many drainages have not been thoroughly surveyed and it is likely that some additional cuckoo locations will be discovered.

The primary threat to the cuckoo is loss or fragmentation of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005). Habitat loss and degradation from several interrelated factors include alteration of flows in rivers and streams, encroachment into the floodplain from agricultural and other development activities, stream channelization and stabilization, diversion of surface and ground water for agricultural and municipal purposes, livestock grazing, wildfire, establishment of nonnative vegetation, drought, and prey scarcity due to pesticides (Ehrlich *et al.* 1992; Wiggins 2005; USFWS 2013b). Drought and prey scarcity (especially the loss of sphinx moth caterpillars to pesticides in the West) appear to play a role in yellow-billed cuckoo declines even where suitable nesting habitat remains (Ehrlich *et al.* 1992). These factors also contribute to fragmentation and promote conversion to nonnative plant species and increased incidence of wildfire (Krueper 1993; USFWS 2001, 2013b). The threats affecting cuckoo habitat are ongoing. Such a loss of riparian habitat leads not only to a direct reduction in cuckoo numbers but also leaves a highly fragmented landscape, which can reduce breeding

success through increased predation rates and barriers to dispersal by juvenile and adult cuckoo (USFWS 2013b).

Habitat rarity and small, isolated populations of the cuckoo cause the remaining populations in western North America to be increasingly susceptible to further declines through lack of immigration, chance weather events, fluctuating availability of prey populations, pesticides, collisions with tall vertical structures during migration, spread of the introduced tamarisk leaf beetle (*Diorhabda* spp.) as a biocontrol agent in the Southwest, and climate change. The ongoing threat of small overall population size leads to an increased chance of local extirpations through random events (Thompson 1961; McGill 1975; Wilcove *et al.* 1986).

Habitat for the cuckoo has been modified and curtailed, resulting in only remnants of formerly large tracts of native riparian forests, many of which are no longer occupied by cuckoos. Despite recent efforts to protect existing, and restore additional, riparian habitat in the Sacramento, Kern, and Colorado Rivers, and other rivers in the range of the cuckoo, these efforts offset only a small fraction of historical habitat that has been lost. Therefore, we expect the threat resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the range of the cuckoo. This threat is particularly persistent where small habitat patches are in proximity to human-altered landscapes, such as near agricultural fields that dominate the landscape in many areas where the cuckoo occurs. As a result, the potential exists for pesticides to directly affect (poisoning individual cuckoo) and indirectly affect (reducing the prey base) a large portion of the species. These effects could ultimately result in lower population abundance and curtailment of its occupied range. We recognize that climate change is a critical issue with potentially severe wide-ranging effects on the species and its habitat. The available scientific literature suggests that the effects of climate change will likely exacerbate multiple existing threats to the cuckoo and its habitat.

Proposed Critical Habitat

We proposed to designate 546,335 acres of critical habitat for the cuckoo in California, Arizona, New Mexico, Colorado, Utah, Idaho, Nevada, Wyoming, and Texas on August 15, 2014 (USFWS 2014d). Within these areas, the PCEs of the physical and biological features essential to cuckoo conservation are:

1. *Riparian woodlands.* Riparian woodlands with mixed willow-cottonwood vegetation, mesquite-thorn forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are generally greater than 325 feet in width and 200 acres or more in extent. These habitat patches contain one or more nesting groves, which are generally willow-dominated, have above average canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surround riparian and upland habitats.
2. *Adequate prey base.* Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

3. *Dynamic riverine processes.* River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old.

ENVIRONMENTAL BASELINE

Status of the Species and its Proposed Critical Habitat in the Action Area

Approximately 9,637 acres of potential habitat for western yellow-billed cuckoos can be found on the Cave Creek, Globe, Payson, and Tonto Basin RDs. Detections have been documented along the Verde and Salt rivers and creeks including Campaign, Cherry, Coon, Pinal, Pinto, Rye, and Tonto. Less than 0.01% of potential cuckoo habitat is located in the Hellsgate and Mazatzal wilderness areas. In most perennial streams on the Tonto NF, breeding yellow-billed cuckoo are found in riparian habitat that is also used by nesting southwestern willow-flycatcher.

In support of their HCP for Roosevelt Lake, SRP contracted with the Colorado Plateau Field Station at Northern Arizona University to conduct cuckoo monitoring at Roosevelt Lake and other SRP properties during the cuckoo breeding season from 2003 to 2006. Surveys were conducted at several sites on the Tonto Creek and Salt River arms of Roosevelt Lake. Some of these sites with detections included A-Cross Road South, Old Salt, Orange Peel Campground, Lakeshore, Northshore and Shangri-la. Not all of these sites were surveyed during consecutive years due to fluctuating water levels at Roosevelt Lake. Based on the survey results during these years, there were 22 cuckoo detections at 6 of 8 sites in 2003, 25 detections at 7 sites in 2004, and 29 detections at 5 sites in 2005. Surveys were not completed in 2006 because the reservoir filled to near water capacity and most of the cuckoo suitable breeding habitat was inundated.

From 2007 to 2011, the Tonto Basin RD opportunistically recorded yellow-billed cuckoo detections while conducting southwestern willow flycatcher surveys within the Roosevelt Lake Complex. The Forest played occasional calls in some cuckoo habitat but playback calls did not follow cuckoo survey protocols (USFS 2007). In 2007, cuckoos were detected at three survey sites. Vocalizations were heard at the Bar-X survey site in July and the Cherry Creek site in June. A possible mated pair was heard and observed by surveyors at the end of June at the A-Cross North Road Cut survey site. All detections occurred in stands of Fremont cottonwood and/or Goodding's willow with a canopy height of 20 to 30 meters (USFS 2007).

In 2009, the Tonto Basin RD detected yellow-billed cuckoos at eight locations. Most of these sites were on the Tonto Creek drainage and included A-Cross Road, Bar X, Punkin Center, Quartz Ledge, and Gisela, with a single detection in Rye Creek. On the Salt River drainage, cuckoos were detected at the mouth of Coon Creek and Lower Cherry Creek (USFS 2010).

In 2010, the Tonto Basin RD detected seven yellow-billed cuckoos in six locations. Two cuckoos were heard in Campaign Creek on Forest Service land and two were detected on private land. Most were found on the Tonto Creek drainage at A-Cross Road, Bar X, Rye Creek, and Gisela. Cuckoos were also detected at Cherry Creek (USFS 2010). In 2011, the Tonto Basin RD

detected four yellow-billed cuckoos in different locations. The reduced number of detections from 2010 was attributed to reduced survey times and locations. Detections were recorded at A-Cross Road, Rye Creek, Quart Ledge, and Lower Pinto Creek. Multiple detections were also recorded in the Cherry Creek survey area (USFS 2011).

Breeding western yellow-billed cuckoos are also found at Horseshoe Reservoir on the Verde River. They were first recorded within the Horseshoe Reservoir in 1993 by AGFD. From 2005 through 2008, SRP contracted with EcoPlan Associates, Inc., to collect, evaluate, and report cuckoo occurrences and habitat use at Horseshoe Reservoir for the preparation of their HCP (Dockens and Ashbeck 2011). During this time, EcoPlan identified suitable habitat and conducted pre-survey reconnaissance. Protocol level surveys began in 2011 and there were six total detections recorded in three distinct areas between Sheep's Bridge and Chalk Mountain with an estimated two mated pairs and one unpaired adult present in the survey area. Dockens and Ashbeck (2011) compared their results to those from 2003-2006 and 2008. During those years, cuckoo detections had ranged from 6 to 16 detections on the Verde River within Horseshoe Reservoir (SRP 2008).

Additional yellow-billed cuckoo surveys have been completed by Westland Resources. They detected cuckoos at Whitlow Ranch Dam, upper and lower Pinto Creek, and Pinal Creek.

Proposed Critical Habitat

There are approximately 9,714 acres of proposed critical habitat for western yellow-billed cuckoo on the Tonto NF. Critical habitat has been designated on the Cave Creek, Globe, and Tonto Basin RDs and includes portions of seven units. No proposed critical habitat is located in designated wilderness areas.

Unit 21 Horseshoe Dam — proposed critical habitat in this unit is 626 acres in extent and is a 3-mile long continuous segment of the Verde River immediately upstream of Horseshoe Dam. The entire unit is located on the Tonto NF. No State and County roads or road crossings occur within this proposed unit. Western yellow-billed cuckoos have consistently bred at this site. The site also provides migratory stopover habitat for western yellow-billed cuckoos moving farther north. Tamarisk, a nonnative species that reduces the habitat's value, is a major component of habitat in this unit.

Unit 22 Tonto Creek — proposed critical habitat in this unit is 3,670 acres in extent and is made up of a 6-mile long continuous segment of Tonto Creek upstream from the lakebed at Roosevelt Lake. Approximately 1,141 acres, or 31%, of proposed critical habitat in this unit are privately owned, and 2,529 acres, or 69%, are Federally-owned land on the Tonto NF. Numerous western yellow-billed cuckoos have consistently bred in this unit. The site also provides a movement corridor and migratory stopover habitat for western yellow-billed cuckoos moving farther north. Tamarisk is a minor to major component of habitat in this unit.

Unit 23 Pinal Creek — proposed critical habitat in this unit is 419 acres in extent and is a 3-miles long continuous segment of Pinal Creek location north of the Town of Globe in Gila County, Arizona. Approximately 389 acres, or 93%, of proposed unit AZ-15 are privately

owned, and 30 acres, or 7%, are in Federal ownership located on the Tonto NF. This site has been consistently occupied by western yellow-billed cuckoos during the breeding season. The site also provides a movement corridor between larger habitat patches. Tamarisk is a minor to major component of habitat in this unit.

Unit 37 Salt River — proposed critical habitat unit AZ-29 is 2,590 acres in extent and is a 5-miles long continuous segment of the Salt River upstream from the lakebed at Theodore Roosevelt Lake in Gila County, Arizona. Approximately 121 acres, or 5%, of proposed unit AZ-29 are privately owned, and 2,469 acres, or 95%, are in Federal ownership located on the Tonto NF. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The site also provides a movement corridor between larger habitat patches. Tamarisk is a minor to major component of habitat in this unit.

Unit 40 Pinto Creek South — proposed critical habitat unit AZ-32 is 373 acres in extent and is a 4-miles long continuous segment of Pinto Creek in Gila County, Arizona. Approximately 5 acres, or 1%, of proposed unit AZ-32 are privately owned, and 368 acres, or 99%, are in Federal ownership located on the Tonto NF. The site also provides migratory stopover habitat. Tamarisk is a minor to major component of habitat in this unit.

Unit 42 Lower Verde River — proposed critical habitat unit AZ-34 is 1,079 acres in extent and is a 6-miles long continuous segment of the Lower Verde River downstream from Bartlett Dam in Maricopa County, Arizona. Approximately 16 acres, or 1%, of proposed unit AZ-34 is privately owned, and 1,063 acres, or 99%, are in Federal ownership located on the Tonto NF. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The site also provides a movement corridor. Tamarisk is a major component of habitat in this unit.

Unit 44 Pinto Creek North — proposed critical habitat unit AZ-36 is 427 acres in extent and is a 6-miles long continuous segment of Pinto Creek in Gila County, Arizona. Approximately 12 acres, or 3%, of proposed unit AZ-36 are privately owned, and 415 acres, or 97%, are in Federal ownership located on the Tonto NF. This unit has been consistently occupied by western yellow-billed cuckoos during the breeding season. The site also provides migration stopover habitat. Tamarisk is a minor to major component of habitat in this unit.

Factors Affecting the Species and Proposed Critical Habitat within the Action Area

As we discussed above for the flycatcher, factors affecting the quality and quantity of habitat also affect the yellow-billed cuckoo. These factors include: surface diversions; groundwater withdrawals; managed hydrology, such as reservoirs, that no longer mimic the natural flows and floodplain processes; bank stabilization projects that limit the natural fluvial processes and impede maturation of native riparian vegetation; heavy livestock grazing in riparian zones that results in the loss of the regular regeneration of riparian vegetation; loss of riparian vegetation from development activities such as gravel mining or woodcutting or clearing areas for road building; degradation or replacement of riparian vegetation from expansion of non-native vegetation or from uncontrolled wildfires either naturally caused or from human neglect; and reduction of prey insect abundance from pesticide use and unmanaged recreation that results in the loss, degradation, or replacement of riparian vegetation.

EFFECTS OF THE ACTION

For their analysis of western yellow-billed cuckoo, the Tonto NF analyzed the effects of their action inside potential habitat, within 300 feet, and a 0.25 mile buffer of potential habitat. Potential habitat is defined as Tonto NF's positive survey records, information from AGFD's heritage data management system after 2000, and proposed critical habitat on the Forest. In our analysis, we considered all areas where cuckoos have been detected to be cuckoo habitat rather than "potential" habitat while recognizing that cuckoo surveys across the Tonto NF are limited, cuckoos may use adjacent uplands to forage, and they may use other non-riparian habitats. We attempted to give consideration to all of these areas in our effects analysis when these areas were not specifically addressed in the BA or in the GIS data provided. We also focused primarily on designated routes within cuckoo habitat and less so on those buffers 300 feet or greater in width.

Routes Designated for Motor Vehicle Use

Under the proposed action, approximately 20.54 miles of routes would be designated in cuckoo habitat (Table 14). An additional 9.44 miles of routes would be designated within the 300-foot buffer, and another 32.42 miles of routes would be designated in the 0.25-mile buffer. These routes are located within the river or creek channel, floodplain or adjacent upland areas in cuckoo habitat. Three perennial stream crossings would be designated, one each on Pinto Creek, Rye Creek, and the Verde River, in addition to three stream crossings on Tonto Creek that are located at or adjacent to where cuckoos have been detected (e.g., near the A-Cross Road, Punkin Center, Forest Service Route 470 and 1194). Nearly 46% of the designated routes would continue to provide public access to recreational areas on Roosevelt Lake, the Salt River, and Tonto Creek on the Tonto Basin RD; while 18% of the routes would provide public access to the Verde River, with most of these located at Needle Rock on the Cave Creek RD.

Table 14. Changes for the seven analysis factors between existing conditions and the proposed action in western yellow-billed cuckoo potential habitat.

Analysis Factors	Existing Condition			Proposed Action			Change		
	In Habitat	300ft	0.25mi	In Habitat	300ft	0.25 mi	In Habitat	300ft	0.25mi
Routes designated for motor vehicle use (miles)	30.57	49.01	100.59	20.54	29.98	62.40	-10.03	-19.03	-38.19
Density of designated routes (miles per square mile)	2.03	2.19	2.15	1.36	1.28	1.33	-0.67	-0.85	-0.82
Decommissioned and closed routes (miles)	0.00	0.00	0.00	10.03	19.03	38.19	+10.03	+19.03	+38.19
Areas open to motorized vehicle use (acres)	214.04	334.94	749.73	0.00	0.00	0.00	-214.04	-334.94	-749.73
Motor vehicle use for big game retrieval (acres)	214.04	334.94	749.73	8,061*	11,526*	23,342*	+7,847	+10,437	+22,592
Motor vehicle use for dispersed camping (acres)	214.04	334.94	749.73	14.01	15.13	18.81	-200.03	-319.81	-730.92
Personal use fuelwood gathering (acres)	903.00	2,150	6,716	0.00	0.00	0.00	-903.00	-2,150	-6,716

*The values calculated for MBGR under the proposed action include areas that have perennial water and would not generally be accessible by motorized vehicle. Since the amount of water can vary from year to year and season to season, these values represent the maximum area open to MBGR under the driest conditions.

The proposed action to eliminate many of the user-created routes and spur routes that occur within and cross through riparian areas and streams on the Tonto National Forest (Tonto Basin and Verde River) is anticipated to reduce the impacts to cuckoos and their habitat (and proposed critical habitat). Under the proposed action, approximately 10.03 miles of routes will be decommissioned in cuckoo habitat, including three perennial stream crossings (one on Tonto Creek and two on the Verde River). An additional 9.0 miles in the 300-foot buffer and 19.16 miles in the 0.25-mile buffer would also be decommissioned. The closure of these routes would reduce the density of routes in cuckoo habitat by 33%, 39% in the 300-foot buffer and nearly 38% in the 0.25-mile buffer.

The designated routes currently exist and no new routes would be created in yellow-billed cuckoo habitat that would result in the permanent loss of breeding or foraging habitat. Some noise disturbances associated with motor vehicles may occur to the cuckoo from the 20.14 miles of remaining routes within its habitat. We anticipate that cuckoos may avoid areas adjacent to these routes, but the reduction in routes and route densities are expected to have an overall beneficial effect to the cuckoo. The route closures are expected to decrease noise disturbances associated with motor vehicle use during the cuckoo breeding season, help in the recovery of disturbed riparian areas, and improve habitat within these areas, because decommissioned routes are anticipated to be obliterated and re-vegetated over time from lack of use. Yellow-billed cuckoos that occur at the inflow of Tonto Creek and Salt River to Roosevelt Lake will also benefit from the implementation of the Southwestern Willow Flycatcher Protection Closure Order. The prohibition of campfires within cuckoo breeding habitat helps reduce the risk of its habitat being altered, destroyed, or degraded by an escaped campfire.

While the implementation of the Travel Management Rule is anticipated to reduce the overall impacts to cuckoo habitat, the Tonto NF anticipates short-term habitat impacts within the first few years will continue until Forest users adjust to the new Motor Vehicle Use Map. During this transitional period, we expect some users may drive off-road into riparian areas, create campsites, and travel within cuckoo habitat. We expect the short-term impacts to cuckoo habitat during this time will likely result in indirect impacts from soil compaction, impacts to germination and growth of riparian vegetation, and impacts to understory herbaceous vegetation that preclude development of new habitat. Based on the information on the southwestern willow flycatcher, heavy OHV use in these areas around Roosevelt Lake has altered the quality, distribution, abundance, and longevity of riparian vegetation. While this has reduced the quality of flycatcher habitat, it likely also has affected cuckoo habitat. As we described for the southwestern willow flycatcher, there is some difficulty in understanding exactly where these transitional impacts will occur, but we expect they will be minimized in their extent and duration due to the implementation, compliance, and enforcement of the program. We do not anticipate transitional vehicle impacts are likely to cause indirect or direct harassment or harm to cuckoos because while motor vehicles driving off-road may disturb cuckoos adjacent to an illegal spur route, these instances are anticipated to occur for a short duration during the transitional period, but overall, the effects will be reduced from the existing conditions. We anticipate the majority of the public will comply. We expect that as the Travel Management Rule moves past its transitional period, public awareness and compliance will improve, and as the Program is fully enforced, impacts to cuckoo habitat will decrease.

Approximately 114 acres of the Desert Vista Permit Zone would be designated within cuckoo habitat along the Verde River on the Cave Creek RD between Bartlett Dam and a mile south of Needle Rock. This area has been heavily impacted by OHV use over time and probably no longer contains vegetation that would support the cuckoo or its prey. Within the Desert Vista Permit Zone, users would be required to stay on designated routes, which would protect the area from further degradation and promote recovery. The proposed action would decommission 3.68 miles of existing routes in cuckoo habitat, 4.24 miles within the 300-foot buffer, and 11.85 miles in the 0.25-mile buffer. This would reduce the number of routes south of Needle Rock by 30%, 56% and 65%, respectively. Since the Desert Vista Permit Zone can be used at any time of the year, we anticipate that motor vehicle noise during the breeding season may discourage cuckoos from nesting in the area or disrupt nesting activity. The cuckoo could also be affected by the loss or unavailability of potential foraging habitat located adjacent to the riparian area that is within the permit zone. We do not expect any motor vehicle impacts to cuckoo habitat as long as users remain on the designated routes and do not travel off-road along the Verde River.

Areas Designated for Motor Vehicle Use

No OHV areas would be designated within 0.5 mile of yellow-billed cuckoo habitat. Therefore, no effects from motor vehicles associated with designated OHV areas will occur to the cuckoo and its habitat.

Motor Vehicle Use for Big Game Retrieval

Acres where motorized vehicles can be used for big game retrieval for elk and bear in cuckoo habitat would increase from approximately 214 acres under existing conditions to approximately 8,061 acres. All acres where unrestricted cross-country travel is currently allowed in cuckoo habitat and both buffer zones are included in acres where MBGR would be allowed under the proposed action. Similar to flycatchers, cuckoo habitat where MBGR would be allowed is located in portions of GMUs 21, 22, 23, 24A, and 24B. Motorized retrievals would be allowed on approximately 1,933,288 acres with an estimated 210 out and back trips expected in a given year (194 elk and 15 bear). Since the normal range of elk occurrence in Arizona is above 5,500 feet, MBGR would likely occur for bear only since all potential cuckoo habitat is below 3,600 feet. The number of acres where MBGR would be allowed in cuckoo habitat represents a very small portion of the acres (0.005%) in the five GMUs.

The BA stated that nearly all MBGR would occur between June and August, which would overlap with the cuckoo breeding season (May 15– October 1). It is anticipated that no more than a few bear retrievals would occur across all five units in August, but retrievals could also occur in September (AGFD 2011). While an increase in the number of acres authorized for big game retrieval could occur in cuckoo habitat, we anticipate the likelihood of MBGR occurring in cuckoo habitat to be low. Bears tend to be found in chaparral and pine-oak woodlands with most retrievals occurring near the Mogollon Rim or in canyon habitat (AGFD 2014). In GMU 23, potential cuckoo habitat is located near residential communities and areas of heavy recreational use near Roosevelt Lake where hunting may be restricted or is not anticipated to occur. In GMU 24B, bear densities are low to medium with bear habitat on Campaign Creek and the West Fork Pinto Creek located in the wilderness area (AGFD 2015). Besides these areas, bear habitat appears to not overlap with potential cuckoo habitat. Similarly, we are not aware of bear retrievals occurring in potential cuckoo habitat next to the Verde River where the habitat falls

within GMUs 21 and 22. Additionally, cuckoos typically use dense riparian areas for nesting that would not be conducive for vehicular travel. Further, the proposed action specifies that hunters are required to use the most direct and least ground-disturbing route to access the bear; that only one vehicle trip is allowed; and that motorized vehicles are not allowed to cross riparian areas, streams and rivers except at hardened crossings or crossings with existing culverts. These limitations provide protection from degrading cuckoo nesting habitat.

While it is possible that a limited number of bear retrievals could occur in other suitable cuckoo habitat on Cherry, Coon, Pinal, Tangle, and Rye creeks that were not considered in the BA, we anticipate that any effects to cuckoo habitat from MBGR would be minimal.

Motor Vehicle Use for Dispersed Camping

Under the proposed action, spur routes would be designated to approximately 34 existing dispersed campsites that are in potential yellow-billed cuckoo habitat or occur adjacent to its habitat. Motor vehicle use for dispersed camping, in acres, will result in a decrease of 93% from 214.04 acres under existing conditions to 14.01 acres under the proposed action (Table 14). All of the 34 campsites are currently in use, and all but six are located outside of riparian areas where cuckoos have been detected or are known to nest.

The majority of the campsites with designated spur roads under the proposed action are located in four locations:

- Salt River adjacent to Roosevelt Lake – Existing routes would provide access to approximately nine campsites on the Salt River that are outside of cuckoo potential habitat but fall within the two buffers of potential habitat. These campsites are located from Roosevelt Lake to the Diversion Dam next to or at the end of existing routes, and outside of riparian vegetation and the floodplain. They are also located above the 2,151-foot elevation mark within the conservation space of Roosevelt Lake in heavily disturbed areas. The Salt River supports heavy recreation that is very popular for fishing, camping, boating, and OHV use throughout the year, especially on weekends between May and September. Most recent detections of cuckoo pairs during protocol level surveys in this area have been at SRP's Rockhouse Demonstration Site on the opposite side of the river as well as downstream of this site.
- Tonto Creek above Roosevelt Lake – Existing routes would provide access to approximately 17 existing campsites along Tonto Creek that are outside of cuckoo potential habitat but fall within the two buffers of potential habitat. All of these campsites are adjacent to existing Forest Service routes with the majority located west of State Route (SR) 188. Recent detections of cuckoos have been approximately 0.10 mile or more from the A-Cross Road. The Tonto Creek area is popular for camping, boating, and OHV use throughout the year.
- Pinto Creek near BHP Copper Mine – Existing routes would provide access to five sites, three of which are in potential cuckoo habitat (i.e., proposed critical habitat). The three sites are located next to the existing Forest Service roads and in heavily disturbed areas. The other two sites are located outside of riparian vegetation but are adjacent to potential

- cuckoo habitat within the buffered areas. This area is also popular for hunting, camping and OHV use.
- Campaign Creek north of Revis Mountain School – Spur roads to three sites in potential cuckoo habitat would be designated along Campaign Creek on FR449A just north of the Revis Mountain School and at the trailhead for the Campaign Trail on the Globe RD. This site is popular with hikers and hunters because of its close proximity to the Superstition Wilderness. A recent detection of one cuckoo was in the immediate vicinity of the three sites.

For all but the six proposed dispersed campsites and the spur routes, there is limited to no habitat for cuckoos because of soil compaction and loss of vegetation from the creation of the campsite's footprint. The elimination of spur routes in areas where cuckoos have been detected or are known to breed is anticipated to help the riparian vegetation recover and become re-established, and alleviate soil compaction and erosion where campsites were created. The removal of spur routes and dispersed campsites at the inflow of the Salt River to Roosevelt Lake is expected to remove the risk to cuckoo habitat from campers who fail to extinguish campfires, as previously documented for the southwestern willow flycatcher in this area. The Southwestern Willow Flycatcher Protection Closure Order, which includes cuckoo habitat at the Salt River and Tonto Creek arms of Roosevelt Lake, will also help to reduce the risk and/or prevent impacts occurring to its habitat from escaped campfires in this area.

Of the six dispersed campsites, the three next to Pinto Creek are located adjacent to and uphill from the riparian area in heavily disturbed areas next to an existing road. Those on Campaign Creek are also located next to the road in highly disturbed areas lacking any ground cover. Observations of cuckoos in these areas have been incidental and their breeding status is unknown without additional surveys. Although continued use of these sites could cause noise disturbances to cuckoos during the breeding season, we anticipate that any disturbance would likely be minimal due to the location of these campsites from the riparian areas.

Personal Use Fuelwood Gathering and Other Forest Products

No use of motorized vehicles for personal fuelwood gathering will occur within yellow-billed cuckoo habitat under the proposed action. Therefore, personal fuelwood gathering will have no effect on the cuckoo and its habitat.

Effects of the Action on the Western Yellow-billed Cuckoo Proposed Critical Habitat

In the BA, the Tonto NF used proposed critical habitat as a surrogate for cuckoo potential habitat. Therefore, effects to proposed critical habitat are similar to those described above for the species.

Routes Designated for Motor Vehicle Use

The proposed action will designate 18.80 miles of routes in proposed critical habitat for the cuckoo with two perennial stream crossings (one on Pinto Creek and another on the Verde River) (Table 15). These routes currently exist and no new routes are proposed so no effects are expected to occur to the PCEs by the proposed action. Under the proposed action, 9.24 miles of routes would be decommissioned including 2.37 miles of user-created routes in proposed critical

habitat. This would reduce the density of routes in proposed critical habitat by 33%. Many of these routes being closed are located at the inflows of Tonto Creek and Salt River to Roosevelt Lake and below Horseshoe Reservoir where heavy recreation occurs. These route closures and reduced route densities would enable the riparian areas to recover and allow development of new riparian vegetation in the future.

As mentioned in the effects to the species, the Tonto NF anticipates illegal OHV use will continue to occur during the transitional period when Forest users familiarize themselves with the Motor Vehicle Use Map and full enforcement of the Travel Management Rule takes effects. During this period, we anticipate that some Forest users are reasonably likely to drive off-road into riparian habitat and adversely affect the PCEs for riparian woodlands by causing soil compaction, preventing the re-establishment of woody vegetation, and reducing cover that impairs vegetation density. We expect that illegal OHV use within cuckoo proposed critical habitat may result in temporary, short-term effects to the PCEs during this period. No new routes are proposed so there would not be any permanent loss of riparian habitat. In the long-term, this project is expected to improve the PCEs and the overall quality of cuckoo habitat.

Table 15. Changes to the seven analysis factors between existing conditions and the proposed action in proposed critical habitat for western yellow-billed cuckoo.

Analysis Factor	Existing Condition	Proposed Project	Changes
Routes designated for motor vehicle use (miles)	28.04	18.80	-9.24
Density of designated routes (miles per square mile)	1.96	1.31	-0.65
Decommissioned and closed routes (miles)	0.00	9.24	+9.24
Areas open to motorized vehicle use (acres)	0.00	0.00	0.00
Motor vehicle use for big game retrieval (acres)	0.00	7,656*	+7,656
Motor vehicle use for dispersed camping (acres)	0.00	13.54	+13.54
Personal use fuelwood gathering (acres)	760.00	0.00	-760.00

As described for effects to cuckoo habitat, approximately 114 acres of the Desert Vista Permit Zone would be designated within proposed critical habitat for cuckoos. Motorized vehicles in permit zones are limited to traveling on designated routes only. A total of 3.68 miles or 39% of existing routes in the permit zone would be decommissioned. This area has been highly disturbed by heavy off-road vehicle use and likely no longer contains the PCEs to support the cuckoo. The reduction of routes and the restriction of vehicles to designated routes would support recovery of the riparian habitat, allowing woody vegetation to regenerate that may provide habitat for the cuckoo over time or help to provide habitat to its prey species. Therefore, effects to PCEs related to riparian woodlands and cuckoo prey populations from the designation of the permit zone are expected to minimal.

Areas Designated for Motor Vehicle Use

No OHV areas would be designated in proposed critical habitat. Therefore, no effects from motor vehicle use associated with designated OHV areas will occur to proposed critical habitat.

Motor Vehicle Use for Big Game Retrieval

Acres open to MBGR in proposed cuckoo critical habitat would increase from no acres under existing conditions to 7,656 acres on the Cave Creek, Globe, and Tonto Basin RDs. This represents 0.004% of the acres open to MGBRs in GMUs 21, 22, 23, 24A, and 24B. MBGR would most likely only include bear retrievals since all proposed critical habitat is below 3,000 feet in elevation and outside the normal range for elk in Arizona. While an increase in the number of acres authorized for big game retrieval would occur in proposed critical habitat for cuckoos, we anticipate that actual retrievals for bear would be unlikely to occur. As described for the species, the areas where bear retrievals could occur and that overlap with proposed cuckoo critical habitat are within GMU 24B. However, bear habitat is located in the wilderness area and therefore MBGR is not expected to affect proposed critical habitat. Portions of proposed critical habitat on Tonto Creek and the Salt River fall within GMU 23, but bear habitat is not associated with these areas. We also do not expect bears to be hunted and retrieved next to the Verde River or portions of Tonto Creek where GMU 21 and 22 overlap with proposed critical habitat. We therefore anticipate that adverse effects to proposed yellow-billed cuckoo critical habitat will be unlikely to occur.

Motor Vehicle Use for Dispersed Camping

There are three dispersed campsites located in the proposed critical habitat Unit 40 Pinal Creek South. They are located adjacent to and uphill from the riparian area in heavily disturbed areas next to an existing road. These campsites are located in areas that are already disturbed; they likely do not currently contain all of the PCEs; and they require special management to improve hydrology, floodplain process, and control encroachment or degradation from non-native vegetation (USFWS 2014d). These campsites were retained because the Tonto NF identified them as not having a negative effect on the cuckoo or its proposed critical habitat while providing some camping opportunities in the area.

According to the BA, the canopy cover and density of riparian vegetation at these campsites is lower than in adjacent areas since plants and limbs are crushed or broken to create open areas for vehicles, tents, fire rings, tables and chairs. Soils in these openings become compacted and streambanks can crumble and collapse from repeated use of motorized vehicles to access the sites; and this and other human activities impede regeneration of riparian vegetation, degrade the quality of habitat for prey, and impair riverine processes. Additionally, use of these sites could potentially increase the risk of escaped campfires that can affect the quality of PCEs related to riparian vegetation. Under the proposed action, creation of new spur roads and associated dispersed campsites and use of existing sites that lack designated spur roads would be restricted, reducing the potential for effects to PCEs in these areas. While effects on PCEs at these dispersed campsites would be expected, these 13.54 acres represent only a very small portion (less than 0.001%) of the proposed cuckoo critical habitat on the Tonto NF, limiting the magnitude of the effects to PCEs.

Personal Use Fuelwood Gathering and Other Forest Products

No use of motorized vehicles for personal fuelwood gathering will occur within proposed critical habitat under the proposed action. Therefore, this element of the proposed action will have no effect on proposed critical habitat for the yellow-billed cuckoo.

CUMULATIVE EFFECTS

Because the yellow-billed cuckoo occupies similar habitat within the action area as the southwestern willow flycatcher, cumulative effects to yellow-billed cuckoos would be the same as discussed above for the flycatcher.

CONCLUSION

After reviewing the current status of the yellow-billed cuckoo and its proposed critical habitat, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is our biological opinion that implementation of the Tonto NF's Travel Management Rule will not jeopardize the continued existence of the yellow-billed cuckoo nor result in the destruction or adverse modification of proposed critical habitat. We base our conclusion on the following:

- Although protocol-level surveys for the yellow-billed cuckoo are needed on the Tonto NF, the information that is available was considered in our analysis for the species and its proposed critical habitat. All of the proposed designated routes currently exist and no new routes would be created in yellow-billed cuckoo habitat or proposed critical habitat that would result in the permanent loss of breeding or foraging habitat. All but six of the proposed designated spur routes to dispersed campsites are located outside of yellow-billed cuckoo habitat and three occur within proposed critical habitat. The three designated campsites within proposed critical habitat are in heavily disturbed areas that likely do not contain the PCEs of proposed critical habitat for the species currently but would require special management in the future. Therefore, effects to the cuckoo and its habitat would be reduced from existing conditions by the reduction of spur routes and campsites. The miles of decommissioned routes and reduced density of routes would serve to benefit the yellow-billed cuckoo, its breeding habitat, and proposed critical habitat by maintaining and improving riparian habitat.
- We anticipate short-term adverse effects from the proposed action to yellow-billed cuckoos and proposed critical habitat from the continued use of routes in riparian areas and stream crossings during the transitional period when the Travel Management Rule is implemented and Forest users familiarize themselves with the regulations. We anticipate these effects will decrease over time following the implementation and enforcement of the Motor Vehicle Use Map. These effects are not expected to alter the suitability of existing breeding habitat, will be localized to specific areas, and would not result in permanent loss of riparian vegetation.
- Although short-term effects to the species are anticipated, the long-term result of the implementation of this project is to reduce impacts to areas proposed as critical habitat. The elimination of dispersed campsites and decommissioning of spur routes within riparian habitat, and the implementation of the Southwestern Willow Flycatcher Protection Closure Order, which includes yellow-billed cuckoo proposed critical habitat, will maintain or improve the PCEs such that critical habitat would continue to function to support yellow-billed cuckoo conservation and recovery.

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 yellow-billed cuckoos. Although adverse effects will likely occur, we do not believe they would rise to the level of take. The Tonto NF believes that upon signing the Decision Notice for the Travel Management Rule, it will take a number of years before users fully comply with the Motor Vehicle Use Map. However, according to the BA, where and to what degree adverse effects would occur to the yellow-billed cuckoo during this transitional period is not clear. We recognize there will be an interim period between compliance and full implementation of this project during which adverse effects to the species will continue to occur, but we expect that effects will extend only during a short-time period, within localized areas, and would not result in a permanent loss of riparian habitat. The proposed action of closing roads, controlling motor vehicle use in riparian areas, and implementing and enforcing the Southwestern Willow Flycatcher Protection Closure Order to protect important areas used by the yellow-billed cuckoo for breeding, is expected to help riparian habitat recover and regenerate. Therefore, we cannot be reasonably certain the proposed action would result in incidental take of the yellow-billed cuckoo.

CONSERVATION RECOMMENDATIONS

1. Work with the FWS and AGFD to develop and implement official protocol-level surveys on a regular basis to better determine the distribution, abundance, and trends of yellow-billed cuckoo populations on the Tonto NF.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

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 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.

Disposition of Dead or Injured Listed Species

Upon locating a dead, injured, or sick listed species initial notification must be made to the USFWS's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, NM 87113; 505-248-7889 within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve the biological material in the best possible state.

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 (Eagle Act). 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 Eagle Act 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 Eagle Act, 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 the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

In keeping with our trust responsibility to American Indian Tribes, we encourage you to invite the affected Tribe and Bureau of Indian Affairs to participate in the consultation process and, by copy of this letter, are notifying the Ak-Chin Indian Community, Fort McDowell Yavapai Tribe, Gila River Indian Community, Hopi Tribe, San Carlos Apache Tribe, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai Apache-Nation, and Yavapai Prescott Indian Community. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department.

We appreciate the Tonto NF's efforts to identify and minimize effects to listed species from this project. For further assistance or if you have any questions, please contact Kathy Robertson at (602) 242-0210 (ext 232) or Mike Martinez at (ext 224). Please refer to the consultation number 02EAAZ00-2014-F-0463 in future correspondence concerning this project.

Sincerely,



Steven L. Spangle
Field Supervisor

cc (electronic):

Assistant Field Supervisor, Fish and Wildlife Service, Flagstaff, AZ (Attn: Brenda Smith)
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ (Attn: Jean Calhoun)
Forest Biologist, Tonto National Forest, Phoenix, AZ (Attn: Jill Holderman)
Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ
Environmental Program Manager, Ak-Chin Indian Community, Maricopa, AZ (Attn: Cheyenne Garcia)
Cultural Resources Manager, Ak-Chin Indian Community, Maricopa, AZ (Attn: Caroline Antone)
Acting Manager, Environmental Department, Fort McDowell Yavapai Nation, Fountain Hills, AZ (Attn: Mark Frank)
Cultural Resources Manager, Fort McDowell Yavapai Nation, Fountain Hills, AZ (Attn: Karen Ray)
Tribal Historic Preservation Officer, Gila River Indian Community, Sacaton, AZ (Attn: Barnaby Lewis)
Director, Natural Resources Department, Hopi Tribe, Kykotsmovi, AZ (Attn: Clayton Honyumptewa)
Cultural Preservation Office, Hopi Tribe, Kykotsmovi, AZ (Attn: Leigh J. Kuwanwisiwma)
Botanist, San Carlos Apache Tribe, San Carlos, AZ (Attn: Seth Pilsk)
Historic Preservation and Archaeology Department, San Carlos Apache Tribe, San Carlos, AZ (Attn: Vernelda Grant)
Director, Cultural Resource Department, Tonto Apache Tribe, Payson, AZ (Attn: Wally Davis, Jr.)
Director, Cultural Resources, White Mountain Apache Tribe, Whiteriver, AZ (Attn: Ramon Riley)
Director, Environmental Department, Yavapai-Apache Nation, Camp Verde, AZ (Attn: Marti Blad)
Director, Culture Research Department, Yavapai-Prescott Tribe, Prescott, AZ (Attn: Linda Ogo)
Branch Chief, Environmental Quality Services, Western Regional Office, Bureau of Indian Affairs, Phoenix, AZ (Attn: Charles Lewis)

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APPENDIX A: Concurrences

This appendix contains our concurrences with your “may affect, not likely to adversely affect” determinations for the endangered Arizona cliffrose (*Purshia subintegra*), the endangered Arizona hedgehog cactus (*Echinocereus triglochidiatus* var. *arizonicus*), the threatened Chiricahua leopard frog (*Lithobates chiricahuensis*) and its designated critical habitat, the endangered Gila chub (*Gila intermedia*) and its designated critical habitat, the endangered Gila topminnow (*Poeciliopsis occidentalis occidentalis*), the proposed threatened headwater chub (*Gila nigra*), the threatened Mexican spotted owl (*Strix occidentalis lucida*), the experimental non-essential population of the Mexican wolf (*Canis lupus baileyi*), the endangered ocelot (*Leopardus pardalis*), the proposed threatened roundtail chub (*Gila robusta*), and the endangered Yuma clapper rail (*Rallus longirostris yumanensis*). We agree with your determinations and provide our rationales below.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is described above in the Biological Opinion/Conference Opinion (BO/CO) and is included herein by reference. In summary, the Tonto NF proposes to designate a system of roads and motorized trails, in addition to prohibiting motorized cross-country travel, except in designated motorized areas and fixed-distance corridors solely for the purpose of motorized dispersed camping or MBGR for elk and bear on the entire forest. The numbers of dispersed campsites described in the BA under the proposed action are incorrect (Holderman 2015, pers. comm.). The numbers in the BA represent the existing number of spur routes to dispersed campsites while the Tonto NF’s GIS data contains fewer spur routes. We assume that the final action will designate spur routes to a smaller number of campsites to protect listed species habitat and ensure any potential effects will not rise to the level of take.

The proposed action will result in the publication of a Motor Vehicle Use Map showing those routes, trails, and areas that are designated for motor vehicle use. Once the map is released to the public, travel off of the designated route system will be prohibited unless authorized by permit or as allowed by the Travel Management Rule and the designated responsible Tonto NF official. A complete description of the proposed action is found in the August 2015 BA.

Arizona cliffrose

The Arizona cliffrose (cliffrose) only occurs in Tertiary limestone lakebed deposits found around Horseshoe Lake on the Cave Creek RD. No portion of potential cliffrose habitat is within a designated wilderness area.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Arizona cliffrose. We base our concurrence on the following:

- The 4.59 miles of designated routes in potential cliffrose habitat represents a 13% reduction from the existing condition and a 12% decrease in road density. Since all of the designated routes currently exist and no new routes are proposed, no suitable habitat would be removed. Therefore, we expect the use of designated routes will be

insignificant because the reduction in road density would have overall beneficial effects by allowing disturbed areas to recover.

- The area where MBGR could occur around Horseshoe Lake would increase, but the likelihood of elk or bear retrievals actually occurring would be very low to none because elk are not typically found below 2,800 feet, and bears are not found in open desertscrub or the limestone areas of cliffrose habitat. Additionally, the acres of potential cliffrose habitat open to MBGR represents 0.03% of acres open to MBGR across GMUs 21 and 22. While other game species may be hunted in these GMUs, cross-country travel is not authorized for those species. Therefore, we expect that any effects from MBGR to the Arizona cliffrose will be insignificant.
- No permit zones or OHV areas would be designated within 2.5 miles of potential habitat. Additionally, no spur roads to existing dispersed campsites will be designated and no cross-country motorized travel to gather fuelwood would occur within 15 miles of potential habitat. Therefore, these proposed activities will have no effect to the Arizona cliffrose and its habitat.

Arizona hedgehog cactus

The Arizona hedgehog cactus occurs on the Globe and Mesa RDs from the Superstition Wilderness area south to Devils Canyon, east along US 60 to Top of the World and south to the Mescal and Pinal Mountains. The range includes two small subpopulations, the Apache Peak subpopulation north of the city of Globe and the El Capitan subpopulation south of Globe. Plants are found on dacite or granite bedrock, open slopes, in narrow cracks between boulders, and in the understory of shrubs in the ecotone between Madrean evergreen woodland and interior chaparral habitats. Approximately 27% of potential habitat is located in the Superstition Wilderness Area.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Arizona hedgehog cactus. We base our concurrence on the following:

- The 46.83 miles of routes that would be designated in occupied habitat of the hedgehog cactus represents a 15% reduction from the existing conditions and 16% decrease in route density. The majority of Arizona hedgehog cacti are located in areas inaccessible to motorized vehicles. Since all of the designated routes currently exist and no new routes are proposed that would remove suitable habitat, we anticipate that any effects to Arizona hedgehog habitat by the continued use of the road would be insignificant.
- No permit zones or OHV areas, and no cross-country motorized travel for personal fuelwood gathering will occur within occupied Arizona hedgehog cactus habitat and therefore would not have any effect on the plant or its habitat. Additionally, approximately 27% of potential and occupied habitat is located in a wilderness area where motorized vehicle use is prohibited and would not be affected by the proposed action.

- The area where MBGR could occur in potential habitat would increase but it represents only approximately 3% of the acres in the two GMUs that are open to MGBR. Only a very small number of trips are expected to occur for bear retrieval across these acres each year. The rugged topography, dense vegetation of Arizona hedgehog cactus habitat, and location of plants on vertical slopes or on top of boulder outcroppings would render impacts to the cactus from MBGR discountable because it is unlikely hunters could access these areas with motorized vehicles.
- Dispersed campsites with designated spur roads under the proposed action already exist, and their acreage represents less than 0.001% of potential habitat. No new dispersed campsites or roads would be created that would remove or alter Arizona hedgehog cactus habitat. Therefore, we anticipate that any effects from the use of these spur routes and campsites would be insignificant.

Chiricahua leopard frog and critical habitat

Chiricahua leopard frogs (leopard frogs) are currently known to occur only on the Payson and Pleasant Valley RDs. Since 1998, they have been detected in and released at over 30 sites in creeks, springs, and stock tanks in the Gentry Creek and Upper East Verde Management Areas (MA) on the Tonto NF. Since the mid-1990's, surveys for Chiricahua leopard frogs have been conducted by the AGFD and the Tonto NF in both MAs. In 2014, 41 surveys were conducted at 23 sites in the Gentry Creek MA and 26 surveys were conducted at 15 sites in the Upper East Verde MA. Chiricahua leopard frogs were detected at 17 sites with breeding confirmed at 12 of them. Augmentations/releases of tadpoles and juveniles continue to occur within these MAs. Potential habitat for the species in the BA is defined as all sites where leopard frogs have been detected or released since 1998 plus a one mile buffer to account for overland dispersal. This results in approximately 42,274 acres of potential leopard frog habitat on the Tonto NF.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Chiricahua leopard frog and its critical habitat. We base our concurrence on the following:

- The 142.12 miles of routes that would be designated within Chiricahua leopard frog habitat represents a 25% reduction in routes from the existing conditions, and a 19% decrease in route density. Therefore, we anticipate that any potential effects to the Chiricahua leopard frog would be insignificant because the action is unlikely to detrimentally affect basic life history functions and the reduction in routes in the species' habitat should have an overall beneficial effect.
- No permit zones or OHV areas will be designated in leopard frog habitat. Additionally, no use of motorized vehicles for personal fuelwood gathering or other forest products will occur in leopard frog critical habitat. Therefore, designated Permit Zones and OHV areas will have no effect on the Chiricahua leopard frog.
- MBGR for elk and bear could occur on approximately 39,238 acres of potential Chiricahua leopard frog habitat. MBGR would occur after egg masses have been laid and

hatch but would overlap with the end of the dispersal period (July-September). Leopard frog habitat and MBGR overlap in GMUs 22 and 23, which is only 3% of potential leopard frog habitat on the Tonto NF. Further, motorized vehicles would not be permitted to cross riparian areas, creeks, and rivers except at hardened crossings or crossings with existing culverts. We anticipate that any effects from MBGR would be insignificant because most elk retrievals are expected in higher elevations, the area of potential overlap with leopard frog habitat is extremely small, and stipulations for MBGR in riparian habitats would protect leopard frogs and their habitat.

- Spur routes to 137 existing dispersed campsites will be designated in potential leopard frog habitat and up to four dispersed campsites in critical habitat. These campsites occur in heavily disturbed areas that no longer provide habitat for the leopard frog. We anticipate that the number of dispersed campsites will be less than what is described in the BA. Therefore, we expect that any effects from the designation of these spur routes will be insignificant because frogs are unlikely to be present in these areas.

Gila chub and critical habitat

Gila chub occurs in Silver Creek on the Cave Creek RD, which is also designated critical habitat, and historically occurred in Mineral Creek on the Globe RD. A small population of Gila chub was last confirmed in Silver Creek in 2013 (USFWS 2015b). Gila chub have not been detected in Mineral Creek since 2002 as a result of a 2000 mine spill. The FWS considers the Mineral Creek population to be small and difficult to detect but there is not enough information to suggest the species has been extirpated here.

Per the BA, to account for the potential impacts of sedimentation and other concerns from the miles and densities of routes and acres of uses such as OHV areas and dispersed campsites, the analysis of changes between existing conditions and the proposed action involves the 6th code watershed HUCs along Silver and Mineral creeks, Silver and Upper Mineral. The BA refers to these areas as “potential Gila chub watersheds”.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Gila chub and its critical habitat. We base our concurrence on the following:

- The 47.56 miles of routes proposed for designation represents a 36% reduction in miles from existing conditions and a 36% reduction in route density within potential Gila chub watersheds. These routes are existing and currently in use, no new routes will be created that would alter or remove vegetation that would negatively cause impacts within potential Gila chub watersheds. Therefore, we anticipate that any potential effects from increased sedimentation or impacts to the stream channel from vehicle crossings will be discountable within potential Gila chub watersheds.
- While acres where motor vehicles may be used for dispersed camping would increase by 2.93 acres in Gila chub watersheds. We anticipate that the number of dispersed campsites will be fewer than what is described in the BA. Therefore, we expect that any

effects from the designation of these spur routes will be insignificant because these spur roads and sites represent less than 0.001% of the watersheds.

- Cross-country motorized vehicle use for personal fuelwood gathering would continue to be allowed on approximately 5,426 acres of potential watersheds. However, no personal fuelwood gathering would occur on the Cave Creek RD, and therefore no effects will occur to the Gila chub in Silver Creek. The low density of designated routes, the presence of steep slopes, and the lack of preferred woody tree species (juniper and oak), would limit the amount of cross-country motorized travel for fuelwood that could occur in the areas that surround Mineral Creek. Therefore, we consider any effects from ground disturbance associated with cross-country travel to be discountable within potential Gila chub watersheds. No MBGR would occur within designated critical habitat and therefore, no effects would occur to the PCEs.
- There will be no change in the existing route within Gila chub critical habitat and therefore, no new effects are expected to occur to the PCEs. Acres opened to MBGR in critical habitat would increase. Only three trips for bear retrieval are estimated to occur each year within GMUs 21 and 24A that overlap with critical habitat. We anticipate the any effects to the PCEs from ground disturbance associated with cross-country travel for bear retrieval will be insignificant based on the expected low number of trips. In addition, cross-country travel for gathering fuelwood would be authorized on approximately 38% of critical habitat on the Globe RD, which does not change from the existing conditions. A lack of desirable tree species within critical habitat along Mineral Creek would result in only insignificant potential effects to PCEs from cross-country for fuelwood gathering.
- No permit zones or OHV areas will be designated within critical habitat and therefore would not affect the PCEs.

Gila topminnow

Gila topminnows (topminnow) are known to occur in springs and small streams on the Cave Creek, Globe, Mesa, and Tonto Basin RDs. Occupied areas include populations in Mud and Hidden Water springs and Lime and Fossil creeks.

Per the BA, to account for the potential impacts of sedimentation and other concerns from the miles and densities of routes that are designated for motorized use, and acres included for uses such as OHV areas and dispersed campsites, the analysis of changes between existing conditions and the proposed action involves the 6th code watershed HUCs that include all potential habitats. These are Alder Creek, Campaign Creek, Cane Spring Canyon, Cottonwood Wash, Deadman Creek, Indian Spring Wash-Verde River, La Barge Creek, Lime Creek, Lower Fossil Creek, Packard Wash-Tonto Creek, Red Creek, Rock Creek, Silver King Wash - Queen Creek, Sycamore Creek, Tangle Creek, and Tortilla Creek. The BA refers to these areas as “potential topminnow watersheds”. Approximately 38% of potential topminnow watersheds are located in the Four Peaks, Mazatzal, Pine Mountain, Sierra Ancha, and Superstition wilderness areas, where motorized uses are prohibited.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Gila topminnow. We base our concurrence on the following:

- The 314.72 miles of routes being designated within potential Gila topminnow watersheds represent a 22% reduction in miles from the existing condition and a 20% decrease in route density. The majority of routes are located downstream of Gila topminnow populations or at enough distance that continued use of the route would have minimal sedimentation effects on waterways occupied by the topminnow. Additionally, approximately 38% of the watersheds where Gila topminnow occur are located in wilderness areas and would not be affected by the proposed action. Therefore, any effects from increased sedimentation from use of the designated routes are expected to be insignificant.
- We anticipate no additive effects from designating 14,116 acres of permit zones in potential topminnow watersheds along with designating the approximately 26.53 miles of routes inside them. Users are required to stay on designated routes and would not be permitted to travel off-road. Areas designated as permit zones are already heavily disturbed by unauthorized OHV use and the proposed designated zones would allow areas adjacent to routes to recover, thus decreasing the overall effect of any sedimentation runoff in the immediate area from existing conditions. Although the Desert Vista Permit Zone surrounds a topminnow population on the Cave Creek RD, the population is known to be extirpated. No other Permit Zones are near other populations. Therefore, any direct or indirect effects from the Permit Zones are expected to be discountable.
- MBGR is anticipated to be for bear only within potential topminnow watersheds and at most, four retrievals a year. It is unlikely that cross-county travel for bear would occur near Gila topminnow populations because of the low likelihood of bear within Sonoran desert vegetation. Therefore, effects of MBGR to the Gila topminnow are expected to be discountable.
- While the area where motor vehicles may be used for dispersed camping would increase by 42.31 acres, effects to topminnow would be insignificant since these are existing spur roads and sites and contain less than 0.001% of potential watersheds.
- Cross-country motorized vehicle use for personal fuelwood gathering would decrease by 5% from existing conditions within potential Gila topminnow watersheds. Personal fuelwood gathering is not authorized in the Cave Creek and Mesa RDs under the proposed action. However, permits to gather fuelwood could occur in potential topminnow watersheds on the Globe and Tonto Basin RDs. These areas do not contain preferred woody species (juniper or oak), and cross-country travel for fuelwood gathering would not be permitted within riparian zones where effects to habitat for listed or proposed species may occur. Therefore, we anticipate effects from cross-country travel for personal fuelwood gathering to be insignificant within potential topminnow watersheds.

Headwater chub

Headwater chub have been documented on the Cave Creek, Payson, Pleasant Valley, and Tonto Basin RDs. Individuals have been observed in areas including Fossil, Rock, Spring, Tonto, and Turkey creeks.

Per the BA, to account for the potential impacts of sedimentation and other concerns from the miles and densities of routes and acres of uses such as OHV areas and dispersed campsites, the analysis of changes between existing conditions and the proposed action involves the 6th code watershed hydrologic unit codes (HUCs) that include all potential habitat. These are Bull Tank Canyon-Tonto Creek, Buzzard Roost Canyon, Cocomunga Canyon-Tonto Creek, Deadman Creek, Haigler Creek, Hardt Creek-Tonto Creek, Houston Creek, Lambing Creek-Tonto Creek, Lower Fossil Creek, Lower Rye Creek, Lower Spring Creek, Marsh Creek, Middle East Verde Creek, Middle Spring Creek, Packard Wash-Tonto Creek, Rock Creek, Upper East Verde River, Upper Rye Creek, Upper Spring Creek, and Wet Bottom Creek. The BA refers to these areas as “potential headwater chub watersheds”. Approximately 20% of potential headwater chub watersheds are located in the Hellsgate and Mazatzal wilderness areas.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the headwater chub. We base our concurrence on the following:

- The 732.27 miles of proposed designated routes in potential headwater chub watersheds represent a 20% reduction in miles from the existing conditions, including decommissioning eight perennial stream crossings, and a 20% decrease in route density. The reduced routes and route density is anticipated to have overall beneficial effects within potential headwater chub watersheds that will also benefit the species and its habitat. Approximately 20% of the potential headwater chub watersheds are located in wilderness areas and would not be affected by the proposed action. Additionally, the watershed rating for road densities is currently “good” under existing conditions and we do not anticipate the designation of routes under the proposed action would result in a decrease in the watershed rating. All of the proposed routes and spur routes to dispersed campsites currently exist and are being used; no new routes are being created that would result in impacts within potential watersheds of the headwater chub leading to impacts on the chub. Therefore, any potential impacts to potential watersheds of the headwater chub from the designation of routes and spur routes are expected to be insignificant.
- No permit zones or OHV areas would be designated within potential headwater chub watersheds. Therefore, these proposed activities would have no effect to the headwater chub.
- MBGR within potential headwater chub watersheds is expected to be limited to bear retrievals along streams with elk retrievals limited to upland areas in potential watersheds within GMUs 22 and 23. Cross-country travel for MBGR may result in ground disturbance such as crushing of vegetation and stream bank impacts such as changes in flow regime and increased debris from vehicles traveling through a stream channel. However, because Payson and Pleasant Valley RDs currently have unrestricted cross-

country travel, effects from future ground disturbance from MBGR would be difficult to discern from those of the existing condition. Additionally, while cross-country travel can cause ground disturbing impacts and cause changes to the streambed from vehicle crossings in potential headwater chub watersheds, the limited number of trips associated with MBGR is not expected to cause population level impacts to the species. Therefore, we anticipate potential effects from MBGR to be insignificant and not likely to jeopardize the headwater chub because there would likely be a very low number of retrievals each year in potential headwater chub watersheds, it would be difficult to measure any effects from MBGR above those occurring now from unrestricted cross-country travel, and stipulations to motorized travel in riparian habitats would reduce ground disturbances in these areas and lessen any impacts within potential headwater chub watersheds.

- Cross-country motorized vehicle use for personal fuelwood gathering would be allowed on approximately 293,235 acres of potential headwater chub watersheds, a 2% decrease from existing conditions. Permits for personal fuelwood gathering would not be permitted within riparian zones that could result in negative effects to listed or proposed species habitats. Permits for fuelwood gathering outside of woodcutting areas would restrict users to designated routes. Therefore, we anticipate effects from cross-country travel for personal fuelwood gathering to be insignificant and are not likely to jeopardize the headwater chub within potential headwater chub watersheds.

Mexican spotted owl and critical habitat

Mexican spotted owls (owls) have been found on five of the six RDs: Globe, Mesa, Payson, Pleasant Valley, and Tonto Basin. On the northern portion of the Tonto NF, owls occupy mixed conifer and ponderosa pine/Gambel oak vegetation types, usually characterized by high canopy closure, high stem density, multi-layered canopies, and downed woody material. Owls also occupy canyon habitat in the central and southern portions of the Tonto NF where there is complex riparian habitat for foraging and rock crevices and/or trees for nesting and roosting.

As of 2015, there are 71 Mexican spotted owl protected activity centers (PACs) on the Tonto NF, all of which have nest cores delineated. Approximately 19% of PAC acres and 17% of nest core acres are located in the Four Peaks, Mazatzal, Sierra Ancha, and Superstition wilderness areas. Forested recovery habitats outside of PACs on the Tonto NF are very limited due to the prevalence of private inholdings and impacts of past large fires such as Rodeo-Chediski.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Mexican spotted owl and its critical habitat. We base our concurrence on the following:

- The proposed action would benefit the owl by ensuring that the 34 PACs that currently have no designated routes would remain roadless, routes in 10 PACs would be eliminated, and routes would be reduced in 15 PACs. In addition, approximately 28.62 miles of routes will be decommissioned in portions of 25 PACs, with 7.02 miles removed from 15 nest cores. These actions would decrease the level of effects

of motorized travel to owls and their critical habitat compared to the baseline condition. Twelve PACs would not have any roads eliminated or reduced but would contain 11.12 miles of designated routes. Because these routes currently exist and have been in use for some time, their designation is anticipated to result in insignificant effects to the owl and its habitat.

- No cross-country travel to gather fuelwood, permit zones, or OHV areas would be located within 5 miles of any PAC or nest core, or designated critical habitat. This would eliminate all motorized cross-country travel unrelated to MBGR in any PAC and critical habitat.
- Spur routes to 18 existing campsites would be designated in eight PACs. These dispersed campsites are located along existing routes within heavily disturbed areas. Topography and vegetation would provide some screening from owl activity. No new spur roads or campsites would be created that would remove suitable or nesting or roosting habitat. Although campers may indirectly affect owl habitat by collecting dead or down firewood in dispersed campsites, we do not anticipate any significant effects to owl key habitat components or PCEs of critical habitat. Therefore, the designation of these areas for camping is likely to result in insignificant effects to nesting and roosting owls during the breeding season.
- The area where MBGR could occur in PACs would increase but represents a small portion of the acres in the three GMUs open to MGBR under the proposed action. Because elk hunts in owl habitat occur in the fall and winter months, outside the breeding season (March 1 – August 31), we do not anticipate any disturbance to breeding owls from MBGR.

Ocelot

In April of 2010, an ocelot was found dead on the road along US 60 between Superior and Miami, within the Globe RD. Since 2010, no other ocelot sightings have occurred in central Arizona. Because there is some suitable habitat for the species in central Arizona, it is possible that ocelots could utilize the area on the Globe RD. No surveys for ocelots have been conducted on the Globe RD to determine presence or occurrence and/or to what extent the species may use the habitat (e.g., as dispersal or breeding habitat). Potential habitat for ocelot is defined as interior chaparral, Madrean encinal woodlands, and semi-desert grasslands which are present in the action area. They are secretive animals and generally require dense vegetation for cover. The BA estimated there is approximately 226,242 acres of potential habitat for the ocelot on the Globe RD; with 11% of potential habitat in the Salt River Canyon and Superstition wilderness areas.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the ocelot. We base our concurrence on the following:

- Ocelots are not known to regularly occur in central Arizona (there has only been one record of a male ocelot in central Arizona since 2010); therefore, there is a low likelihood that ocelots would be present during the consultation period covered under this BO/CO.
- All of the proposed routes and dispersed campsites with designated spur roads exist and are currently being used, and no new routes or campsites are being created that would impact potential ocelot habitat. Additionally, the reduction of routes and reduced route density will have overall beneficial effects to potential ocelot habitat by promoting vegetation recovery in areas where routes are decommissioned. Therefore, any potential direct or indirect effects to ocelot habitat from the proposed routes and campsites are considered insignificant.
- MBGR may result in minimal impacts to ocelot habitat such as crushing of vegetation; however, these effects would occur very infrequently (e.g., on average, only three bear retrievals per year occur in the two GMUs that overlap with potential ocelot habitat considered in this consultation) and would be very localized and short-term (e.g., only one trip per vehicle per game retrieval is allowed). Vehicles associated with proposed routes and MBGR will be traveling at relatively slow speeds (likely <30 mph) due to the terrain and road conditions. Although mortality to ocelots from vehicle strikes is a major threat to the species, no vehicle strikes of ocelots on dirt roads in Arizona have been documented. Therefore, the risk of vehicles (associated with proposed routes and MBGR) striking ocelots is discountable.
- No permit zones or OHV areas would be designated within one mile of potential habitat; therefore these actions will have no effect on potential ocelot habitat.
- Cross-country motorized vehicle use for personal fuelwood gathering may result in minimal impacts to ocelot potential habitat (interior chaparral and semi-desert grassland) such as crushing of vegetation or habitat degradation; however, dense vegetation and rugged topography is expected to limit areas where motor vehicles may travel off-route and damage vegetation in potential ocelot habitat. Fuelwood gathering in potential ocelot habitat will occur mainly during daylight hours and be limited to collecting dead or down branches of shrubs or large manzanita branches due to the lack of preferred tree species (juniper, oak, pinyon or ponderosa pine). Additionally, the proposed personal fuelwood gathering areas are currently being used under the existing conditions; no new areas are proposed to be opened and therefore, no new areas would be impacted by motorized vehicles driving to access the wood. Stipulations in fuelwood permits require locating fuelwood before moving a vehicle off-route, taking the most direct route to the product, restricting damage to other vegetation in route, returning to the designated road on the same direct path used, and covering the route with slash or other available debris. Therefore, any potential direct or indirect effects to ocelots or potential ocelot habitat from personal fuelwood gathering would be insignificant.

Roundtail chub

Roundtail chub have been documented on all six RDs on the Tonto NF. Individuals have been observed in areas including the Salt and Verde rivers as well as Cherry, Fossil, and Tonto creeks.

Per the BA, to account for the potential impacts of sedimentation and other concerns from the miles and densities of routes and acres of uses such as OHV areas and dispersed campsites, the analysis of changes in effects between existing conditions and the proposed action involves the 6th code watershed HUCs that include all potential habitats. These are Bladder Canyon-Cherry Creek, Bulldog Canyon-Salt River, Butte Creek-Salt River, Canyon Creek-Verde River, Cienega Creek-Salt River, Coopers Fork-Cherry Creek, Cottonwood Basin-Verde River, Cottonwood Creek-Salt River, Deadman Creek, Dry Pocket Wash-Tonto Creek, Gap Creek-Verde River, Indian Spring Wash-Verde River, Lower East Verde River, Lower Salome Creek, Malpais Canyon-Verde River, Meddler Wash-Salt River, Middle East Verde River, PB Creek-Cherry Creek, Rock Canyon-Salt River, Shute Springs Creek-Salt River, Sycamore Canyon-Salt River, Upper East Verde River, and Yankee Joe Canyon-Salt River. The BA refers to these areas as "potential roundtail chub watersheds". Approximately 29% of potential roundtail chub watersheds are located in the Hellsgate, Mazatzal, Salome, Salt River Canyon, and Sierra Ancha wilderness areas.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the roundtail chub. We base our concurrence on the following:

- The 515.03 miles of proposed designated routes in potential roundtail chub watersheds represent a 28% reduction in miles from the existing condition and a 28% decrease in route density. Approximately 29% of potential roundtail chub watersheds are located in wilderness areas and would not be affected by the proposed action. The reduction in road density would have overall beneficial effects.
- There would be no additive effects from designating 36,787 acres of permit zones in potential roundtail chub habitat and the approximately 137.36 miles of routes inside them. Acres of potential watersheds inside permit zones could benefit from slight improvement in soil and vegetation conditions since users are required to stay on designated routes in these areas.
- Less than 2% of acres designated for OHV areas are located within potential roundtail chub watersheds. The designated OHV areas are already heavily disturbed by unauthorized OHV use such that, no change in potential effects would be expected from proposed designation compared to existing conditions. We do not expect additional effects from OHV use in these areas beyond those that have already occurred.
- Although the area where MBGR could occur in potential roundtail chub watersheds would increase, we consider effects to be insignificant because these areas represent a very small portion of the five GMUs open to MGBR, we expect only a low number of trips for bear retrieval could occur each year, and stipulations limiting vehicle use in and near riparian areas would be in place to minimize impacts to these areas.

- Areas where motor vehicles may be used for dispersed camping would impact 66.12 acres on portions of all six RDs. Many of these dispersed campsites occur in habitat for other listed species and are located in heavily disturbed areas that would minimize continuing effects on listed species habitat. The 66.12 acres of disturbance represents less than 0.001% of potential roundtail chub watersheds, therefore, we anticipate that effects would be discountable.
- Cross-country motorized vehicle use for personal fuelwood gathering would be allowed on 209,370 acres of potential watersheds, a 2% decrease from existing conditions. No personal fuelwood cutting is authorized on the Mesa RD where some roundtail chub populations occur. For populations on the Globe, Pleasant Valley, and Tonto Basin RDs, permits for personal fuelwood gathering are generally for existing woodcutting areas. These areas would not be permitted within riparian zones where effects to habitat roundtail chub may occur. Permits for fuelwood gathering outside of woodcutting areas would restrict users to designated routes. Therefore, we anticipate effects from cross-country travel for personal fuelwood gathering to be insignificant within potential roundtail chub watersheds.

Yuma clapper rail

The Tonto NF is at the fringe of the Yuma clapper rail's range. Per the BA, potential habitat is limited to approximately 40.53 acres of cattail habitat on Roosevelt Lake and areas immediately adjacent on the Salt River and Tonto Creek. Formal Yuma clapper rail surveys have been conducted on the Tonto NF by SRP under Roosevelt Lake Conservation Program. Two Yuma clapper rails were detected in 2002 and a lone bird was detected in 2004.

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Yuma clapper rail. We base our concurrence on the following:

- No designated routes, permit zones, or OHV areas would be proposed within Yuma clapper rail habitat. Additionally, no cross-county travel would be authorized within its habitat for personal fuelwood gathering or other forest products. Although MBGR would be allowed in this area, we expect that a bear is highly unlikely to occur in this habitat, elk would not be present, and cattail habitat is inaccessible for motorized vehicles. Therefore, any effects from the proposed action would be discountable.

Mexican wolf

As described in the BA, potential habitat for the species is split into two categories based on the revised geographic boundaries for the Mexican wolf experimental population area (MWEPA; USFWS 2015c). Primary habitat are those acres of mixed conifer with aspen, pinyon-juniper live oak woodland, ponderosa pine forest Potential Natural Vegetation Type (PNVT) on the portion of Zone 1 of the MWEPA on the Tonto NF. Secondary habitat is all remaining acres of PNVT types except mines and water in Zone 2 of the MWEPA on the Tonto NF. The Interagency Field team is working on establishing release sites on the Payson, Pleasant Valley, and Tonto Basin RDs (Zone 1) for the release or translocations of Mexican wolves. Initial

releases into suitable habitat on these RDs may occur in 2016. Translocations of wolves and pups into Zone 2 on Federal land are expected to occur during the 10-year period covered under this BO.

We concur with your determination that the proposed action is not likely to jeopardize the Mexican wolf. We base our concurrence on the following:

- Because of the Mexican wolf's status as an experimental, non-essential population, wolves found in Arizona are treated as though they are proposed for listing for section 7 consultation purposes. By definition, an experimental non-essential population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species.

Appendix B: Figures

Figure 1. Proposed Off-Highway Vehicle Areas on the Tonto National Forest.

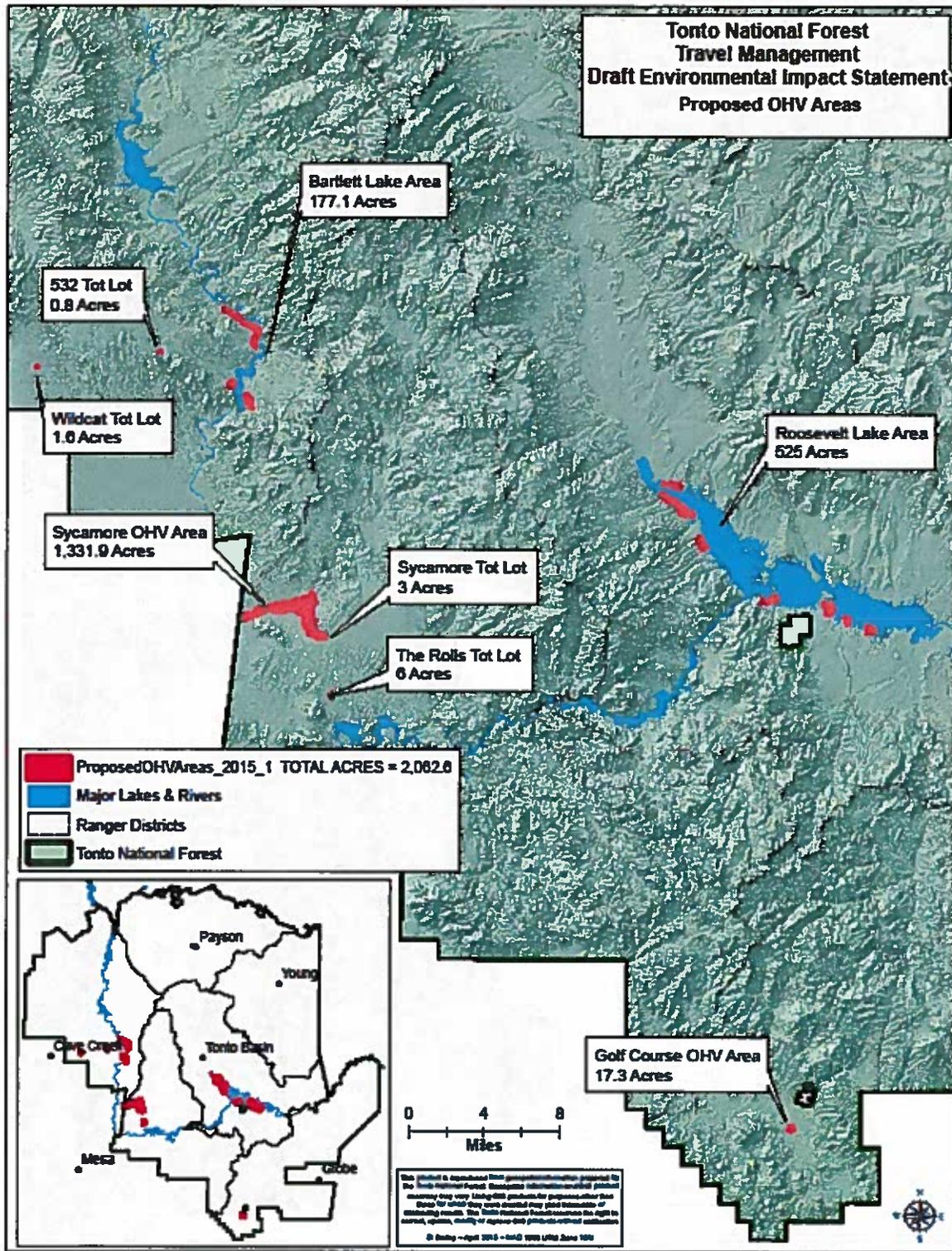


Figure 2. Proposed Permit Zones.

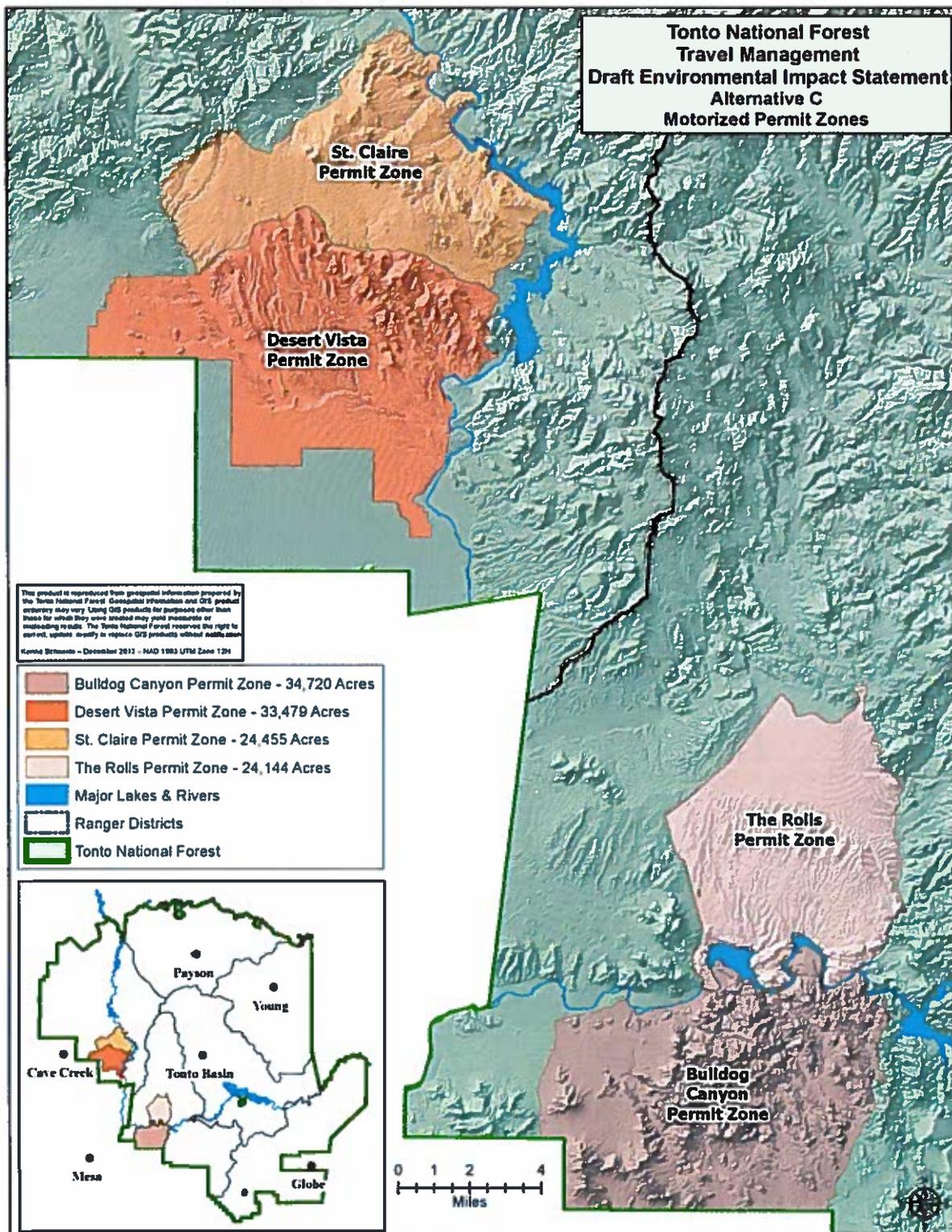


Figure 3. Proposed Areas Authorized for Motorized Big Game Retrieval for Elk and Bear.

