



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R8– ES–2013–0011; 4500030114]

RIN 1018–AZ44

Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-billed Cuckoo

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), revise the proposed critical habitat for the western distinct population segment of the yellow-billed cuckoo (western yellow-billed cuckoo) (*Coccyzus americanus*) under the Endangered Species Act. In total, approximately 493,665 acres (199,779 hectares) are now being proposed for designation as critical habitat in Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah. If we finalize this rule as proposed, it would extend the Act's protections to this species' critical habitat.

DATES: We will accept comments on the revised proposed rule that are received or postmarked on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. Comments submitted electronically using the Federal eRulemaking Portal (see **ADDRESSES** below) must be received by 11:59 p.m. Eastern Time on the closing date. We must receive requests for public hearings, in writing, at the address shown in **FOR FURTHER INFORMATION CONTACT** by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments on the revised proposed rule or draft economic analysis by one of the following methods:

(1) *Electronically:* Go to the Federal eRulemaking Portal:

<http://www.regulations.gov>. In the Search box, enter Docket No. FWS–R8–ES–2013–0011, which is the docket number for this rulemaking. Then, in the Search panel on the left side of the screen, under the Document Type heading, click on the Proposed Rules link to locate this document. You may submit a comment by clicking on “Comment Now!”

(2) *By hard copy:* Submit by U.S. mail or hand-delivery to: Public Comments Processing, Attn: FWS–R8–ES–2013–0011; U.S. Fish and Wildlife Service Headquarters, MS: JAO 1/N, 5275 Leesburg Pike, Falls Church, VA 22041–3803.

We request that you send comments **only** by the methods described above. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the **Information Requested** section below for more information).

The coordinates or plot points or both from which the critical habitat maps are generated will be included in the decisional record materials for this rulemaking and are available at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2013–0011, and at the Sacramento Fish and Wildlife Office at <http://www.fws.gov/sacramento> (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we may develop for this critical habitat designation will also be available at the U.S. Fish and Wildlife Service website and field office set out above, and may also be included in the preamble of this rule or at <http://www.regulations.gov>.

FOR FURTHER INFORMATION CONTACT: Jennifer Norris, Field Supervisor, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825; or by telephone 916-414-6600. If you use a telecommunications device for the deaf (TDD), call the Federal Relay Service (FRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Executive Summary

Scope of this rule. The information presented in this revised proposed rule pertains only to the western distinct population segment of the yellow-billed cuckoo (western yellow-billed cuckoo) (DPS). Any reference to the “species” within this document only applies to the DPS and not to the yellow-billed cuckoo as a whole unless specifically expressed. A complete description of the DPS and area associated with the DPS is contained in the proposed and final listing rules for the western yellow-billed cuckoo published in the *Federal Register* (78 FR 61621; October 3, 2013, and 79 FR 59992; October 3, 2014).

Why we need to publish a rule. Under the Endangered Species Act, any species that is determined to be an endangered or threatened species requires critical habitat to be designated, to the maximum extent prudent and determinable. Designations and revisions of critical habitat can only be completed by issuing a rule. On October 3, 2014, we finalized listing the western yellow-billed cuckoo as a threatened species (79 FR 59992). A proposed critical habitat designation was published in the *Federal Register* on August 15, 2014 (79 FR 48548). Based on information received from Federal, State, or local government agencies, Tribal entities, and the public, and our review of our previous

proposed rule, we have determined to revise our previous proposal, and to propose, as discussed herein, that approximately 493,665 acres (ac) (199,779 hectares (ha)) should be designated as critical habitat for the western yellow-billed cuckoo.

The critical habitat areas we are proposing to designate in this rule constitute our current best assessment of the areas that meet the definition of critical habitat for the western yellow-billed cuckoo. Section 4(b)(2) allows the Secretary to exclude areas if the benefits of exclusion outweigh the benefits of inclusion as critical habitat, unless, based on the best available scientific and commercial data available, that exclusion would lead to extinction. In this revised proposed designation, we have identified a total of approximately 145,710 ac (58,968 ha) that we will consider for exclusion from the final designation (see **Consideration of Impacts Under Section 4(b)(2) of the Act**).

What this document does. This is a revised proposed rule to designate critical habitat for the western yellow-billed cuckoo. This revised proposed designation of critical habitat identifies areas that we propose to determine, based on the best scientific and commercial information available, are essential to the conservation of the species or otherwise essential for its conservation. The revised proposed critical habitat comprises 72 units and is located in the States of Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah.

Draft economic analysis. In order to consider economic impacts of designating critical habitat for the western yellow-billed cuckoo, we have examined the economic information provided in the 2014 proposed rule (see **Consideration of Economic Impacts**, below, for additional information) and have revised that information based on a revised economic analysis for this revised proposed critical habitat designation. We are

soliciting information on the economic impact of the revised proposed designation and will continue to reevaluate the potential economic impacts between our proposed and final designation. The supporting information we used in determining the economic impacts of the revised proposed critical habitat is summarized in this rule (see **Consideration of Economic Impacts**) and is available at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2013–0011 and at the Sacramento Fish and Wildlife Office at <http://www.fws.gov/sacramento> (see **FOR FURTHER INFORMATION CONTACT**).

Peer review. In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinions from appropriate and independent knowledgeable individuals on the August 15, 2014, proposed critical habitat rule (79 FR 48548). We received responses from four individuals with scientific expertise that included familiarity with the species, the geographic region in which the species occurs, and conservation biology principles. We reviewed the comments received from these four peer reviewers for substantive issues and new information regarding critical habitat for the western yellow-billed cuckoo. All of the peer reviewers generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve the final critical habitat rule. We have incorporated some of the suggestions made by the peer reviewers into this revised proposed designation. The peer reviewer comments are available at <http://www.regulations.gov> at Docket No. FWS–R8–ES–2013–0011. We will solicit additional peer review of this revised proposed rule and respond to the peer review comments in the final rule as appropriate.

Public comment. We are seeking comments and soliciting information from the public on our revised proposed designation to make sure we consider the best available

scientific and commercial information in developing our final designation. Because we will consider all comments and information we receive during the comment period, our final determination may differ from this revised proposal. We will respond to and address comments received in our final rule. Any comments previously submitted need not be resubmitted, as they will be fully considered in preparation of the final rule.

Information Requested

We intend that any final action resulting from this revised proposed rule will be based on the best scientific and commercial data available and be as accurate and as effective as possible. Therefore, we request comments or information from other concerned governmental agencies, Native American tribes, the scientific community, industry, or any other interested parties concerning this revised proposed rule. Comments previously submitted need not be resubmitted. We will consider all comments received since the August 15, 2014, proposed designation (79 FR 48548) and respond to those comments as appropriate in the final designation of critical habitat for the western yellow-billed cuckoo. For this revised proposed designation, we particularly seek comments concerning:

(1) The western yellow-billed cuckoo's biology and range; habitat requirements for feeding, breeding, and sheltering; and the locations of any additional populations.

(2) Specific information on:

(a) The amount and distribution of western yellow-billed cuckoo habitat;

(b) Information on the physical or biological features essential for conservation of the western yellow-billed cuckoo;

(c) What areas were occupied at the time of listing that contained those features

and should be included in the critical habitat designation and why;

(d) Special management considerations or protection that may be needed in areas we are proposing as critical habitat, including managing for the potential effects of climate change;

(e) What areas not occupied at the time of listing are essential for the conservation of the western yellow-billed cuckoo and should be included as critical habitat and why; and

(f) Whether the description and categorization of the habitat use by the western yellow-billed cuckoo and its physical or biological features are clear and understandable.

(3) Whether any specific areas we are proposing for critical habitat designation should be considered for exclusion under section 4(b)(2) of the Act, and whether the benefits of potentially excluding them outweigh the benefits of including them, pursuant to section 4(b)(2) of the Act. Please see the Service's policy regarding implementation of section 4(b)(2) of the Act published in the *Federal Register* on February 11, 2016 (81 FR 7226).

(4) We have received information regarding existing conservation easements or fee title purchase of private properties (conservation properties) within proposed critical habitat Units 65 and 67 (ID-1 Snake River and ID-3 Henry's Fork). These conservation properties are within the Bureau of Land Management's (BLM) Snake River Area of Critical Environmental Concern (ACEC) and Special Recreation Management Area, and have been conserved to help preserve open space, recreation opportunities, and wildlife habitat through a partnership involving the BLM, The Conservation Fund, The Teton Regional Land Trust, and The Nature Conservancy (TNC). We are looking for additional

information, such as management plans or specific agreements, regarding these conservation properties that describe the commitment and assurances of protection of the physical or biological features for the western yellow-billed cuckoo to help us evaluate these areas for potential exclusion from final critical habitat designation under section 4(b)(2) of the Act. We are also looking for information regarding private land(s) in Unit 65 (ID-1) where landowners may be pursuing a conservation easement or fee title purchase in the future and have demonstrated a history of managing these lands for the conservation benefit of western yellow-billed cuckoo habitat.

(5) Whether we should exclude State-managed lands or lands with conservation easements from the designation (see **Consideration of Exclusion of State Lands and Lands with Conservation Easements**).

(6) Whether areas proposed to be designated as revised critical habitat along the United States/Mexico border in California, Arizona, New Mexico, and Texas should be excluded for national security and border security missions.

(7) Information on land ownership and land use designations and current or planned activities in the subject areas, and their possible impacts on the revised proposed critical habitat.

(8) Information on the projected and reasonably likely impacts of climate change on the western yellow-billed cuckoo and revised proposed critical habitat.

(9) Any probable economic, national security, or other relevant impacts of designating as critical habitat any particular area that may be included in the final designation and the benefits of including or excluding areas where these impacts occur, including,

(a) any incremental economic costs incurred to nonfederal entities for water withdrawals, such as State agencies or local municipalities as a result of the designation of critical habitat, and

(b) whether the Service should exclude lands that are part of Federal Water Resource Projects such as flood control basins, reservoirs, and channels that have been authorized by Congress to be constructed, operated and maintained for specific purposes such as flood risk reduction, navigation, hydropower from the designation where such designation could conflict with the authorized project purposes.

(10) Suggestions of how the Service can use programmatic section 7 consultations for the western yellow-billed cuckoo to streamline the regulatory process .

(11) Whether we could improve or modify our approach to designating critical habitat in any way to provide for greater public participation and understanding, or to better accommodate public concerns and comments.

Please include sufficient documentation with your submission (such as scientific journal articles or other publications) to allow us to verify any scientific or commercial information you present.

You may submit your comments and materials concerning this revised proposed rule by one of the methods listed in **ADDRESSES**. We request that you send comments **only** by the methods described in **ADDRESSES**.

We will post your entire comment—including your personal identifying information—on <http://www.regulations.gov>. You may request at the top of your document that we withhold personal information such as your street address, phone number, or e-mail address from public review; however, we cannot guarantee that we

will be able to do so.

Comments and materials we receive, as well as supporting documentation we used in preparing this revised proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Previous Federal Actions

On August 15, 2014, we proposed critical habitat for the western yellow-billed cuckoo (79 FR 48548). We reopened the public comment period on November 12, 2014 (79 FR 67154), and provided notice of the public hearing held in Sacramento, California, on December 2, 2014 (79 FR 71373). All other previous Federal actions are described in the proposed and final rules to list the western yellow-billed cuckoo as a threatened species under the Act published previously in the *Federal Register* on October 3, 2013 (78 FR 61621), and October 3, 2014 (79 FR 59992). Please see those documents for actions leading to this revised proposed designation of critical habitat.

Background

The western yellow-billed cuckoo is a migratory bird species, traveling between its wintering grounds in Central and South America and its breeding grounds in North America (Continental U.S. and Mexico) each spring and fall often using river corridors as travel routes. Habitat conditions through most of the western yellow-billed cuckoo's range is often dynamic and may change location within or between years depending on vegetation growth, tree regeneration, plant maturity, stream dynamics, and sediment movement and deposition. The species' major food resources (insects) are also similarly

variable in abundance and distribution. As a result, the western yellow-billed cuckoo's use of an area is tied to the area's habitat condition and food resources, which can be variable between and within years. This variability in resources may cause the western yellow-billed cuckoo to move between areas in its wintering or breeding grounds to take advantage of habitat conditions and food availability. For a thorough discussion of the western yellow-billed cuckoo's biology and natural history, including limiting factors and species resource needs, please refer to the proposed and final rules to list this species as threatened published previously in the *Federal Register* on October 3, 2013 (78 FR 61621) and October 3, 2014 (79 FR 59992) (available at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2013-0104), and the proposed critical habitat rule, which published August 15, 2014 (79 FR 48548) (available at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2013-0011). It is our intent to discuss below only those topics directly relevant to the revised proposed designation of critical habitat for the western yellow-billed cuckoo. Some changes made to the 2014 proposed designation were as a result of comments received from peer reviewers, Federal agencies, State agencies, Tribal entities, the public, or our review of the previous proposed designation. We have incorporated some of the suggested changes where appropriate for this proposed revision.

Ownership Mapping Considerations

The revised proposed designation of critical habitat for the western yellow-billed cuckoo encompasses a wide geographic area and extends across seven western States (AZ, CA, CO, ID, NM, TX, and UT). Obtaining current up-to-date and consistent mapping and land ownership information for such a large area is challenging. Because of this reason and requirements to use certain land ownership information under Service

policy and to be as consistent as possible in mapping across the range of the species, our mapping and land ownership efforts relied on using a single land ownership ArcGIS source file to identify land ownership (Federal, State, Tribal, local, private) where it was available. In areas where this single layer was not available (i.e., Texas), or more specific information was provided by the landowner, we used other (Federal, State, County, Tribal, private) land ownership information or the more specific land ownership information provided by the landowner. We have attempted to correct any land ownership identified during public comment from the previous proposed designation. However, we expect that not all land ownership may be correctly identified, and we will continue to make changes and incorporate those land ownership changes in the final designation.

Critical Habitat

Background

For additional background information on western yellow-billed cuckoo critical habitat under section 3 and section 4 of the Act, see the *Background* section in the August 15, 2014, proposed critical habitat rule (79 FR 48549–48550).

Our regulations at 50 CFR 424.12(b) outline the steps the Secretary must take in determining areas to be designated as critical habitat. In summary, these steps are to identify the geographical area occupied by the species at the time of listing, identify the physical and biological features essential to the conservation of the species, determine the specific areas within the geographical area occupied by the species that contain the physical or biological features, and then determine which of these features within those identified areas may require special management considerations or protections. The

geographical area occupied by the species at the time of listing is defined at 50 CFR 424.02 as an area that may generally be delineated around species' occurrences, as determined by the Secretary (i.e., range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (e.g., migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals). If designating the occupied areas that meet the definition of critical habitat would be inadequate to ensure the conservation of the species, the Secretary may designate as critical habitat unoccupied areas that meet the definition of critical habitat at 16 U.S.C. 1532(5)(A)(ii).

Occupancy Determination

The geographical area occupied at the time of listing by the western yellow-billed cuckoo DPS extends from southern British Columbia, Canada, to southern Sinaloa, Mexico, and may occur from sea level to over 7,000 feet (ft) (2,154 meters (m)) in elevation. Due to the reclusive nature of the species, the remoteness of some areas it occupies, difficulty in conducting surveys, and inconsistent survey methodology, the majority of the species' range has not been surveyed on a regular basis or have comparable survey data to give an absolute determination of population demographics, distribution, and occupancy. However, despite these survey challenges, some key areas throughout the DPS where the species is known to occur and breed more regularly, such as on the Sacramento, Kern, Verde, Colorado, San Juan, Salt, Snake, San Pedro, Gila, and Rio Grande Rivers, and several other smaller areas have been surveyed more consistently and give some indication of persistence and site fidelity. The majority of these sites are located in California and Arizona. The last statewide surveys

(encompassing a large proportion of the major rivers and tributaries) for California and Arizona were conducted between 1998 and 2000 (Arizona (1998 to 1999), and California (1999 to 2000)). Therefore, we based our analysis of occupancy on detection records starting in 1998 and ending in 2014, when we listed the DPS as a threatened species. Although prior survey efforts and records of western yellow-billed cuckoo have been conducted outside California and Arizona, these efforts have been more localized or not consistent. The 1998–2014 timeframe was chosen because it includes the last statewide western yellow-billed cuckoo surveys in areas where the majority of individuals within the DPS occur and represents the best available information on long-term occupancy.

Specific Areas Outside the Geographical Area Occupied by the DPS

We are not currently proposing to designate any areas outside the geographical area occupied by the species at the time of listing because the occupied areas identified for designation provide sufficient representation of habitat (i.e., ecological diversity) and redundancy (i.e., the duplication and distribution of resilient populations across the range of the species allowing for the ability of a species to withstand catastrophic events) throughout the range of the DPS for the conservation of the species. All areas proposed as western yellow-billed cuckoo critical habitat are within the geographical area occupied by the DPS at the time of listing (2014) and contain the features essential to the conservation of the species. However, due to increased survey efforts since listing, we did receive some additional post-listing occupancy information for the species. We used this post-listing survey information to confirm frequency and continued occupation of certain areas, but not to identify new areas outside the geographical area occupied by the species. Based on habitat at the sites and occupancy of the species near these sites, we propose to

determine occupancy of these sites to be same as at the time of listing and not new occupancy since the time of listing due to our knowledge of habitat conditions and occupancy information in surrounding areas.

Although we believe that the available evidence is sufficient for us to conclude that the units were occupied by the western yellow-billed cuckoo at the time the species was listed, for the purposes of this rulemaking, we also propose to determine that the revised proposed designation alternatively meets the definition of critical habitat in section 3(5)(A)(ii) of the Act in that the identified areas are also essential for the conservation of the species. Our rationale for this proposed determination is outlined below.

The western yellow-billed cuckoo is migratory, difficult to observe, and elusive in behavior, and chooses nesting areas based on habitat conditions and localized and variable prey outbreaks. In addition, western yellow-billed cuckoo breeding habitat is typically dynamic. For example, some breeding habitat that is not suitable one year may become suitable the next due to increased rainfall or flooding events. Other areas currently suitable and occupied may become degraded due to age or other environmental condition (e.g., water availability, lack of food resource). Therefore, in our proposed determination of the extent of critical habitat, we took into account this need to accommodate the dynamic nature of existing habitat. Further, the species needs habitat areas that are arranged spatially to maintain connectivity and allow dispersal within and between units that provide for redundancy.

All of the areas that support the western yellow-billed cuckoo face threats including habitat fragmentation and degradation, altered hydrology, livestock grazing,

nonnative vegetation, human disturbance, and the effects of climate change. Providing for a variety of habitat (i.e., representation) primarily where the U.S. core breeding population occurs in Arizona and New Mexico (redundancy) may provide for amelioration against these threats and provide for the conservation of the species.

Therefore, given the threatened status and the relatively small number of extant western yellow-billed cuckoo breeding locations within the DPS and the need to protect the species' habitat variability and distribution, a critical habitat designation limited to areas confirmed to be occupied by breeding birds through specific surveys at the time of listing would be inadequate to provide for the conservation of the species. Accordingly, we propose to determine that the areas alternatively meet the definition of critical habitat under section 3(5)(A)(ii) of the Act, meaning that we consider these areas to be essential for the conservation of the species, as they represent the various ecological (representation) and distributional aspects (redundancy) and provide for connectivity and dispersal areas for the species when not used for breeding.

Habitat Outside the United States

Within the identified geographical area occupied at the time of listing (see Figure 2 in the final listing rule (79 FR 59999, October 3, 2014), the habitat areas used by the species are located from southern British Columbia, Canada, to southern Sinaloa, Mexico. Because we do not designate as critical habitat areas outside the United States (50 CFR 424.12(g)), we did not examine areas in Canada and Mexico; however, conservation of habitat that meets the conditions described in this designation in Canada and especially in Mexico may be important to recovery of the species. Similarly, we did not examine habitat areas on the wintering grounds in South America and the intervening

areas in Central America or the Caribbean that are used as stop-over sites during migration, yet these areas may also be important for recovery of the species.

Prudency Determination

Section 4(a)(3) of the Act, as amended, and its implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary shall designate critical habitat at the time the species is determined to be an endangered or threatened species. The regulations at 50 CFR 424.12(a)(1) state that the Secretary may, but is not required to, determine that a designation would not be prudent in the following circumstances: (1) The species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species; (ii) The present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act; (iii) Areas within the jurisdiction of the United States provide no more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States; (iv) No areas meet the definition of critical habitat; or (v) The Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available.

There is currently no imminent threat of take attributed to collection or vandalism identified under Factor B for this species, and identification and mapping of critical habitat is not expected to initiate any such threat. In our listing determination for the western yellow-billed cuckoo, we determined that the present or threatened destruction, modification, or curtailment of habitat or range is a threat to the western yellow-billed

cuckoo and that those threats in some way can be addressed by section 7(a)(2) consultation measures. The breeding range of the species occurs largely in the jurisdiction of the United States, and we are able to identify areas that meet the definition of critical habitat. Therefore, because none of the circumstances enumerated in our regulations at 50 CFR 424.12(a)(1) has been met and because there are no other circumstances the Secretary has identified for which this designation of critical habitat would be not prudent, we have determined that the designation of critical habitat is prudent for the western yellow-billed cuckoo.

Critical Habitat Determinability

Having determined that designation is prudent under section 4(a)(3) of the Act, we must find whether critical habitat for the western yellow-billed cuckoo is determinable. Our regulations at 50 CFR 424.12(a)(2) state that critical habitat is not determinable when one or both of the following situations exist: (i) Data sufficient to perform required analyses are lacking, or (ii) The biological needs of the species are not sufficiently well known to identify any area that meets the definition of “critical habitat.” When critical habitat is not determinable, the Act allows the Service an additional year to publish a critical habitat designation (16 U.S.C. 1533(b)(6)(C)(ii)). We reviewed the available information pertaining to the biological needs of the species and habitat characteristics where this species is located. We conclude that this information is sufficient for us to conduct both the biological and economic analyses required for the critical habitat determination; that this and other information represent the best scientific data available; and that the designation of critical habitat is now determinable for the western yellow-billed cuckoo.

Conservation Strategy and Selection Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. In accordance with the Act and our implementing regulations at 50 CFR 424.12(b), we review available information pertaining to the habitat requirements of the species and identify specific areas to consider for designation as critical habitat. We look for areas that meet those habitat requirements (i.e., contain the physical and biological features essential for the conservation of the species) within the geographical area occupied by the species at the time of listing and for any areas outside the geographical area occupied by the species that are essential for the conservation of the species.

To determine and select appropriate occupied areas that contain the physical or biological features essential to the conservation of the species or areas otherwise essential for the conservation of the western yellow-billed cuckoo, we developed a conservation strategy for the species. The goal of our conservation strategy for the western yellow-billed cuckoo is to recover the species to the point where the protections of the Act are no longer necessary. The role of critical habitat in achieving this conservation goal is to identify the specific areas within the western yellow-billed cuckoo's range that provide essential physical and biological features, without which areas range-wide resiliency, redundancy, and representation could not be achieved. This, in turn, requires an understanding of the fundamental parameters of the species' biology and ecology based on well-accepted conservation-biology and ecological principles for conserving species and their habitats, such as those described by Carroll *et al.* (1996, pp. 1–12); Meffe and Carroll (1997, pp. 347–383); Shaffer and Stein (2000, pp. 301–321); Natural Resources

Conservation Service (NRCS) 2004 (entire); Tear *et al.* (2005, pp. 835–849) and Wolf *et al.* (2015, pp. 200–207); and more general riparian and avian conservation management prescriptions such as those described in Service 1985; Gardner *et al.* 1999; Wyoming Partners in Flight 2002; Rich *et al.* 2004; Riparian Habitat Joint Venture (RHJV) 2004; Shuford and Gardali 2008; and Griggs 2009.

Conservation Strategy

In developing our conservation strategy for determining what areas to include as critical habitat for the western yellow-billed cuckoo, we focused on the western yellow-billed cuckoo's breeding habitat. Breeding habitat includes areas for nesting and foraging and also provides for dispersal habitat when breeding or food resources may not be optimal. Breeding habitat is widely spread across the species' range and typically provides the physical and biological features essential to the conservation of the species without which range-wide resiliency, redundancy, and representation of the species could not be achieved. As explained further below, this focus led to the inclusion of breeding habitat within three general habitat settings as part of the conservation strategy. The three general settings include: (1) large river systems (mainstem rivers and their tributaries) in the southern and central portions of New Mexico, Arizona, and along the California border with Arizona (generally referred to as the Southwest); (2) locations within southern Arizona not associated with major river systems or their tributaries; and (3) large river systems outside the Southwest (as identified in (1) above) that occur in different ecological settings that are being consistently used as breeding areas by western yellow-billed cuckoo (such as areas in parts of California, Utah, Idaho, or Colorado).

As discussed above, the western yellow-billed cuckoo is a migratory species that

travels long distances to take advantage of localized food resource outbreaks or habitat availability. Maintaining breeding areas (which includes nesting habitat, foraging habitat, and dispersal habitat) throughout the range of the western yellow-billed cuckoo allows for within-year and year-to-year movements to take advantage of any spatial and temporal changes in habitat resources and food abundance. We consider this necessary to conserve the species because of the dynamic nature of habitat used by the species. Identifying habitat across the species' range: (a) helps maintain a robust, well-distributed population and enhances survival and productivity of the western yellow-billed cuckoo as a whole; (b) facilitates interchange of individuals between units; and (c) promotes recolonization of any sites within the current range of the species that may experience declines or local extirpations due to low productivity or temporary habitat loss or changes in resource availability; and allows for use of areas not being used as breeding as habitat for movement and dispersal.

The western yellow-billed cuckoo breeding coincides with moist and humid conditions that support abundant prey resources occurring in the temperate zones of the western United States and northern Mexico during the late spring and summer. Breeding areas of the western yellow-billed cuckoo occur primarily in riparian woodlands along perennial rivers or intermittent or ephemeral drainages containing vegetative structure, canopy cover, and appropriate environmental conditions. These areas provide suitable nesting habitat and adjacent foraging habitat with adequate food resources on a consistent basis to successfully produce and fledge young.

In general, the north-south migratory pathway of the western yellow-billed cuckoo funnels through northern Mexico into the American southwest, with a significant

portion of returning birds establishing breeding territories along large river systems (mainstem rivers and their tributaries) in the southern and central portions of New Mexico, Arizona, and along the California border with Arizona. A large proportion of breeding western yellow-billed cuckoos also occur in large river systems in northwestern Mexico, primarily in Sonora and Sinaloa, with smaller numbers in Chihuahua and Western Durango, and the tip of Baja California. While returning western yellow-billed cuckoos also establish breeding territories throughout portions of the western States north of Arizona and New Mexico, these large southwestern and Mexican river systems (including but not limited to the Lower Colorado, Salt, Virgin, San Pedro, Gila, Verde, and Rio Grande Rivers) serve as core breeding habitats for the western yellow-billed cuckoo as it returns from wintering grounds in South America. These core areas together provide a consistent, robust supply of resources necessary for the maintenance and expansion of western yellow-billed cuckoos. We consider the large river systems (mainstem rivers and their tributaries) in the southern and central portions of New Mexico, Arizona, and along the California border with Arizona to be core areas for conservation of the western yellow-billed cuckoo, and they constitute the first part of our conservation strategy in determining its critical habitat. The core mainstem rivers and streams along with their major tributaries and adjacent habitats contain the physical or biological features essential for the conservation of the western yellow-billed cuckoo.

However, these managed large river systems may not provide sufficient breeding habitat for the western yellow-billed cuckoo in all years (for example, in low flow years the amount of breeding habitat along rivers is diminished), and unregulated smaller tributaries supported or influenced by monsoonal weather patterns may assist in

supporting breeding western yellow-billed cuckoos during low flow or drought conditions. Thus, the second part of our conservation strategy includes areas within southern Arizona not associated with major river systems or their tributaries as identified above. In southern Arizona, western yellow-billed cuckoo also use drier habitats for breeding sites in the desert, foothill, and mountain ephemeral drainages of southern Arizona and northwestern Mexico (including but not limited to desert grasslands and scrub, and Madrean evergreen woodlands). These areas receive moisture from the seasonal North American Monsoon weather systems and other summer tropical storm events. During the breeding season, these habitats experience a “flush” of vegetation and concurrent insect population eruptions. A portion of the DPS uses these wet-seasonal or monsoonal habitats in southern Arizona and Mexico for breeding habitat. Use of these types of sites by the western yellow-billed cuckoo provides additional resiliency to the species due to the different weather patterns and hydrological regimes that produce the habitat conditions suitable for breeding. The availability of these additional resilient sites in southern Arizona and northwestern Mexico other than the large southwestern and Mexican river systems described above increases the overall redundancy for the species. Therefore, the southwestern monsoon-driven drainages with sufficient resources for western yellow-billed cuckoo foraging and successful breeding are essential for the overall resiliency and redundancy of the DPS, and is therefore essential to allow for conservation of the western yellow-billed cuckoo across its range.

Finally, while large riverine riparian systems in the core area of the American southwest are fundamentally important for their ability to contribute to the resiliency of the western yellow-billed cuckoo due to the abundance of birds in these areas, similar

systems throughout the western yellow-billed cuckoo range are also likely important contributors to local resiliency and maintaining distribution of the western yellow-billed cuckoo across its range. These large river systems outside the southwest that are being consistently used as breeding areas by western yellow-billed cuckoo have been identified as the third part of our conservation strategy for determining critical habitat. These areas are located in habitats identified as being within different ecological settings, eco-types, or physio-geographic provinces and provide for additional redundancy and representation for the western yellow-billed cuckoo across its breeding range. The physical and biological features of large river systems in differing habitats with sufficient resources for western yellow-billed cuckoo foraging and successful breeding are likely important for contributing to the western yellow-billed cuckoo's overall resiliency, redundancy, and representation, and are therefore essential for conservation of the western yellow-billed cuckoo across its range. Habitats and environmental settings in the arid Southwest differ significantly from those in central California or higher elevation areas of Utah, Idaho, or Colorado. By identifying known breeding habitat of appropriate size throughout the species' range, we provide habitat where yellow-billed cuckoos are most likely to persist and potentially increase in numbers.

Selection Criteria and Methodology Used to Determine Critical Habitat

As discussed above, to assist in determining which areas to identify as critical habitat for the western yellow-billed cuckoo, we focused our selection on areas known to have breeding or suspected breeding. To do this, we selected those areas that are occupied on a continuous or nearly continuous basis each year during the breeding season. These areas were selected because they contain the physical and biological

features essential to the conservation of the species necessary for western yellow-billed cuckoos to produce offspring, have ample foraging habitat, vegetative structure, environmental conditions, and prey. By selecting breeding areas as critical habitat across the western yellow-billed cuckoo's range, we will assist in conserving the ability of the species to continue to occupy these areas. Moreover, the breeding habitat is most likely to be essential to the conservation of the species because of the importance of breeding for survival and recovery of the species.

We considered an area to be a breeding area if it was occupied by the western yellow-billed cuckoo in one of the following two ways:

- If western yellow-billed cuckoos were present in the area on one or more days between June 1 and September 30 (considered to be the primary breeding period) in at least two years between 1998 and 2014; and
- If western yellow-billed cuckoo were confirmed to be a pair and nesting (or there was evidence of nesting behavior) was observed in at least one year between 1998 and 2014, regardless of the time of year. Thus, if the mated pair or evidence of nesting behavior was discovered prior to June 1, the area was considered to be a breeding area.

In addition to these fundamental criteria established for breeding areas across the DPS range, we identified exceptions to the criteria for areas in the Southwest (Arizona and New Mexico). This was to take into account the greater contribution of the breeding areas for the DPS within the Southwest and because of the migratory nature of the species moving up from Mexico through the Southwest, either to or from other breeding areas. The exceptions to the criteria include:

- Areas in the Southwest were not considered to be breeding areas if the area contains only two western yellow-billed cuckoo records from different years, one of which was in September, and no pairs were detected. (Although western yellow-billed cuckoos are still breeding in September in Arizona, a September detection may or may not signify breeding.); and

- Areas in the Southwest were not considered to be breeding areas if western yellow-billed cuckoos previously detected during protocol surveys were absent in all subsequent visits during the same breeding season.

Another aspect of our strategy was to avoid selection of small and isolated riparian areas in the designation. Because of having limited resources, these small sites are not always occupied and typically support one to two breeding pairs but not every year. In addition, small and isolated areas are more susceptible to stochastic or catastrophic events such as flooding from major storms, prolonged drought, or wildfire. One of the goals of the conservation strategy is to include those areas that are considered core areas and contribute significantly to the overall population by producing a relatively large numbers of birds. These small isolated areas are not considered part of our conservation strategy. Although these areas may be important and assist in recovery of the species, we propose to determine that small, isolated sites with sufficient habitat for only one or two pairs of western yellow-billed cuckoos would not contribute significantly and are not essential to the conservation of the DPS and therefore not being considered as critical habitat.

As described above, to delineate the proposed units of critical habitat, we first looked to those areas being used as breeding areas. We defined what we considered

breeding areas as those areas that contained seasonal occurrences of the western yellow-billed cuckoo between 1998 and 2014, at the timeframe in which breeding typically occurs for the species in the United States (June–September). In limited instances, this timeframe was expanded into May if the information available confirmed breeding activity during this earlier timeframe. These breeding occurrences (location points where breeding or breeding activity was confirmed) were then plotted on maps along with information on vegetation cover, topography, and aerial imagery. We then delineated habitat around that location, as well as riparian habitat upstream and downstream from the occurrence location.

We used reports prepared by the U.S. Geological Survey (USGS), U.S. Forest Service (USFS), National Park Service (NPS), Bureau of Land Management (BLM), Bureau of Reclamation (Reclamation), the Salt River Project, State wildlife agencies, State natural diversity data bases, Cornell Lab of Ornithology (eBird data), researchers, nongovernment organizations, universities, and consultants, as well as available information in our files, to determine the location of areas used for breeding within the geographical area occupied by the western yellow-billed cuckoo at the time of listing. As stated above, since 2014, we have become aware of additional areas occupied by the species with evidence of breeding. We still consider these areas to have been occupied by the species at the time of listing, based on habitat conditions and occupancy of nearby areas.

When delineating the critical habitat boundary, we included the surrounding contiguous suitable habitat (including along the stream course and in uplands for foraging) upstream and downstream until a break in the vegetation of 0.25 miles (mi)

(0.62 kilometers (km)) or more is reached. This distance was used because the western yellow-billed cuckoo rarely traverses distances across breaks in the vegetation greater than 0.25 mi (0.62 km) in their daily foraging activities (Laymon 1980, pp. 6–8; Hughes 2015, p. 12). Upland habitat surrounding river, stream, or drainages was also included within the designation because the area is used for foraging. In some instances, we included breaks in habitat to combine one or more areas if we determined that: (1) the gap in vegetation was within minor variances of this distance; (2) the habitat on the other side of the gap was a continuation of similar or better suitable habitat and included breeding occupancy as identified above; or (3) the gap in vegetation was determined to be a consequence of natural stream dynamics essential to the continuing function of the hydrologic processes of the occupied areas. By providing breaks in habitat and combining areas, we allow for regeneration of vegetation in these areas, which is often more productive and provides additional food resources for the species and allows for appropriate habitat conditions for use when dispersing to other breeding locations.

Delineating the boundary of critical habitat was accomplished by evaluating aerial imagery, occurrence records, and vegetation information, until a break in the vegetation of 0.25 mi (0.62 km) or more was reached, at which point the upstream or downstream and lateral extent of the area was reached. In California, western yellow-billed cuckoos forage mainly within the riparian woodland habitat or directly adjacent uplands when breeding (Laymon 1980, pp. 6–8; Hughes 2015, p. 12). In New Mexico, similar foraging activity has been observed (Sechrist *et al.* 2009, pp. 24–50). The foraging activity in Madrean evergreen woodland habitat (in Arizona and New Mexico) where breeding activity has also been observed has not been studied. However, based on foraging

behavior in other habitats in the west, we expect the foraging distance to remain relatively close to the nesting habitat. For determining the upland extent of habitat within southwestern breeding habitat, we delineated woodland habitat in the drainage bottom and adjacent hillside. In addition, riparian corridors along streams, especially in highly developed areas, can in some instances be very narrow, highly degraded, and be characterized as a patchwork of vegetated and nonvegetated areas.

Whether these habitat areas were included or combined into a single larger unit depended on the extent of use of the areas by western yellow-billed cuckoo, the relative amount of habitat gained if the multiple patches were included or combined, the relationship of the area to the overall designation, and the ease or complexity of removing all nonhabitat from the designation. In addition, by combining these areas, they then better meet an appropriate scale of analysis, given the data as is described in our regulations for determining critical habitat (50 CFR 424.12(b)(1)). For example, if a break in habitat occurred between an area with high occupancy with sufficient habitat and an area with low occupancy, the adjacent area may not have been included. Alternatively, if two smaller areas with relatively low occupancy were adjacent to each other, those areas most likely would have been combined to form a single, larger, more manageable area.

To distinguish between the western yellow-billed cuckoo more typical breeding habitat in riparian areas throughout the range from breeding habitat recently found in more arid areas of the Southwest, we use the terms “rangewide breeding habitat” and “southwestern breeding habitat,” respectively (see Space for Individual and Population Growth and for Normal Behavior below). In rangewide breeding habitat, we generally

selected low-gradient streams containing the physical and biological features that were greater than 200 ac (81 ha) in size. Areas smaller than 200 ac (81 ha) tend to be isolated and may contain sufficient habitat for only one or two pairs of western yellow-billed cuckoos and tend to be occupied sporadically. In considering the extent of each area, in some cases we included the entire streambed as well as the presently vegetated areas. Streams, especially those with intermittent flows, migrate within the streambed depending on flows and other natural fluvial processes. The vegetated areas within the streambed may also move to coincide with the stream movement. As a result, the whole area may not be contiguously vegetated. In these low-gradient rangewide riparian breeding habitats (i.e., cottonwood, willow), areas that currently contain less than 200 ac (81 ha) of riparian habitat were not selected. However, in some areas of the Southwest, the physical or biological features for areas used as breeding habitat vary from other locations in the range of the western yellow-billed cuckoo. These areas occur in Arizona and New Mexico and are associated with summer monsoonal moisture and are smaller, narrower habitat areas that may extend into upland areas (areas dominated by mesquite and oak) with higher gradient. Selection of these areas depended upon the amount of use of the area by the species and its relative proximity to other selected areas. As a result, these habitat sites were selected on a case-by-case basis to provide for the variability of habitat use by the species in these areas.

We have not included critical habitat units within Oregon or Washington because the species has been extirpated as a breeder from those States since at least the 1940s (Littlefield 1988, p. 2; Washington Department of Fish and Wildlife 2013, pp. 200–201), and recent observations of the species, although promising, have not coincided for the

most part with suitable breeding habitat and appear to be dispersing but not breeding birds. We also did not include occupied areas within Montana, Nevada, and Wyoming. The reasons for not including critical habitat in these States is that we believe that sufficient areas already have been identified within this revised proposed designation and these areas do not meet our conservation strategy for designating critical habitat. The conservation strategy focuses on areas with confirmed breeding. No confirmed breeding has been identified in Montana or Wyoming. In Nevada, the only known areas where the western yellow-billed cuckoo has confirmed breeding is in the southern part of the State near the borders of California and Arizona. These habitats are essentially the same as those identified in the southwest in Arizona and New Mexico, but do not significantly contribute to population numbers for the western yellow-billed cuckoo. Should we receive information during the public comment period that supports designating as critical habitat areas not included in the revised proposed units (see **Revised Proposed Critical Habitat Designation**, below), we will reevaluate our current revised proposal.

Sources of data reviewed or cited for this species in the development of critical habitat include peer-reviewed articles, information maintained by universities and State agencies, existing State management plans, species-specific reports, habitat information sources, climate change studies, incidental detections, and numerous survey efforts conducted throughout the species' range, including but not limited to the more recent information below: Corman and Magill 2000; Dockens and Ashbeck 2011; Salt River Project 2011a; Beason 2012; Dettling and Seavy 2012; Gardali *et al.* 2012; Johnson *et al.* 2012; McCarthy 2012; McNeil *et al.* 2012; Sechrist *et al.* 2012; Greco 2013; IPCC 2013a; Johnson *et al.* 2013c; McNeil *et al.* 2013b; Pederson *et al.* 2013; Rohwer and

Wood 2013; Scribano 2013; Sechrist *et al.* 2013; Stromberg *et al.* 2013; Wallace *et al.* 2013; WestLand Resources 2013a, b, c; American Birding Association 2014, ; Ault *et al.* 2014; Garfin *et al.* 2014; IPCC 2014; Melillo *et al.* 2014; Orr *et al.* 2014; Stanek 2014; Villarreal *et al.* 2014; Dettling *et al.* 2015; Griffen 2015; Hughes 2015; MacFarland and Horst 2015, 2017; Van Dooremolen 2015; WestLand Resources 2015 a,b,c,d,e; Arizona Game and Fish Department 2016–2018; Cornell Lab of Ornithology 2016–2018; Corson 2018; RiversEdge West 2007–2018; and Sferra *et al.* 2019. For additional information, see **References Cited**, below.

The amount and distribution of critical habitat that we are proposing will give the western yellow-billed cuckoo the opportunity to potentially: (1) maintain its existing distribution; (2) move between areas depending on food, resource, and habitat availability; (3) increase the size of the population to a level where it can withstand potentially negative genetic or demographic impacts; and (4) maintain its ability to withstand local- or unit-level environmental fluctuations or catastrophes.

When determining the revised proposed critical habitat boundaries, we made every effort to avoid including developed areas, such as lands covered by buildings, pavement, and other structures, because such lands lack physical or biological features for the western yellow-billed cuckoo. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this revised proposed rule have been excluded by text in the proposed rule and are not proposed for designation as critical habitat. Therefore, if the critical habitat is finalized as proposed, a Federal action involving these

nonhabitat lands would not trigger consultation under section 7 of the Act with respect to critical habitat and the requirement of no adverse modification, unless the specific action would affect the physical or biological features of designated habitat surrounding or adjacent to the nonhabitat areas.

The critical habitat designation is defined by the maps, as modified by any accompanying regulatory text, presented at the end of this document in the **Proposed Regulation Promulgation** section. We include more detailed information on the boundaries of the critical habitat designation in the unit descriptions below. We will make the coordinates or plot points or both on which each map is based available to the public on the Internet at <http://www.regulations.gov> at Docket No. FWS-R8-ES-2013-0011, and at the Sacramento Fish and Wildlife Office at <http://www.fws.gov/sacramento> (see **FOR FURTHER INFORMATION CONTACT**, above).

Physical or Biological Features

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12(b), in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. For example, essential physical features for various species might include gravel of a particular size required for spawning, alkali soil for seed germination, protective cover for migration, or susceptibility to flooding or fire that maintains necessary early-successional habitat characteristics. Biological features might include prey species, forage grasses, specific kinds or ages of trees for roosting or nesting, symbiotic fungi, or a particular level of

nonnative species consistent with conservation needs of the listed species. The features may also be combinations of habitat characteristics and may encompass the relationship between characteristics or the necessary amount of a characteristic needed to support the life history of the species.

In considering whether features are essential to the conservation of the species, we may consider an appropriate quality, quantity, and spatial and temporal arrangement of habitat characteristics in the context of the life-history needs, condition, and status of the species. These characteristics include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, or rearing (or development) of offspring; and habitats that are protected from disturbance.

We derive the specific physical or biological features required for the western yellow-billed cuckoo from studies of this species' habitat, ecology, and life history as described below. Additional information can be found in the proposed and final listing rules published in the *Federal Register* on October 3, 2013 (78 FR 61621), and October 3, 2014 (79 FR 59992), respectively. The physical or biological features identified here focus primarily on breeding habitat and secondarily on foraging habitat because most of the habitat relationship research data derive from studies of these activities. Much less is known about migration, stop-over, or dispersal habitat within the breeding range; however, for these purposes, western yellow-billed cuckoos do use a variety of habitats that may or may not be used for breeding. As a result, we do not think that habitat for these purposes is limiting and we have not specifically identified areas for these purposes

in our designation. As stated above, the species' use of an area for breeding purposes depends on food availability and habitat conditions. If those conditions are not adequate (i.e., prey not present, environmental conditions not favorable), the species may still use the area for the other purposes identified above. Due to the species' capabilities and behavioral response to resource availability, we conclude that conservation of sufficient habitat for breeding will also provide sufficient habitat for the other activities. Although the wintering and nesting habitat for the western yellow-billed cuckoo that occurs outside of the United States is not considered for critical habitat designation, some information on breeding, migration, and wintering habitat outside the United States is provided. We propose to determine that the following physical or biological features are essential to the conservation of the western yellow-billed cuckoo.

Space for Individual and Population Growth and for Normal Behavior

General breeding (nesting) habitat conditions. The western yellow-billed cuckoo occurs and breeds during the breeding season (generally from May through September) in a subset of its historical range in the western United States. The western yellow-billed cuckoo uses nesting sites in riparian habitat where conditions are typically cooler and more humid than in the surrounding environment (Gaines and Laymon 1984, p. 75; Laymon 1998, pp. 11–12; Corman and Magill 2000, p. 16). Riparian habitat characteristics, such as dominant tree species, size and shape of habitat patches, tree canopy structure, vegetation height, and vegetation density, are important parameters of western yellow-billed cuckoo breeding habitat. Western yellow-billed cuckoos are found across the DPS in riparian woodlands along low-gradient streams with large patches of cottonwood (*Populus* spp.) and willow (*Salix* spp.) riparian vegetation usually with an

overstory and understory component of other tree species, including but not limited to boxelder (*Acer negundo*); ash (*Fraxinus* spp.); walnut (*Juglans* spp.); and sycamore (*Platanus* spp.) (Gaines 1974b, pp. 7–9; Gaines and Laymon 1984, pp. 59–66; Groschupf 1987 pp. 5, 8–11, 16–18; Laymon and Halterman 1989, pp. 274–275; Corman and Magill 2000, pp. 5, 10, 11, 15, 16; Dettling and Howell 2011a, pp. 27–28). In California, the species is typically found in riparian woodland areas along low-gradient streams with large patches of cottonwood (*Populus* spp.) and willow (*Salix* spp.) riparian vegetation with an overstory and understory component of other tree species, including but not limited to boxelder (*Acer negundo*); Oregon ash (*Fraxinus latifolia*); California black walnut (*Juglans californica*); California sycamore (*Platanus racemosa*); Fremont cottonwood (*Populus fremontii*); and valley oak (*Quercus lobata*) (Gaines 1974b, pp. 7–9; Gaines and Laymon 1984, pp. 59–66; Laymon and Halterman 1989, pp. 274–275; Dettling and Howell 2011a, pp. 27–28).

In addition to the riparian trees found across the species' range, the vegetation making up the breeding habitat of the western yellow-billed cuckoo in some areas, especially in the more arid Southwest, includes some other native and nonnative xero-riparian and upland non-riparian trees and large shrubs, such as, but not limited to: mesquite (*Prosopis* spp.), hackberry (*Celtis reticulata* and *C. ehrenbergiana*), soapberry (*Sapindus saponaria*), oak (*Quercus* spp.), acacia (*Acacia* spp., *Senegalia greggi*), mimosa (*Mimosa* spp.), greythorn (*Ziziphus obtusifolia*), desert willow (*Chilopsis linearis*), juniper (*Juniperus* spp.), Arizona cypress (*Cupressus arizonica*), pine (*Pinus* spp.), alder (*Alnus rhombifolia* and *A. oblongifolia*), wolfberry (*Lycium* spp.), Russian olive (*Elaeagnus angustifolia*), and tamarisk (*Tamarix* spp.) (Groschupf 1987 pp. 5, 8–

11, 16–18; Corman and Magill 2000, pp. 10, 15, 16; Corson 2018, pp. 5, 6–20; Sferra *et al.* 2019, p. 3).

Western yellow-billed cuckoo nests have been documented in Fremont cottonwood, Goodding's black willow (*Salix gooddingii*), red willow (*Salix laevigata*), coyote willow (*Salix exigua*), Arizona sycamore, mesquite, tamarisk, hackberry, boxelder, soapberry, Arizona walnut, acacia, ash, alder, seep willow (*Baccharis salicifolia*), English walnut (*Juglans regia*), oak, juniper, and Arizona cypress (Laymon 1980, pp. 6–8; Laymon 1998, p. 7; Hughes 1999, p. 13; Corman and Magill 2000, p. 16; Halterman 2001, p. 11; Halterman 2002, p. 12; Halterman 2003, p. 11; Halterman 2004, p. 13; Corman and Wise-Gervais 2005, p. 202; Halterman 2005, p. 10; Halterman 2007, p. 5; Holmes *et al.* 2008, p. 21; McNeil *et al.* 2013, pp. I-1–I-3; Tucson Audubon 2015, p. 44; Groschupf 2015, entire; MacFarland and Horst 2015, pp. 9–12; Sferra *et al.* 2019, p. 3).

Western yellow-billed cuckoos have also been found nesting in orchards adjacent to riparian habitat during the breeding season (Laymon 1980, pp. 6–8; Laymon 1998, p. 5). Five pairs of western yellow-billed cuckoos were found nesting along the Sacramento River in a poorly groomed English walnut orchard that provided numerous densely foliated horizontal branches on which western yellow-billed cuckoos built their nests (Laymon 1980, pp. 6–8). These western yellow-billed cuckoos that nested in the orchard did not forage there, but flew across the river to forage in riparian habitat. Kingsley (1989, p. 142) described western yellow-billed cuckoos as being abundant in the pecan groves in Green Valley and Sahuarita, Arizona, with an estimated density of one nesting pair per 10 ac (4 ha). We consider these agricultural nesting sites to be the exception

rather than the preferred nesting habitat for the species due to the paucity of reports identifying such nesting. In mapping the boundaries of the proposed critical habitat, we avoided identifying agricultural lands within the proposed designation. Any agricultural lands inadvertently within the boundary of the proposed designation would not be considered critical habitat because it does not contain the physical or biological features. We request comment on whether any unit of its proposed designation of critical habitat inadvertently includes agricultural lands.

Tamarisk is also a riparian species that may be associated with breeding under limited conditions in the Southwest. Western yellow-billed cuckoos will sometimes build their nests and forage in tamarisk, but there is usually a native vegetation component within the occupied habitat (Gaines and Laymon 1984, p. 72; Johnson *et al.* 2008a, pp. 203–204). See “Tamarisk” section below for further discussion of tamarisk as habitat.

Older studies were geographically limited in their scope but nevertheless established a suite of habitat characteristics that became the archetype for western yellow-billed cuckoo breeding habitat. However, habitat conditions across the DPS range vary considerably, and more recent investigations that included other areas within the western yellow-billed cuckoo’s breeding range found that large areas of riparian woodland vegetation are not the only areas used by the species for nesting. We describe both the rangewide and southwestern breeding habitat below with particular emphasis on describing the southwestern habitat, because it is less well known as providing habitat for the western yellow-billed cuckoo.

Rangewide breeding habitat. As stated above, rangewide breeding habitat exists primarily in riparian areas along low-gradient streams, with large patches of cottonwood

and willow riparian vegetation with an overstory and understory component. The vegetation is often characterized as riparian woodlands. More specifically, rangewide breeding habitat is characterized as having broad floodplains and open riverine valleys that provide wide floodplain conditions. The general habitat characteristics are areas that are often greater than 325 feet (ft) (100 meter (m)) wide, contain low-gradient rivers and streams (surface slope usually less than 3 percent), are part of floodplains created where rivers and streams enter upstream portions of reservoirs or other water impoundments, or are in areas associated with irrigated upland terraces adjacent to water courses or riparian floodplains. The habitat is usually dominated by willow or cottonwood, but sometimes by other riparian species. The habitat has above-average canopy closure (greater than 70 percent), and a cooler, more humid environment than the surrounding riparian and upland habitats. The plant species most often associated with rangewide breeding habitat are identified above (see General Breeding (nesting) Habitat Conditions), and each may be dominant depending on location. These areas contain the moist conditions that support riparian plant communities made up of overstory and understory components that provide breeding sites, shelter, cover, and food resources for the western yellow-billed cuckoo. However, all foraging needs may not be provided within areas of critical habitat. Western yellow-billed cuckoo use rangewide breeding habitat as described above throughout the DPS, including where it occurs in the Southwest and the states of Sonora and Sinaloa, Mexico.

Southwestern breeding habitat. In parts of the Southwestern United States and the states of Sonora and Sinaloa, Mexico, western yellow-billed cuckoo breeding habitat is more variable than in the rest of its range. Southwestern breeding habitat includes

riparian woodland (including mesquite bosque) and desert scrub and desert grassland drainages with a tree component, and Madrean evergreen woodland (oak-dominated) drainages (particularly in southern Arizona). In areas where water is especially limited, but is nonetheless productive in terms of food and cover for western yellow-billed cuckoos, breeding habitat often consists of narrow, patchy, and/or sparsely vegetated drainages surrounded by arid-adapted vegetation. Due to more arid conditions, southwestern breeding habitat contains a greater proportion of xeroriparian and nonriparian tree species than elsewhere in the DPS. Riparian trees (including xeroriparian) in these ecosystems may even be more sparsely distributed and less prevalent than nonriparian trees.

Southwestern breeding habitat may be less than 325 ft (100 m) wide due to narrow canyons or limited water availability that do not allow for development of wide reaches of habitat. Southwestern breeding habitat is often but not always 200 ac (81 ha) or more in size, and may consist of a series of smaller patches separated by openings. Occurring in both low- and high-gradient drainages, slope does not appear to be a factor in whether or not western yellow-billed cuckoos select these areas for nesting. Often interspersed with large openings, southwestern breeding habitat includes narrow stands of trees, small groves of trees, or sparsely scattered trees. As such, the canopy closure is variable, and where trees are sparsely scattered, it may be dense only at the nest tree. The North American Monsoon brings high humidity and rainfall to some of these habitats especially in the ephemeral drainages in southeastern Arizona where winters are mild and warm wet summers are associated with the monsoon and other tropical weather events (Wallace *et al.* 2013a, entire; Erfani and Mitchell 2014, pp. 13,096–13,097).

Riparian drainages in southwestern breeding habitat bisect other habitats and often contain a mix of habitats such as riparian and Madrean evergreen woodland tree species, riparian broadleaf and mesquite-bosque, riparian and desert grassland tree and large shrub species, or riparian and desert scrub tree and large shrub species. More than one vegetation type within and adjacent to the drainage may contribute toward nesting habitat. For example, mesquite, with deeper roots that can reach the water table, often flanks the upland perimeter of more water-dependent cottonwood-willow riparian habitat. Drainage bottoms in these habitats consist of both riparian and nonriparian trees and may be dominated by cottonwood, willow, xeroriparian tree species (e.g., hackberry, ash, sycamore, walnut), or oak (Sogge *et al.* 2008, pp. 148–149; Johnson *et al.* 2012, pp. 20–21; WestLand Resources, Inc. 2013a, pp. 3–5; Villarreal *et al.* 2014, p. 58; Griffin 2015, pp. 17–25; MacFarland and Horst 2015, pp. iii, 2, 5–7; Westland Resources, Inc. 2015a, pp. 3–4; Westland Resources, Inc. 2015b, pp. 3–4; Westland Resources, Inc. 2015c, entire).

Common riparian trees (including xeroriparian trees) include cottonwood, willow, mesquite, boxelder, sycamore, ash, alder, walnut, soapberry, desert willow, hackberry, Arizona cypress, tamarisk, and Russian olive. Common nonriparian trees and large shrubs include oak, pinyon, juniper, acacia, greythorn, mimosa, mesquite (upland), and sometimes other pine species (NatureServe 2013, pp. 11–18, 42–113, 132–140). In Arizona, occupied habitat within a single drainage may include both rangewide breeding habitat and southwestern breeding habitat, transitioning from large stands of gallery riparian forest to mesquite woodland, or narrow or patchy stands of more xeroriparian habitat. These drainages include but are not limited to parts of the Gila River, upper

Verde River, Blue River, Eagle Creek, Tonto Creek, San Francisco River, Aravaipa Creek, San Pedro River, lower Cienega Creek, and the Rio Grande (Corman and Magill 2000, pp. 37–48; Sogge *et al.* 2008, pp. 148–149; Johnson *et al.* 2012, pp. 20–21; Cornell Lab of Ornithology 2016 (eBird data); Arizona Game and Fish Department 2018, entire).

In southeastern Arizona, occupied southwestern breeding habitat contains a more arid mix of both southwestern riparian and Madrean evergreen woodland tree species, riparian broadleaf trees and mesquite bosque, riparian and desert grassland tree and large shrub species, or riparian and desert scrub tree and large shrub species. This habitat is found in drainages in the Santa Catalina Mountains, Rincon Mountains, Santa Rita Mountains, Patagonia Mountains, Huachuca Mountains, Pajarito/Atascosa Mountains, Whetstone Mountains, Dragoon Mountains, and Buenos Aires National Wildlife Refuge, among others (Corman and Magill 2000, pp. 37–48; WestLand Resources, Inc. 2013a, pp. 3–5; Westland Resources, Inc. 2013b, pp. 1–9; Griffin 2015, pp. 17–25; MacFarland and Horst 2015, pp. i–iii, 2, 5–7; Tucson Audubon 2015, p. 44; WestLand Resources, Inc. 2015a, pp. 3–4; WestLand Resources, Inc. 2015b, pp. 3–4; WestLand Resources, Inc. 2015d, entire; Cornell Lab of Ornithology 2016 (eBird data), Corson 2018, pp. 5, 20; Rorabaugh 2019, *in litt*, entire; Sferra *et al.* 2019, pp. 3–6). In Sonora and Sinaloa, Mexico, western yellow-billed cuckoos also breed in similar riparian habitat bisecting mesquite-dominated woodlands, and semidesert and desert scrub and grassland habitats (Russell and Monson 1998, p. 131). We summarize information on southwestern breeding habitat that is made up of southwestern riparian, desert scrub and grassland drainages with a tree component, and Madrean evergreen woodland drainage habitats below.

Southwestern riparian habitat. This more arid riparian woodland occurs in perennial and intermittent drainages and floodplains. The extent of riparian vegetation is often narrower, patchier, and sparser than in breeding habitat elsewhere due to limited water for riparian tree regeneration and survival. Trees may occur in narrow linear reaches, in small and patchy groves, or sparsely scattered along the drainage or floodplain. This habitat is often composed of a greater proportion of more arid-adapted riparian tree species and/or is more sparsely vegetated than rangewide riparian breeding habitat. The proportion of cottonwood and willow declines as water becomes more limited. Southwestern riparian breeding habitat may transition into xeroriparian habitat within a single drainage. Narrow or patchy riparian breeding habitat is often found intersecting desert scrub, desert grassland, and Madrean evergreen woodland breeding habitat.

Remnant mesquite bosques, historically extensive throughout the Southwest along major rivers, still occupy some wide floodplains in parts of Arizona and New Mexico. These remnant mesquite bosques include parts of the lower Colorado River, Gila, Salt, San Pedro, Santa Cruz, and Rio Grande Rivers. In Sonora, Mexico, mesquite bosques where western yellow-billed cuckoos have nested have also been greatly reduced (Russell and Monson 1988, p. 131). Southwestern mesquite bosque breeding habitat is often found flanking the outer edge of riparian habitat, where the water table is too deep for cottonwood and willow trees. For example, Arizona's upper San Pedro River contains extensive reaches of mesquite bosque breeding habitat adjacent to the cottonwood and willow dominated breeding habitat in a broad floodplain.

Arid conditions and water management in the Southwest often influences stream flows into and downstream of reservoirs, limiting riparian vegetation regeneration, growth, and survival. In Arizona and New Mexico, narrow or patchy riparian breeding habitat can be found adjacent to heavily managed floodplains (such as areas within Caballo Reservoir and the Lower Rio Grande for example (White *et al.* 2018, pp. 26–27)). Hydrologically perennial systems become intermittent or ephemeral due to reservoir management or water delivery requirements. For example, water abundance at Caballo Reservoir and downstream on the Lower Rio Grande varies from year to year and timing of release may not occur prior to or throughout the western yellow-billed cuckoo breeding season. As a result, riparian (including xeroriparian) habitat may persist only as narrow bands or scattered patches along the bankline or as small in-channel islands, or sections of undisturbed native willows within the reservoir. Habitat within these areas may be as small as approximately 30 ac (12 ha) and are typically composed of either willow, tamarisk, or a mix of the two (White *et al.* 2018, pp. 26–27). Adjacent habitat may include mowed nonnative vegetation typically less than 1 ft (0.3 m) tall or higher terraces within the floodplain with mesquite or other drought tolerant vegetation.

Desert scrub and desert grassland drainages (with a tree component). These Southwestern breeding habitats include drainages with a tree component intersecting desert scrub and desert grassland in intermittent and ephemeral drainages. Tree and large shrub species such as mesquite, hackberry, acacia, mimosa, and or greythorn are always present (NatureServe 2013, pp. 88, 134). Riparian (including xeroriparian) trees and large shrubs may have a minor presence in the drainage bottoms. Tree density ranges from sparse to dense in the drainage bottom and adjacent hillside.

Madrean evergreen woodland drainage habitat. This plant community is dominated by evergreen oak species, but often contains other tree species such as mesquite, juniper, acacia, and hackberry (Brown 1994, pp. 59–62) and is found in southeastern Arizona and southwestern New Mexico’s mountain ranges, and resembles habitat found in the Sierra Madre Occidental of Mexico.. Western yellow-billed cuckoos breed in the intermittent and ephemeral drainages bisecting Madrean evergreen woodlands in the bajadas, foothills, and mountains of southeastern Arizona (Corman and Magill 2000, pp. 37–48; WestLand Resources, Inc. 2013a, pp. 3–5; Westland Resources 2013b, pp. 1–9; American Birding Association 2014, entire; Cornell Lab of Ornithology 2015 (eBird data); Griffin 2015, pp. 17–25; MacFarland and Horst 2015, pp. i–iii, 2, 5–7; WestLand Resources, Inc. 2015a, pp. 3–4; WestLand Resources, Inc. 2015b, pp. 3–4; Westland Resources, Inc. 2015c, entire; Dillon *et al.* 2018, pp. 31–33; White *et al.* 2018, pp. 26–27; Sferra *et al.* 2019, pp. 3, 9–11). Riparian (including xeroriparian) trees and large shrubs may be present, but are often sparsely distributed or in a narrow band along the drainage bottom. The hillsides immediately adjacent to the tree-lined drainages range from dense woodlands to sparsely treed savannahs with a variety of grasses, contributing toward foraging and breeding habitat for the western yellow-billed cuckoo (Brown 1994, pp. 59–62; Corman and Magill 2000, pp. 37–48; Westland Resources, Inc. 2013a, pp. 3–5; Westland Resources, Inc. 2013c, pp. 1–9; American Birding Association 2014, entire; Cornell Lab of Ornithology 2015 (eBird data); Arizona Game and Fish Department 2015, entire; MacFarland and Horst 2015, pp. 9–12; Westland Resources, Inc. 2015a, pp. 3–4; Westland Resources, Inc. 2015b, pp. 3–4; Westland Resources, Inc. 2015c, entire; Corson 2018, entire).

In 2015, western yellow-billed cuckoos were found in the Coronado National Forest using the Madrean evergreen woodland drainages dominated by oak trees, often with mesquite trees flanking the riparian strip (MacFarland and Horst 2015, pp. 1, 7). The drainages often merge into the surrounding vegetation of juniper. In the wettest reaches of the drainages, the oaks are interspersed with Arizona sycamore, hackberry, willows, occasionally cottonwoods, and a few other infrequently occurring species such as Arizona ash and Arizona walnut (MacFarland and Horst 2015, p. 1). Total canopy cover in occupied habitat was about 52 percent, with oaks as the predominant overstory species recorded (overall average 35 percent), followed by mesquite (20 percent), and juniper (16 percent). The most frequent riparian overstory species were sycamore (3 percent) followed by hackberry (5 percent) and willow (2 percent). The average height of the most prevalent overstory tree species at each point recorded was 20 ft (6.1 m). Habitat occupied during the breeding season (which we also refer to as territories even though western yellow-billed cuckoos may not defend habitat (Hughes 2015, p. 3)) tended to have a higher percentage of mesquites in the community composition, while unoccupied survey points had a higher percentage of junipers (MacFarland and Horst 2015, pp. 9–10). Western yellow-billed cuckoo detections ranged in elevation from 3,564 to 5,480 ft (1,086 to 1,670 m) (MacFarland and Horst 2015, p. 10).

Few western yellow-billed cuckoo detection records in southwestern New Mexico exist between 1998 and 2014 in Madrean evergreen woodland and mesquite woodlands (including other thorn trees and shrubs) habitat similar to southeastern Arizona (Cornell Lab of Ornithology 2016 (eBird)). Much of the southwestern New Mexico habitat is privately owned and is not visited as frequently by birders as is southeastern Arizona. No

protocol surveys have been conducted in these areas. Based on the best available survey information, we have not identified confirmed breeding or breeding occupancy in Madrean evergreen woodland and mesquite woodlands in New Mexico. Therefore, no critical habitat is proposed in similar southwestern habitat in southwestern New Mexico because it does not meet our conservation strategy for designating critical habitat.

Tamarisk. Tamarisk, also known as saltcedar, is a common nonnative shrubby tree found occurring along or within stream courses in western yellow-billed cuckoo riparian habitat in southwestern breeding habitat. Tamarisk, as a component of wildlife habitat, is often characterized as being poor habitat for many species of wildlife, but it can be a valuable substitute where the hydrology has been altered to the extent that native woodland habitat can no longer exist (Service 2002, pp. K-11–K-14; Sogge *et al.* 2008, pp. 148–152; Shafroth *et al.* 2010b, entire). The spread of tamarisk and the loss of native riparian vegetation is primarily a result of land and water management actions. Tamarisk does not invade and out-compete native vegetation in the Southwest (Service 2002, p. H-11). Rather, human actions have facilitated tamarisk dispersal to new locales, and created opportunities for its establishment by clearing vegetation, modifying physical site conditions, altering natural river processes, and disrupting biotic interactions (Service 2002, p. H-11). Because the presence and relative dominance of tamarisk is greatly influenced by hydrologic regime and depth to groundwater, native riparian vegetation in tamarisk-dominated systems is unlikely to reestablish unless the hydrologic regime is restored (Stromberg *et al.* 2007, pp. 381–391).

Johnson *et al.* (2008a, pp. 203–204) conducted Arizona surveys in historically occupied western yellow-billed cuckoo riparian habitat in the late 1990s and found 85

percent of all western yellow-billed cuckoo detections in habitat dominated by cottonwood with a strong willow and mesquite understory, 11.5 percent within mixed native and tamarisk habitats, 3.5 percent within mixed native and Russian olive habitats, and only 5 percent within tamarisk-dominated habitats (Johnson *et al.* 2010, pp. 204–205). Even in the tamarisk-dominated habitat, cottonwoods were still present at all but two of these sites.

Although tamarisk monocultures generally lack the structural diversity of native riparian habitat, western yellow-billed cuckoos may use these areas for foraging, dispersal, and breeding, especially if the tamarisk-dominated sites retain some native trees. Tamarisk contributes cover, nesting substrate, temperature amelioration, increased humidity, and insect production where native habitat regeneration and survivability has been compromised by altered hydrology (e.g., reduced flow or groundwater availability) and hydrologic processes (e.g., flooding and sediment deposition). In parts of the western yellow-billed cuckoo's range, some tamarisk-dominated sites are used for nesting and foraging including parts of the Bill Williams, Verde, Gila, Salt, and Rio Grande Rivers (Groschupf 1987, pp. 9, 15; Corman and Magill 2000, pp. 11, 14–16, Leenhouts *et al.* 2006, p. 15; Sogge *et al.* 2008, p. 148; Sechrist *et al.* 2009, p. 55; Dockens and Ashbeck 2011a, pp. 1, B-26; Dockens and Ashbeck 2011b, pp. 8, D-2; Jarnevich *et al.* 2011, p. 170; McNeil *et al.* 2013b, p. I-1; Arizona Game and Fish Department 2014, pp. 1–5; Jakle 2014, entire; Orr *et al.* 2014, p. 25; Salt River Project 2014, entire; Service 2014, p. 63; Arizona-Sonora Desert Museum 2016, entire; Dillon *et al.* 2018 pp. 31–33; White *et al.* 2018 pp. 26–27; and Parametrix, Incorporated (Inc.) and Southern Sierra Research Station 2019, p. 5-1).

Past restoration efforts favored nonnative tamarisk removal without regard for its habitat suitability for the western yellow-billed cuckoo. In areas where tamarisk is a major component (or part of the understory), its removal may not be appropriate or recommended because western yellow-billed cuckoo habitat selection may be based on overstory/understory structure and not on specific vegetation types (Sechrist *et al.* 2009, p. 53). In some areas, if tamarisk is removed, the remaining habitat may be rendered unsuitable because it is more exposed, hotter, and drier.

Another issue in regards to tamarisk is the introduction of biocontrol agents to remove tamarisk. In 2001, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) released various species of the nonnative tamarisk leaf beetle (*Diorhabda* sp.) in an effort to control tamarisk invasion (APHIS 2005, p. 4-5). Since 2001, the tamarisk leaf beetle has expanded rapidly and its distribution now encompasses much of the western United States (RiversEdge West, 2018, entire). This expansion of tamarisk defoliation will lead to habitat degradation and may render areas unsuitable for occupancy by the western yellow-billed cuckoo (Sogge *et al.* 2008, p. 150). Defoliation during the breeding season also exposes eggs and nestlings to heat exposure and predation from decreased cover, as was documented in 2008 in St. George, Utah, with the exposure-caused failure of an active southwestern willow flycatcher nest (Paxton *et al.* 2011, p. 257). In defoliated areas of the Rio Grande, canopy cover was still within the natural range of variation; however, the canopy cover was composed of dead leaves as opposed to live leaves, which changed the microclimate (Dillon and Ahlers 2018, pp. 26–27). Ultimately, the sampled areas with the most tamarisk and subsequent defoliation activity reflected the areas with the highest temperature extremes (Dillon and Ahlers

2018, pp. 26–27).

Some tamarisk removal and native tree replacement projects are under way to offset the arrival of tamarisk leaf beetles and subsequent defoliation (Service 2016b, pp. 4–15). If these projects are unsuccessful in sustaining native woodland habitat of at least the same habitat value as habitat that was removed, the end result will be a net loss of habitat. Another nonnative species identified as a biocontrol agent, the tamarisk weevil (*Coniatus* sp.) has also been found in the wild in Arizona, California, Nevada, and Utah (Eckberg and Foster 2011, p. 51; Eichhorst *et al.* 2017, entire). The impact of the tamarisk weevil has not been well studied and currently has not been shown to significantly impact tamarisk-dominated habitats used by the western yellow-billed cuckoo.

Breeding (nesting) habitat and home range size. In rangewide western yellow-billed cuckoo habitat, the habitat used for breeding and nesting by the species varies in size and shape. The available information indicates that the species requires large tracts of habitat for breeding and foraging during the nesting season (home range). The larger the extent of habitat, the more likely it will provide suitable habitat for the western yellow-billed cuckoos and be occupied by nesting pairs (Laymon and Halterman 1989, pp. 274–275). Rangewide breeding habitat can be relatively dense contiguous stands or irregularly shaped mosaics of dense vegetation with more sparse or open areas.

Along the Colorado River in California and Arizona, western yellow-billed cuckoos tend to favor larger riparian habitat sites for nesting (Laymon and Halterman 1989, p. 275): sites less than 37 ac (15 ha) are considered unsuitable nesting habitat; sites between 37 ac (15 ha) and 50 ac (20 ha) in size were rarely used as nest sites; and habitat

patches or aggregates of patches from 50 to 100 ac (20 to 40 ha) in size were considered marginal habitat (Laymon and Halterman 1989, p. 275). Habitat areas between 100 ac (40 ha) and 200 ac (81 ha), although considered suitable, are not consistently used by the species in California. The optimal size of habitat patches (aggregates of trees that may be interspersed with openings, sparse understory or canopy, or open floodplains) for the western yellow-billed cuckoo are generally greater than 200 ac (81 ha) in extent and have dense canopy closure and high foliage volume of willows and cottonwoods in at least a portion of the overall habitat patch (Laymon and Halterman 1989, pp. 274–275) and thus provide adequate space for nesting and foraging.

In rangewide riparian breeding habitat and mixed riparian habitat in California, Arizona, and New Mexico, the home ranges used by the western yellow-billed cuckoo during the breeding season varied greatly but averaged over 100 ac (40 ha) (Laymon and Halterman 1987, pp. 31–32; Halterman 2009, p. 93; Sechrist *et al.* 2009, p. 55; McNeil *et al.* 2010, p. 75; McNeil *et al.* 2011, p. 37; McNeil *et al.* 2012, p. 69; McNeil *et al.* 2013a, pp. 133–134; McNeil *et al.* 2013b, pp. 49–52). On the Rio Grande in New Mexico, Sechrist *et al.* (2009, p. 55) estimated a large variation in home range size, ranging from 12 to 697 ac (5 to 282 ha), and averaging 202 ac (82 ha). On the upper San Pedro River in Arizona, Halterman (2009, pp. 67, 93) also estimated a large variation in home range size, ranging from 2.5 to 556 ac (1 to 225 ha), and averaging 126 ac (51 ha). In the intermountain west (Idaho, Utah, Colorado), the western yellow-billed cuckoo breeds in similar habitats as described above but are more scattered and in lower density (Parrish *et al.* 1999, p. 197; Taylor 2000, pp. 252–253; Idaho Fish and Game 2005, entire; Wiggins 2005, p. 15). These measures suggest that the amount of habitat required to support

nesting western yellow-billed cuckoos even in rangewide riparian breeding habitat is variable.

Home range size is unknown in southwestern breeding habitat, including in more xeroriparian woodland, desert scrub and desert grassland drainages with a tree component and in Madrean evergreen woodland. Whether the area is considered marginal, suitable, or optimal depends on numerous factors and is variable across the species' range. Breeding habitat in more arid regions of the Southwest may be made up of a series of adjacent or nearly adjacent habitat patches, less than 200 ac (81 ha) each, which combined make up suitable breeding habitat for the species. Often interspersed with large openings, these habitat patches include narrow stands of trees, small groves of trees, or sparsely scattered trees. For example, in the Agua Fria River in central Arizona, occupied habitat consists not only of mature cottonwood and willow gallery forest (multi-aged and multi-height forest) found in rangewide breeding habitat, but also smaller patches of young willows that are limited to narrow riparian corridors with mesquite on the adjacent terrace characteristic of southwestern breeding habitat (Prager and Wise 2015, p. 13). In the bajadas, foothills, and mountain drainages of southeastern Arizona, scattered overstory trees, small patches of trees, or narrow stands of trees contain suitable breeding habitat (MacFarland and Horst 2015, entire, Corson 2018, pp. 5, 6–20; Sferra *et al.* 2019, entire).

Although large expanses of habitat are better than small patches for the species, small habitat patches should be evaluated when managing for the western yellow-billed cuckoo. The optimal minimum breeding habitat patch size of 200 ac (81 ha) may not be applicable for much of the Southwest, where breeding habitat may be narrower and

patchier and areas of less than 40 ac (16 ha) may be used for breeding (Sechrist *et al.* 2009, p. 55; White *et al.* 2018, pp. 14–37). These smaller sites support fewer western yellow-billed cuckoos, but collectively they may be important for achieving recovery.

Western yellow-billed cuckoos appear to stage in southern Arizona or northern Mexico pre- and post-breeding, suggesting that this region is important to the DPS (McNeil *et al.* 2015, pp. 249, 251). Some individuals also roam widely (several hundred miles), apparently assessing food resources prior to selecting a nest site (Sechrist *et al.* 2012, pp. 2–11). A plausible explanation for prolonged presence in southern Arizona and northwestern Mexico pre- and post-breeding may be that western yellow-billed cuckoos are taking advantage of increased insect production in the monsoonal area. Identifying and maintaining habitat across the species' range is important to allow the species to take advantage of variable environmental conditions for successful breeding opportunities.

Foraging area. Western yellow-billed cuckoos select a nesting site based on optimizing the near-term foraging potential of the neighborhood (Wallace *et al.* 2013a, p. 2102). Given that western yellow-billed cuckoos are larger birds with a short hatch-to-fledge time, the adults must have access to abundant food sources to successfully rear their offspring. Optimal foraging habitat contains a mixture of overstory and understory vegetation (typically cottonwoods and willows) that provides for diversity and abundance of prey. Western yellow-billed cuckoos generally forage within the tree canopy, and the higher the foliage volume the more likely western yellow-billed cuckoos are to use a site for foraging (Laymon and Halterman 1985, pp. 10–12). Foraging areas can be less dense with lower levels of canopy cover and often have a high proportion of cottonwoods in the canopy. Foraging areas can also include riparian habitat with a high abundance of

tamarisk.

The foraging distance and size of foraging habitat required by western yellow-billed cuckoo varies on prey availability and other environmental conditions and may vary annually and from site to site. A foraging area during the breeding season may overlap with other western yellow-billed cuckoo foraging areas if multiple nest sites are within a single area. Hughes (2015, p. 3) suggests that adjacent nesting western yellow-billed cuckoos use time spacing (i.e., no overlap in egg dates) to partition resources, allowing many nesting pairs to share localized short-term abundance of food. In a study in rangewide breeding habitat in the Sacramento Valley, California, the mean size of foraging areas for 4 pairs of western yellow-billed cuckoos was approximately 48 ac (19 ha) (range 27 to 70 ac (11 to 28 ha)) of which about 25 ac (10 ha) was considered usable habitat for foraging (Laymon 1980, p. 20; Hughes 1999, p. 7).

In the southwestern United States and northern Mexico, western yellow-billed cuckoo foraging habitat is usually more arid than adjacent occupied nesting habitat. Western yellow-billed cuckoos not only forage within woodland breeding habitat, but they also forage in almost any adjacent habitat. Desert vegetation in intermittent and ephemeral drainages or adjacent upland areas may require direct precipitation to flourish (Wallace *et al.* 2013a, p. 2,102). Other desert areas with spring-fed habitat may provide similar habitat conditions. Both are important features of western yellow-billed cuckoo foraging habitat in the arid Southwest. In Arizona and New Mexico, adjacent foraging habitat includes several types of semidesert scrub, desert scrub, chaparral, semidesert grassland, and desert grassland (Brown and Lowe 1982, entire; Brown 1994, entire; Brown *et al.* 2007, pp. 4–5). An exception to the habitat characteristics identified above

occurs in New Mexico along the Rio Grande, where 29 percent of all estimated territories in the period 2009–2014 were located in understory vegetation (considered less than 6 m (15 ft) in height) that lacked a canopy component (considered less than 25 percent cover), but included a New Mexico olive (*Forestiera neomexicana*) component (Hamilton 2014, p. 3-84). Of these understory areas, roughly half were dominated by exotic species (primarily tamarisk) (Carstensen *et al.* 2015, pp. 57–61). Western yellow-billed cuckoos in New Mexico have also been observed foraging in adjacent habitat up to 0.5 mi (0.8 km) away from nest sites (Sechrist *et al.* 2009, p. 49). In the intermountain west (Idaho, Utah, Colorado), the western yellow-billed cuckoo breeds in similar habitats as described above but are more scattered and in lower density (Parrish *et al.* 1999, p. 197; Taylor 2000, pp. 252–253; Idaho Fish and Game 2005, entire; Wiggins 2005, p. 15).

Movement corridors and connectivity of habitat. The western yellow-billed cuckoo is a neotropical migratory species that travels between North, Central, and South America each spring and fall (Sechrist *et al.* 2012, p. 5; McNeil *et al.* 2015, p. 244; Parametrix, Inc. and Southern Sierra Research Station 2019, pp. 97–108). As such, it needs movement corridors of linking habitats and stop-over sites along migration routes and between breeding areas (Faaborg *et al.* 2010, pp. 398–414; Allen and Singh 2016, p. 9). During movements between nesting attempts, western yellow-billed cuckoos have been found at riparian sites with small groves or strips of trees, sometimes less than 10 ac (4 ha) in extent (Laymon and Halterman 1989, p. 274). The habitat features at stop-over and foraging sites are typically similar to the features at breeding sites, but may be smaller in size, may be narrower in width, and may lack understory vegetation. Western yellow-billed cuckoos may be using nonbreeding areas as staging areas or taking

advantage of local foraging resources (Sechrist *et al.* 2012, pp. 7–9; McNeil *et al.* 2015, pp. 250–252). As a result, western yellow-billed cuckoos use nonbreeding or intermittently used breeding areas as staging areas, movement corridors, connectivity between habitats, or foraging sites (taking advantage of local foraging resources). However, because these nonbreeding habitat areas are not limiting, we have not specifically identified them as critical habitat.

Therefore, based on the information above, for the majority of habitat within the species' range, we identify rivers and streams of lower gradient and more open valleys with a broad floodplain, containing riparian woodland habitat with an overstory and understory vegetation component made up of various plant species (most often dominated by willow or cottonwood) to be physical or biological features essential to the conservation of the western yellow-billed cuckoo. In more arid regions of the southwestern United States, we also identify reaches of more xeroriparian habitat (including mesquite bosques), desert scrub, and desert grassland drainages with a tree component, and Madrean evergreen woodland drainages in low- to high-gradient drainages to be a physical or biological feature essential to the conservation of this species. These habitat types provide space for breeding, nesting, and foraging for the western yellow-billed cuckoo. These habitat features also provide for migratory or stopover habitat and movement corridors for the western yellow-billed cuckoo.

Food, Water, Air, Light, Minerals, or Other Nutritional or Physiological Requirements

Food. Western yellow-billed cuckoos eat large insects but also prey on small vertebrates such as frogs (e.g., *Hyla* spp.; *Pseudacris* spp.; *Rana* spp.) and lizards (e.g., *Lacertilia* sp.) (Hughes 1999, p. 8). The diet of the western yellow-billed cuckoo on the

South Fork Kern River in California showed the majority of the prey to be the big poplar sphinx moth larvae (*Pachysphinx occidentalis*) (45 percent), tree frogs (24 percent), katydids (22 percent), and grasshoppers (Order *Othoptera*) (9 percent) (Laymon and Halterman 1985, pp. 10–12; Laymon *et al.* 1997, p. 7). Minor prey at that site and other sites includes beetles (Order *Coleoptera* sp.), dragonflies (Order *Odonata*), praying mantis (Order *Mantidae*), flies (Order *Diptera*), spiders (Order *Araneae*), butterflies (Order *Lepidoptera*), caddis flies (Order *Trichoptera*), crickets (Family *Gryllidae*), and cicadas (Family *Cicadidae*) (Laymon *et al.* 1997, p. 7; Hughes 1999, pp. 7–8). In Arizona, cicadas are an important food source (Halterman 2009, p. 112). Western yellow-billed cuckoos on the Buenos Aires National Wildlife Refuge in Arizona were observed eating tent caterpillars, caterpillars of unidentified species, katydids, and lizards (Griffin 2015, pp. 19–20). At upper Empire Gulch in southeastern Arizona, a western yellow-billed cuckoo was photographed in a tree in gallery riparian forest with a leopard frog (*Rana* spp.) in its bill on July 21, 2014 (Barclay 2014, entire; Leake 2014a, b, entire). In the intermountain west (Idaho, Utah, Colorado), the western yellow-billed cuckoo feeds on similar insect species (Parrish *et al.* 1999, p. 197; Idaho Fish and Game 2005, p. 2; Wiggins 2005, p. 18).

Western yellow-billed cuckoos depend on an abundance of large, nutritious insect and vertebrate prey to survive and raise young. In portions of the southwestern United States, high densities of prey species may be seasonally found, often for brief periods of time, during the vegetation growing season. The arrival and nesting of western yellow-billed cuckoos typically coincides with the availability of prey, which is later than in the eastern United States (eBird data). Desiccated riparian sites produce fewer suitable

insects than moist sites. In areas that typically receive rains during the summer monsoon, an increase in humidity, soil moisture, and surface water flow are important triggers for insect reproduction and western yellow-billed cuckoo nesting (Wallace *et al.* 2013a, p. 2,102). Western yellow-billed cuckoos select a nesting site based on optimizing the near-term foraging potential of the habitat (Wallace *et al.* 2013a, p. 2,102). Given that western yellow-billed cuckoos are large birds with a short hatch-to-fledge time, the adults must have access to abundant food sources to successfully rear their offspring (Laymon 1980, p. 27). The variability of monsoon precipitation across a region may result in areas with favorable conditions for western yellow-billed cuckoo nesting in one year and less favorable in a different year. In years of high insect abundance, western yellow-billed cuckoos lay larger clutches (three to five eggs rather than two), a larger percentage of eggs produce fledged young, and they breed multiple times (two to three nesting attempts rather than one) (Laymon *et al.* 1997, pp. 5–7).

Therefore, we identify the presence of abundant, large insect fauna (e.g., cicadas, caterpillars, katydids, grasshoppers, crickets, large beetles, dragonflies, and moth larvae) and small vertebrates (frogs and lizards) during nesting season of the western yellow-billed cuckoo to be a physical or biological feature essential to the conservation of the species.

Water and humidity. Rangelwide breeding habitat for western yellow-billed cuckoo is largely associated with perennial rivers and streams that support the expanse of vegetation characteristics needed by breeding western yellow-billed cuckoos. Throughout the western yellow-billed cuckoo's range, winter precipitation (as rain or snow) provides water flow to the larger streams and rivers in the late spring and summer. In southwestern

breeding habitat, western yellow-billed cuckoos also breed in ephemeral and intermittent drainages, some of which are associated with monsoonal precipitation events. Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary between years. At some locations during low rainfall years, water flow may be reduced or absent, or soils may not become saturated at appropriate times. During high rainfall years, streamflow may be extensive and the riparian vegetation can be inundated and soil saturated for extended periods of time.

The North American Monsoon (monsoon) is a large-scale weather pattern that causes high humidity and a series of thunderstorms during the summer in northwestern Mexico and the southwestern United States (Erfani and Mitchell 2014, pp. 13,096–13,097; National Weather Service 2019, p. 4). It supplies about 60–80 percent of the annual precipitation for northwestern Mexico, 45 percent for New Mexico, and 35 percent for Arizona (Erfani and Mitchell 2014, p. 13,096). The monsoon typically arrives in early to mid-July in Arizona and New Mexico, where much of the rainfall occurs in the mountains (Erfani and Mitchell 2014, pp. 13,096–13,097; National Weather Service 2019, p. 2). The southwestern United States, at the northern edge of the monsoon's range, receives less and more variable rainfall than northwestern Mexico (National Weather Service 2019, p. 2).

Humid conditions created by the North American Monsoon (Erfani and Mitchell 2014, pp. 13,096–13,097; National Weather Service 2019, p. 2) and related surface and subsurface moisture appear to be important for the western yellow-billed cuckoo. The species is restricted to nesting in moist riparian habitat or in drainages that bisect semi-desert, desert grasslands, semi-desert, desert scrub, and Madrean evergreen woodland in

the portions of the western United States and northern Mexico because of humidity requirements for successful hatching and rearing of young (Hamilton and Hamilton 1965, p. 427; Gaines and Laymon 1984, pp. 75–76; Rosenberg *et al.* 1991, pp. 203–204; Corman and Magill 2000, pp. 37–48; Westland Resources, Inc. 2013a, pp. 3–5; Westland Resources, Inc. 2013c, pp. 1–9; American Birding Association 2014, entire; Arizona Game and Fish Department 2018, entire; Cornell Lab of Ornithology 2018, (eBird data); Westland Resources, Inc. 2015a, pp. 3–4; Service 2018, entire).

Western yellow-billed cuckoos have evolved larger eggs and thicker eggshells, which help them cope with potential higher egg water loss in the hotter, drier conditions of the Southwest (Hamilton and Hamilton 1965, pp. 426–430; Ar *et al.* 1974, pp. 153–158; Rahn and Ar 1974, pp. 147–152). Nest sites have lower temperatures and higher humidity compared to areas along the riparian forest edge or outside the forest (Launer *et al.* 1990, pp. 6–7, 23). Recent research on the lower Colorado River has confirmed that western yellow-billed cuckoo nest sites had significantly higher daytime relative humidity (6–13 percent higher) and significantly lower daytime temperatures (2–4 degrees Fahrenheit (1–2 degrees Celsius) lower) than average forested sites (McNeil *et al.* 2011, pp. 92–101; McNeil *et al.* 2012, pp. 75–83).

Seasonal precipitation results in vegetative regeneration in the intermittent and ephemeral drainages and adjacent desert scrub, desert grassland, and Madrean evergreen woodlands of the southwestern United States. High summer monsoonal humidity and rain lead to summer flow events in drainages and increased vegetative growth and associated insect production during the breeding season. The North American Monsoon promotes growth of shallow-rooted understory vegetation in mesquite-dominated woodlands,

Madrean evergreen woodlands, desert scrub drainages, desert grassland drainages, and adjacent desert and grassland vegetation (Brown 1994, pp. 59–62; Wallace *et al.* 2013a, p. 2,102). The hydrologic processes in Madrean evergreen woodlands, semi-desert and desert scrub drainages, and semi-desert and desert grassland drainages of southeastern Arizona are different than the rest of the range of the western yellow-billed cuckoo. These upland habitats on gently rolling hillsides are interspersed with intermittent or ephemeral drainages. Humidity brought on by the summer monsoon may be an especially important trigger for breeding western yellow-billed cuckoos in this otherwise dry landscape.

Nesting continues through August and frequently into September in southeastern Arizona, likely in response to the increased food resources associated with the seasonal summer rains (Corman and Wise-Gervais 2005, p. 202). For example, the big poplar sphinx moth is an earth pupator (larvae burrow in the ground, and pupae emerge under certain environmental conditions) (Oehlke 2017, p. 5). The sphinx moth has a receptor that detects the water content of air to sense changes in humidity and when conditions are favorable for feeding and breeding (McFarland 1973, pp. 199–208; von Arx *et al.* 2012, p. 9,471). In riparian woodland habitat soil, moisture and humidity cue the sphinx moths to emerge. In Arizona, summer monsoonal precipitation mimics typical riparian woodland soil moisture conditions, which cue the sphinx moth to emerge from the soil. Although sphinx moths are just one of the foods eaten by western yellow-billed cuckoos, we use these moths to illustrate that the unique monsoonal conditions in southeastern Arizona contributing toward food production are an important factor in western yellow-billed cuckoo presence in southeastern Arizona.

A large proportion of the remaining occupied habitat persists in hydrologically altered systems in the Southwest where the timing, magnitude, and frequency of natural flow have changed (Service 2002, pp. J1–J34). Hydrologically altered systems, with less dynamic riverine process than unaltered systems, can support suitable western yellow-billed cuckoo habitat if suitable woodland vegetation as described above is present. As discussed above and in the October 3, 2014, *Federal Register* listing the western yellow-billed cuckoo (79 FR 59992), human actions have cleared vegetation, modified physical site conditions, altered natural river processes, and disrupted biotic interactions along much of the western yellow-billed cuckoo habitat in the west (Service 2002, p. H-11). In the intermountain west (Idaho, Utah, Colorado), similar losses and degradation of habitat have occurred (Parrish *et al.* 1999, pp. 200–201; Idaho Fish and Game 2005, p. 3; Wiggins 2005, pp. 22–27). Habitat conditions are greatly influenced by hydrologic regime and depth to groundwater, and native riparian vegetation in altered systems is unlikely to reestablish unless the hydrologic regime is restored (Stromberg *et al.* 2007, pp. 381–391). However, these altered systems, which often cannot support the native plant species and structural diversity of unaltered systems, can support more adapted nonnative tree species like tamarisk or Russian olive. Western yellow-billed cuckoos occupy nonnative habitat interspersed with native habitat on the Colorado, Bill Williams, Verde, Gila, Santa Cruz, San Pedro, and Rio Grande Rivers (Corman and Magill 2000, pp. 15–16, 37–48; Sonoran Institute 2008, pp. 30–34; Dockens and Ashbeck 2011a, p. 6; Dockens and Ashbeck 2011b, p. 10; McNeil *et al.* 2013b, p. I-1; Arizona Game and Fish Department 2016, entire; Parametrix, Inc. and Southern Sierra Research Station 2019, p. 5-1).

Subsurface hydrologic conditions are equally important to surface water conditions in determining riparian vegetation patterns. Depth to groundwater plays an important part in the distribution of riparian vegetation and western yellow-billed cuckoo habitat. Riparian forest trees need access to shallow groundwater to grow to the appropriate size and density to provide habitat for nesting, foraging, and migrating western yellow-billed cuckoos. Goodding's willows and Fremont cottonwoods do not regenerate successfully if the groundwater levels fall below 6 ft (2 m) from the surface (Shafroth *et al.* 2000, pp. 66–75). Goodding's willows cannot survive if groundwater levels drop below 10 ft (3 m), and Fremont cottonwoods cannot survive if groundwater drops below 16 ft (5 m) (Stromberg and Tiller 1996, p. 123). Abundant and healthy riparian vegetation decreases and habitat becomes stressed and less productive when groundwater levels are lowered (Stromberg and Tiller 1996, pp. 123–127).

Therefore, based on the information above, we identify seasonally or perennially flowing rivers, streams, and drainages; elevated subsurface groundwater tables; vegetative cover that provides important microhabitat conditions for successful breeding and prey (high humidity and cooler temperatures); seasonal precipitation (winter and summer) in the Southwest; and high summer humidity as physical and biological features essential to the conservation of the western yellow-billed cuckoo.

Conditions for germination and regeneration of vegetation. The abundance and distribution of fine sediment deposited on floodplains during flood events is critical for the development, abundance, distribution, maintenance, and germination of riparian tree species. This sediment deposition must be accompanied by sufficient surface moisture for seed germination and sufficient groundwater levels for survival of seedlings and saplings

(Stromberg 2001, pp. 27–28). The lack of stream flow processes, which deposit such sediments and clear out woody debris, may lead riparian forested areas to senesce (age and become less productive) and to become degraded and not able to support the varied vegetative structure required for western yellow-billed cuckoo nesting and foraging.

In unmanaged hydrologic systems (natural riverine systems), associated with rangewide breeding habitat, this variability of water flow results in removal of stream banks and deposition of soil and sediments. These sediments provide areas for vegetation (especially cottonwood and willow) to colonize and provide diverse habitat for the western yellow-billed cuckoo. In managed hydrologic systems (systems controlled by dams), stream flow is often muted and does not provide the magnitude of these removal and deposition events except during flood events depending on stream-bank composition (Fremier *et al.* 2014, pp. 4–6). However, if these systems are specifically managed to mimic more natural conditions, some removal and deposition can occur. The range and variation of stream flow frequency, magnitude, duration, and timing that will establish and maintain western yellow-billed cuckoo habitat can occur in both managed and unmanaged flow conditions depending on the interaction of the water feature and its floodplain or the physical characteristics of the landscape.

However, successional vegetation change that produces suitable habitat consisting of varied vegetative structure can also occur in managed river and reservoir systems (and in human-altered river systems) when managed to mimic natural stream flows, but sometimes with different vegetation species composition, at different timing, frequency, and magnitude than natural riverine systems. For example, varying amounts of western yellow-billed cuckoo habitat are available from month-to-month and year-to-year as a

result of dam operations. During dry years, when lake levels may be low, vegetation can be established and mature into habitat for the western yellow-billed cuckoo. In wet years, this vegetation can be flooded for extended periods of time and be stressed or killed. This is particularly true of areas upstream of reservoirs like Lake Isabella in California, Roosevelt and Horseshoe Reservoirs in Arizona, and Elephant Butte Reservoir in New Mexico, all of which have relatively large western yellow-billed cuckoo populations. The filling and draw-down of reservoirs often mimics the flooding and drying events associated with intact riparian woodland habitat and river systems providing habitat for the western yellow-billed cuckoo.

In southern Arizona and New Mexico, where water is less available and releases do not mimic the natural hydrograph, riparian habitat is often narrower, patchier, sparser, and composed of more xeroriparian and nonriparian trees and large shrubs than in a free flowing river. Habitat regeneration opportunities occur less frequently than in natural systems or managed systems that mimic the natural hydrograph. Prolonged drying and flooding from reservoir management can also affect food resources and habitat suitability for western yellow-billed cuckoos. For example, food availability is affected when prolonged inundation reduces survivability of ground-dwelling insects such as sphinx moth pupa or katydid eggs (Peterson *et al.* 2008, pp. 7–9). Likewise, prolonged drying reduces the vegetation available for prey insects to consume, so less insect biomass is available for western yellow-billed cuckoos.

In the southwestern United States, the North American Monsoon season, which peaks in July and August when western yellow-billed cuckoos are breeding, provides about 45 percent and 35 percent of the annual precipitation for New Mexico and Arizona,

respectively (Erfani and Mitchell 2014, p. 13,096). The increased humidity and rains promote rapid and dense herbaceous growth (forbs, grasses, and vines) in occupied habitat in riparian (including xeroriparian) drainages intersecting desert scrub and desert grassland, and Madrean evergreen woodlands. In southeastern Arizona, Madrean evergreen woodland habitat receives half of the annual precipitation during the growing season from May through August (Brown 1994, pp. 60, 62).

Therefore, based on the information above, we identify flowing perennial rivers and streams and deposited fine sediments as physical and biological features essential to the conservation of the western yellow-billed cuckoo. These conditions may occur in either natural or regulated human-altered riverine systems. We also identify intermittent and ephemeral drainages and immediately adjacent upland habitat (which receive moisture as a result of summer monsoon events and other seasonal precipitation) that promote seed germination and regeneration as essential physical or biological features of western yellow-billed cuckoo habitat.

Cover or shelter. Riparian woodland (including mesquite bosques), desert scrub, and desert grassland drainages with a tree component, and Madrean evergreen woodland vegetation provides the western yellow-billed cuckoo with cover and shelter while foraging and nesting. Placing nests in dense vegetation provides cover from predators that would search for adult western yellow-billed cuckoos, their eggs, nestlings, and fledged young. For example, northern harriers (*Circus cyaneus*) prey on western yellow-billed cuckoo nestlings in open riparian vegetation at restoration sites. Dense vegetation in the habitat patch makes it difficult for northern harriers to prey on species like the western yellow-billed cuckoo (Laymon 1998, pp. 12–14). As noted above, shelter

provided by the vegetation also contributes toward providing nesting sites, temperature amelioration, and increased humidity, all of which assist in benefiting the life history of western yellow-billed cuckoo.

Therefore, we identify riparian trees, including but not limited to willow, cottonwood, alder, walnut, sycamore, boxelder, ash, mesquite, and tamarisk, that provide cover and shelter for nesting, foraging, and dispersing western yellow-billed cuckoos as physical or biological features essential to the conservation of the western yellow-billed cuckoo. In more arid riparian woodland, desert scrub, and desert grassland drainages with a tree component, and Madrean evergreen woodland drainages of southeastern Arizona, in addition to the riparian species above we identify oak, upland mesquite, hackberry, sycamore, acacia, juniper, greythorn, mimosa, soapberry, Arizona cypress, desert willow, and pine that provide cover and shelter for nesting, foraging, and dispersing western yellow-billed cuckoos as physical or biological features essential to the conservation of the western yellow-billed cuckoo.

Sites for breeding, reproduction, or rearing (or development) of offspring. Nest site characteristics in rangewide riparian woodland breeding habitat have been compiled from 217 western yellow-billed cuckoo nests on the Sacramento and South Fork Kern Rivers in California, and the Bill Williams and San Pedro Rivers in Arizona. Western yellow-billed cuckoos generally nest in thickets dominated by willow trees along floodplains greater than 200 ac (81 ha) in extent and greater than 325 ft (100 m) in width. Nests are placed on well-foliaged branches closer to the tip of the branch than the trunk of the tree (Hughes 1999, p. 13). Nests are built from 4 ft to 73 ft (1 m to 22 m) above the ground (average 22 ft (7 m)). Nests at the San Pedro River averaged higher (29 ft (9 m))

than either the Bill Williams River (21 ft (6 m)) or the South Fork Kern River (16 ft (5 m)). Nest trees ranged from 10 ft (3 m) to 98 ft (30 m) in height and averaged 35 ft (11 m). In older stands, heavily foliated branches that are suitable for nesting often grow out into small forest openings or over sloughs or streams, making for ideal nest sites. In younger stands, nests are more often placed in vertical forks or tree crotches. Nest sites in rangewide riparian breeding habitat are placed in willows (72 percent of 217 nests), in generally willow-dominated sites. Nests have also been documented in other riparian tree species, including Fremont cottonwood (13 percent), mesquite (7 percent), tamarisk (4 percent), netleaf hackberry (*Celtis laevigata* var. *reticulata*) (2 percent), English walnut (*Juglans regia*) (1 percent), boxelder (less than 1 percent), and soapberry (*Sapindus saponaria*) (less than 1 percent) (Laymon 1980, p. 8; Laymon 1998, p. 7; Hughes 1999, p. 13; Corman and Magill 2000, p. 16; Halterman 2001, p. 11; Halterman 2002, p. 12; Halterman 2003, p. 11; Halterman 2004, p. 13; Corman and Wise-Gervais 2005, p. 202; Halterman 2005, p. 10; Halterman 2007, p. 5; Holmes *et al.* 2008, p. 21).

Canopy cover directly above the nest is generally dense (averages cover is 89 percent) and is denser at the South Fork Kern River (93 percent) and Bill Williams River (94 percent) than at the San Pedro River (82 percent). Canopy closure in a plot around the nest averages 71 percent and was higher at the Bill Williams River (80 percent) than at the South Fork Kern River (74 percent) or San Pedro River (64 percent) (Laymon *et al.* 1997, pp. 22–23; Halterman 2001, pp. 28–29; Halterman 2002, p. 25; Halterman 2003, p. 27; Halterman 2004, p. 42; Halterman 2005, p. 32; Halterman 2006, p. 34). In the intermountain west (Idaho, Utah, Colorado), the western yellow-billed cuckoo breeds in similar habitats as described above but are more scattered and in lower density (Parrish *et*

al. 1999, pp. 196–197; Taylor 2000, pp. 252–253; Idaho Fish and Game 2005, entire; Wiggins 2005, p. 15). Optimal breeding habitat in rangewide riparian breeding habitat contains willow-dominated groves with dense canopy closure and well-foliaged branches for nest building with nearby foraging areas consisting of a mixture of cottonwoods and willows with a high volume of healthy foliage.

In a study on the lower Colorado River, yellow-billed cuckoos nested in cottonwoods (n = 95, 57.5 percent), Goodding's willows (n = 49, 29.7 percent), honey mesquite (*Prosopis glandulosa*) (n = 13, 7.9 percent), tamarisk (n = 5, 3.0 percent), coyote willow (n = 2, 1.2 percent), and seep willow (n = 1, 0.7 percent) (Parametrix, Inc. and Southern Sierra Research Station 2019, Table 24 p. 89). Trees or shrubs used as nest substrates ranged in height from 2.5 m (8.2 ft) to 25.0 m (82 ft) (mean = 12.3 m (40.4 ft)). Nest heights ranged from 1 m (3.3 ft) to 20 m (66 ft) (mean = 7.6 m (24.8 ft)) (Parametrix, Inc. and Southern Sierra Research Station 2019, pp. ES-3, 88). Cottonwood, willow, and mesquite were planted. Tamarisk was not planted and is uncommon within the revegetation sites.

Some historical records document western yellow-billed cuckoo presence during the breeding season in extensive mesquite bosques on the Santa Cruz River and in the semi-desert grasslands and desert scrub xeroriparian drainages of Canelo Hills; and in the Madrean evergreen woodlands mountain drainages of the Atascosa, Pajarito, Santa Rita, Patagonia, Huachuca, and Chiricahua Mountains of Southeastern Arizona (Groschupf 1987, pp. 11, 14, 16; Corman and Magill 2000, pp. 26–29, 37). In Arizona in the late 1990s, western yellow-billed cuckoos were documented in Sycamore Canyon and Pena Blanca Canyon in the Atascosa Mountains, Canelo Hills, and in the desert scrub and

grassland xeroriparian drainages in the Altar Valley on Buenos Aires National Wildlife Refuge (Corman and Magill (2000, pp. 38, 40–44, 48, 51). The first oak nest documented in a Madrean evergreen woodland drainage was found in the lower Santa Rita Mountains in 2014 (Tucson Audubon 2015, p. 44).

In a study to confirm western yellow-billed cuckoo breeding in ephemeral xeroriparian drainages in Madrean evergreen woodland, desert and semi-desert scrub, and semi-desert grassland habitats, 18 nests were found in 15 drainages in the lower Santa Catalina, lower Santa Rita, Patagonia, and lower Atascosa Mountains; and in the bajadas and foothill drainages of Buenos Aires National Wildlife Refuge (Sferra *et al.* 2019, pp. 9–10). Trees where nests were placed varied in size and amount of cover, ranging from small to large trees and from well-concealed nests to partially exposed nests (Service 2018, entire). All but one nest was located along the drainage bottoms (See section on southwestern breeding (nesting) habitat for general Madrean evergreen woodland breeding habitat characteristics).

Therefore, we identify rangewide riparian woodland generally containing willow and cottonwood, usually within floodplains greater than 200 ac (81 ha) in extent and greater than 325 ft (100 m) in width, with one or more densely foliated nesting areas, to be a physical or biological feature essential to the conservation of the species. In some areas, we also identify southwestern breeding habitat (riparian habitat (including xeroriparian and mesquite bosques), desert scrub and desert grassland drainages with a tree component, and Madrean evergreen woodland drainages) that may be less than the 200 ac (81 ha) area, 325 ft (100 m) width with one or more nesting and foraging sites to be a physical or biological feature essential to the conservation of the species.

Effects of climate change. The available information on the effects of climate change has led us to predict that there will be altered environmental conditions across the western United States (the breeding range of the western yellow-billed cuckoo) (Hoerling *et al.* 2012, pp. 3–15). In the southwestern United States, northern Mexico, California, Intermountain West, and Pacific Northwest, climate change information is generally leading us to predict an overall warmer, drier climate, with periodic episodic precipitation events that, depending on site conditions, are expected to have adverse effects on habitat of the western yellow-billed cuckoo (Enquist *et al.* 2008, pp. 1–32; Gardali *et al.* 2012, pp. 8–10; Munson *et al.* 2012, pp. 1,083–1,095). In rivers that depend on snowmelt, these changes are expected to result in more winter flooding and reduced summer stream flows (Dominguez *et al.* 2012, pp. 1–7). The amount of surface and groundwater available to regenerate and sustain riparian forests is expected to decline overall with persistent drought, favor the spread of tamarisk and other nonnative vegetation, and increase fire frequency (Westerling *et al.* 2006, pp. 942–943; McCarthy 2012, pp. 23–25). Precipitation events under most climate change scenarios within the range of the DPS will decrease in frequency and increase in severity (Dominguez *et al.* 2012, pp. 4–7; Melillo *et al.* 2014, pp. 70–81). Impacts to habitat from climate change will exacerbate impacts from impoundments, channelization, and alteration of river flows across the western United States and Mexico, and from conversion of habitat from native to mostly nonnative vegetation (Glenn and Nagler 2005, p. 439; Bradley *et al.* 2009, pp. 1514–1519; IPCC 2014, pp. 4–11).

Changing climate is expected to place added stress on the species and its habitat. This change may reduce available nesting sites and patch size and affect prey abundance

as a result of lower humidity in riparian areas from reduced moisture retention, through periods of prolonged desiccation, and through increased likelihood of scouring flood events (Melillo *et al.* 2014, p. 75). In addition, evidence shows that climate change may disrupt the synchrony of nesting western yellow-billed cuckoos and their food supply, causing further population decline and curtailment of its occupied range (Durst 2004, pp. 40–41; Scott *et al.* 2004, p. 70; Visser and Both 2005, pp. 2,561–2,569). For a more thorough discussion of climate change and the impacts it has on habitat for the western yellow-billed cuckoo, see the final rule to list the species as threatened published in the *Federal Register* on October 3, 2014 (79 FR 59992 at 60023).

Physical or Biological Features for the Western Yellow-billed Cuckoo

According to 50 CFR 424.12(b)(1)(ii), we identify physical and biological features essential to the conservation of the species at an appropriate level of specificity using the best available scientific data. This analysis will vary between species and may include consideration of the appropriate quality, quantity, and spatial and temporal arrangements of such features in the context of the life history, status, and conservation needs of the species.

Based on our current knowledge of the habitat characteristics required to sustain the species' life-history processes including breeding, foraging, and dispersing, we propose to determine that the specific physical or biological features essential to the conservation of the western yellow-billed cuckoo are composed of three components below:

Physical or Biological Feature 1—Riparian woodlands; mesquite woodlands (mesquite-thorn-forest), and Madrean evergreen woodland drainages. This physical or

biological feature includes breeding habitat found throughout the DPS range as well as additional breeding habitat characteristics unique to the Southwest.

a. *Rangewide breeding habitat (including areas in the Southwest)*. Rangewide breeding habitat is composed of woodlands within floodplains or in upland areas or terraces often greater than 325 ft (100 m) in width and 200 ac (81 ha) or more in extent with an overstory and understory vegetation component in contiguous or nearly contiguous patches adjacent to intermittent or perennial watercourses. The slope of the watercourses is generally less than 3 percent but may be greater in some instances. Nesting sites within the habitat have an above-average canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

b. *Southwestern breeding habitat*. Southwestern breeding habitat is composed of more arid riparian woodlands (including mesquite bosques), desert scrub and desert grassland drainages with a tree component, and Madrean evergreen woodlands (oak and other tree species), in perennial, intermittent, and ephemeral drainages. These more arid riparian woodland drainages also bisect other habitat types, including Madrean evergreen woodland, native and nonnative desert grassland, and desert scrub. More than one habitat type within and adjacent to the drainage may contribute toward nesting habitat. Southwestern breeding habitat is more water-limited, contains a greater proportion of xeroriparian and nonriparian plant species, and is often narrower, more open, patchier, or sparser than elsewhere in the DPS and may persist only as narrow bands or scattered patches along the bankline or as small in-channel islands. The habitat contains a tree or large-shrub component with a variable overstory canopy and understory component that

is sometimes less than 200 ac (81 ha). Riparian trees (including xeroriparian) in these ecosystems may even be more sparsely distributed and less prevalent than nonriparian trees. Adjacent habitat may include managed (mowed) nonnative vegetation or terraces of mesquite or other drought-tolerant species within the floodplain. In narrow or arid ephemeral drainages, breeding habitat commonly contains a mix of nonriparian vegetation found in the base habitat as well as riparian (including xeroriparian) trees.

Physical or Biological Feature 2—Adequate prey base. Presence of prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies, moth larvae, spiders), lizards, and frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

Physical or Biological Feature 3—Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat. This physical or biological feature includes hydrologic processes found in rangewide breeding habitat as well as additional hydrologic processes unique to the Southwest in southwestern breeding habitat:

a. Rangewide breeding habitat hydrologic processes (including the Southwest): Hydrologic processes (either natural or managed) in river and reservoir systems that encourage sediment movement and deposits and promote riparian tree seedling germination and plant growth, maintenance, health, and vigor (e.g., lower-gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). In some areas where habitat is being restored, such as on terraced

slopes above the floodplain, this may include managed irrigated systems that may not naturally flood due to their elevation above the floodplain.

b. Southwestern breeding habitat hydrologic processes: In southwestern breeding habitat, elevated summer humidity and runoff resulting from seasonal water management practices or weather patterns and precipitation (typically from North American Monsoon or other tropical weather events) provide suitable conditions for prey species production and vegetation regeneration and growth. Elevated humidity is especially important in southeastern Arizona, where cuckoos breed in intermittent and ephemeral drainages.

Because the western yellow-billed cuckoo exists in noncontiguous areas across a wide geographical and elevational range and its habitat is subject to dynamic events, the areas described below are essential to the conservation of the western yellow-billed cuckoo because they provide opportunities for breeding, allow for connectivity between habitat, assist in dispersal, provide redundancy to protect against catastrophic loss, and provide representation of the varying habitat types used for breeding, thereby helping to sustain the species. The physical or biological features essential to the conservation of the western yellow-billed cuckoo are present in the areas proposed to be designated, but the specific quality of habitat for nesting, migration, and foraging will vary in condition and location over time due to plant succession and the dynamic environment in which they exist. As a result, the areas that are proposed for designation may not contain at any one time all of the physical and biological features that have been identified for the western yellow-billed cuckoo, but all areas contain at least one.

We define revised proposed critical habitat as areas that contain at least physical or biological feature number 1 (including mesquite bosques); desert scrub and desert

grassland drainages with a tree component; or Madrean evergreen woodland drainages. Based on use of the areas as breeding, we conclude that all of the areas identified contain all or most of the physical or biological features, but in some cases, these features are less prevalent, or their presence is variable over time due to the changing nature of habitat from hydrologic processes. As stated above, all critical habitat units within the revised proposed critical habitat are considered to have been occupied at the time of listing.

Special Management Considerations or Protection

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features that are essential to the conservation of the species and which may require special management considerations or protection. Here we describe the type of special management considerations or protection that may be required for the physical or biological features identified for the western yellow-billed cuckoo above. The specific critical habitat units and subunits where these management considerations or protection are identified in table 2 below.

A detailed discussion of activities influencing the western yellow-billed cuckoo and its habitat can be found in the final listing rule (79 FR 59992, October 3, 2014). The above-described physical or biological features (PBFs) may require special management considerations or protection to reduce the following threats or potential threats:

Disruption of hydrologic processes that are necessary to maintain a healthy riparian system; unauthorized or uncontrolled grazing; loss of habitat from development activities and extractive uses (sand or gravel extraction); degradation of habitat as a result of expansion of nonnative vegetation; destruction of habitat by uncontrolled wildfire;

reduction of prey insect abundance by the unauthorized or improper application of pesticides; removal of habitat by biocontrol insects; and habitat loss and degradation from invasive nonnative pest insects. More specific activities which may need special management are identified in table 2, below.

Special management considerations or protection are required within critical habitat areas to address these threats. Management activities that could ameliorate these threats include (but are not limited to) the following: Monitoring and regulating stream flows below reservoirs to mimic natural flooding and other hydrologic processes to help maintain habitat; establishing permanent conservation easements or land acquisition to protect the species and its habitat; minimizing habitat disturbance, fragmentation, and destruction through use of best management practices; and providing appropriate buffers around western yellow-billed cuckoo habitat.

Changes Between Previous Proposal and Current Revised Proposal

On August 15, 2014, we proposed approximately 546,335 ac (221,094 ha) in 80 units for the western yellow-billed cuckoo (79 FR 48548). We are now proposing approximately 493,665 ac (199,779 ha) in 72 units as critical habitat in Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah. Approximately 164,248 ac (66,484 ha) of areas previously proposed as critical habitat are no longer being proposed as critical habitat (30 percent reduction of previous proposal). Based on new information and our conservation strategy, we are also proposing new areas totaling approximately 26,061 ac (10,547 ha) (5 percent). The remainder 467,604 ac (189,233 ha) are areas we previously proposed in 2014. This change and other changes below were partly the result of comments and information received on the previous proposal (from peer reviewers;

Federal, State, and local land management agencies; and the public), corrections, and our reevaluation of the areas considered as essential to the conservation of the species. The comments and information received on the 2014 proposal are available online at <https://www.regulations.gov/docket?D=FWS-R8-ES-2013-0011>. Summaries of more specific changes are outlined below.

(1) *Revision of the Physical or Biological Features:* As outlined above in the **Critical Habitat** section, we revised our definition of the physical or biological features essential to the conservation of the species to describe and incorporate more accurately the habitat used by the western yellow-billed cuckoo for breeding, especially in the monsoonal breeding habitat. These changes were made as a result of comments received on habitat use of the western yellow-billed cuckoo and a reevaluation of the types of habitat used and habitat requirements of the western yellow-billed cuckoo across its range, specifically in regard to western yellow-billed cuckoos using monsoonal type habitats in addition to what has been considered more typical riparian habitats. Because of the variable ecological conditions, characteristics, and use of habitat by the western yellow-billed cuckoo across the species' range, information obtained from the comments received indicated that we needed to be more specific about the habitat differences and habitat requirements for the species and include that range of habitat in the revised proposal (see **Physical or Biological Features for the Western Yellow-billed Cuckoo**).

(2) *Reevaluation of Conservation Strategy for Determining Critical Habitat:* In development of this revised proposed designation, we reevaluated our conservation strategy for determining which areas to consider as critical habitat for the western yellow-billed cuckoo to better reflect the biological information and conservation needs of the

species (see *Conservation Strategy and Selection Criteria Used To Identify Critical Habitat*). In our reevaluation we took into account the importance of the Southwest as the main breeding area for the western yellow-billed cuckoo as well as including areas of differing habitat and distribution.

(3) *Landownership Identification*: We received numerous comments from Federal, State, local, and private landowners regarding discrepancies in land ownership identifications. In response to these comments, we have attempted to the best of our ability to reconcile these discrepancies by using information provided in the docket or using newer land ownership information where available. We are currently asking for any updated landownership information during the public comment period for this proposed rule (see **Ownership Mapping Considerations**).

Revised Proposed Critical Habitat Designation

We are proposing 72 units as critical habitat for the western yellow-billed cuckoo. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the western yellow-billed cuckoo. Table 1 below identifies the units (in acres (hectares)) within the geographical area occupied by the species at the time of listing that contain the physical or biological features that support multiple life-history processes for the western yellow-billed cuckoo. Land areas identified as “Other” include county, city, unclassified, or unknown land ownerships.

Table 1. Revised proposed critical habitat units for western yellow-billed cuckoo.

UNIT NAME	UNIT	Federal		State		Tribal		Other		Total	
		AC	HA	AC	HA	AC	HA	AC	HA	AC	HA
CA-AZ 1 Colorado River 1	1	31,351	12,687	4,207	1,702	22,315	9,031	24,265	9,820	82,138	33,240
CA-AZ 2 Colorado River 2	2	15,189	6,146	2	1	4,732	1,915	3,668	1,484	23,589	9,546
AZ 1 Bill Williams River	3	2,640	1,068					749	303	3,389	1,371
AZ 2 Alamo Lake	4	1,840	745					953	386	2,793	1,130
AZ 3 Hassayampa River	5	12	5					896	362	908	367
AZ 4 Agua Fria River	6	1,802	729	235	95			1,300	527	3,336	1,350
AZ 5 Upper Verde Creek	7	2,504	1,013	821	332	191	77	2,531	1,024	6,047	2,447
AZ 6 Oak Creek	8	596	241	160	65			1,475	597	2,231	903
AZ 7 Beaver Creek	9	1,491	603			3	1	588	238	2,082	842
AZ 8 Lower Verde/West Clear Ck.	10	570	231	32	13	43	17	1,534	621	2,178	882
AZ 9A Horseshoe Dam	11	2,743	1,110							2,743	1,110
AZ 9B Horseshoe Dam	11	1,194	483					37	15	1,231	498
AZ 10 Tonto Creek	12	2,529	1,023					1,141	462	3,669	1,485
AZ 11 Pinal Creek	13	30	12					389	157	419	169
AZ 12 Bonita Creek	14	828	335					101	40	928	375
AZ 13 San Francisco River	15	1,192	482					135	55	1,327	537
AZ 14 Upper San Pedro River	16	17,958	7,267	1,903	770			11,199	4,532	31,060	12,569
AZ 15 Lower San Pedro/Gila River	17	2,957	1,197	2,282	925	729	295	17,431	7,055	23,400	9,470
AZ 16 Sonoita Creek	18			926	375			1,563	632	2,488	1,007
AZ 17 Upper Cienega Creek	19	4,630	1,874	574	232					5,204	2,106
AZ 18 Santa Cruz River	20	505	204	4	2			9,034	3,656	9,543	3,862
AZ 19 Black Draw	21	896	362	134	54			570	231	1,599	647
AZ 20 Gila River 1	22	779	315	215	87	10,183	4,121	9,547	3,863	20,724	8,387
AZ 21 Salt River	23	2,469	999					121	49	2,590	1,048
AZ 22 Lower Cienega Creek	24			759	307			1,601	648	2,360	955

AZ 23 Blue River	25	1,025	415							1,025	415
AZ 24 Pinto Creek South	26	368	149					5	2	373	151
AZ 25 Aravaipa Creek	27	622	252	116	47	392	159	2,199	890	3,329	1,347
AZ 26 Gila River 2	28	1,953	791	206	83	1,436	581	4,994	2,021	8,588	3,475
AZ 27 Pinto Creek North	29	415	168					12	5	427	173
AZ 28 Mineral Creek	30	1	0	198	80			180	73	380	154
AZ 29 Big Sandy River	31	5,269	2,132	1,453	588	236	96	13,221	5,351	20,179	8,166
NM 1 San Francisco River	32	738	299	10	4			1,291	522	2,039	825
NM 2 Gila River	33	974	394	201	81			3,002	1,215	4,177	1,690
NM 3A Mimbres River	34							260	105	260	105
NM 3B Mimbres River	34							285	115	284	115
NM 4 Upper Rio Grande 1	35					1,313	531	517	209	1,830	741
NM 5 Upper Rio Grande 2	36					1,173	475			1,173	475
NM 6A Middle Rio Grande	37			7	3	6,273	2,539	958	388	7,238	2,929
NM 6B Middle Rio Grande	37	11,802	4,776	21,907	8,865	2,257	913	25,376	10,270	61,343	24,825
NM 7 Upper Gila River	38	1,086	440	188	76			3,453	1,397	4,727	1,913
NM 8A Caballo Delta North	39	190	77							190	77
NM 8B Caballo Delta South	39	155	63							155	63
NM 9 Animas	40							608	246	608	246
NM 10 Selden Cyn/Radium Springs	41	20	8					218	88	237	96
AZ 30 Arivaca Wash/San Luis	42	4,662	1,887	89	36			1,014	410	5,765	2,333
AZ 31 Florida Wash	43	449	182	255	103			43	18	747	302
AZ 32 California Gulch	44	376	152					182	73	558	226
AZ 33 Sycamore Canyon	45	601	243					0	0	601	243
AZ 34 Madera Canyon	46	1,419	574					313	127	1,732	701
AZ 35 Montosa Canyon	47	496	201					3	1	499	202
AZ 36 Patagonia Mountains	48	1,059	429	8	3			845	341	1,912	774

AZ 37 Canelo Hills	49	1,381	559	1	1			1,440	583	2,822	1,142
AZ 38 Arivaca Lake	50	567	229	417	169			381	154	1,365	553
AZ 39 Peppersauce Canyon	51	317	128					32	13	349	141
AZ 40 Pena Blanca Canyon	52	483	196							484	196
AZ 41 Box Canyon	53	317	128	184	74			34	14	536	217
AZ 42 Rock Corral Canyon	54	190	77	25	10					214	87
AZ 43 Lyle Canyon	55	716	290					577	234	1,293	523
AZ 44 Parker Canyon Lake	56	1,424	576					75	31	1,499	607
AZ 45 Barrel Canyon	57	755	306					164	66	920	372
AZ 46 Gardner Canyon	58	4,320	1,748	290	117			471	191	5,081	2,056
AZ 47 Brown Canyon	59	726	294	228	92			159	65	1,113	451
AZ 48 Sycamore Canyon/Patagonia	60	604	245							604	245
AZ 49 Washington Gulch	61	361	146					226	91	587	237
AZ 50 Paymaster Spring/Mowry	62	390	158					512	207	903	365
CA 1 Sacramento River	63	2,123	859	485	197			32,800	13,274	35,406	14,328
CA 2 South Fork Kern River	64	88	35	419	170			2,133	863	2,640	1,068
ID 1 Snake River 1	65	3,694	1,494	1,763	713	2,527	1,023	1,672	676	9,655	3,907
ID 2 Snake River 2	66	5,862	2,372	1,940	785			3,641	1,473	11,442	4,630
ID 3 Henry's Fork/Teton Rivers	67	756	305	511	206			3,374	1,366	4,641	1,878
CO 1 Colorado River	68	32	13	417	169			3,553	1,438	4,002	1,620
CO 2 North Fork Gunnison	69	115	47					2,211	895	2,326	941
UT 1 Green River 1	70	4,657	1,885	4,411	1,785	14,611	5,913	4,702	1,903	28,381	11,486
UT 2 Green River 2	71	40	17	632	256			462	187	1,135	459
TX 1 Terlingue Creek/ Rio Grande	72	7,792	3,153					121	49	7,913	3,202
Totals		168,095	68,023	48,615	19,673	68,414	27,687	208,547	84,397	493,665	199,779

Note: Area sizes do not sum due to rounding.

We also provide information on special management considerations or protection that may be required for the physical or biological features essential to the conservation of the species within each of those units. The special management considerations include actions to address the main threats to western yellow-billed cuckoo habitat and are grouped into three categories: (1) threats from alteration of hydrology; (2) threats from floodplain encroachment; and (3) other identified threats. These threats and special management considerations are summarized in table 2. See end of table for definition of codes.

Table 2. Threats to habitat and potential special management considerations.

Unit	Name of Unit	Threats from Alteration of Hydrology	Threats from Floodplain Encroachment	Other Threats	Special Mgt.
1	CA/AZ-1 Colorado River 1	A, B, C	E, F, G, H, I, J	K, L, M, N, P	R, S, T
2	CA/AZ-2 Colorado River 2	A, B, C	E, F, G, H, I, J	K, L, M, N, P	R, S, T
3	AZ-1 Bill Williams River	A, B, C		K, M, N, P	R, T
4	AZ-2 Alamo Lake	B, C, D	F	K, M, N, P, Q	R, S, T
5	AZ-3 Hassayampa River	B, C	E, F, G, H, I, J	K, L, M, N, P	R, S, T
6	AZ-4 Agua Fria River	A, B, C	F, G, I	K, L, M, N, P	R, S, T
7	AZ-5 Upper Verde River	B, C	F, G, I	K, M, N, P	R, S, T
8	AZ-6 Oak Creek	B, C	F, G, I	K, M, N, P, Q	R, S, T
9	AZ-7 Beaver Creek	B, C	F, G, I	K, M, N, P	R, S, T
10	AZ-8 Lower Verde R./West Clear Creek	A, B, C	F, G, I	K, M, N, P	R, S, T
11	AZ-9A Horseshoe Dam	A, B, C, D	I	K, M, N,P,Q	R, S, T
11	AZ-9B Horseshoe Dam	A, B, C, D	I	K, M, N,P,Q	R, S, T
12	AZ-10 Tonto Creek	B, C, D	F, G, I	K, M, N, P, Q	R, S, T
13	AZ-11 Pinal Creek	B, C	F, G, I, J	K, L, M, N, P	R, S, T
14	AZ-12 Bonita Creek	B, C	F, I	K, M, N, P, Q	R, S, T
15	AZ-13 San Francisco River	B, C	F, I	K, M, N, P	R, S, T
16	AZ-14 Upper San Pedro River	B, C	E, F, G, I	K, L, M, N, P, Q	R, S, T
17	AZ-15 Lower San Pedro and Gila Rivers	A, B, C	E, F, G, H, I	K, L, M, N, P	R, S, T
18	AZ-16 Sonoita Creek	B, C, D	F, G, I	K, M, N, P, Q	R, S, T
19	AZ-17 Upper Cienega Creek	B, C	F, G, I	K, M, N, O, P, Q	R, S, T
20	AZ-18 Santa Cruz River	B, C	E, F, G, H, I	K, L, M, N, P	R, S, T
21	AZ-19 Black Draw	B, C	F	K, M, N, P	R, S, T
22	AZ-20 Gila River 1	A, B, C	E, F, G, H	K, L, M, N, P	R, S, T

23	AZ-21 Salt River	A, B, C, D	F, G, I	K, M, N, P	R, S, T
24	AZ-22 Lower Cienega Creek	B, C	E, F, G, I, J	K, L, M, N, O, P	R, S, T
25	AZ-23 Blue River	A, B, C	G, I, J	K, M, N, P	R, S, T
26	AZ-24 Pinto Creek South	A, B, C	F, G, I, J	K, N, P	R, S, T
27	AZ-25 Aravaipa Creek	B, C	E, F, I, J	K, M, N, P	R, S, T
28	AZ-26 Gila River 2	A, B, C	F, G, I, J	K, N, P	R, S, T
29	AZ-27 Pinto Creek North	B, C	F, I, J	K, N, P	R, S, T
30	AZ-28 Mineral Creek	B, C	E, F	K, O, P, Q	R, S, T
31	AZ-29 Big Sandy River	B, C	E, F, G, I,	K, L, N, P, Q	R, S, T
32	NM-1 San Francisco River	B, C	E, F, G, H, I	K, L, M, N	R, S, T
33	NM-2 Gila River	B, C	E, F, G, I, J	K, L, M, N	R, S, T
34	NM-3A Mimbres River	B, C	F, I	K, M, N	R, S, T
34	NM-3B Mimbres River	B, C	F, I	K, M, N	R, S, T
35	NM-4 Upper Rio Grande 1	A, B, C	E, F, G, H, I	K, L, M, N	R, S, T
36	NM-5 Upper Rio Grande 2	A, B, C	E, F, G, H, I, J	K, L, M, N	R, S, T
37	NM-6A Middle Rio Grande	A, B, C, D	E, F, G, H, I, J	K, L, M, N	R, S, T
37	NM-6B Middle Rio Grande	A, B, C, D	E, F, G, H, I, J	K, L, M, N	R, S, T
38	NM-7 Upper Gila River	B, C	E, F, G, I, J	K, L, M, N	R, S, T
39	NM-8A Caballo Delta North	A, B, C, D	E, F, G, I	K, L, M, N, O, P, Q	R, S, T
39	NM-8B Caballo Delta South	A, B, C, D	E, F, G, I	K, L, M, N, O, P, Q	R, S, T
40	NM-9 Animas	B, C	F	O, P	T
41	NM-10 Selden Canyon and Radium Springs	A, B, C	E, F, G, H, I	L, M, N, O, P, Q	R, S, T
42	AZ-30 Arivaca Wash and San Luis Wash	B, C	F, I	K, M, N, P	R, S, T
43	AZ-31 Florida Wash	B, C	E, F, G, I, J	K, M, N, P	R, S, T
44	AZ-32 California Gulch	B, C	F, G, I	K, M, N, O, P, Q	R, S, T
45	AZ-33 Sycamore Canyon	A, B, C	F, G, I	K, M, N, O, P, Q	R, S, T
46	AZ-34 Madera Canyon	B, C	F, G, I	K, M, N, O, P, Q	R, S, T
47	AZ-35 Montosa Canyon	B, C	F, I	K, M, N, O, P, Q	R, S, T
48	AZ-36 Patagonia Mountains				
49	AZ-37 Canelo Hills				
50	AZ-38 Arivaca Lake	A, B, C	F, G, I, J	K, M, N, O, P, Q	R, S, T
51	AZ-39 Peppersauce Canyon	B, C	F, G, I	K, M, N, O, P, Q	R, S, T
52	AZ-40 Pena Blanca Canyon	B, C	F, I	K, M, N, O, P, Q	R, S, T
53	AZ-41 Box Canyon	B, C	F, G, I	K, M, N, O, P, Q	R, S, T
54	AZ-42 Rock Corral Canyon	B, C	F, I	K, M, N, O, P, Q	R, S, T
55	AZ-43 Lyle Canyon	B, C	F, I	K, M, N, O, P, Q	R, S, T
56	AZ-44 Parker Canyon Lake	A, B, C	F, G, I	K, M, N, O, P, Q	R, S, T
57	AZ-45 Barrel Canyon	A, B, C	F, G, I	K, M, N, O, P, Q	R, S, T
58	AZ-46 Gardner Canyon	B, C	I	K, M, N, O, P, Q	R, S, T
59	AZ-47 Brown Canyon	B, C	F, I	K, N, O, P, Q	R, S, T
60	AZ-48 Sycamore Canyon	B, C	F, I	K, N, O, P, Q	R, S, T
61	AZ-49 Washington Gulch	B, C	F, I	K, N, O, P, Q	R, S, T
62	AZ-50 Paymaster Spring	B, C	F, I	K, N, O, P, Q	R, S, T
63	CA-1 Sacramento River	A, B, C	E, F, G, H, I, J	K, L, M, N	R, S, T
64	CA-2 South Fork Kern River	A, B, C, D	E, F, G, H, I	K, L, M, N	R, S, T
65	ID-1 Snake River 1	A, B, C, D	E, F, G, H, I	K, L, M, N	R, S, T
66	ID-2 Snake River 2	A, B, C	E, F, G, H, I	K, L, M, N	R, S, T

67	ID-3 Henry's Fork and Teton Rivers	A, B, C	E, F, G, H, I	K, L, M, N	R, S, T
68	CO-1 Colorado River	A, B, C	E, F, G, H, I, J	K, L, M, N	R, S, T
69	CO-2 North Fork Gunnison R.	B, C	E, F, G, H, I, J	K, L, M, N	R, S, T
70	UT-1 Green River 1	A, B, C	E, F, G, H, I, J	K, L, M, N	R, S, T
71	UT-2 Green River 2	A, B, C	E, F, G, H, I, J	K, L, M, N	R, S, T
72	TX-2 Terlingua Creek and Rio Grande	A, B, C		K, M, N	R, S, T

Definition of Codes

Threats from alteration of hydrology:

- (A) change in hydrology from upstream dams;
- (B) surface water diversions;
- (C) groundwater extraction; and
- (D) fluctuating reservoir levels.

Threats from floodplain encroachment:

- (E) agricultural activities;
- (F) other development (residential, commercial, etc.);
- (G) bank stabilization;
- (H) levee construction and maintenance;
- (I) road and bridge construction and maintenance; and
- (J) gravel mining.

Other threats:

- (K) overgrazing;
- (L) pesticide drift;
- (M) woodcutting;
- (N) recreational activities (unauthorized off-highway-vehicle use);
- (O) on- or off-site mining (other than gravel mining);

(P) impacts from human-caused wildfires;

(Q) disturbance from human foot traffic, vehicular traffic, and associated noise.

Special management considerations:

(R) manage hydrology to mimic natural flows and floodplain/drainage processes;

(S) prevent encroachment into floodplain/drainage;

(T) control expansion of nonnative vegetation where control benefits native vegetation (the positive and negative impacts of nonnative vegetation removal should be carefully evaluated if it is a component of existing habitat (i.e., tamarisk) in areas of altered hydrology); and

(U) control invasive nonnative pest insects and manage habitat loss and degradation from areas infested.

It should be noted that the effects of climate change may influence streamflow, groundwater, wildfire, nonnative vegetation and other aspects of western yellow-billed cuckoo habitat within the proposed critical habitat. Because climate change is not a single threat but a condition that influences other impacts to habitat, we did not identify climate change as a single threat component.

Unit Descriptions

Below we present brief descriptions of the revised proposed units, their extent, and reasons why they are essential. For readers interested in the underlying information and data supporting these unit descriptions (e.g., cited literature, permit reports, and other survey efforts), these will be included in the supporting materials posted on <http://www.regulations.gov> at Docket No. FWS-R8-ES-2013-0011.

Unit 1: CA/AZ-1 Colorado River 1; Imperial, Riverside, and San Bernardino Counties, California, and Yuma and La Paz Counties, Arizona.

Revised proposed critical habitat Unit CA/AZ-1 is 82,138 ac (33,240 ha) in extent including a 150-mi (242-km) stretch of the Colorado River in Arizona and California. Approximately 31,351 ac (12,687 ha) is in Federal ownership; 4,207 ac (1,702 ha) is in State ownership; 22,315 ac (9,031 ha) is in Tribal ownership; and 24,265 ac (9,820 ha) is in other ownership. This unit contains areas where habitat restoration efforts have been conducted and monitored. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The unit supports a small existing number of breeding western yellow-billed cuckoos. Habitat restoration has been and continues to be implemented at Palo Verde Ecological Reserve and several other locations under the Lower Colorado River Multi-species Conservation Program (Parametrix, Inc. and Southern Sierra Research Station 2016, pp. 1-2). This program includes conservation measures to avoid, minimize, and mitigate the potential effects from water diversions and other covered activities on species and their habitat (Lower Colorado River Multi-Species Conservation Program

2004, pp. 1-4, 1-5). The use of flood irrigation and staggered planting at revegetation sites has produced multi-storied cottonwood and willow habitat. Breeding western yellow-billed cuckoos are colonizing these restoration sites during the breeding season as soon as they provide suitable breeding habitat, often within 2 to 5 years of planting (Parametrix, Inc. and Southern Sierra Research Station 2016, p. 34). The main nesting tree species in this unit include Goodding's willow, Fremont cottonwood, and tamarisk (Parametrix, Inc. and Southern Sierra Research Station 2016, p. 2). Other trees or large shrubs also used for nesting include honey mesquite (*Prosopis glandulosa* and *P. pubescens*), seep willow, and coyote willow (*S. exigua*) (Parametrix, Inc. and Southern Sierra Research Station 2016, p. 2). Altered hydrology has contributed to the establishment of tamarisk. Although tamarisk is not as desirable as native habitat, it contributes toward habitat suitability in areas where the native tree density can no longer be sustained.

Unit 2: CA/AZ-2 Colorado River 2; San Bernardino County, California and Mohave County, Arizona.

Revised proposed critical habitat unit CA/AZ-2 is 23,589 ac (9,546 ha) in extent. It is a 23-mi (37-km)-long continuous segment of the Colorado River between the Interstate 40 Bridge, including Topock Marsh in San Bernardino County, California, and upstream to the Arizona-Nevada border in Mojave County, Arizona. Approximately 15,189 ac (6,146 ha), is in Federal ownership; 2 ac (less than 1 ha) is in State ownership; 4,732 ac (1,915 ha), is in Tribal ownership; and 3,668 ac (1,484 ha) is in other ownership. The site has a small existing number of western yellow-billed cuckoos. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey

component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. Habitat restoration efforts (such as tree planting) to augment existing habitat are currently being implemented within the unit and the habitat is being used by the species. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 3: AZ-1 Bill Williams; Mohave and La Paz Counties, Arizona.

Revised proposed critical habitat unit AZ-1 is 3,389 ac (1,371 ha) in extent and is an 11-mi (18-km)-long continuous segment of the Bill Williams River, a tributary to the Colorado River, from the upstream end of Lake Havasu upstream to Castaneda Wash in Mojave and La Paz Counties, Arizona. Approximately 2,640 ac (1,068 ha), is in Federal ownership and 749 ac (303 ha) is in other ownership. This site is important for breeding western yellow-billed cuckoos as one of the historically largest and most stable breeding areas (Gaines and Laymon 1984, p. 71; Johnson et al. 2008a, p. 106). The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season.

This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 4: AZ-2 Alamo Lake; Mohave and La Paz Counties, Arizona.

Revised proposed critical habitat unit AZ-2 totals 2,793 ac (1,130 ha) in extent and is 9 mi (15 km) of continuous stream made up of a 6-mi (10-km)-long continuous segment of the Santa Maria River and a 3-mi (5-km)-long continuous segment of the Big Sandy River that feeds into the Santa Maria River above Alamo Lake State Park in Mojave and La Paz Counties, Arizona. Approximately 1,840 ac (745 ha) is in Federal ownership, and 953 ac (386 ha) is in other ownership. This is a regular nesting area for western yellow-billed cuckoos, meaning that the species has been sighted nesting here multiple times in the 1998-2014 period. The site provides a movement corridor to habitat sites farther north. Tamarisk, a nonnative species that reduces the habitat's value, is a major component of habitat in this unit. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 5: AZ-3 Hassayampa River; Maricopa County, Arizona.

Revised proposed critical habitat unit AZ-3 is 908 ac (367 ha) in extent and is an

approximately 7-mi (11-km)-long continuous segment of the Hassayampa River in the vicinity of Wickenburg in Maricopa County, Arizona. Approximately 12 ac (5 ha) is in Federal ownership, and 896 ac (362 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Much of the private land in this revised proposed unit is within TNC's Hassayampa River Preserve, which is occupied by yellow-billed cuckoos during the breeding season. During protocol surveys in two portions of this unit in 2015, approximately five territories were detected (Kondrat-Smith 2015, entire; Kondrat-Smith 2016, entire). The exact number of territories is unknown because the birds were unmarked. Included in the five territories were two pairs that were detected feeding nestlings. Western yellow-billed cuckoos are frequently documented at this site during the breeding season, as is indicated in detections in 6 years between 2000 and 2014 (Cornell Lab of Ornithology 2016 (eBird data) and 2 years between 1998 and 1999 (Corman and Magill 2000, pp. 42–43). Habitat is gallery woodland with cottonwood, willow, and mesquite (Kondrat-Smith 2016, entire). Very little tamarisk is present in

much of the site because the river scours out frequently, preventing tamarisk from becoming established.

Unit 6: AZ-4, Agua Fria River; Yavapai County, Arizona.

Revised proposed critical habitat unit AZ-4 is 3,336 ac (1,350 ha) in extent and is made up of a 17-mi (27-km)-long continuous segment of the Agua Fria River (called Ash Creek above the confluence with Sycamore Creek), which is joined by a 5-mi (8-km)-long continuous segment of a tributary called Sycamore Creek. Other portions of tributaries part of this unit include Silver Creek, Indian Creek, and Little Ash Creek. Together they form a total of 22 mi (35.4 km) of continuous segments located approximately 2.5 mi (4.0 km) east of Cordes Lakes in Yavapai County, Arizona. Approximately 1,802 ac (729 ha) is in Federal ownership; 235 ac (95 ha) is in State ownership; and 1,300 ac (527 ha) is in other ownership. This site has consistently been used by numerous breeding pairs of western yellow-billed cuckoos. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The site also provides migration 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. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed

cuckoo.

Unit 7: AZ-5, Upper Verde River; Yavapai County, Arizona.

Revised proposed critical habitat unit AZ-5 is 6,047 ac (2,447 ha) in extent. Approximately 2,504 ac (1,013 ha) is in Federal ownership; 821 ac (332 ha) is in State ownership; 191 ac (77 ha) is in Tribal ownership; and 2,531 ac (1,024 ha) is in other ownership. The western yellow-billed cuckoo has been detected during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. This site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

This unit extends from the confluence of the Verde River with Oak Creek southeast to I-17 at the northern end of Unit 10, AZ-8 Lower Verde River and West Clear Creek, because western yellow-billed cuckoo surveys conducted have documented occupancy (Agyagos 2016b, entire; Johnson and Rakestraw 2016, p. 7). Detections downstream of the Oak Creek and Verde River confluence include the Sheep's Crossing site, near the Thousand Trails RV Park. A 1,969-ft (600-m)-long survey was conducted in 2015 (Johnson and Rakestraw 2016, p. 6). Habitat is primarily cottonwood and willow, with a trace of ash, tamarisk, and Russian olive (Agyagos 2016b, entire). This unit is part of the core area as identified in our conservation strategy for designating critical habitat

for the western yellow-billed cuckoo.

Unit 8: AZ-6 Oak Creek; Yavapai and Coconino Counties, Arizona.

Revised proposed critical habitat unit AZ-6 is 2,231 ac (903 ha) in extent and is a 28-mi (45-km)-long continuous segment of Oak Creek from the vicinity of the Town of Cornville at Spring Creek in Yavapai County upstream to State Highway 179 Bridge within the City of Sedona in Coconino County, Arizona. Approximately 596 ac (241 ha), is in Federal ownership; 160 ac (65 ha) is in State ownership; and 1,475 ac (597 ha) is in other ownership. This is an addition of 908 ac (368 ha) compared to the 2014 proposed designation because western yellow-billed cuckoos have been detected in the expanded area of this unit, especially in the Cornville area (Corman and Magill 2000, p. 42; Agyagos 2016a, entire).

This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit contains the Lower Oak Creek Important Bird Area (IBA), where western yellow-billed cuckoos are identified as a breeding bird (National Audubon

Society 2016a, entire). Vegetation is a mix of riparian gallery (cottonwood/willow/sycamore), and mesquite and hackberry woodland (National Audubon Society 2016a, entire). This unit was extended to the confluence with the Verde River because western yellow-billed cuckoos have been detected in this reach, habitat contains at least one PBF (PBF 1), and it provides connecting habitat between Oak Creek and the Verde River. The reach from Cornville to the confluence with the Verde River contains the best broad-valley floodplain and mesquite bosque habitat on Oak Creek (Agyagos 2016a, entire). The Oak Creek confluence with the Verde River consists of an approximately 98-ft (30-m)-wide riparian area, with mesquite habitat adjacent to the riparian vegetation (Johnson and Rakestraw 2016, p. 6). Sycamore and boxelder are the dominant trees at the confluence, with scattered cottonwood and some willow and tamarisk trees.

Unit 9: AZ-7 Beaver Creek; Yavapai County, Arizona.

Revised proposed critical habitat unit AZ-7 is 2,082 ac (842 ha) in extent and is a 23-mi (37-km)-long continuous segment of Beaver Creek from the confluence with the Verde River near Camp Verde upstream to above the Town of Rimrock in Yavapai County, Arizona. Approximately 1,491 ac (603 ha) is in Federal ownership; 3 ac (1 ha) is in Tribal ownership; and 588 ac (238 ha) is in other ownership. Numerous western yellow-billed cuckoos have consistently used this site during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within

this unit but depends on river flows and flood timing. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The site also provides migratory stopover habitat for western yellow-billed cuckoos moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 10: AZ-8 Lower Verde River and West Clear Creek; Yavapai County, Arizona.

Revised proposed critical habitat unit AZ-8 is 2,178 ac (882 ha) in extent. Approximately 570 ac (231 ha) is in Federal ownership; 32 ac (13 ha) is in State ownership; 43 ac (17 ha) is in Tribal ownership; and 1,534 ac (621 ha) is in other ownership. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit also provides a movement corridor as well as migratory stop-over habitat for western yellow-billed cuckoos. Dominant vegetation is cottonwood, willow, and tamarisk (Verde Valley Birding Trail 2016, entire). This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Altered hydrology has contributed to the establishment of tamarisk, a nonnative

species that reduces the habitat's value. Tamarisk is still used by the western yellow-billed cuckoo and is a component of habitat in this unit.

Unit 11: AZ-9A and AZ-9B Horseshoe Dam; Gila, Maricopa, and Yavapai Counties, Arizona.

Revised proposed critical habitat in these two subunits is 3,974 ac (1,608 ha) (AZ-9A = 2,743 ac (1,110 ha); AZ-9B = 1,231 ac (498 ha)) in extent and is a 33-mi (54-km)-long continuous segment of the Verde River immediately upstream of Horseshoe Dam and a continuous segment of the Verde River immediately downstream of Horseshoe Dam in Yavapai County, Arizona. Approximately 3,937 ac (1,593 ha) is in Federal ownership, and 37 ac (15 ha) (occurring within AZ-9B) is in other ownership. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit also provides a movement corridor as well as migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The extended reaches contain breeding habitat where western yellow-billed cuckoos, including pairs, have been documented in multiple years (Arizona Game and Fish Department 2016, entire; Salt River Project 2011, pp. 18, 19; Dockens 2015, entire).

This unit includes part of the Salt and Verde Riparian Ecosystem IBA, with western yellow-billed cuckoos identified as a breeding bird (National Audubon Society 2016b, entire). Western yellow-billed cuckoos were also documented during the breeding season downstream of Horseshoe Dam in the mixed mesquite and cottonwood-willow woodland at Mesquite Campground on the Tonto National Forest in 2009 and 2011 (Arizona Game and Fish Department 2016, entire). Riparian cottonwood-willow galleries and mixed riparian stands exist both above and below Horseshoe Dam, although some of these stands occur as narrow strands along the Verde River (Salt River Project 2008, p. 61). Habitat consists of contiguous to patchy cottonwood, willow, tamarisk, and mesquite (Salt River Project 2011, p. 18; Dockens 2015, entire). Altered hydrology has contributed to the establishment of tamarisk. Although tamarisk is not as desirable as native habitat, it contributes toward habitat suitability in areas where the native tree density can no longer be sustained.

Unit 12: AZ-10 Tonto Creek; Gila County, Arizona.

Revised proposed critical habitat unit AZ-10 is 3,669 ac (1,485 ha) in extent and is made up of a 6-mi (10-km)-long continuous segment of Tonto Creek upstream from the lakebed at Theodore Roosevelt Lake in Gila County, Arizona. Approximately 2,529 ac (1,023 ha) is in Federal ownership, and 1,141 ac (462 ha) is in other ownership. Numerous western yellow-billed cuckoos have consistently bred in this unit. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered

systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The site also provides a movement corridor and migratory stopover habitat for western yellow-billed cuckoos moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 13: AZ-11 Pinal Creek; Gila County, Arizona.

Revised proposed critical habitat unit AZ-11 is 419 ac (169 ha) in extent and is a 3-mi (5-km)-long continuous segment of Pinal Creek north of the Town of Globe in Gila County, Arizona. Approximately 30 ac (12 ha) is in Federal ownership, and 389 ac (157 ha) is in other ownership. This site has been consistently occupied by western yellow-billed cuckoos during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The site also provides a movement corridor between larger habitat patches. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 14: AZ-12 Bonita Creek; Graham County, Arizona.

Revised proposed critical habitat unit AZ-12 is 928 ac (375 ha) in extent and is a 6-mi (10-km)-long continuous segment of the Gila River that includes a continuous segment of a tributary called Bonita Creek located northeast of the Town of Thatcher in Graham County, Arizona. Approximately 828 ac (335 ha) is in Federal ownership, and 101 ac (40 ha) is in other ownership. This site has been consistently occupied by western yellow-billed cuckoos during the breeding season. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The site also provides a movement corridor between larger habitat patches. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 15: AZ-13 San Francisco River; Greenlee County, Arizona.

Revised proposed critical habitat unit AZ-13 is 1,327 ac (537 ha) in extent and is a 4-mi (6-km)-long continuous segment of the San Francisco River that includes a continuous segment of a tributary called Dix Creek located approximately 6 mi (9.6 km) west of the border with New Mexico in Greenlee County, Arizona. Approximately 1,192 ac (482 ha) is in Federal ownership, and 135 ac (55 ha) is in other ownership. This unit

has been consistently occupied by western yellow-billed cuckoos during the breeding season. The unit includes suitable western yellow-billed cuckoo breeding habitat that provides at least one of the physical or biological features essential to the conservation of the species (PBF 1), is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The site also provides a movement corridor between larger habitat patches. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 16: AZ-14 Upper San Pedro River; Cochise County, Arizona.

Revised proposed critical habitat Unit AZ-14 is 31,060 ac (12,569 ha) in extent and is an 84-mi (135-km)-long segment of the Upper San Pedro River from the border with Mexico north to the vicinity of the Town of Saint David in Cochise County, Arizona. Approximately 17,958 ac (7,267 ha) is in Federal ownership; 1,903 ac (770 ha) is in State ownership; and 11,199 ac (4,532 ha) is in other ownership. The unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our

conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit was expanded from the 2014 proposed designation to include adjacent mesquite bosque on the San Pedro River and its tributaries, where western yellow-billed cuckoos also nest and forage (Halterman 2006, p. 31, Swanson 2014, entire; Cornell Lab of Ornithology 2016 (eBird data)). Western yellow-billed cuckoos have been found nesting in mesquite bosque as far away as 0.3 mi (0.5 km) from the adjacent upper San Pedro River (Halterman 2006, p. 31). This unit has one of the largest remaining breeding groups of the western yellow-billed cuckoo and contains a large number of breeding pairs.

Much of this mesquite habitat is composed of large mature trees. Western yellow-billed cuckoos were documented during 2014 surveys on the Babocomari River portion of this unit in habitat that is not as dense as on the San Pedro River, including narrow habitat with low stature and scattered riparian and mesquite trees (Swanson 2014, entire). Altered hydrology has contributed to the establishment of tamarisk in parts of this unit. Although tamarisk is not as desirable as native habitat, it contributes toward habitat suitability in areas where the native tree density can no longer be sustained.

Most of this unit lies within the San Pedro Riparian National Conservation Area and the San Pedro Riparian National Conservation Area IBA (National Audubon Society 2016c, entire). The IBA supports 100 species of breeding birds, and 250 species of migrant and wintering birds (National Audubon Society 2016c, entire). The 40 mi (64 km) of the upper San Pedro River was designated by Congress as a Riparian National Conservation Area in 1988. The primary purpose for the special designation is to protect

and enhance the desert riparian ecosystem, a rare remnant of what was once an extensive network of similar riparian systems throughout the American Southwest.

Unit 17: AZ-15 Lower San Pedro and Gila Rivers; Pima, Pinal and Gila Counties, Arizona.

Revised proposed critical habitat unit AZ-15 is 23,400 ac (9,470 ha) in extent and is a 59-mi (95-km)-long segment of the Lower San Pedro River from above the Town of Mammoth in Pima County downstream to its confluence with the Gila River, where it continues downstream to below the Town of Kearny in Pinal County, Arizona.

Approximately 2,957 ac (1,197 ha) is in Federal ownership; 2,282 ac (925 ha) is in State ownership; 729 ac (295 ha) is in Tribal ownership; and 17,431 ac (7,055 ha) is in other ownership. This is an important breeding area for western yellow-billed cuckoos and is consistently occupied by a number of pairs during the breeding season. The unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The site also provides a movement corridor and migratory stopover location for western yellow-billed cuckoos moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo.

Unit 18: AZ-16 Sonoita Creek; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-16 is 2,488 ac (1,007 ha) in extent and is a 16-mi (26-km)-long segment of Sonoita Creek from the Town of Patagonia downstream to a point on the creek approximately 4 mi (6 km) east of the Town of Rio Rico in Santa Cruz County, Arizona. Approximately 926 ac (375 ha) is in State ownership, and 1,563 ac (632 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. Western yellow-billed cuckoos have been documented during the breeding season within the entire unit every year between 1998 and 2014 (Arizona Game and Fish Department 2015, entire, Cornell Lab of Ornithology 2016 (eBird data)). This unit is considered to have been occupied at the time of listing. This site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The perennial flow in Sonoita Creek supports a diverse gallery cottonwood and Goodding's willow forest that includes walnut, mesquite, ash, hackberry, and various willow species (National Audubon Society 2016d, entire). The Patagonia-Sonoita Creek TNC Preserve IBA lies within this unit, under conservation stewardship by TNC and Tucson Audubon Society (National Audubon Society 2016d, entire).

Unit 19: AZ-17, Upper Cienega Creek; Pima County, Arizona.

Revised proposed critical habitat Unit AZ-17 is 5,204 ac (2,106 ha) in extent and

is an 11-mi (17.5-km)-long segment of Cienega Creek. Approximately 4,630 ac (1,874 ha) is in Federal ownership, and 574 ac (232 ha) is in State ownership. This unit is considered to have been occupied at the time of listing, and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit connects Gardner Canyon (AZ-46) with upper Cienega Creek. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 20: AZ-18 Santa Cruz River; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-18 is 9,543 ac (3,862 ha) in extent and is a 27-mi (43-km)-long segment of the Santa Cruz River in the vicinity of the Town of Tubac in Santa Cruz County, Arizona. Approximately 505 ac (204 ha) is in Federal ownership; 4 ac (2 ha) is in State ownership; and 9,034 ac (3,656 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is

considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season, including a concentration of nesting yellow-billed cuckoos within the Tumacacori area. Some portions of the unit are considered disturbed and may not contain all the physical or biological features essential to the conservation of the species, but due to our mapping constraints some of these areas were left within the boundaries of the unit. These disturbed areas not containing the physical or biological features would not be considered critical habitat. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit is within the Upper Santa Cruz IBA, with western yellow-billed cuckoos identified as a breeding species (National Audubon Society 2016e, entire). The Upper Santa Cruz River IBA is a linear riparian corridor from Tumacacori National Historical Park downstream (northward) through the Tucson Audubon-held conservation easement (National Audubon Society 2016e, entire). This reach of river has the highest groundwater levels and perennial river flow, primarily treated wastewater, but with some groundwater seep augmentation. The IBA boundaries are defined by the riparian vegetation, including the mesquite bosques that border the broadleaf gallery forest. The IBA also includes all the National Historical Park and Tucson Audubon-held conservation easement lands.

Unit 21: AZ-19 Black Draw; Cochise County, Arizona.

Revised proposed critical habitat Unit AZ-27 is 1,599 ac (647 ha) in extent. Approximately 896 ac (362 ha) is in Federal ownership; 134 ac (54 ha) is in State

ownership; and 570 ac (231 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season (Arizona Game and Fish Department 2016, entire; Radke 2016, entire). The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. Occupied habitat is primarily cottonwood, Goodding's willow, and some mesquite (Cajero 2016, entire). This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 22: AZ-20, Gila River I; Graham County, Arizona.

Revised proposed critical habitat Unit AZ-20 is 20,724 ac (8,387 ha) in extent and 27 mi (43 km) in length. Approximately 779 ac (315 ha) is in Federal ownership; 215 ac (87 ha) is in State ownership; 10,183 ac (4,121 ha) is in Tribal ownership; and 9,547 ac (3,863 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The site also provides a

movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit includes tributaries to the Gila River including Eagle Creek to the confluence with East Eagle Creek where western yellow-billed cuckoos were detected in 2015 and 2016. Riparian habitat in overstory and understory along this survey reach is primarily cottonwood and sycamore (Westland Resources 2015e, entire). Habitat at this detection site is about 164 ft (50 m) wide in most places, with adjacent rolling hill grasslands. Some portions of the grasslands adjacent to the riparian habitat that is within the boundary of proposed critical habitat and used as foraging areas by the western yellow-billed cuckoo are grazed (Andreson 2016, entire).

Unit 23: AZ-21 Salt River; Gila County, Arizona.

Revised proposed critical habitat unit AZ-21 is 2,590 ac (1,048 ha) in extent and is a 5-mi (8-km)-long continuous segment of the Salt River upstream from the lakebed at Theodore Roosevelt Lake in Gila County, Arizona. Approximately 2,469 ac (999 ha) of this unit is Federal ownership, and 121 ac (49 ha) is in other ownership. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing. The site also provides a movement corridor between

larger habitat patches. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 24: AZ-22 Lower Cienega Creek, Pima County, Arizona.

Revised proposed critical habitat unit AZ-22 is 2,360 ac (955 ha) in extent and is an 11-mi (18-km)-long continuous segment of Cienega Creek about 15 mi (24 km) southeast of Tucson in Pima County, Arizona. Approximately 759 ac (307 ha) is in State ownership, and 1,601 ac (648 ha) is in other ownership. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing. The site also provides a movement corridor between larger habitat patches. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 25: AZ-23 Blue River, Greenlee County, Arizona.

Revised proposed critical habitat unit AZ-23 is 1,025 ac (415 ha) in extent and is an 8-mi (13-km)-long continuous segment of the Blue River in Greenlee County,

Arizona. The entire unit is in Federal ownership located on the Apache Sitgreaves National Forest managed by the USFS. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season and also acts as a movement corridor. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 26: AZ-24 Pinto Creek South, Gila and Pinal Counties, Arizona.

Revised proposed critical habitat unit AZ-24 is 373 ac (151 ha) in extent and is a 4-mi (6-km)-long continuous segment of Pinto Creek in Gila and Pinal Counties, Arizona. Approximately 368 ac (149 ha) is in Federal ownership, and 5 ac (2 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-

billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 27: AZ–25 Aravaipa Creek; Pinal and Graham Counties, Arizona.

Revised proposed critical habitat Unit AZ–25 is 3,329 ac (1,347 ha) in extent and is a 25-mi (40-km)-long continuous segment of Aravaipa Creek in Pinal and Graham Counties, Arizona. Approximately 622 ac (252 ha) is in Federal ownership; 116 ac (47 ha) is in State ownership; 392 ac (159 ha) is in Tribal ownership; and 2,199 ac (890 ha) is in other ownership. Western yellow-billed cuckoos have been detected during the breeding season within this unit. This unit is considered to have been occupied at the time of listing (Corman and Magill 2000, p. 41; Cornell Lab of Ornithology 2016 (eBird data)). The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2).

Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

Patches and stringers of cottonwood-willow riparian forest and adjacent mesquite bosque exist throughout Aravaipa Canyon. This drainage experiences scouring flood flows that can result in shifting suitable habitat within the floodplain. Including the entire Aravaipa Canyon ensures that if suitable habitat shifts, it will remain within critical habitat. Connecting this unit to the San Pedro River units (AZ–14 and AZ–15) by

including the confluence with the San Pedro River strengthens the conservation value of both units by linking breeding, migration, and dispersal corridors. Included in this unit is 25.4 ac (10.3 ha) of dense mesquite bosque habitat that occurs just upstream from but does not contain the Highway 77 bridge across Aravaipa Creek near the San Pedro River. This bosque area is located just across the highway from the main critical habitat block along the San Pedro River and averages more than 325 ft wide. Altered hydrology has contributed to the establishment of tamarisk. Tamarisk may provide habitat for the western yellow-billed cuckoo in this unit. Although tamarisk is not as desirable as native habitat, it contributes toward habitat suitability in areas where the native tree density can no longer be sustained.

Unit 28: AZ-26, Gila River 2; Graham and Greenlee Counties, Arizona.

Revised proposed critical habitat Unit AZ-26 is 8,588 ac (3,475 ha) in extent and is a 4.5-mi (7.4-km)-long continuous segment of the Gila River in Graham and Greenlee Counties, Arizona. Approximately 1,953 ac (791 ha) is in Federal ownership; 206 ac (83 ha) is in State ownership; 1,436 ac (581 ha) is in Tribal ownership; and 4,994 ac (2,021 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the

core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit was previously proposed but has been extended. Although narrow and patchy in some reaches, suitable habitat exists within this extension from the eastern end of the unit to the western end of Unit 38, NM-7, Upper Gila River in New Mexico (Johnson 2016, entire). No protocol surveys have been conducted in this extended reach, but western yellow-billed cuckoos have been detected incidentally as a result of survey efforts for other species (Johnson 2016, entire). Habitat is primarily cottonwood and willow, with less tamarisk than farther downstream (Johnson 2016, entire).

Unit 29: AZ-27 Pinto Creek North; Gila County, Arizona.

Revised proposed critical habitat unit AZ-27 is 427 ac (173 ha) in extent and is a 6-mi (10-km)-long continuous segment of Pinto Creek in Gila County, Arizona. Approximately 415 ac (168 ha) is in Federal ownership, and 12 ac (5 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. 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 component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit

is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 30: AZ–28 Mineral Creek; Pinal and Gila Counties, Arizona.

Revised proposed critical habitat Unit AZ–28 is 380 ac (154 ha) in extent and is a 7-mi (11-km)-long continuous segment of Mineral Creek in Pinal and Gila Counties, Arizona. Approximately 1 ac (less than 1 ha) is in Federal ownership; 198 ac (80 ha) is in State ownership; and 180 ac (73 ha) is in other ownership. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. Data suggest that there were as many as six breeding pairs along this segment of Mineral Creek (WestLand Resources, Inc. 2011, pp. ES-1, 4, 5, Figs. 1-5). The southern end of Mineral Creek, which is not included in the proposal, empties into a reservoir owned by American Smelting And Refining Company (ASARCO).

This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit was occupied by the species at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. Mineral Creek provides suitable habitat for western yellow-billed cuckoos along most of the surveyed reach, consisting mostly of ash, with willow,

cottonwood, and sycamore (Westland Resources, Inc. 2015d, entire).

Unit 31: AZ-29 Big Sandy River; Mohave County, Arizona.

Revised proposed critical habitat Unit AZ-29 is 20,179 ac (8,166 ha) in extent and approximately 58-mi (93-km) in length. Approximately 5,269 ac (2,132 ha) is in Federal ownership; 1,453 ac (588 ha) is in State ownership; 236 ac (96 ha) is in Tribal ownership; and 13,221 ac (5,351 ha) is in other ownership.

This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. Western yellow-billed cuckoos, including pairs, have been documented within this unit (Dockens *et al.* 2006, p. 7; Magill *et al.* 2005, p. 8; O'Donnell *et al.* 2016, pp. 1, 6, 21). The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit was occupied by the species at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The Big Sandy River has flows that are spatially and temporally intermittent. However, in the vicinity of US 93, the river is perennial and supports a dense riparian woodland of tamarisk, cottonwood, and Goodding's willow, bordered and interspersed with mesquite (Magill *et al.* 2005, pp. 1, 5). Within the floodplain, seep willow, arrowweed (*Pluchea sericea*), and screw-bean mesquite (*Prosopis pubescens*) are also

common. Adjacent upland habitat in the area is Arizona Upland Subdivision of Sonoran Desertscrub dominated by foothills paloverde (*Cercidium floridum*), mixed cacti, and creosote bush (*Larrea tridentata*) (Magill *et al.* 2005, p. 5). Western yellow-billed cuckoos were found in cottonwood, willow, or the adjacent mesquite (Magill *et al.* 2005, p. 8; Dockens *et al.* 2006, p. 7).

Unit 32: NM-1 San Francisco River; Catron County, New Mexico.

Revised proposed critical habitat unit NM-1 is 2,039 ac (825 ha) in extent and is a 10-mi (16-km)-long continuous segment of the San Francisco River near the Town of Glenwood in Catron County, New Mexico. This segment includes 1.2 mi (2 km) up Whitewater Creek from the confluence of the San Francisco River near the Town of Glenwood. Approximately 738 ac (299 ha) is in Federal ownership; 10 ac (4 ha) is in State ownership; and 1,291 ac (522 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The site also provides migratory stopover habitat for western yellow-billed cuckoos moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 33: NM–2 Gila River; Grant County, New Mexico.

Revised proposed critical habitat unit NM–2 is 4,177 ac (1,690 ha) in extent and is a 24-mi (37-km)-long continuous segment of the Gila River from 10 mi (16 km) downstream from the town of Cliff to 10 mi (16 km) upstream of the town of Gila in Grant County, New Mexico. Approximately 974 ac (394 ha) is in Federal ownership; 201 ac (81 ha) is in State ownership; and 3,002 ac (1,215 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. This unit is consistently occupied by a large number of western yellow-billed cuckoos during the breeding season and is an important breeding location for the species. The site also provides migratory stopover habitat for western yellow-billed cuckoos moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo . This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 34: NM–3A and NM–3B Mimbres River; Grant County, New Mexico.

Revised proposed critical habitat Unit NM–3 is 544 ac (220 ha) in extent (NM–3A = 260 ac (105 ha); NM–3B = 284 ac (115 ha)). The unit is made up of two segments totaling approximately 7.4 mi (11.9 km) of the Mimbres River north of the town of

Mimbres in Grant County, New Mexico. The entire proposed Unit NM-3 is privately owned. This unit is considered to have been occupied at the time of listing because it has been occupied by western yellow-billed cuckoos during the breeding season in recent years. The two areas provide the habitat components in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 35: NM-4 Upper Rio Grande 1; Rio Arriba County, New Mexico.

Revised proposed critical habitat unit NM-4 is 1,830 ac (741 ha) in extent and is a 10-mi (16-km)-long continuous segment of the upper Rio Grande from Ohkay Owingeh to near Alcalde in Rio Arriba County, New Mexico. Approximately 1,313 ac (531 ha) is in Tribal ownership, and 517 ac (209 ha) is in other ownership. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The site also provides a movement corridor for western yellow-billed cuckoos

moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 36: NM-5 Upper Rio Grande 2; Santa Fe and Rio Arriba Counties, New Mexico.

Revised proposed critical habitat unit NM-5 is 1,173 ac (475 ha) in extent and is a 6-mi (10-km)-long continuous segment of the Upper Rio Grande starting from the Highway 502 Bridge at the south end of the San Ildefonso Pueblo upstream to a point on the river in Rio Arriba County, New Mexico. The entire proposed unit NM-5 is Tribal land located on the San Ildefonso Pueblo and Santa Clara Pueblo. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. This unit has been consistently occupied by western yellow-billed cuckoos during the breeding season. The site also provides a movement corridor for western yellow-billed cuckoos moving farther north. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 37: NM-6A and NM-6B Middle Rio Grande; Sierra, Socorro, Valencia, Bernalillo,

and Sandoval Counties, New Mexico.

Revised proposed critical habitat Unit NM-6 is made up of two areas (NM-6A = 7,238 ac (2,929 ha) and NM-6B = 61,343 ac (24,825 ha)) along the Rio Grande from Elephant Butte Reservoir in Sierra County upstream through Socorro, Valencia, and Bernalillo Counties to below Cochiti Dam in Cochiti Pueblo in Sandoval County, New Mexico. Approximately 11,802 ac (4,776 ha) is in Federal ownership; 21,914 ac (8,868 ha) is in State ownership; 2,257 ac (913 ha) is in Tribal ownership; and 25,376 ac (10,270 ha) is in other ownership. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit is consistently occupied by a large number of breeding western yellow-billed cuckoos and currently is the largest breeding group of the western yellow-billed cuckoo north of Mexico. This unit is considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The site also provides a movement corridor for western yellow-billed cuckoos. Altered hydrology has resulted in the establishment of tamarisk. Tamarisk is being used by western yellow-billed cuckoos during the breeding season in this unit and may provide important understory habitat (Sechrist *et al.* 2009, p. 55). The occupied habitat within Elephant Butte Reservoir from

RM 54 to RM 38 was added to this unit, as well as occupied areas within Bosque del Apache National Wildlife Refuge extending west of the active floodplain. These additions are included based on consistent occupancy of breeding western yellow-billed cuckoos in these areas. For Elephant Butte Reservoir specifically and in addition to the consistent occupancy of breeding western yellow-billed cuckoos, multiple comments were received from the previous critical habitat proposal further citing why this extended portion from RM 54 to RM 38 is essential to the conservation of the species.

Unit 38: NM-7, Upper Gila River; Hidalgo and Grant Counties, New Mexico.

Revised proposed critical habitat Unit NM-7 is 4,727 ac (1,913 ha) in size and extends in a 30-mi (48-km)-long continuous segment of the Gila River from the Arizona-New Mexico border 5 mi (8 km) downstream from Virden in Hidalgo County upstream to 8 mi (13 km) upstream from Red Rock in Grant County, New Mexico. Approximately 980 ac (396 ha) is in Federal ownership; 294 ac (119 ha) is in State ownership; and 3,453 ac (1,397 ha) is in other ownership. This site is consistently occupied by numerous pairs of western yellow-billed cuckoos during the breeding season. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but

depends on river flows and flood timing. The unit also provides connecting habitat between the Upper and Lower Gila River and a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

Unit 39: NM–8A Caballo Delta North and NM–8B Caballo Delta South; Sierra County, New Mexico.

Revised proposed critical habitat unit NM–8 is made up of two areas (NM–8A = 190 ac (77 ha) and NM–8B = 155 ac (63 ha)) within the delta area of Caballo Reservoir east of the town of Caballo, within Sierra County, New Mexico. The entire unit is owned by Reclamation and managed by Reclamation, NM State Parks, and BLM. This unit was formally surveyed in 2014 and 2015 with an estimated occupancy of 14 breeding pairs. We used the 1998–2014 timeframe to determine occupancy at the time of listing. We included 2015 results because it is the best available information. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The unit includes areas of riparian vegetation composed of mainly Goodding's and coyote willow as well as tamarisk. The areas also provide a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. Despite the minimal acreage and narrow size of the habitat patches within the

unit, we still consider this unit essential to the conservation of the species due to the information stated above and because of the lack of habitat in the surrounding area. This type of habitat is representative of the southwestern breeding habitat type.

Unit 40: NM-9 Animas; Sierra County, New Mexico.

Revised proposed critical habitat unit NM-9 is 608 ac (246 ha) in extent and is located on a 6-mi (10-km)-long continuous segment of Las Animas Creek west of the town of Caballo, within Sierra County, New Mexico. The entire unit is privately owned and managed. This site has been known to be historically occupied based on incidental detections prior to 2016.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The unit includes areas of riparian vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian vegetation that are suitable as foraging habitat. Habitat at the site consists of mainly sycamore riparian woodland. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The addition of this unit is based on new records of western yellow-billed cuckoos that were not available when the proposed critical habitat rule was published (Stinnett 2018, entire). This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

Unit 41: NM–10 Selden Canyon and Radium Springs; Doña Ana County, New Mexico.

Revised proposed critical habitat unit NM–10 is 237 ac (96 ha) in extent and is a 12.5-mi (20-km)-long continuous segment of river in Doña Ana County, New Mexico. It is located on a continuous segment of habitat northwest of the town of Radium Springs, within Doña Ana County, New Mexico. Approximately 20 ac (8 ha) is in Federal ownership, and 218 ac (88 ha) is in other ownership. This unit was formally surveyed in 2014 and 2015 with an estimated occupancy of four breeding pairs. We used the 1998–2014 timeframe to determine occupancy at the time of listing. We included 2015 results because it is the best available information. This unit is part of the core area as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The unit includes areas of riparian vegetation composed of mainly tamarisk and coyote willow, which provide the structure and density to accommodate four estimated territories. The addition of the unit is based on new records of western yellow-billed cuckoos that were not available when the proposed critical habitat rule was published (White *et al.* 2018, entire).

Unit 42: AZ–30 Arivaca Wash and San Luis Wash; Pima County, Arizona.

Revised proposed critical habitat unit AZ–30 is 5,765 ac (2,333 ha) in extent and

is made up of two washes that join to form a 17-mi (27-km)-long continuous segment that comprises 9 mi (15 km) of Arivaca Wash and 8 mi (13 km) of San Luis Wash. The unit is located about 10 mi (16 km) north of the border of Mexico near the Town of Arivaca in Pima County, Arizona. Approximately 4,662 ac (1,887 ha) is in Federal ownership; 89 ac (36 ha) is in State ownership; and 1,014 ac (410 ha) is in other ownership. The unit is considered to have been occupied at the time of listing. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor between larger habitat patches. Tamarisk is a component of habitat in this unit and may provide understory or nesting habitat for the western yellow-billed cuckoo.

Unit 43: AZ-31 Florida Wash; Pima and Santa Cruz Counties, Arizona.

Revised proposed critical habitat Unit AZ-31 is 747 ac (302 ha) in extent and is a 6-mi (10-km)-long continuous segment of Florida Wash and tributaries in Pima and Santa Cruz Counties, Arizona. Approximately 449 ac (182 ha) is in Federal ownership; 255 ac (103 ha) is in State ownership; and 43 ac (18 ha) is in other ownership. This unit has been

expanded from the 2014 proposed designation because new information shows that western yellow-billed cuckoos occupy habitat during the breeding season within the expanded area of suitable habitat (Arizona Game and Fish Department 2016, entire; MacFarland and Horst 2015, pp. 101–102, 185–186; Cornell Lab of Ornithology 2016 (eBird data)). The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit is considered to have been occupied at the time of listing. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. This unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo.

This unit is within the Santa Rita Mountains IBA (National Audubon Society 2016f, entire), one of the sky islands of southeastern Arizona with transitional elevational gradients of forest, oak woodland, grassland, and riparian habitat. Vegetation in occupied habitat is primarily oak, hackberry, and mesquite, with some sycamore, ocotillo (*Fouquieria splendens*), and juniper along with various other midstory and understory plant species (MacFarland and Horst 2015, pp. 124, 129, 134).

Unit 44: AZ-32 California Gulch; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-32 is 558 ac (226 ha) in extent and is a

7-mi (11-km)-long continuous segment along California Gulch in Santa Cruz County, Arizona. Approximately 376 ac (152 ha) is in Federal ownership, and 182 ac (73 ha) is in other ownership. Following the publication of the 2014 critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy in Madrean evergreen woodland drainages that supports inclusion of this area as critical habitat (MacFarland and Horst 2015, entire). There have been multiple reports of western yellow-billed cuckoos using this drainage during the breeding period between July–September 2001–2015 (Cornell Lab of Ornithology 2016 (eBird data)). Therefore we consider this a breeding area for the species. This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). The unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. California Gulch is an Arizona IBA in one of the sky islands, with

western yellow-billed cuckoos identified as one of the breeding birds (National Audubon Society 2016g; entire). The canyon is unique with its dense shrub layer on its steep sides, and a perennial spring-fed stream draining into Mexico (National Audubon Society 2016g, entire). The habitat is Sonoran desert scrub, Madrean evergreen woodland, semi-desert grassland, and low-elevation riparian.

Unit 45: AZ-33 Sycamore Canyon; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-33 is 601 ac (243 ha) in extent and is an 8-mi (11-km)-long continuous segment along Sycamore Canyon in Santa Cruz County, Arizona. Nearly the entire unit is in Federal ownership with less than 1 ac (< 1 ha) being privately owned. Following the publication of the 2014 proposed rule, we received additional information on western yellow-billed cuckoo occupancy in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. There have been multiple sightings of western yellow-billed cuckoo using this drainage in the months of July–September in almost every year during the period 2000–2015 (Cornell Lab of Ornithology 2016 (eBird data)). Up to six territories or potential pairs were found during western yellow-billed cuckoo surveys in 1999 (Corman and Magill 2000, p. 51). During 2015 surveys, three territories were detected, including one territory with a pair and another territory with a western yellow-billed cuckoo carrying food (MacFarland and Horst 2015, pp. 25–26). The site also provides a movement corridor and migratory stop-

over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). The unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. This unit is contained within the Sycamore Canyon/Pajarito Mountains IBA, with western yellow-billed cuckoos identified as one of the breeding birds (National Audubon Society 2016h, entire).

Unit 46: AZ-34 Madera Canyon; Pima and Santa Cruz Counties, Arizona.

Revised proposed critical habitat Unit AZ-34 is 1,732 ac (701 ha) in extent and is a 7-mi (11-km)-long continuous segment of Madera Canyon in Pima and Santa Cruz Counties, Arizona. Approximately 1,419 ac (574 ha) is in Federal ownership, and 313 ac (127 ha) is in other ownership. Following the publication of the 2014 critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). This unit in Madera Canyon includes many western yellow-billed cuckoo detections by birders throughout this reach between 1998 and 2014 (Cornell Lab of Ornithology 2016 (eBird data)). The mouth of lower Madera Canyon is an area with numerous western yellow-billed cuckoo detections in multiple

years (Cornell Lab of Ornithology 2016 (eBird data)). Tucson Audubon documented one occupied territory found consistently in lower Madera Canyon during protocol surveys during the breeding season in 2015 (MacFarland and Horst 2015, pp. 105–106). This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). The unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. This unit is within the Santa Rita Mountains IBA (National Audubon Society 2016f, entire), one of the sky islands in southeastern Arizona.

Unit 47: AZ–35 Montosa Canyon; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ–35 is 499 ac (202 ha) in extent and is a 4-mi (6-km)-long continuous segment of Montosa Canyon in Santa Cruz County, Arizona. Approximately 496 ac (201 ha) is in Federal ownership, and 3 ac (1 ha) is in other ownership. Following the publication of the 2014 critical habitat proposed rule, we

received additional information on western yellow-billed cuckoo occupancy in Madrean evergreen woodland drainages that supports inclusion as critical habitat. Five territories, including four pairs, were found during surveys in 2015 (MacFarland and Horst 2015, pp. 103–104; Sferra 2015, entire). Many western yellow-billed cuckoos have been detected by birders for at least the last 4 years (Cornell Lab of Ornithology 2016 (eBird data)). This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. This canyon contains dense vegetation along the creek that flows through the bottom of the canyon, and the sloping vegetated canyon walls provide additional foraging opportunities (MacFarland and Horst 2015, p. 103). This unit is within the Santa Rita Mountains IBA (National Audubon Society 2016f, entire), one of the sky islands in southeastern Arizona.

Unit 48: AZ-36 Patagonia Mountains, Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-36 is 1,912 ac (774 ha) in extent and is an 11-mi (17-km)-long segment made up of several drainages in the Patagonia Mountains in Santa Cruz County, Arizona. Approximately 1,059 ac (429 ha) is in Federal ownership; 8 ac (3 ha) is in State ownership; and 845 ac (341 ha) is in other ownership. Following the publication of the 2014 critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). A popular birding destination, there have been multiple postings in eBird of western yellow-billed cuckoos using this drainage in the months of July–September in the period 2000–2015 (Cornell Lab of Ornithology 2016 (eBird data)). Western yellow-billed cuckoos were detected in eight locations during 2012 surveys in riparian vegetation along 2.2 mi (3.5 km) of Harshaw Creek, along 2.1 mi (3.3 km) of Corral Canyon, and along 1.4 mi (2.2 km) of Hermosa Canyon (WestLand Resources, Inc. 2013a, pp. 2–3). Four locations were in Harshaw Creek, four were in Corral Canyon, and two were in Hermosa Canyon (WestLand Resources, Inc. 2013a, p. 4). Western yellow-billed cuckoos were in ephemeral drainages, except for one Hermosa Canyon detection on a hilltop of sparse oak trees and manzanita (WestLand Resources, Inc. 2013a, p. 5). Western yellow-billed cuckoos were detected along 8 of the survey transects at a total of 46 separate locations in an expanded 2013 survey in Harshaw Creek and an unnamed tributary, Hermosa Creek, Goldbaum Creek, Corral Canyon and two unnamed tributaries, and Willow Springs Canyon (WestLand Resources, Inc. 2013b, pp. 4–5). Surveyors documented seven possible breeding occurrences and two probable breeding occurrences (WestLand

Resources, Inc. 2013b, pp. 7–9). Probable breeding locations were defined by two western yellow-billed cuckoos exchanging calls at the same location, and possible breeding locations were defined as multiple detections in the same location across more than one survey period (WestLand Resources, Inc. 2013b, pp. 8–9). This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor migratory stop-over habitat for western yellow-billed cuckoos.

This unit was occupied by the species at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). Western yellow-billed cuckoos were largely associated with oak, juniper, and scattered sycamore vegetation along drainages, but they were also detected in upland areas dominated by nonriparian associated shrubs and oak trees (WestLand Resources, Inc. 2013, p. 3).

The Patagonia Mountains IBA is within one of southern Arizona's sky islands and is composed of Madrean evergreen woodland habitat dominated by oak-juniper, oak-pine, and pine oak communities surrounded by grasslands and desert (National Audubon Society 2016i, entire). The many canyons and drainages that cut through these mountains support riparian vegetation. The extent of the oak-juniper community type habitat, with

sycamores in drainages, is continuous throughout this range.

Unit 49: AZ-37 Canelo Hills, Santa Cruz County

Revised proposed critical habitat Unit AZ-37 is 2,822 ac (1,142 ha) in extent and is an 11.5-mi (18.5-km)-long of a drainage within Santa Cruz County, Arizona.

Approximately 1,381 ac (559 ha) is in Federal ownership; 1 ac (less than 1 ha) is in State ownership; and 1,440 ac (583 ha) is in other ownership. Following the publication of the 2014 proposed rule, we received survey information, as identified below, on western yellow-billed cuckoo occupancy and habitat use that confirms occupancy at the time of listing which supports the addition of this unit to the proposed designation of critical habitat.

Western yellow-billed cuckoos occupy the trees bordering creeks and cienega wetlands and have been detected during the breeding season in several years, including a pair each on August 27, 1998, at Canelo Hills Cienega and Turkey Creek (Corman and Magill 2000, p. 43; Cornell Lab of Ornithology 2016 (eBird data)). Western yellow-billed cuckoos have been detected incidentally in this unit for many years from 1967 through 1998 (Arizona Game and Fish Department 2016, entire) and more recently on June 19, 2001, September 28, 2011, August 13, 2013, and June 23, 2014 (Cornell Lab of Ornithology 2016 (eBird data)). The first year of protocol surveys were conducted in 2015, with western yellow-billed cuckoos detected on July 16, July 26 (two western yellow-billed cuckoos in different areas), July 31, August 5 (two western yellow-billed cuckoos in different areas), and August 29 (Audubon Arizona 2015, entire).

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside

mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat.

Unit 50: AZ-38 Arivaca Lake, Pima and Santa Cruz Counties, Arizona.

Revised proposed critical habitat Unit AZ-38 is 1,365 ac (553 ha) in extent and is a 9-mi (14-km)-long continuous segment of stream near Arivaca Lake in Pima and Santa Cruz Counties, Arizona. Approximately 567 ac (229 ha) is in Federal ownership; 417 ac (169 ha) is in State ownership; and 381 ac (154 ha) is in other ownership. Following the publication of the 2014 proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use from the time of listing and shortly thereafter (2015) that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). Tucson Audubon detected seven occupied territories with repeated detections, including three pairs, where they surveyed at and near the lake in 2015 (MacFarland and Horst 2015, pp. 17-18). The seven territories documented is likely an underestimate, as only a small portion of suitable habitat was surveyed. Western yellow-billed cuckoos

were detected at the lake on every visit during 2015, and habitat surrounding the lake and side canyons is considered highly suitable. Some parts of the lake were only surveyed once in 2015 due to safety concerns and the difficulty of walking in rough terrain and through dense vegetation (MacFarland and Horst 2015, pp. 17–18). Additional records exist from previous years (Cornell Lab of Ornithology 2016 (eBird data). Although some of the sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on past records and habitat conditions.

This unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat.

Unit 51: AZ–39 Peppersauce Canyon, Pinal County, Arizona.

Revised proposed critical habitat Unit AZ–39 is 349 ac (141 ha) in extent and is a 4-mi (6-km)-long continuous segment of stream within Peppersauce Canyon in Pinal

County, Arizona. Approximately 317 ac (128 ha) is in Federal ownership, and 32 ac (13 ha) is in other ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat. Tucson Audubon detected western yellow-billed cuckoos on two surveys in 2015, including a pair in August, the first year this area has been surveyed (MacFarland and Horst 2015, pp. 53–54). Although these sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on occupancy in nearby areas and habitat conditions.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Dominant overstory vegetation in occupied habitat consists

of oak, sycamore, cottonwood, mesquite, walnut, and ocotillo (MacFarland and Horst 2015, p. 122).

Unit 52: AZ-40 Pena Blanca Canyon, Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-40 is 484 ac (196 ha) in extent and is a 7-mi (11-km)-long continuous segment of stream within Pena Blanca Canyon in Santa Cruz County, Arizona. Approximately 483 ac (196 ha) is in Federal ownership, and less than 1 ac (1 ha) is in other ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). Tucson Audubon detected three western yellow-billed cuckoo territories, including two pairs during surveys in 2015 (MacFarland and Horst 2015, pp. 21–22). Western yellow-billed cuckoos were detected on all four surveys in 2015, including a western yellow-billed cuckoo on a nest, and a western yellow-billed cuckoo carrying what appeared to be food at a different location. An adult was observed feeding a large caterpillar to a fledgling on September 19, 2014 at Pena Blanca Lake (Helentjaris 2014, entire). Western yellow-billed cuckoos have been documented in other years at this site as well, with data from birder listserves and eBird (Cornell Lab of Ornithology 2016 (eBird data)). Although these sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on occupancy in nearby areas and habitat conditions.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside

mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Overstory vegetation at occupied territories is primarily oak and willow, with small amounts of juniper and ash (MacFarland and Horst 2015, p. 121).

Unit 53: AZ-41 Box Canyon, Pima County, Arizona.

Revised proposed critical habitat Unit AZ-41 is 536 ac (217 ha) in extent and is a 7-mi (11-km)-long continuous segment of stream within Box Canyon in Pima County, Arizona. Approximately 317 ac (128 ha) is in Federal ownership; 184 ac (74 ha) is in State ownership; and 34 ac (14 ha) is in other ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). Tucson Audubon detected two western yellow-billed cuckoo territories on three surveys in 2015, including the observation of a western yellow-billed cuckoo carrying food, an indication of a likely active nest (MacFarland and Horst 2015,

pp. 97–98). A western yellow-billed cuckoo was also observed carrying food to a nest on August 28, 2013, at a different location (Sebesta 2014, entire). Other observations of western yellow-billed cuckoos in Box Canyon have been reported by birders during the breeding season in more than one year (Cornell Lab of Ornithology 2016 (eBird data)). Although some of these sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on records at the time of listing, occupancy in nearby areas, and habitat conditions. This unit is within the Santa Rita Mountains IBA (National Audubon Society 2016f, entire) (see description under Unit 43; AZ–31 Florida Wash).

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Overstory vegetation in occupied habitat is primarily mesquite, ash, ocotillo, willow, oak,

sycamore, hackberry, and juniper (MacFarland and Horst 2015, p. 124). Midstory vegetation in occupied habitat includes desert cotton, walnut, coursetia (*Coursetia* sp.), mesquite, *Cercocarpus* sp., and sotol (*Dasyilirion wheeleri*) (MacFarland and Horst 2015, p. 129). Understory vegetation in occupied habitat includes sideoats gramma, brickellia (*Brickellia* sp.), nonnative Bermuda grass, Lehman's lovegrass, Johnson grass, and cocklebur (*Xanthium* sp.) (MacFarland and Horst 2015, p. 134).

Unit 54: AZ-42 Rock Corral Canyon, Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-42 is 214 ac (87 ha) in extent and is a 3-mi (5-km)-long continuous segment of stream within Rock Corral Canyon in Santa Cruz County, Arizona. Approximately 190 ac (77 ha) is in Federal ownership, and 25 ac (10 ha) is in State ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). This canyon is part of the Tumacacori Mountains, with high bird and plant diversity (MacFarland and Horst 2015, p. 23). Two occupied territories, including one breeding pair, were detected during the 2015 surveys (MacFarland and Horst 2015, pp. 23-24). Detections during the breeding season have also been documented by other observers in 2015 and 2011, including a probable breeding pair in 2011 (Cornell Lab of Ornithology 2016 (eBird data)). Although some of these sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on records at the time of listing, occupancy in nearby areas, and habitat conditions.

This new unit is part of the area within the Southwest portion of the DPS that

provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Overstory vegetation in occupied habitat is primarily mesquite, with some oak and cottonwood (MacFarland and Horst 2015, p. 121).

Unit 55: AZ-43 Lyle Canyon, Santa Cruz and Cochise Counties, Arizona.

Revised proposed critical habitat Unit AZ-43 is 1,293 ac (523 ha) in extent and is a 7.5-mi (12-km)-long continuous segment of stream within Lyle Canyon in Santa Cruz and Cochise Counties, Arizona. Approximately 716 ac (290 ha) is in Federal ownership, and 577 ac (234 ha) is in other ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat (MacFarland and Horst 2015, entire). Two western yellow-billed cuckoo territories, including a pair, were detected on three

surveys in July and August 2015, in Korn Canyon, near the confluence with Lyle Canyon (MacFarland and Horst 2015, pp. 35–36). Two pairs of western yellow-billed cuckoos were detected on four surveys in July and August 2015, in Lyle Canyon (MacFarland and Horst 2015, pp. 33–34). Although these sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on occupancy in nearby areas and habitat conditions.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site is considered occupied at the time of listing. The site also provides a movement corridor and migratory stop-over location and was considered occupied by the species at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). More specifically, this site includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Occupied overstory habitat in Korn Canyon is dominated by oak and juniper, with some sycamore and ash (MacFarland and Horst 2015, pp. 121–122). Occupied overstory habitat in Lyle Canyon is dominated by oak and juniper, with some sycamore, pinion pine, and walnut (MacFarland and Horst

2015, p. 122).

Unit 56: AZ-44 Parker Canyon Lake, Santa Cruz and Cochise Counties, Arizona.

Revised proposed critical habitat Unit AZ-44 is 1,499 ac (607 ha) in extent and is a 10.5-mi (16-km)-long continuous segment of stream near Parker Canyon Lake in Santa Cruz and Cochise Counties, Arizona. Approximately 1,424 ac (576 ha) is in Federal ownership, and 75 ac (31 ha) is in other ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat. Western yellow-billed cuckoos were detected on three western yellow-billed cuckoo surveys in July and August 2015, in Collins Canyon, including a pair (MacFarland and Horst 2015, pp. 29–30). Western yellow-billed cuckoos were detected on four surveys in July and August 2015, in Merritt Canyon (MacFarland and Horst 2015, pp. 37–38). Western yellow-billed cuckoos were documented at Parker Canyon Lake in 2015 by birders in August (Cornell Lab of Ornithology 2016 (eBird data)). Although these sightings are from after the time of listing, we believe the site was used by the western yellow-billed cuckoo based on occupancy in nearby areas and habitat conditions.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the

habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). More specifically, this site contains areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Dominant overstory vegetation in occupied habitat in Collins and Merritt canyons consists of juniper and oak, with ash, pine, cottonwood, and walnut (MacFarland and Horst 2015, pp. 121–122). Merritt Canyon, north of Parker Canyon Lake, is a shallow and wide drainage with large trees and flowing water (MacFarland and Horst 2015, p. 37). Western yellow-billed cuckoo were observed in Merritt Canyon on Forest Service land as well as private inholding that contained large, ornamental trees and a large turf lawn.

Unit 57: AZ-45 Barrel Canyon, Pima County, Arizona.

Revised proposed critical habitat Unit AZ-45 is 920 ac (372 ha) in extent and is a 5-mi (8-km)-long continuous segment of stream within Barrel Canyon in Pima County, Arizona. Approximately 755 ac (306 ha) is in Federal ownership; less than 1 ac (1 ha) is in State ownership; and 164 ac (66 ha) is in other ownership. Following the publication of the first western yellow-billed cuckoo critical habitat proposed rule, we received additional information on western yellow-billed cuckoo occupancy and habitat use in Madrean evergreen woodland drainages that supports inclusion as critical habitat. Western yellow-billed cuckoos were documented during protocol surveys in the summers

of 2013, 2014, and 2015 in this unit (WestLand Resources, Inc. 2015a, pp. 2–4; Westland Resources 2015b, entire; Westland Resources 2015c, entire).

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Vegetation associated with these detections was Emory oak (*Quercus emoryi*), Arizona white oak (*Q. arizonica*), velvet mesquite, and desert willow, with an occasional Arizona sycamore, Arizona walnut, and Goodding's willow and alligator juniper (along sandy bottom drainages lacking perennial surface water).

Unit 58: AZ-46 Gardner Canyon; Pima and Santa Cruz Counties, Arizona.

Revised proposed critical habitat Unit AZ-46 is 5,081 ac (2,056 ha) in extent and is a 14-mi (23-km)-long continuous segment of stream within Gardner Canyon in Pima and Santa Cruz Counties, Arizona. Approximately 4,320 ac (1,748 ha) is in Federal

ownership; 290 ac (117 ha) is in State ownership; and 471 ac (191 ha) is in other ownership. This unit includes suitable habitat within the Las Cienegas National Conservation Area (NCA) that connects Gardner Canyon with upper Cienega Creek.

Western yellow-billed cuckoos were detected within this drainage at the Las Cienegas NCA Cottonwood Tanks on August 19, 2012, and June 10 and July 9, 2014 (Cornell Lab of Ornithology 2016 (eBird data)). Western yellow-billed cuckoos were detected on June 23, 2001 (Cornell Lab of Ornithology 2016 (eBird data)), in 2002 (Arizona Game and Fish Department 2016, entire), and on July 25, 2015 (Cornell Lab of Ornithology 2016 (eBird data)) along Gardner Canyon or Gardner Canyon Road in Coronado National Forest. All detections were incidental; no western yellow-billed cuckoo protocol surveys have been conducted in Gardner Canyon.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of

riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Habitat in Gardner Canyon is Madrean evergreen woodland with oak, desert willow, mesquite, and juniper. The drainage is intermittent during the monsoonal rain season.

Unit 59: AZ-47 Brown Canyon; Pima County, Arizona.

Revised proposed critical habitat Unit AZ-47 is 1,113 ac (451 ha) in extent and is an 8-mi (13-km)-long continuous segment of stream within Brown Canyon in Pima County, Arizona. Approximately 726 ac (294 ha) is in Federal ownership; 228 ac (92 ha) is in State ownership; and 159 ac (65 ha) is in other ownership. Western yellow-billed cuckoos were detected by birders during the breeding season on August 29–September 1, 2005, and June 25, 2015 (American Birding Association 2012, entire; Cornell Lab of Ornithology 2016 (Bird data)). Nesting has been confirmed in Brown Canyon (B. Powell, unpublished data as reported in Pima County 2016, p. A-78; Corson 2018, pp. 11–12). In addition, they have also been observed during the breeding season by Buenos Aires National Wildlife Refuge staff (Flatland 2011, entire).

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as

identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Brown Canyon includes a broad mix of dominant plant species that change with elevation and topography. At lower elevations, vegetation is predominantly Sonoran Desert uplands; at higher elevations, vegetation is predominantly oak woodlands (Powell and Steidl 2015, p. 68). Vegetation includes a mix of mesquite, oaks, hackberry, sycamore, walnut, acacia, *Mimosa* sp., and juniper (Powell and Steidl 2015, pp. 67, 69).

Unit 60: AZ-48 Sycamore Canyon, Patagonia Mountains; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-48 is 604 ac (245 ha) in extent and is a 5-mi (8-km)-long continuous segment of stream within Sycamore Canyon in Santa Cruz County, Arizona. The unit is entirely within Federal lands within the Coronado National Forest. Sycamore Canyon is a well-vegetated riparian corridor in Madrean evergreen woodland in the Patagonia Mountains. This site was surveyed only twice, but western yellow-billed cuckoos were detected at two locations on August 4 and 18, 2015, during protocol surveys (MacFarland and Horst 2015, pp. 91, 92). Numerous western yellow-billed cuckoos have been incidentally detected within this mountain range in multiple years, especially along Harshaw Creek (Cornell Lab of Ornithology 2016 (eBird data)). This unit lies within the Patagonia Mountains IBA.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for

designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Dominant overstory vegetation where western yellow-billed cuckoos have been found during surveys was primarily oak, ash, cottonwood, and mesquite, and dominant midstory vegetation was mesquite, *Baccharis* sp., ash, *Mimosa* sp., grape, and skunkbush (*Rhus trilobata*) (MacFarland and Horst 2015, pp. 91, 124, 129).

Unit 61: AZ-49 Washington Gulch; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ-49 is 587 ac (237 ha) in extent and is a 5-mi (8-km)-long continuous segment of stream within Washington Gulch in Santa Cruz County, Arizona. Approximately 361 ac (146 ha) is in Federal ownership, and 226 ac (91 ha) is in other ownership. Washington Gulch is a riparian corridor in Madrean evergreen woodland in the Patagonia Mountains in the Coronado National Forest. A September 2, 2014, entry in eBird noted that a western yellow-billed cuckoo was calling during the field season (Cornell Lab of Ornithology 2015 (eBird data)). A western yellow-billed cuckoo was detected in the same general area during protocol surveys on July 22 and

August 19 in 2015 in Washington Gulch (MacFarland and Horst 2015, pp. 91–94). This unit lies within the Patagonia Mountains IBA.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. This drainage contains an overstory of large oak trees with some juniper and a midstory of manzanita and juniper (MacFarland and Horst 2015; pp. 93, 124, 129).

Unit 62: AZ–50 Paymaster Spring and Mowrey Wash; Santa Cruz County, Arizona.

Revised proposed critical habitat Unit AZ–50 is 903 ac (365 ha) in extent and is made up of segments of stream within Paymaster Spring and Mowrey Wash totaling 5.5 mi (8.8 km) in Santa Cruz County, Arizona. Approximately 390 ac (158 ha) is in Federal ownership, and 512 ac (207 ha) is in other ownership. Paymaster Creek is a riparian corridor in Madrean evergreen woodland in the Patagonia Mountains in the Coronado

National Forest. A western yellow-billed cuckoo was detected incidentally on June 18, 2010, and during protocol surveys on July 7 and 22, 2015 (MacFarland and Horst 2015, p. 89). This unit lies within the Patagonia Mountains IBA.

This new unit is part of the area within the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo, which is outside mainstem rivers and their tributaries as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor and migratory stop-over habitat for western yellow-billed cuckoos. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit (monsoonal events). This unit includes areas of riparian and Madrean evergreen woodland vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian and Madrean evergreen woodland vegetation that are suitable as foraging habitat. Oak, juniper, and some pine were the most dominant tree species where western yellow-billed cuckoos were detected during surveys (MacFarland and Horst 2015, p. 123).

Unit 63: CA-1 Sacramento River; Colusa, Glenn, Butte, and Tehama Counties, California.

Revised proposed critical habitat unit CA-1 is 35,406 ac (14,328 ha) in extent and is a 69-mi (111-km)-long continuous segment of the Sacramento River starting 5 mi (8 km) southeast of the city of Red Bluff in Tehama County, California, to the downstream

boundary of the Colusa-Sacramento River State Recreation Area next to the town of Colusa in Colusa County, California. The middle segment of this river reach flows through Butte and Glenn Counties. Approximately 2,123 ac (859 ha) is in Federal ownership; 485 ac (197 ha) is in State ownership; and 32,800 ac (13,274 ha) is in other ownership. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This site has been a significant nesting area (nearly 100 nesting pairs in early 1970s) for the western yellow-billed cuckoo in the past but has been in decline (Dettling and Howell 2011a, pp. 30–35; Dettling and Howell 2011b, entire; Dettling *et al.* 2015, p. 2). Survey efforts in the early 1970s detected approximately 3 western yellow-billed cuckoo detections per day (60–96 nesting pairs). In the late 1980s this number dropped to less than 1.5 per day (35 nesting pairs) and in 2012 the survey efforts identified 1 to less than 1 sighting per day (28 nesting pairs) (Dettling *et al.* 2015, pp. 11–13). This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. It is an important area to maintain for occupancy to promote species recovery. Minor revisions to the unit from the 2014 proposed designation include removal of orchard areas, agricultural lands, and roadways.

Unit 64: CA-2 South Fork Kern River Valley; Kern County, California.

Revised proposed critical habitat Unit CA-2 is 2,640 ac (1,068 ha) in extent and is a 13-mi (21-km)-long continuous segment of the South Fork Kern River from west of the settlement of Canebrake downstream to Lake Isabella and includes the upper 0.6 mi (1.0 km) of Lake Isabella in Kern County, California. Approximately 88 ac (35 ha) is in Federal ownership; 419 ac (170 ha) is in State ownership; and 2,133 ac (863 ha) is in other ownership. Much of the privately owned land is owned and managed by Audubon California as the Kern River Preserve. Numbers of breeding western yellow-billed cuckoos have been relatively consistent at this site. The enlargement of this site from the 2014 proposed designation is based on recent observations in 2000 and 2014 of western yellow-billed cuckoos on the Canebrake Ecological Reserve. Western yellow-billed cuckoos were found in the expanded area in the 1980s and early 1990s, but none were found in the late 1990s, so the area wasn't included in the original proposal. The habitat at this site is improving based on reduction of cattle grazing and habitat restoration activities. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site provides a

stop-over area or movement corridor between western yellow-billed cuckoos breeding on the Colorado River and the Sacramento River. We have identified approximately 1,370 ac (555 ha) for potential exclusion from this unit (see **Consideration of Impacts Under Section 4(b)(2) of the Act**).

Unit 65: ID–1 Snake River 1; *Bannock and Bingham Counties, Idaho*.

Revised proposed critical habitat unit ID–1 is 9,655 ac (3,907 ha) in extent and is a 22-mi (35-km)-long continuous segment of the Snake River from the upstream end of the American Falls Reservoir in Bannock County upstream to a point on the Snake River approximately 2 mi (3 km) west of the Town of Blackfoot in Bingham County, Idaho. Approximately 3,694 ac (1,494 ha) is in Federal ownership; 1,763 ac (713 ha) is in State ownership; 2,527 ac (1,023 ha) is in Tribal ownership; and 1,672 ac (676 ha) is in other ownership. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The unit is at the northern limit of the species' current breeding range.

Unit 66: ID–2 Snake River 2; *Bonneville, Madison, and Jefferson Counties, Idaho*.

Revised proposed critical habitat unit ID-2 is 11,442 ac (4,630 ha) in extent and is a 40-mi (64-km)-long continuous segment of the Snake River from the bridge crossing on the Snake River 2 mi (3 km) east of the Town of Roberts in Madison County through Jefferson County and upstream to the vicinity of the mouth of Table Rock Canyon in Bonneville County, Idaho. Approximately 5,862 ac (2,372 ha) is in Federal ownership; 1,940 ac (785 ha) is in State ownership; and 3,641 ac (1,473 ha) is in other ownership. Portions of this unit are within lands designated as the Snake River ACEC by BLM, and the Land and Water Conservation Fund (LWCF) program has purchased 32 properties in fee title and set aside approximately 42 conservation easements (22,400 ac (9,065 ha)) within the ACEC. The western yellow-billed cuckoo has been identified as a species of concern in the ACEC. State and County road crossings account for less than 1 percent of total ownership of this proposed unit. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. This unit is consistently occupied by western yellow-billed cuckoos during the breeding season. The unit is at the northern limit of the species' current breeding range.

Unit 67: ID-3 Henry's Fork and Teton Rivers; Madison and Fremont Counties, Idaho.

Revised proposed critical habitat Unit ID-3 is 4,641 ac (1,878 ha) in extent and is a 15-mi (24-km)-long continuous segment of the Henry's Fork of the Snake River in Madison County from approximately 16 km (10 mi) upstream of the confluence with the Snake River to a point on the river approximately 1.6 km (1 mi) downstream of the town of St. Anthony in Fremont County, Idaho. Approximately 756 ac (305 ha) is in Federal ownership; 511 ac (206 ha) is in State ownership; and 3,374 ac (1,366 ha) is in other ownership. This unit is occupied by western yellow-billed cuckoos during the breeding season and represents the northern limit of the species' currently known breeding range. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The unit contains all the physical or biological features essential to the conservation of the species and was occupied at the time of listing and is still considered occupied. Inclusion of this unit contributes to the proposed critical habitat designation representing the full breeding range of the DPS. New comments by the American Bird Conservancy during the previous comment period, along with survey and habitat information previously submitted by the BLM and Idaho Department of Fish and Game, show western yellow-billed cuckoos in the expanded area. In response to the comments and new information received, we are amending the previously proposed boundaries of this unit to incorporate additional habitat upstream to approximately 1.6 km (1 mi) downstream of the town of St. Anthony, Fremont County, Idaho. Portions of this unit were removed based on our reevaluation of the habitat.

Unit 68: CO–1 Colorado River; Mesa County, Colorado.

Revised proposed critical habitat unit CO–1 is 4,002 ac (1,620 ha) in extent and is a 25-mi (40-km)-long continuous segment of the Colorado River in the vicinity of Grand Junction in Mesa County, Colorado. Approximately 32 ac (13 ha) is in Federal ownership; 417 ac (169 ha) is in State ownership; and 3,553 ac (1,438 ha) is in other ownership. The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. The Colorado River Wildlife Management Area managed by the U.S. Fish and Wildlife Service holds conservation easements on several private parcels in this unit. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. This unit has been occupied by western yellow-billed cuckoos. The site also provides a migration stopover habitat for western yellow-billed cuckoos moving farther north.

Unit 69: CO–2 North Fork Gunnison River; Delta County, Colorado.

Revised proposed critical habitat unit CO–2 is 2,326 ac (941 ha) in extent and is a 16-mi (26-km)-long continuous segment of the North Fork of the Gunnison River between Hotchkiss and Paonia in Delta County, Colorado. Approximately 115 ac (47 ha) is in Federal ownership, and 2,211 ac (895 ha) is in other ownership. This unit is

considered to have been occupied at the time of listing and is used by the western yellow-billed cuckoo during the breeding season. This unit has been consistently occupied by western yellow-billed cuckoos during the breeding season. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides migratory stopover habitat for western yellow-billed cuckoos moving farther north.

Unit 70: UT-1 Green River 1; Uintah and Duchesne Counties, Utah.

Revised proposed critical habitat unit UT-1 is 28,381 ac (11,486 ha) in extent and is made up of segments totaling 52 mi (83 km) of the Green River and Duchesne Rivers in the vicinity of Ouray in Uintah County, Utah. Approximately 4,657 ac (1,885 ha) is in Federal ownership; 4,411 ac (1,785 ha) is in State ownership; 14,611 ac (5,913 ha) is in Tribal ownership; and 4,702 ac (1,903 ha) is in other ownership. This unit has consistently had western yellow-billed cuckoos during the breeding season. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a movement corridor for western yellow-billed cuckoos

moving farther north.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit includes areas of riparian vegetation that area suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian vegetation that are suitable as foraging habitat. Recent surveys in this area revealed multiple western yellow-billed cuckoo detections.

Unit 71: UT-2 Green River 2; Emery and Grand Counties, Utah.

Revised proposed critical habitat Unit UT-2 is 1,135 ac (459 ha) in extent and is an 8-mi (13-km)-long continuous segment of the Green River north of the town of Green River in Emery and Grand Counties, Utah. Approximately 40 ac (17 ha) is in Federal ownership; 632 ac (256 ha) is in State ownership; and 462 ac (187 ha) is in other ownership. Recent surveys have shown that this unit has a number of western yellow-billed cuckoos during the breeding season (Utah Division of Wildlife Resources (UDWR) 2012, entire; UDWR 2013, entire; UDWR 2014, entire). This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides migratory stop-over habitat for western yellow-billed cuckoos.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit includes areas of riparian vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian vegetation that are suitable as foraging habitat. The recent surveys identified above in this area revealed multiple western yellow-billed cuckoo detections.

Unit 72: TX-1 Terlingua Creek and Rio Grande; Brewster County, Texas.

Revised proposed critical habitat unit TX-1 is 7,913 ac (3,202 ha) in extent and is a 45-mi (72-km)-long continuous segment from lower Terlingua Creek to the Rio Grande in Brewster County, Texas. Approximately 7,792 ac (3,153 ha) is in Federal ownership, and 121 ac (49 ha) is in other ownership. Because this unit is along the border between United States and Mexico, we delineated the southern edge of the unit using the State of Texas boundary. Per our implementing regulations at 50 CFR 424.12(g), the Secretary does not designate critical habitat within foreign countries or in other areas outside the jurisdiction of the United States; therefore, no Mexican lands are included in this unit. This unit has been consistently occupied by western yellow-billed cuckoos during the breeding season. This unit is part of the area outside the Southwest portion of the DPS that provides breeding habitat for the western yellow-billed cuckoo that is in a different ecological setting as identified in our conservation strategy for designating critical habitat for the western yellow-billed cuckoo. The site also provides a north-south movement

corridor for western yellow-billed cuckoos breeding farther north. Although tamarisk, a nonnative species that may reduce the habitat's value, is a major component of this unit, the area still provides habitat for the species and considered essential.

The unit is considered to have been occupied at the time of listing. The unit provides the habitat component provided in physical or biological feature 1 (PBF 1) and the prey component in physical or biological feature 2 (PBF 2). Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat as identified in physical or biological feature 3 (PBF 3) occurs within this unit but depends on river flows and flood timing. This unit includes areas of riparian vegetation that are suitable as western yellow-billed cuckoo breeding habitat and connected areas of riparian vegetation that are suitable as foraging habitat.

Effects of Critical Habitat Designation

Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action that is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

We published a final regulation with a new definition of destruction or adverse modification on August 27, 2019 (84 FR 44976). Destruction or adverse modification

means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, Tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Endangered Species Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, Tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

(1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or

(2) A biological opinion for Federal actions that may affect and, are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse

modification of critical habitat. We define “reasonable and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during consultation that:

- (1) Can be implemented in a manner consistent with the intended purpose of the action,
- (2) Can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction,
- (3) Are economically and technologically feasible, and
- (4) Would, in the Director’s opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency’s discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat. Reinitiation does not apply to an existing programmatic land management plan prepared pursuant to the Federal Land Policy and Management Act (FLPMA), 43 U.S.C.

1701 et seq., or the National Forest Management Act (NFMA), 16 U.S.C. 1600 et seq., when a new species is listed or new critical habitat is designated under certain conditions (see our August 27, 2019, *Federal Register* notice (84 FR.44976)).

Application of the “Adverse Modification” Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that result in a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of the western yellow-billed cuckoo. As discussed above, the role of critical habitat is to support physical or biological features essential to the conservation of a listed species and provide for the conservation of the species.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the western yellow-billed cuckoo. These activities include, but are not limited to:

(1) Actions that would remove, thin, or destroy riparian western yellow-billed cuckoo habitat, without implementation of an effective riparian restoration plan that would result in the development of riparian vegetation of equal or better quality in abundance and extent. Such activities could include, but are not limited to, removing,

thinning, or destroying riparian vegetation by mechanical (including controlled fire), chemical, or biological (poorly managed biocontrol agents) means. These activities could reduce the amount or extent of riparian habitat needed by western yellow-billed cuckoos for sheltering, feeding, breeding, and dispersing.

(2) Actions that would appreciably diminish habitat value or quality through direct or indirect effects. These activities could permanently eliminate available riparian habitat and food availability or degrade the general suitability, quality, structure, abundance, longevity, and vigor of riparian vegetation. Such activities could include, but are not limited to: spraying of pesticides that would reduce insect prey populations within or adjacent to riparian habitat; introduction of nonnative plants, animals, or insects; habitat degradation from recreational activities; and activities such as water diversions or impoundments that would result in diminished or altered riverflow regimes, groundwater extraction activities, dam construction and operation activities, or any other activity that negatively changes the frequency, magnitude, duration, timing, or abundance of surface flow. These activities have the potential to reduce or fragment the quality or amount or extent of riparian habitat needed by western yellow-billed cuckoos for sheltering, feeding, breeding, and dispersing. However, we also note that existing water management operations in place on riverine segments identified as critical habitat, unless modified subsequent to this revised proposed designation, are unlikely to have any discernible effect on the quantity, quality, or value of the PBFs of the area identified as critical habitat. That is, when evaluating the effects on critical habitat, FWS considers ongoing water management operations within the proposed units that are not within the agency's discretion to modify to be part of the baseline. All areas identified as critical habitat

where ongoing water operations exist contain the PBFs necessary to provide for the essential habitat needs of the cuckoo; therefore, we do not anticipate that the continuation of existing water management operations would appreciably diminish the value or quality of the critical habitat where they occur.

(3) Actions that would permanently destroy or alter western yellow-billed cuckoo habitat. Such activities could include, but are not limited to, discharge of fill material, draining, ditching, tiling, pond construction, and stream channelization (due to roads, construction of bridges, impoundments, discharge pipes, stormwater detention basins, dikes, levees, and other things). These activities could permanently eliminate available riparian habitat and food availability or degrade the general suitability, quality, structure, abundance, longevity, and vigor of riparian vegetation and microhabitat components necessary for nesting, migrating, food, cover, and shelter.

(4) Actions that would result in alteration of western yellow-billed cuckoo habitat from management of livestock or ungulates (for example, horses, burros). Such activities could include, but are not limited to, unrestricted ungulate access and use of riparian vegetation; excessive ungulate use of riparian vegetation during the nongrowing season (for example, leaf drop to bud break); overuse of riparian habitat and upland vegetation due to insufficient herbaceous vegetation available to ungulates; and improper herding, water development, or other livestock management actions. These activities could reduce the volume and composition of riparian vegetation, prevent regeneration of riparian plant species, physically disturb nests, alter floodplain dynamics, alter watershed and soil characteristics, alter stream morphology, and facilitate the growth of flammable nonnative plant species.

(5) Actions in relation to the Federal highway system, which could include, but are not limited to, new road construction and right-of-way designation. These activities could eliminate or reduce riparian habitat along river crossings necessary for reproduction, sheltering, or growth of the western yellow-billed cuckoo.

(6) Actions that would involve funding and/or implementation of activities associated with cleaning up Superfund sites, erosion control activities, flood control activities, and communication towers. These activities could eliminate or reduce habitat for the western yellow-billed cuckoo.

(7) Actions that would affect waters of the United States under section 404 of the CWA. Such activities could include, but are not limited to, placement of fill into wetlands. These activities could eliminate or reduce the habitat necessary for the reproduction, feeding, or growth of the western yellow-billed cuckoo.

Finally, we note that for any of the seven categories of actions outlined above, we and the relevant Federal agency may find that the agency's anticipated actions affecting critical habitat may be appropriate to consider programmatically in section 7 consultation. Programmatic consultations can be an efficient method for streamlining the consultation process, addressing an agency's multiple similar, frequently occurring, or routine actions expected to be implemented in a given geographic area. Programmatic section 7 consultation can also be conducted for an agency's proposed program, plan, policy, or regulation that provides a framework for future proposed actions. We are committed to responding to any agency's request for a programmatic consultation, when appropriate and subject to the approval of the Director, as a means to streamline the regulatory process and avoid time-consuming and inefficient multiple individual consultations.

Exemptions

Application of Section 4(a)(3) of the Act

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108–136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) provides that: “The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.”

No Department of Defense lands have been identified as potential critical habitat; therefore, section 4(a)(3)(B)(i) of the Act does not apply, and no areas are being exempted.

Consideration of Impacts Under Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary may exclude any area from critical habitat if it is determined that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless it is determined, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history, are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor. Please see the Service’s policy regarding implementation of section 4(b)(2) of the Act published in the *Federal Register* on February 11, 2016 (81 FR 7226).

In considering whether to exclude a particular area from the designation, we identify the benefits of including the area in the designation, identify the benefits of excluding the area from the designation, and evaluate whether the benefits of exclusion outweigh the benefits of inclusion. If the analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, the Secretary may exercise his discretion to exclude the area only if such exclusion will not result in the extinction of the species.

When identifying the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive due to the protection from destruction of adverse modification as a result of actions with a Federal nexus; the educational benefits of mapping essential habitat for recovery of the listed species; and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat. When considering the benefits of exclusion, we consider, among other things, whether exclusion of a specific area is likely to result in conservation; or the continuation, strengthening, or encouragement of partnerships.

In the case of western yellow-billed cuckoo, the benefits of designating critical habitat include public awareness of the western yellow-billed cuckoo presence and the importance of habitat protection, and, where a Federal nexus exists, increased habitat protection for western yellow-billed cuckoo due to the protection from adverse modification or destruction of critical habitat. Increased habitat protection reduces the risk that human actions will directly or indirectly appreciably diminish habitat value or quality. Additionally, continued implementation of an ongoing management plan that provides equal to or more conservation than a critical habitat designation would reduce

the benefits of including that specific area in the critical habitat designation. Data limitations prevent the quantification of benefits.

We evaluate the existence of a conservation plan when considering the benefits of inclusion. We consider a variety of factors, including but not limited to, whether the plan is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future; whether the conservation strategies in the plan are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction of the species. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation.

Based on the information provided by entities seeking exclusion, as well as any additional public comments we receive, we will evaluate whether certain lands in the revised proposed critical habitat (table 3) are appropriate for exclusion from the final designation under section 4(b)(2) of the Act. If the analysis indicates that the benefits of excluding lands from the final designation outweigh the benefits of designating those lands as critical habitat, then the Secretary may exercise his discretion to exclude the

lands from the final designation. Tribal lands have not been identified for potential exclusion at this time; however, we have and will continue to coordinate and work with all tribes potentially affected by the revised proposed designation throughout this process and may exclude some or all of their lands from the final designation. Please see *Government-to-Government Relationship with Tribes*, below, for a complete list of tribal lands currently within the revised proposed designation.

Table 3 below provides approximate areas of lands that meet the definition of critical habitat and are under our consideration for possible exclusion under section 4(b)(2) of the Act from the final critical habitat rule.

Table 3. Areas considered for exclusion by critical habitat unit.

	Unit	Specific Area	Area Meeting the Definition of Critical Habitat, in acres (ha)	Area Considered for Possible Exclusion in acres (ha)
1	CA/AZ-1	Colorado River 1	82,138 (33,240)	55,061 (22,292)
2	CA/AZ-2	Colorado River 2	23,589 (9,546)	20,025 (8,107)
3	AZ-1	Bill Williams River	3,389 (1,371)	2,640 (1,069)
4	AZ-2	Alamo Lake	2,794 (1,131)	1,840 (745)
7	AZ-5	Upper Verde River	6,047 (2,447)	491 (199)
9	AZ-7	Beaver Creek	2,082 (842)	1 (<1)
10	AZ-8	L. Verde R./West Clear Ck.	2,178 (882)	42 (17)
11	AZ-9A	Horseshoe Dam	2,743 (1,110)	626 (253)
12	AZ-10	Tonto Creek	3,669 (1,485)	3,155 (1,277)
13	AZ-11	Pinal Creek	419 (169)	390 (158)
16	AZ-14	Upper San Pedro River	31,060 (12,569)	89 (36)
17	AZ-15	Lower San Pedro/Gila R.	23,400 (9,470)	1,757 (711)
19	AZ-17	Upper Cienega Creek	5,204 (2,106)	264 (107)
22	AZ-20	Gila River 1	20,724 (8,387)	10,183 (4,123)
23	AZ-21	Salt River	2,590 (1,048)	2,469 (1,000)
24	AZ-22	Lower Cienega Creek	2,360 (955)	2,360 (955)
27	AZ-25	Aravaipa Creek	3,329 (1,347)	392 (159)
28	AZ-26	Gila River 2	8,588 (3,475)	1,434 (580)
31	AZ-29	Big Sandy	20,179 (8,166)	721 (292)
33	NM-2	Gila River	4,177 (1,690)	3,002 (1,215)
35	NM-4	Upper Rio Grande 1	1,830 (741)	1,313 (531)
36	NM-5	Upper Rio Grande 2	1,173 (475)	1,173 (475)
37	NM-6AB	Middle Rio Grande	68,581 (27,754)	17,096 (6,922)
39	NM-8A	Caballo Delta North	190 (77)	190 (77)

39	NM-8B	Caballo Delta South	155 (63)	155 (63)
40	NM-9	Animas	608 (246)	608 (246)
41	NM-10	Selden Cyn./Radium Sprs.	237 (96)	237 (96)
43	AZ-31	Florida Wash	747 (302)	279 (113)
46	AZ-34	Madera Canyon	1,732 (701)	416 (168)
50	AZ-38	Arivaca Lake	1,365 (553)	380 (154)
53	AZ-41	Box Canyon	536 (217)	221 (89)
57	AZ-45	Barrel Canyon	920 (372)	170 (69)
58	AZ-46	Gardner Canyon	5,081 (2,056)	438 (177)
59	AZ-47	Brown Canyon	1,113 (451)	259 (105)
64	CA-2	South Fork Kern R. Valley	2,640 (1,068)	167 (67)
65	ID-1	Snake River 1	9,655 (3,907)	3,219 (1,303)
68	CO-1	Colorado River	4,002 (1,620)	417 (169)
70	UT-1	Green River 1	28,381 (11,486)	6,848 (2,771)
Total			145,710 (58,968)	

We specifically solicit comments on the inclusion or exclusion of these areas. In the paragraphs below, we provide brief descriptions of the lands under consideration for exclusion under section 4(b)(2) of the Act. We have also added an addendum to our incremental effects memorandum that lays out in table form the Service’s policy considerations under section 4(b)(2) of the Endangered Species Act: Land Ownership/Management and Potential Economic Impacts for Proposed Western Yellow-billed Cuckoo Critical Habitat. This addendum was developed following the finalization of the incremental effects memorandum, and the information in the incremental effects memorandum was used to inform the policy considerations. We also solicit comments on any potential economic exclusions (see **Information Requested**).

Consideration of Exclusion of State Lands and Lands with Conservation Easements

In response to specific comments we have already received from the States where we are proposing critical habitat, we are requesting further information on potential exclusions for State-managed or privately managed lands including, but not limited to, State Wildlife Areas, State Habitat Areas, State Parks, and State or other lands (of various

ownership) with permanent conservation easements. Table 4 lists examples of certain areas that may be appropriate for exclusion from critical habitat designation. For these and other areas being considered for exclusion, and as further discussed above, we are soliciting further information on where these properties are located, and how the western yellow-billed cuckoo or the riparian habitats they use are managed and protected at these areas. Without this information, we cannot weigh the benefits of a potential exclusion in comparison to inclusion. Table 4 is not exhaustive, and other areas within the revised proposed critical habitat not identified may be considered for exclusion and potentially excluded in the final designation. We invite public comments and request submission of supporting materials necessary to inform our evaluation of these potential exclusions.

Table 4. Examples of areas with land use designations that may be considered for exclusion from critical habitat designation.

Critical habitat unit	Name of unit	Site type	Potential exclusion area
4	AZ-2 Alamo Lake.....	State Wildlife Area (SWA)	Alamo Wildlife Area
7.....	AZ-5 Upper Verde River....	SWA	Upper Verde River SWA
64	CA-2 South Fork Kern River	Cons. Easement (CE).....	Hafenfeld Ranch.....
64	CA-2 South Fork Kern River	CE	Sprague Ranch.....
68	CO-1 Colorado River	SWA	Walker SWA
68	CO-1 Colorado River	Wildlife Management Area (WMA)	Colorado River WMA
68	CO-1 Colorado River	State Park (SP).....	James M. Robb—Colorado River SP.
69	CO-2 North Fork of the Gunnison River.	CE	Town of Hotchkiss Riparian Park.

Impacts on National Security and Homeland Security

Section 4(a)(3)(B)(i) of the Act may not cover all DoD lands or areas that pose potential national-security concerns (e.g., a DoD installation that is in the process of revising its INRMP for a newly listed species or a species previously not covered). If a particular area is not covered under section 4(a)(3)(B)(i), national-security or homeland-

security concerns are not a factor in the process of determining what areas meet the definition of “critical habitat” pursuant to that section of the law. Nevertheless, when designating critical habitat under section 4(b)(2), the Service must consider impacts on national security, including homeland security, on lands or areas not covered by section 4(a)(3)(B)(i). Accordingly, we will always consider for exclusion from the designation areas for which DoD, Department of Homeland Security (DHS), or another Federal agency has requested exclusion based on an assertion of national-security or homeland-security concerns.

We cannot, however, automatically exclude requested areas. When DoD, DHS, or another Federal agency requests exclusion from critical habitat on the basis of national-security or homeland-security impacts, it must provide a reasonably specific justification of an incremental impact on national security that would result from the designation of that specific area as critical habitat. That justification could include demonstration of probable impacts, such as impacts to ongoing border-security patrols and surveillance activities, or a delay in training or facility construction, as a result of compliance with section 7(a)(2) of the Act. If the agency requesting the exclusion does not provide us with a reasonably specific justification, we will contact the agency to recommend that it provide a specific justification or clarification of its concerns relative to the probable incremental impact that could result from the designation. If the agency provides a reasonably specific justification, we will defer to the expert judgment of DoD, DHS, or another Federal agency as to: (1) Whether activities on its lands or waters, or its activities on other lands or waters, have national-security or homeland-security implications; (2) the importance of those implications; and (3) the degree to which the cited implications

would be adversely affected in the absence of an exclusion. In that circumstance, in conducting a discretionary 4(b)(2) exclusion analysis, we will give great weight to national-security and homeland-security concerns in analyzing the benefits of exclusion.

Under section 4(b)(2) of the Act, we consider whether there are lands owned or managed by the DoD where a national-security impact might exist. We received comments from the Department of the Army and Department of the Air Force regarding excluding areas based on national security or other military operations. The comments were from the Yuma Proving Grounds (Department of the Army 2014, entire), Luke Air Force Base (Department of the Air Force 2014, entire) concerning restricted airspace above proposed critical habitat; however, the actions described by the two installations do not impact habitat for the western yellow-billed cuckoo and would not require consideration of adverse modification of the critical habitat. We do not believe that Army operations will be disrupted as a result of designation of critical habitat and have issued a biological opinion to that effect. We will have further discussions with the Army to evaluate whether these areas should be excluded from the final designation based on national security.

We also received comments from the U.S. Army installation at Fort Huachuca requesting that areas outside the installation in Unit 26 (AZ-18) that includes the San Pedro Riparian National Conservation Area (SPRNCA) be excluded from the final designation. Our evaluation of this request is outlined below.

Upper San Pedro River (Unit 26 AZ-18). The area within Unit 26 being requested for exclusion is part of the SPRNCA and is managed by the BLM and composed of Federal, State, and private lands and not owned by the DoD or part of the lands managed

under the Army's INRMP. The Army's rationale for the exclusion was that any additional restrictions to ground water pumping and water usage could affect their ability to increase staffing when needed, or carry out missions critical to national security. The Army also stated that designation of lands within the SPRNCA would increase its regulatory burden and disrupt its operations related to national security. The Army pointed to its continued land stewardship actions and its commitment to protecting natural resources on the base.

As stated above, the lands within Unit 26 (AZ-18) are primarily owned and managed by BLM. An exemption under section 4(a)(3)(a) does not apply because area is not subject to their INRMP. In addition, in the Fort Huachuca November 2013 Revised Biological Assessment (BA) (U.S. Department of the Army 2013, pp. 189–190) on its operations, it states that “Fort-attributable groundwater use is unlikely to affect the yellow-billed cuckoo or its habitat where the species is known to occur in the SPRNCA, Babocomari Cienega, or the lower San Pedro River....” The BA concludes there will be no effect on western yellow-billed cuckoo or its habitat from Fort Huachuca's operational actions or ground water pumping. In the subsequent 2014 biological opinion under section 7 of the Act, we issued a not likely to adversely affect (NLAA) or adversely modify critical habitat determination for the Army's operational activities and ground water pumping as they related to the SPRNCA and the western yellow-billed cuckoo (Service 2014, pp. 300–306). Given that the Fort's ground water use has been determined to not adversely affect western yellow-billed cuckoos or their habitat, we are not considering the area for exclusion at this time. Should the Army present additional information as to why the area warrants exclusion, we may consider their request in our

final designation.

Lastly, we received a request from the U.S. Customs and Border Protection (CBP) (Department of Homeland Security) that proposed critical habitat along the U.S./Mexico border along California, Arizona, and Texas be considered for exclusion under section 4(b)(2) of the Act for national security reasons. The CBP was particularly concerned with Unit 7 (CA/AZ-1), Unit 26 (AZ-18) (south of Arizona Highway 92), Unit 31 (AZ-23), Unit 32 (AZ-24), and Unit 35 (AZ-27). However with the revision to the original proposal, we assume the CBP would request all areas along the California, Arizona, New Mexico, and Texas border be evaluated for exclusion. Our evaluation of this request is outlined below.

United States/Mexico Border; Colorado River 1 (Unit 7 CA/AZ-1), Upper San Pedro River (Unit 26 AZ-18), Unit 31 (AZ-23) Arivaca Wash and San Luis Wash, Unit 32 (AZ-24) Sonoita Creek, Santa Cruz River (Unit 34 AZ-26), Black Draw (Unit 35 AZ-27), Arroyo Caballo, Rio Grande (Unit 79 TX-1), Terlingua Creek and Rio Grande (Unit 80 TX-2) California Gulch (Unit 91 AZ-40), Sycamore Canyon (Unit 92 AZ-41), Pena Blanca Canyon (Unit 100 AZ-49), Washington Gulch (Unit 120 AZ-68), San Rafael Valley (Unit 113, AZ-62), and Guadalupe Canyon (Unit 118 AZ-72). As stated above, we received a request from the CBP that proposed critical habitat along the border in California, Arizona, and Texas be considered for exclusion under section 4(b)(2) of the Act. CBP stated they have concerns that the designation could have significant impacts on their ability to carry out CBP's national- and border-security missions along the U.S./Mexico international border. In these areas, CBP conducts clearing and management of riparian vegetation to maintain unobstructed lines of sight in the border areas to

facilitate identification and location of illegal cross-border activities and to maintain the safety of CBP officers and agents who could be targets of cross-border violators hidden in unmanaged vegetation. The exact extent of area that is being considered for exclusion has not yet been identified, since it would depend on where areas of interest to the CBP are located and if such areas are requested. However, in general, we would expect the areas to be no more than 0.25 mi (0.4 km) from the border. We will be meeting with CBP staff to discuss their activities and make a final determination on potential exclusion in our final designation of critical habitat.

Exclusions Based on Other Relevant Impacts

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors including whether there are permitted conservation plans covering the species in the area such as habitat conservation plans (HCPs), safe harbor agreements, or candidate conservation agreements with assurances, or whether there are nonpermitted conservation agreements and partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at the existence of Tribal conservation plans and partnerships and consider the government-to-government relationship of the United States with Tribal entities. We also consider any social impacts that might occur because of the designation.

Based on the information provided by entities seeking exclusion, as well as any additional public comments received, we will evaluate whether certain lands in the proposed critical habitat presented in table 3 are appropriate for exclusion from the final designation under section 4(b)(2) of the Act. If the analysis indicates that the benefits of

excluding lands from the final designation outweigh the benefits of designating those lands as critical habitat, then the Secretary may exercise his discretion to exclude the lands from the final designation.

We believe that the following HCPs and other plans, partnerships, and agreements may fulfill the above criteria, and will consider the exclusion of these Federal, Tribal, and non-Federal lands covered by these plans that provide for the conservation of the western yellow-billed cuckoo. We are requesting comments on the benefits to the western yellow-billed cuckoo from these HCPs, plans, partnerships, and agreements. However, at this time, we are not proposing the exclusion of any areas in this revised proposed critical habitat designation for the western yellow-billed cuckoo. We specifically solicit comments on the inclusion or exclusion of such areas and request any information on any other potential exclusions. We may consider other areas for exclusion based on public comment and information we receive and on our further review of the revised proposed designation and its potential impacts.

Some of the following information on HCPs, plans, partnerships, and agreements was obtained from the August 15, 2011, proposed designation of revised critical habitat for the southwestern willow flycatcher (76 FR 50542). The areas used by the southwestern willow flycatcher and western yellow-billed cuckoo overlap in several areas in the southwestern United States, and management actions for the southwestern willow flycatcher often benefit the western yellow-billed cuckoo. These various plans describe beneficial actions for the southwestern willow flycatcher within the same area that we are proposing to designate as western yellow-billed cuckoo critical habitat. We will consider whether these beneficial actions for the southwestern willow flycatcher are appropriate to

include in any consideration of excluding a given proposed western yellow-billed cuckoo unit from final western yellow-billed cuckoo critical habitat designation under section 4(b)(2) of the Act.

Below we present details on the areas being considered for exclusion within each State. Please see the Service's policy regarding implementation of section 4(b)(2) of the Act (81 FR 7226; February 11, 2016) for a description of the categories under which the areas considered for exclusion are grouped below.

California

Federal Lands

South Fork Kern River Valley (Unit 64 CA-2) Sprague Ranch Conservation Easement. Sprague Ranch is an approximately 2,479-ac (1,003-ha) parcel, which includes approximately 395 ha (975 ac) of floodplain habitat located along the South Fork of the Kern River in Kern County, California. Sprague Ranch was purchased by the U.S. Army Corps of Engineers (USACE) as a result of biological opinions for the long-term operation of Lake Isabella Dam and Reservoir (Service 1996 File Nos. 1-1-96-F-27; 1-1-99-F-216; and 1-1-05-F-0067), specifically to provide habitat and conservation for the southwestern willow flycatcher. Many of the actions may also benefit the western yellow-billed cuckoo. During the periods of time southwestern willow flycatcher habitat is not available at Lake Isabella Reservoir as a result of short-term inundation from Isabella Dam operations, Sprague Ranch is expected to provide habitat for the southwestern willow flycatcher. The USACE, National Audubon Society (Audubon), and California Department of Fish and Wildlife (CDFW) (formerly California Department of Fish and Game) have a joint management agreement for this property, which is important

southwestern willow flycatcher habitat. Sprague Ranch is located immediately north and adjacent to the Kern River Preserve (KRP), which is owned and operated by Audubon, and shares a common border with the KRP of more than 3 mi (4.8 km). Sprague Ranch contains existing riparian forest that can support and maintain nesting territories and migrating and dispersing southwestern willow flycatchers. Other portions of the ranch are believed to require restoration and management in order to become nesting southwestern willow flycatcher habitat. Activities such as nonnative vegetation control and native tree plantings are other management activities expected to occur. Sprague Ranch is currently being managed in accordance with the terms and conditions of the biological opinions specifically for the southwestern willow flycatcher.

Based on the anticipated benefits to the western yellow-billed cuckoo that would derive from the actions to benefit the southwestern willow flycatcher, we will consider excluding approximately 40 ac (16 ha) in Unit 64 along the South Fork Kern River on Sprague Ranch from final western yellow-billed cuckoo critical habitat designation under section 4(b)(2) of the Act.

Private or Other Non-Federal Conservation Plans or Agreements and Partnerships, in General

South Fork Kern River Valley (Unit 64 CA-2) Hafenfeld Ranch Conservation Easement. The Hafenfeld Ranch owns and manages a segment (127 ac (51 ha)) of proposed western yellow-billed cuckoo critical habitat along the South Fork Kern River within the Kern River Management Unit in Kern County, California. The Hafenfeld Ranch has developed a conservation easement and plan with the Natural Resources Conservation Service that provides management and protections for southwestern willow

flycatcher habitat. We are evaluating whether these actions also provide benefit for the western yellow-billed cuckoo. The Hafenfeld parcel completes a continuous corridor of willow-cottonwood riparian habitat along the South Fork Kern River that connects the east and west segments of the Audubon Society's Kern River Preserve. The conservation easement and plan establishes that these lands are managed for the benefit of the southwestern willow flycatcher by restoring, improving, and protecting its habitat. Management activities include: (1) Limiting public access to the site, (2) winter-only grazing practices (outside of the southwestern willow flycatcher nesting season), (3) protection of the site from development or encroachment, (4) maintenance of the site as permanent open space that has been left predominantly in its natural vegetative state, and (5) spreading of flood waters to promote the moisture regime and wetland and riparian vegetation for the conservation of the southwestern willow flycatcher. Prohibitions of the easement that would benefit the conservation of the southwestern willow flycatcher include: (1) Haying, mowing, or seed harvesting; (2) altering the grassland, woodland, wildlife habitat, or other natural features; (3) dumping refuse, wastes, sewage, or other debris; (4) harvesting wood products; (5) draining, dredging, channeling, filling, leveling, pumping, diking, or impounding water features or altering the existing surface water drainage or flows naturally occurring within the easement area; and (6) building or placing structures on the easement.

Based on the actions to benefit the southwestern willow flycatcher, we will consider excluding the Hafenfeld Ranch lands within Unit 64 (127 ac (51 ha)) from final western yellow-billed cuckoo critical habitat designation under section 4(b)(2) of the Act.

Arizona

Tribal Lands along the Colorado River

On the Colorado River along the California/Arizona border several Native American Tribes own lands within Units 1 (CA/AZ-1) and 2 (CA/AZ-2). We are considering excluding all Tribal lands from these two units. The total amount of area considered in the exclusion totals approximately 55,061 ac (22,292 ha) from Unit 1 and 20,025 ac (8.107 ha) from Unit 2. Information regarding Tribal management of these areas is described below.

Colorado River Indian Reservation (Unit 1, CA/AZ-1). The Colorado River Indian Tribal lands contain a proposed Colorado River segment of western yellow-billed cuckoo critical habitat in La Paz County, Arizona. The Colorado River Indian Tribes (CRIT) have finalized a southwestern willow flycatcher management plan (SWFMP) compatible with western yellow-billed cuckoo management (CRIT 2005, pp. 1-48). The CRIT's SWFMP describes a commitment to conduct a variety of habitat management actions. The SWFMP also identifies the assessment, identification, and protection of southwestern willow flycatcher migration habitat (CRIT 2005, pp. 1-48). The SWFMP identifies protecting breeding habitat with the Ahakhav Tribal Preserve and in any areas established for southwestern willow flycatchers with the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). Seasonal closures of occupied southwestern willow flycatcher habitat during the breeding season may be necessary and established by the Colorado River Indian Tribes. Protection of habitat from fire is established in the SWFMP, as well as protections from other possible stressors such as overgrazing, recreation, and development (CRIT 2005, pp. 1-48). The Colorado River Indian Tribes may also work in conjunction with the LCR MSCP on additional riparian

management. We received comments from the CRIT following our proposed rule, and those comments will be fully considered in the final designation. We will consider excluding the Colorado River Indian Tribal land from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Fort Yuma Indian Reservation (Unit 1, CA/AZ-1). The Quechan Tribal lands contain a proposed Colorado River segment of western yellow-billed cuckoo critical habitat near the City of Yuma in Yuma County, Arizona. The Quechan Tribe has completed an SWFMP that is compatible with western yellow-billed cuckoo management (Quechan Indian Tribe 2005, pp. 1–30). The Quechan Tribe’s SWFMP describes a commitment to conduct a variety of habitat management actions. The Tribe will manage riparian tamarisk that is intermixed with cottonwood, willow, mesquite, and arrow weed to maximize potential value for nesting southwestern willow flycatchers (Quechan Indian Tribe 2005, pp. 1–30). Any permanent land use changes for recreation or other reasons will consider and support southwestern willow flycatcher needs, as long as those needs are consistent with Tribal cultural and economic needs. The Tribe will consult with the Service to develop and design plans that minimize impacts to southwestern willow flycatcher habitat. The Tribe will establish collaborative relationships with the Service to benefit the southwestern willow flycatcher, including monitoring for southwestern willow flycatcher presence and habitat condition, within the constraints of funds available to the Tribe. This action is anticipated to provide benefits to the western yellow-billed cuckoo. The Quechan Tribe may also work in conjunction with the LCR MSCP on additional riparian management. We will consider excluding the Quechan Tribal land from the final

designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Cocopah Tribe of Arizona (Unit 1, CA/AZ-1). The Cocopah Tribal lands, located 13 mi (21 km) south of Yuma, in Yuma County, Arizona, contain proposed western yellow-billed cuckoo critical habitat along the lower Colorado River. We provided comments on a draft management plan provided by the Cocopah Tribe following our proposed critical habitat rule, and we will continue to work with the Cocopah Tribe on revisions compatible with western yellow-billed cuckoo management. The Cocopah Tribe may also work in conjunction with the LCR MSCP on additional riparian management. We will consider excluding the Cocopah Tribe of Arizona land from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act. Based on these conservation plans, we will consider excluding the Cocopah Tribal lands in Units 1 and 2.

Fort Mojave Indian Tribe (Unit 2, CA/AZ-2). Fort Mojave Indian Tribal lands contain a proposed segment of western yellow-billed cuckoo critical habitat at Lake Havasu in Mohave County, Arizona. The Fort Mojave Tribe has finalized an SWFMP, compatible with western yellow-billed cuckoo management (Fort Mojave Indian Tribe 2005, pp. 1–24). The Fort Mojave Tribe’s SWFMP describes that, within the Tribe’s budgetary constraints, they commit to management that will sustain the current value of tamarisk, willow, and cottonwood vegetation that meets moist soil conditions necessary to maintain southwestern willow flycatcher habitat; monitoring to determine southwestern willow flycatcher presence and vegetation status in cooperation with the Service; and wildfire response and law enforcement to protect suitable habitats. The Fort

Mojave Indian Tribe may also work in conjunction with the LCR MSCP on additional riparian management (Fort Mojave Indian Tribe 2005, pp. 1–24). We will consider excluding the Fort Mojave Indian Tribal lands on the Colorado River from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Other Tribal Lands in Arizona

Yavapai-Apache Nation (Unit 7: AZ–5, Upper Verde River; Unit 9: AZ–7, Beaver Creek; and Unit 10: AZ–8, Lower Verde River and West Clear Creek). The Yavapai-Apache Nation contains Verde River segments of proposed western yellow-billed cuckoo critical habitat in Yavapai County, Arizona. The small parcels are located near Clarkdale, Camp Verde, Middle Verde, Rimrock, and the I–17 interchange for Montezuma Castle National Monument (Yavapai-Apache Nation 2005, p. 6). The Yavapai–Apache Nation has completed an SWFMP that is compatible with western yellow-billed cuckoo management (Yavapai-Apache Nation 2005, pp. 1–15). The Yavapai-Apache Nation’s SWFMP addresses and presents assurances for southwestern willow flycatcher habitat conservation. The Yavapai-Apache Nation will, through zoning, Tribal ordinances and code requirements, and measures identified in the southwestern willow flycatcher recovery plan, take all practicable steps to protect known southwestern willow flycatcher habitat located along the Verde River (Yavapai-Apache Nation 2005, p. 14). The Yavapai–Apache Nation will take all reasonable measures to assure that no net habitat loss or permanent modification of southwestern willow flycatcher habitat will result from recreational and road construction activities, or habitat restoration activities, and will take all reasonable steps to coordinate with the Service so that southwestern willow flycatcher

habitat is protected. Within funding limitations and under confidentiality guidelines established by the Yavapai-Apache Nation, they will cooperate with the Service to monitor and survey habitat for breeding and migrating southwestern willow flycatchers, conduct research, and perform habitat restoration, or other beneficial southwestern willow flycatcher management activities. Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, most of the mitigation measures serve both species. We received comments from the Yavapai-Apache Nation following our proposed critical habitat rule and have incorporated those comments in this revision. We will consider excluding the Verde River segments totaling 534 ac (216 ha) within the Yavapai-Apache Nation from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

San Carlos Reservation (Unit 17: AZ-15, Lower San Pedro River and Gila River; Unit 22: AZ-20, Gila River 1; Unit 27: AZ-25, Aravaipa Creek; and Unit 28: AZ-26, Gila River 2). The San Carlos Apache Tribal lands contain proposed western yellow-billed cuckoo critical habitat within the conservation space of San Carlos Lake and the Gila River upstream from San Carlos Lake, in Gila County, Arizona. The San Carlos Apache Tribe has finalized an SWFMP that is compatible with western yellow-billed cuckoo management (San Carlos Apache Tribe 2005, pp. 1-65). Implementation of the San Carlos Apache Tribe's SWFMP will protect all known southwestern willow flycatcher habitat on San Carlos Tribal Land and assure no net habitat loss or permanent modification will result (San Carlos Apache Tribe 2005, p. 36). All habitat restoration activities (whether to rehabilitate or restore native plants) will be conducted under reasonable coordination with the Service. All reasonable measures will be taken to ensure

that recreational activities do not result in a net habitat loss or permanent modification. All reasonable measures will be taken to conduct livestock grazing activities under the guidelines established in the recovery plan for the southwestern willow flycatcher. Within funding limitations and under confidentiality guidelines established by the Tribe, the Tribe will cooperate with the Service to monitor and survey habitat for breeding and migrating southwestern willow flycatchers, conduct research, and perform habitat restoration, or other beneficial southwestern willow flycatcher management activities (San Carlos Apache Tribe 2005, pp. 35–36, 45–46). Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, most of the mitigation measures serve both species. We received comments from the San Carlos Apache Tribe following our 2014 proposed critical habitat rule, and those comments and new comments will be fully considered in the final designation. We will consider excluding 13,766 ac (5,571 ha) of San Carlos Apache Tribal land from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Hualapai Indian Tribe (Unit 31: AZ–29, Big Sandy River). The Hualapai Indian Tribe owns land within the proposed western yellow-billed cuckoo critical habitat along the Big Sandy River, in Mohave County, Arizona. The Hualapai Tribe has finalized a management plan for the southwestern willow flycatcher that was adopted by the Hualapai Tribal Council (Hualapai Tribe 2004, entire).

The objectives of the Hualapai Tribe’s management plan are to manage riparian vegetation to: (1) maximize continued presence of native plant species suitable for use by flycatchers; (2) ensure that existing land uses (which presently include recreational

activities) will not result in net loss or reduction in quality of habitat; and (3) continue their Department of Natural Resources partnership in the management of the lower Colorado River region, including those associated with the LCR MSCP (Hualapai Tribe 2004, pp. 17–18). Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, most of the conservation measures identified in the plan serve both species. We will consider excluding the Hualapai Tribal lands within Unit 31: AZ–29, Big Sandy River, totaling approximately 242 ac (98 ha) from the final designation of critical habitat for the western yellow-billed cuckoo under section 4(b)(2) of the Act.

Private or Other Non-Federal Conservation Plans Related to Permits Under Section 10 of the Act

Colorado River; Bill Williams River (Unit 1: CA/AZ–1; Unit 2: CA/AZ–2; and Unit 3: AZ–1). Lower Colorado River Multi-Species Conservation Plan (LCR MSCP).

The Lower Colorado River Multi-Species Conservation Program (2004, pp. 1–506) was developed for areas along the lower Colorado River along the borders of Arizona, California, and Nevada from the conservation space of Lake Mead to Mexico, in the Counties of La Paz, Mohave, and Yuma in Arizona; Imperial, Riverside, and San Bernardino Counties in California; and Clark County in Nevada. The LCR MSCP primarily covers activities associated with water storage, delivery, diversion, and hydroelectric production. The record of decision was signed by the Secretary of the Interior on April 2, 2005. Discussions began on the development of this HCP in 1994, but an important catalyst was a 1997 jeopardy biological opinion for the southwestern willow flycatcher issued to the Bureau of Reclamation for lower Colorado River operations. The

Federal agencies involved in the LCR MSCP include Reclamation, Bureau of Indian Affairs (BIA), NPS, BLM, Western Area Power Administration, and the U.S. Fish and Wildlife Service.

The LCR MSCP planning area primarily surrounds proposed western yellow-billed cuckoo critical habitat along the lower Colorado River from Lake Mead to the southerly international border. Portions of the Colorado River, Lake Mead, Virgin River, and Muddy River in Arizona, Utah, and Nevada are included where they surround Lake Mead (including the conservation space of Lake Mead, which extends up the Colorado River to Separation Canyon). Also, a portion of the Bill Williams River at the Colorado River confluence at Lake Havasu occurs within the LCR MSCP planning area. The LCR MSCP permittees will create and maintain 4,050 ac (1,639 ha) of western yellow-billed cuckoo habitat, reduce the risk of loss of created habitat to wildfire, replace created habitat affected by wildfire, and avoid and minimize operational and management impacts to western yellow-billed cuckoos over the 50-year life of the permit (2005 to 2055) (Lower Colorado River Multi-Species Conservation Program 2004, pp. 5-30–5-36, Table 5-10, 5-58–5-60). Additional research, management, monitoring, and protection of western yellow-billed cuckoos will occur. In addition to western yellow-billed cuckoo habitat creation and subsequent management, the LCR MSCP will provide funds to ensure existing western yellow-billed cuckoo habitat is maintained. Western yellow-billed cuckoo management associated with the LCR MSCP is conducted in conjunction with management occurring on the National Wildlife Refuges (Bill Williams, Havasu, Cibola, and Imperial) and Tribal lands (Hualapai, Fort Mohave, Chemehuevi, Colorado River, and Quechan Tribes) along the LCR. Additional rationale for considering an

exclusion within the geographic area covered by the LCR MSCP can be found in the final rule designating critical habitat for the southwestern willow flycatcher, published in the *Federal Register* on January 3, 2013 (78 FR 410–418). We will consider excluding all Federal and non-Federal land that may occur within the LCR MSCP planning area from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Horseshoe Dam (Unit 11: AZ–9A), Horseshoe and Bartlett Dam Habitat Conservation Plan (HCP). In June 2008, the Service issued an incidental take permit to the Salt River Project (SRP) for 16 species that inhabit Horseshoe and Bartlett Reservoirs and the Verde River above and below the two dams in Gila and Maricopa Counties (SRP 2008, p. 6). The western yellow-billed cuckoo and southwestern willow flycatcher are two of the covered species in the permit. Critical habitat on the Verde River is proposed within the water storage space and upstream of Horseshoe Reservoir and downstream of Bartlett Lake. The area covered by the permit for the western yellow-billed cuckoo and southwestern willow flycatcher includes Horseshoe Reservoir up to an elevation of 2,026 ft (618 m) and Bartlett up to an elevation of 1,748 ft (533 m) (SRP 2008, p. ES-1). The water storage space within Horseshoe Reservoir is the primary area where impacts to the western yellow-billed cuckoos and southwestern willow flycatchers are anticipated to occur through periodic inundation and drying of habitat (SRP 2008, p. 3).

Water storage and periodic inundation of western yellow-billed cuckoo and southwestern willow flycatcher habitat would likely result in delayed or lost breeding attempts, decreased productivity and survivorship of dispersing adults in search of suitable breeding habitat, and decreased productivity of adults that attempt to breed at

Horseshoe Reservoir. The 50-year Horseshoe and Bartlett Dam HCP provides measures to minimize and mitigate incidental take while allowing the continued operation of the two reservoirs (SRP 2011a, p. 5). These goals will be achieved with the following measures: (1) Managing water levels in Horseshoe Reservoir to the extent practicable to benefit or reduce impacts to the covered species; and (2) acquiring and managing southwestern willow flycatcher and western yellow-billed cuckoo habitat along rivers in central Arizona to provide a diversity of geographic locations with habitat like Horseshoe Reservoir (SRP 2008, p. ES-4). Mitigation efforts include operation of Horseshoe Reservoir to support tall, dense vegetation at the upper end of the reservoir and to make riparian habitat available earlier in the nesting season (SRP 2011a, p. 5). In addition, after two successive years without storage above an elevation of 1,990 ft (607 m), Horseshoe Reservoir would be filled in order to saturate the soil and relieve the drought stress on stands of willow trees (SRP 2008, pp. 30–31). Filling Horseshoe after two dry years would depend on whether adequate water supply is available, consistency with the other reservoir operation objectives, and maintenance of a minimum pool of 50,000 acre-feet in Bartlett to minimize impacts on recreation at that reservoir (SRP 2008, p. 31). The need to manage Horseshoe levels to support stands of tall dense vegetation would occur about once every 13 years on average based on historical runoff patterns.

While Horseshoe Dam operations may cause fluctuations in habitat abundance and quality, reservoir operations also create a dynamic environment that fosters the long-term persistence of habitat. Combined with the normal cycle of reservoir levels, which serve to establish and maintain riparian habitat in and adjacent to the reservoir, the modified reservoir operations minimize impacts on southwestern flycatchers and western

yellow-billed cuckoos (SRP 2008, pp. 169–170). The HCP obligates the SRP to monitor western yellow-billed cuckoos, southwestern willow flycatchers, and habitat at Horseshoe Reservoir (SRP 2011a, p. 8) and mitigation properties. The SRP must acquire and manage in perpetuity 200 ac (81 ha) of riparian habitat by fee title or conservation easements (SRP 2011a, p. 5). The SRP has acquired a conservation easement for 150 ac (60 ha) and has acquired an additional 55 ac (22 ha) of riparian woodland on the Gila River near Fort Thomas (Unit 22, AZ–20, Gila River 1) (SRP 2011a, p. 5, SRP 2014, entire). These lands are part of a 1,250-ac (506-ha) continuous stand of riparian woodlands owned by SRP and Reclamation under a southwestern willow flycatcher and western yellow-billed cuckoo SRP conservation management plan (SRP 2014, entire).

The SRP provides water from Horseshoe and Bartlett Reservoirs directly to various beneficiaries of these storage facilities for irrigation and other uses (SRP 2008, pp. 11–22). Water from Horseshoe, Bartlett, and the SRP’s other reservoirs is provided directly by the SRP to shareholder lands for irrigation and other uses, and is delivered to the cities of Avondale, Chandler, Gilbert, Glendale, Mesa, Peoria, Phoenix, Scottsdale, Tempe, and Tolleson for municipal use on shareholder lands. Water deliveries are also made under specific water rights in Horseshoe and Bartlett Reservoirs held by the City of Phoenix, Salt River Pima Maricopa Indian Community, and Fort McDowell Yavapai Nation. In addition, water is delivered from the SRP reservoir system to the cities, Gila River Indian Community, Buckeye Irrigation Company, Roosevelt Water Conservation District, and others in satisfaction of their independent water rights. Finally, exchange agreements between a number of entities and the SRP pursuant to State and Federal law are facilitated by stored water from Horseshoe and Bartlett Reservoirs. We will consider

excluding 626 ac (253 ha) in and adjacent to the water storage area of Horseshoe Reservoir from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act. However, SRP supports the inclusion of the Gila River mitigation properties near Fort Thomas in Unit 22, AZ-20, Gila River 1, as critical habitat, and these properties are not being considered for exclusion (SRP 2014, entire).

Roosevelt Lake (Unit 12: AZ-10, Tonto Creek, and Unit 23: AZ-21, Salt River).

In February 2003, the Service issued an incidental take permit to the SRP for four riparian bird species, including the western yellow-billed cuckoo and southwestern willow flycatcher for 50 years (SRP 2011b, p. 1). The Tonto Creek and the Salt River confluences with Roosevelt Lake are proposed as western yellow-billed cuckoo critical habitat. The activity covered by the permit is the continued operation by the SRP of Roosevelt Dam and Lake in Gila and Maricopa Counties, Arizona, up to an elevation of 2,151 ft (656 m) (SRP 2002, ES-1). The HCP specifies the following measures to minimize and mitigate incidental take of the four species: Creating and managing riparian habitat at Roosevelt Lake; and acquiring and managing riparian habitat in river basins in central Arizona that the four target bird species are expected to occupy (SRP 2002, p. ES-4). The HCP commits the SRP to acquire 2,250 ac (911 ha), including acquisition and management of at least 1,500 ac (607 ha) of riparian habitat by fee title or conservation easement offsite on the San Pedro, Verde, and Gila Rivers and protection of up to an additional 750 ac (304 ha). The SRP has exceeded this obligation, accruing 2,591 ac (1,049 ha) (SRP 2011b, p. 17) in Unit 7 (AZ-5, Upper Verde River), Unit 17 (AZ-15, Lower San Pedro River and Gila Rivers), and Unit 22 (AZ-20, Gila River 1). The SRP monitors vegetation at Roosevelt Lake to ensure that adaptive management thresholds or

permit limits are not exceeded (SRP 2011b, p. 6). Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, most of the mitigation measures serve both species.

Western yellow-billed cuckoo and southwestern willow flycatcher habitat at Roosevelt Lake varies depending on how and when the lake recedes as a result of water in-flow and subsequent storage capacity and delivery needs. Even in the expected high-water years, some southwestern willow flycatcher and western yellow-billed cuckoo habitat would persist at Roosevelt Lake. Measures in the HCP to protect habitat at Roosevelt Lake include funding a USFS employee to patrol and improve protection of southwestern willow flycatcher habitat in the Roosevelt lakebed from adverse activities such as fire ignition from human neglect, improper vehicle use, etc. (SRP 2011b, p. 13). The SRP also developed 20 ac (8 ha) of habitat near Roosevelt Lake at offsite Rockhouse Demonstration Site to serve as a potential refugium when Roosevelt Lake is near capacity (SRP 2011, p. 15). This site is an average of 25 ft (8 m) above ground water and relies on artificial irrigation. If SRP's ability to artificially irrigate the site is damaged or is discontinued and habitat is no longer suitable, the HCP provides an adaptive management alternative (SRP 2014, entire). The SRP monitors habitat conditions, southwestern willow flycatchers, and western yellow-billed cuckoos at Roosevelt Lake and at offsite mitigation properties (SRP 2011, pp. 19–20). We will consider excluding the water storage area of Roosevelt Lake, which is the area within the conservation pool up to the 2,151-ft (656-m) elevation, including 3,155 ac (1,277 ha) of Unit AZ–10 and 2,469 ac (1,000 ha) of Unit AZ–21, from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act. We will also consider exclusion of the

20-ac (8-ha) Rock Rockhouse Demonstration Site from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act. However, SRP supports the inclusion of their Unit 7 (AZ-5, Upper Verde River), Unit 17 (AZ-15, Lower San Pedro River and Gila Rivers), and Unit 22 (AZ-20, Gila River 1) mitigation properties as critical habitat, and they are not being considered for inclusion (SRP 2014, entire).

Pima County Multi-Species Conservation Plan (MSCP) (Unit 16: AZ-14, Upper San Pedro River; Unit 17: AZ-15, Lower San Pedro River and Gila River; Unit 19: AZ-17, Upper Cienega Creek; Unit 24: AZ-22, Lower Cienega Creek; Unit 43: AZ-31, Florida Wash; Unit 46: AZ-34, Madera Canyon; Unit 50: AZ-38 Arivaca Lake; Unit 53: AZ-41, Box Canyon; Unit 57: AZ-45 Barrel Canyon; Unit 58: AZ-46, Gardner Canyon; Unit 59: AZ-47, Brown Canyon. Under the Multi-Species Conservation Plan, Pima County will avoid, minimize, and mitigate impacts to 44 species and their habitat within the Permit Area (a portion of Pima County) during the 30-year section 10(a)(1)(B) permit period (Pima County 2016a, p. v). The primary covered activities are maintenance and construction activities and certain development activities of the private sector.

Based on the suite of covered activities and a modeling of urban growth projections, Pima County anticipates that there will be approximately 36,000 ac (14,569 ha) of disturbance resulting from the covered activities within the permit area during the 30-year permit period. For this amount of disturbance, Pima County would provide approximately 116,000 ac (46,944 ha) of mitigation. Despite not yet having a section 10(a)(1)(B) permit, Pima County has acquired more than 74,000 ac (29,247 ha) of fee-owned lands and more than 124,000 ac (50,181 ha) of lease lands that provide the

portfolio of lands Pima County would use to fulfill the section 10(a)(1)(B) permit mitigation obligations. Partial mitigation credit will be granted for lease lands and for improving natural resource conditions on those lease lands.

Other important avoidance, minimization, and mitigation measures related to this MSCP rely upon Pima County's continued application of various County Code requirements and departmental procedures that mandate the avoidance and mitigation of impacts to onsite sensitive resources. Pima County anticipates providing approximately 112,000 ac (45,325 ha) of mitigation for approximately 36,000 ac (14,568 ha) of disturbance resulting from covered activities (Pima County 2016a, p. v). Pima County has spent approximately \$150 million on land acquisitions since 2004 in preparation for the section 10(a)(1)(B) permit mitigation needs. These dollars came primarily from bond funds approved by voters in 2004. Most of the management and enforcement functions associated with this MSCP are already taking place as Pima County implements the natural resource and open-space elements of its Sonoran Desert Conservation Plan. Implementation of the more comprehensive ecological monitoring program, which is required subsequent to the issuance of the section 10(a)(1)(B) permit, will result in new programmatic costs for Pima County (Pima County 2016a, p. vi). The plan will conserve and manage western yellow-billed cuckoos by: (1) Implementing the Pima County Riparian Protection Ordinance to minimize habitat loss; (2) protecting water rights at Cienega Creek Natural Preserve and Buehman Canyon to maintain and restore habitat; (3) seeking to protect additional water rights at Cienega Creek Natural Preserve and Buehman Canyon to maintain and restore habitat; and (4) conducting protocol surveys every 3 years at all sites; and (5) enacting a 400-m "restricted activity zone" buffer

around known nests during the nesting period (Pima County 2016b, pp. A-80–81, A-273).

Revised proposed critical habitat within the jurisdiction of Pima County includes parts of the above-named units in the MSCP (Pima County 2016a, p. 14). We are considering excluding 9,191 ac (3,719 ha) of land in these units. Impacts within western yellow-billed cuckoo habitat resulting from the covered activities may emerge over the 30-year permit period and will be mitigated accordingly through the MSCP. Pima County submitted comments requesting that critical habitat be maintained on county- and district-owned and leased properties and on the Federal lands within Las Cienegas National Conservation Area and that these areas not be excluded from the final designation (Huckelberry 2014, entire). Pima County reasons that critical habitat designation will require the Federal agencies to use an additional standard of review when conducting section 7 consultations with the Service for federally permitted activities that are not controlled by Pima County, such as mines and transmission lines. Pima County's commitment to the protection of species and habitat is a core value of its citizens and government, as demonstrated by its continued implementation of the MSCP (Huckelberry 2014, entire). We will review Pima County's request not to exclude certain lands from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Private or Other Non-Federal Conservation Plans or Agreements and Partnerships, in General

Alamo Lake State Wildlife Area (AWA); Alamo Lake (Unit 4, AZ-2). The Alamo Lake State Wildlife Area (AWA) in La Paz and Mohave Counties, Arizona, was created

under provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*), Public Land Order 492 (PLO 492), and the General Plan agreement between the Secretary of the Army, Secretary of the Interior, and Director of Arizona Game and Fish, signed January 19, 1968 (Arizona Game and Fish Department–Arizona State Parks (AGFD–ASP) 1997). The area is owned by the USACE and the State. A lease agreement between the Arizona Game and Fish Department Commission and the USACE was signed in 1970, establishing the AWA for fish and wildlife conservation and management purposes (AGFD–ASP 1997). The present lease area encompasses approximately 22,586 ac (9,140 ha).

Public input was solicited and addressed in development of the AWA Management Plan and the NEPA review process (AGFD–ASP 1997). The corresponding Alamo Wildlife Area Property Operational Management Plan addressing the operations of the property, together with the budget, is updated as needed to reflect the changes in operational management (AGFD 2012).

Proposed western yellow-billed cuckoo critical habitat occurs along the Big Sandy, Santa Maria, and Bill Williams Rivers, which make up the upper portion of Alamo Lake. The AWA Management Plan describes the unique riparian, wetland, and aquatic aspects of the area for a variety of species, specifically targeting the southwestern willow flycatcher for management and including the western yellow-billed cuckoo as a species of wildlife concern. Two of the specific resources are directed toward the habitat needs of the southwestern willow flycatcher and the western yellow-billed cuckoo: (1) Maintain and enhance aquatic and riparian habitats to benefit wildlife; and (2) restore, manage, and enhance habitats for wildlife of special concern. Large Fremont cottonwood

and Goodding's willow forests, mesquite bosque, and small areas of wetland currently exist along the Big Sandy, Santa Maria, and upper Bill Williams Rivers. Increasing and improving these habitats will benefit riparian- and wetland-dependent species (AGFD 2012, p. 4-6). The objective for maintaining and enhancing riparian habitat includes (a) Maintaining a reservoir level sufficient to ensure suitable soil moisture conditions in the mixed riparian forest, and (b) managing burros and eliminating trespass cattle to ensure that browsing does not harm existing habitat or impair recruitment of replacement vegetation. Livestock grazing is excluded from the riparian areas on the upper end of Alamo Lake and the lower portions of the Santa Maria and Big Sandy Rivers. Burro management objectives are to monitor and limit use of riparian vegetation such that annual bark stripping of live trees does not exceed 3 percent in any of the key monitoring areas (AGFD 2012, p. 10). Fencing may be needed to exclude unauthorized livestock and feral burros, exclude elk, control off-highway-vehicle access, and better manage authorized livestock (AGFD 2012, pp. 10-12). We are considering to exclude the entire Alamo Lake area (Alamo Lake (Unit 4, AZ-2: 2,793 ac (1,130 ha)) and portions of the Big Sandy River (Unit 31, AZ-29: 500 ac (202 ha) within the Alamo Lake State Wildlife Area from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Pinal Creek (Unit 13 AZ-11). Freeport-McMoRan Incorporated (FMC), a private mining company, has ownership and management responsibility for a portion of Pinal Creek proposed as revised western yellow-billed critical habitat in Gila County, Arizona. Along this Pinal Creek segment, since 1998, FMC has been actively implementing conservation measures for improving the riparian habitat for the

southwestern willow flycatcher. Conservation actions being implemented on FMC lands include control of exotic riparian plant species, improved cattle management, fencing, monitoring, and limiting access to the site in order to foster the development of native riparian habitat. From 1999 to 2007, the water and land management actions implemented resulted in an 88 percent increase in total riparian vegetation volume within the area (FMC 2012, p. 11). In 2012, FMC submitted a flycatcher management plan for the proposed segment of Pinal Creek (FMC 2012, entire), committing to continue implementing the land management actions initiated through a USACE permit that have resulted in the improved abundance, distribution, and quality of riparian habitat for nesting southwestern willow flycatchers. We expect such measures will also benefit the western yellow-billed cuckoo. As a result we are considering to exclude approximately 390 ac (158 ha) of Unit 13 from final designation under section 4(b)(2) of the Act.

Upper Verde River Wildlife Area (Unit 7: AZ-5, Upper Verde River). The Upper Verde Wildlife Area, owned by the Arizona Game and Fish Department, is located approximately 8 mi (12 km) north of Chino Valley in Yavapai County, Arizona (AGFD 2017, entire). The property consists of four parcels totaling approximately 796 ac (322 ha) located along the upper Verde River and lower Granite Creek. The AGFD also manages 240 ac (97 ha) of State Trust lands located adjacent to two of the deeded parcels. The primary management emphasis for the Upper Verde River property is to manage, maintain, and enhance riparian habitat and maintain native fish diversity (AGFD 2012, entire). A monitoring program is ongoing. The Upper Verde River property has four noncontiguous parcels of private land, which collectively include approximately 3 mi (5 km) of the upper Verde River, draining easterly from the confluence with Granite

Creek to the Prescott National Forest boundary 3.5 mi (5.6 km) downstream. Riparian vegetation is dominated by Arizona ash, boxelder, Arizona walnut, and netleaf hackberry (AGFD 2017, entire). Some tamarisk is interspersed with native tree species. Lower Granite Creek supports a well-developed narrowleaf cottonwood (*Populus acuminata*) riparian forest. We received comments from the AGFD requesting an exclusion for this property, and those comments will be fully considered in the final designation. We will consider excluding 464 ac (188 ha) of AGFD land and 18 ac (7 ha) of State Trust lands from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

New Mexico

Tribal Lands

Tribal Management Plans and Partnerships—Santa Clara, Ohkay Owingeh, and the San Ildefonso Pueblos; Upper Rio Grande 1 (Unit 35: NM–4) and Upper Rio Grande 2 (Unit 36: NM–5). The Santa Clara Pueblo and Ohkay Owingeh contain proposed western yellow-billed cuckoo critical habitat along the Rio Grande within the Upper Rio Grande Management Unit in Rio Arriba County, New Mexico. The San Ildefonso Pueblo contains proposed western yellow-billed cuckoo critical habitat along the Rio Grande within the Upper Rio Grande Management Unit in Santa Fe County, New Mexico.

The Santa Clara Pueblo, Ohkay Owingeh, and the San Ildefonso Pueblo have conducted a variety of voluntary measures, restoration projects, and management actions to conserve the western yellow-billed cuckoo and its habitat on their lands. These Pueblos have made a commitment to the Service to develop an integrated resources management plan to address multiuse, enhancement, and management of their natural resources. The

pueblos have implemented fuel reduction of flammable exotic riparian vegetation and native tree restoration projects in the riparian area since 2001, carefully progressing in incremental stages to reduce the overall effects to wildlife. Ohkay Owingeh has a management plan for the southwestern willow flycatcher that provides conservation and restoration for the riparian habitat needed for the western yellow-billed cuckoo and has expressed interest in incorporating western yellow-billed cuckoo conservation measures into that plan. We received comments from the Santa Clara Pueblo following our initial proposal and will fully consider those comments in the final designation. We will consider excluding the Santa Clara Pueblo, Ohkay Owingeh, and the San Ildefonso Pueblo lands totaling 1,173 ac (475 ha) from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Tribal Management Plans and Partnerships—Cochiti, Santo Domingo, San Felipe, Sandia, Santa Ana, and Isleta Pueblos; Middle Rio Grande (Unit 37: NM-6A and 6B). The Cochiti Pueblo, Santo Domingo Pueblo, San Felipe Pueblo, Sandia Pueblo, and Santa Ana Pueblo contain proposed western yellow-billed cuckoo critical habitat along the Rio Grande within the Middle Rio Grande Management Unit in Sandoval County, New Mexico. The Isleta Pueblo contains proposed western yellow-billed cuckoo critical habitat along the Rio Grande within the Middle Rio Grande Management Unit in Bernalillo County, New Mexico.

The Cochiti Pueblo, Santo Domingo Pueblo, San Felipe Pueblo, Sandia Pueblo, Santa Ana Pueblo, and Isleta Pueblo have conducted a variety of voluntary measures, restoration projects, and management actions to conserve the western yellow-billed cuckoo and its habitat on their lands. Cochiti Pueblo, Santo Domingo Pueblo, San Felipe

Pueblo, Sandia Pueblo, Santa Ana Pueblo, and Isleta Pueblo made commitments to the Service to develop integrated resources management plans to address multiuse, enhancement, and management of their natural resources. The pueblos have implemented fuel reduction of flammable exotic riparian vegetation and native tree restoration projects in the riparian area since 2001, carefully progressing in incremental stages to reduce the overall effects to wildlife. The San Felipe Pueblo developed a Wildlife Management Plan for the western yellow-billed cuckoo that includes restrictions on development in western yellow-billed cuckoo habitat as well as adaptive management and monitoring. The Isleta Pueblo submitted a Riverine Management Plan with management goals, objectives, and strategies specific to the western yellow-billed cuckoo. Regarding this proposed critical habitat unit, we received comments following our initial proposal from the Santa Ana Pueblo, San Felipe Pueblo, Isleta Pueblo, and Sandia Pueblo and those comments will be fully considered for the final designation. We will consider excluding the Cochiti Pueblo, Santo Domingo Pueblo, San Felipe Pueblo, Sandia Pueblo, Santa Ana Pueblo, and Isleta Pueblo lands totaling 9,509 ac (3,850 ha) from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Federal Lands

Middle Rio Grande 1 (Unit 37: NM-6B). In January 2016, the Service issued a Biological Opinion for the Rio Grande Project Operating Agreement and storage of San-Juan Chama Project Water in Elephant Butte Reservoir for two riparian bird species, including the western yellow-billed cuckoo and southwestern willow flycatcher for 35 years (Service 2016a, entire). The area from RM 62 to RM 38 is currently proposed as western yellow-billed cuckoo critical habitat within Elephant Butte Reservoir, owned by

Reclamation. The Biological Opinion addresses the following actions: (1) pre-release of storage water from Elephant Butte Reservoir for flood control purposes; (2) the carryover accounting for the unused balance of annual diversion allocation to downstream irrigation districts; (3) diversion ratio adjustments that take into consideration changes in water availability; and (4) storage of San-Juan Chama Project water (Service 2016a, p. 6).

Conservation measures proposed by Reclamation and measures to minimize and mitigate incidental take of western yellow-billed cuckoos include: (1) Monitoring of federally listed species following established protocols; (2) adding the western yellow-billed cuckoo to the Reclamation (2012) Southwestern Willow Flycatcher Management Plan for the Rio Grande Project (Management Plan); (3) minimizing take during high water surface elevation periods at Elephant Butte Reservoir; (4) minimizing the effects of suitable habitat loss due to the proposed action; and (5) developing a model to estimate quantities of suitable habitat gained and lost as a result of fluctuating water surface elevations (Service 2016a, pp. 7, 40–44). The Management Plan was initiated in 2012 and includes restoration projects and monitoring efforts that also benefit the western yellow-billed cuckoo (Reclamation 2012, p. 37). The Management Plan commits Reclamation to ensuring at least 801 ac (324 ha) of suitable habitat from the San Marcial, New Mexico, to Fort Quitman, Texas, is maintained and available for the southwestern willow flycatcher, an extensive monitoring and habitat mapping program, and restoration activities that include partners such as the International Boundary and Water Commission (IBWC), New Mexico State Parks, the Service, Audubon and others (Reclamation 2012, pp. 22, 28, 35). Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, some of the mitigation and monitoring measures

serve both species in the interim until the Management Plan is revised to include the western yellow-billed cuckoo specifically. We are considering the development and implementation of the Management Plan in our exclusion analysis for several units along the Rio Grande River (see NM-8A Caballo Delta North, NM-8B Caballo Delta South, and NM-10 Selden Canyon and Radium Springs exclusion discussions below).

Western yellow-billed cuckoo and southwestern willow flycatcher habitat at Elephant Butte varies depending on how and when the lake recedes as a result of water in-flow and subsequent storage capacity and delivery needs. Even in the expected high-water years, some southwestern willow flycatcher and western yellow-billed cuckoo habitat would persist at Elephant Butte Reservoir. Areas within Elephant Butte Reservoir at higher elevations that have not been inundated in recent years are declining in suitability. By having Elephant Butte Reservoir fluctuate surface water elevations, it is anticipated that over the long term, this would provide a more favorable and dynamic environment for western yellow-billed cuckoo habitat (Service 2016a, p. 42). We are considering excluding the water storage area of Elephant Butte Reservoir from RM 54 to RM 38 from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Private or Other Non-Federal Conservation Plans or Agreements and Partnerships, in General

U-Bar Ranch (Unit 33: NM-2 Gila River). The U-Bar Ranch (Ranch) near Cliff, in Grant County, New Mexico, in the Upper Gila Management Area is owned by Pacific Western Land Company (PWLC), a subsidiary of the Freeport-McMoRan Corporation (FMC). Through their efforts and their long-time lessee, FMC has demonstrated a

commitment to management practices on the Ranch that have conserved and benefited the western yellow-billed cuckoo population in that area over the past decade. In addition, FMC had privately funded scientific research at and in the vicinity of the Ranch in order to develop data that has contributed to the understanding of habitat selection, distribution, prey base, and threats to the southwestern willow flycatcher. The riparian habitat also has a large number of nesting western yellow-billed cuckoos.

PWLC and the U-Bar Ranch have supported annual southwestern willow flycatcher surveys, where western yellow-billed cuckoo detections are recorded, and research in the Gila valley since 1994. Considering the past and ongoing efforts of management and research to benefit the southwestern willow flycatcher, western yellow-billed cuckoo, and riparian habitat, done in coordination and cooperation with the Service, we are considering excluding areas of the U-Bar Ranch totaling 3,002 ac (1,215 ha) from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Unit 39; NM-8A Caballo Delta North and NM-8B Caballo Delta South. We are considering exclusion of approximately 345 ac (140 ha) of land based on Reclamation's Southwestern Willow Flycatcher Management Plan. This Management Plan was initiated in 2012 and includes restoration projects and monitoring efforts associated with the southwestern willow flycatcher that are also anticipated to benefit the western yellow-billed cuckoo (Reclamation 2012, p. 37) (see exclusion discussion on Middle Rio Grande 1 (Unit 37: NM-6B) above). The Management Plan commits Reclamation to ensuring at least 801 ac (324 ha) of suitable habitat in the area from the San Marcial, New Mexico, to Fort Quitman, Texas, either independently or in association with multiple agencies

(Reclamation 2012, pp. 22, 28, 35) is managed for southwestern willow flycatcher. Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, some of the restoration features are anticipated to serve both species in the interim period until the Management Plan is revised to include projects that have the goal of benefitting the western yellow-billed cuckoo specifically. Reclamation has committed to updating and adding the western yellow-billed cuckoo to their Management Plan in their recent section 7 consultation (Number 02ENNM00-2015-F-0734) associated with Elephant Butte Reservoir (Reclamation 2015, entire).

Based on this Management Plan, we are considering excluding the entirety of Unit 39; NM–8A Caballo Delta North and Caballo Delta South; Sierra County; which totals 345 ac (140 ha), from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Unit 40; NM–9 Animas; Sierra County; Management Plan and Partnership. The Ladder Ranch located along Las Animas Creek contains proposed critical habitat for the western yellow-billed cuckoo in Sierra County, New Mexico. The Ladder Ranch is conducting conservation actions for western yellow-billed cuckoo and its habitat on their lands and is in the process of finalizing a conservation strategy for the species. We are considering potential exclusion of the entirety of this proposed critical habitat unit in the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act. This unit falls entirely within the Ladder Ranch and totals 608 ac (246 ha).

Unit 41; NM–10 Selden Canyon and Radium Springs; Dona Ana County. We are considering exclusion of the entire 237-ac (96-ha) unit based on management plans provided by Reclamation as well as the IBWC. The Reclamation Southwestern Willow

Flycatcher Management Plan was initiated in 2012 and includes restoration projects and monitoring efforts associated with the southwestern willow flycatcher but that are also anticipated to benefit the western yellow-billed cuckoo (Reclamation 2012, p. 37). The Management Plan commits Reclamation to ensuring at least 801 ac (324 ha) of suitable habitat in the area from the San Marcial, New Mexico, to Fort Quitman, Texas, either independently or in association with multiple agencies (Reclamation 2012, pp. 22, 28, 35). Because southwestern willow flycatchers and western yellow-billed cuckoos rely on similar riparian habitat, some of the restoration features are anticipated to serve both species in the interim period until the Management Plan is revised to include projects that have the goal of benefitting the western yellow-billed cuckoo specifically. Reclamation has committed to updating and adding the western yellow-billed cuckoo to their Management Plan in their recent section 7 consultation (Number 02ENNM00-2015-F-0734) associated with Elephant Butte Reservoir (Reclamation 2015, entire).

The IBWC Endangered Species Management Plan (Part 3 in the IBWC Canalization River Management Plan) commits IBWC to establishing or preserving up to 119 ac (48 ha) of southwestern willow flycatcher habitat in the area from Percha Dam, New Mexico, to El Paso, Texas, either independently or in association with Reclamation (IBWC 2016). IBWC is currently completing a biological assessment to address the listing of the yellow-billed cuckoo in their previous Long-Term River Management of the Rio Grande Canalization Project (section 7 Consultation Number 02ENNM00-2012-F-0016). This consultation will address western yellow-billed cuckoo impacts (both positive and negative) associated with the Canalization Project. The western yellow-billed cuckoo is currently included within IBWC's preexisting Endangered Species

Management Plan, and the species is anticipated to benefit from the restoration projects that have already been initiated for the southwestern willow flycatcher (IBWC 2016, p. 3-29).

IBWC also has created collaborative relationships with other entities with jurisdiction in the area to work together on habitat restoration and water rights for restoration, including cooperative agreements with the Elephant Butte Irrigation District (EBID), New Mexico Energy Minerals and Natural Resources Department State Parks Division, and the Bureau of Reclamation. The agreement with EBID lays the foundation for a cooperative Environmental Water Transaction Program, including allowing for the irrigation of native plants to be classified as an agricultural use to use Rio Grande Project water. The implementation of the IBWC collaborative conservation project provides for significant conservation, management, improvement, and protection of the physical or biological features essential for the cuckoo. The conservation gains to the cuckoo identified south of Caballo Dam are possible because of the development of the water transaction program.

Based on these Management Plans, we are considering excluding the entirety of Unit 41; NM-10 Selden Canyon and Radium Springs; totaling 237 ac (96 ha), from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Idaho

Tribal Lands

Unit 65; ID-1 Snake River 1 Fort Hall Indian Reservation; Tribal Management Plans and Partnerships. The Fort Hall Indian Reservation contains a portion of the Snake

River 1 Unit in Bannock and Bingham Counties, Idaho. We have met with staff from the Shoshone-Bannock Tribes and discussed their existing and proposed conservation actions and management plans, which also benefit the western yellow-billed cuckoo, for the area proposed for designation as critical habitat. We will continue to coordinate with the Tribes on these management plans for potential exclusion of 3,219 ac (1,303 ha) of Fort Hall Indian Reservation land from the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Utah

Tribal Lands

Green River; Uintah County, Utah (Unit 70: UT-1); Tribal Management Plans and Partnerships—Ute Tribe, Uintah and Ouray Indian Reservation. The Uintah and Ouray Indian Reservation contains revised proposed critical habitat for western yellow-billed cuckoo along the Green River in Uintah County, Utah. The Ute Tribe is conducting conservation actions for western yellow-billed cuckoo and its habitat on their lands and has finalized a conservation strategy for the species (Sinclair and Simpson 2016, entire). We are considering potential exclusion of 14,611 ac (5,913 ha) of Ute Tribal lands from this unit in the final designation of western yellow-billed cuckoo critical habitat under section 4(b)(2) of the Act.

Consideration of Economic Impacts

Section 4(b)(2) of the Act and its implementing regulations require that we consider the economic impact that may result from a designation of critical habitat. To assess the probable economic impacts of a designation, we must first evaluate specific land uses or activities and projects that may occur in the area of the critical habitat. We

then must evaluate the impacts that a specific critical habitat designation may have by restricting or modifying specific land uses or activities for the benefit of the species and its habitat within the areas proposed. We then identify which conservation efforts may be the result of the species being listed under the Act versus those attributed solely to the designation of critical habitat for this particular species. The probable economic impact of a proposed critical habitat designation is analyzed by comparing scenarios “with critical habitat” and “without critical habitat.” The “without critical habitat” scenario represents the baseline for the analysis, which includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat (e.g., under the Federal listing as well as other Federal, State, and local regulations). The baseline, therefore, represents the costs of all efforts attributable to the listing of the species under the Act, effectively assuming full compliance with sections of the Act relevant to the analysis (i.e., conservation of the species and its habitat incurred regardless of whether critical habitat is designated). The “with critical habitat” scenario describes the incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts would not be expected without the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat, above and beyond the baseline costs. These are the costs we use when evaluating the benefits of inclusion and exclusion of particular areas from the final designation of critical habitat should we choose to conduct an optional 4(b)(2) exclusion analysis. We seek public input on whether it is appropriate to assume full compliance with the requirements associated with a species listing and other key land

use regulations in constructing a baseline for this analysis. If full compliance does not adequately represent the baseline regulatory environment, we seek public input on what range of compliance rates is better aligned with practice in the field and how noncompliance may influence the potential costs and benefits of the critical habitat rule. We additionally seek comment related to the assumption of full compliance with the critical habitat rule and how this assumption may influence the potential costs and benefits of the rule.

For the 2014 proposed designation, we developed an incremental effects memorandum (IEM) considering the probable incremental economic impacts that may result from the proposed designation of critical habitat. We also completed a review of the potential economic effects of the proposed designation of critical habitat (Industrial Economics Incorporated (IEc) 2013a; IEc 2013b). We have updated the IEM for this revised proposed designation by identifying those areas being considered for critical habitat. The information contained in our updated IEM was used to develop a screening report for the revised proposed designation of critical habitat for the western yellow-billed cuckoo (Service 2019, entire). We did this in order to focus our analysis on the key factors that are likely to result in incremental economic impacts. The purpose of the screening report is to filter out the geographic areas in which the critical habitat designation is unlikely to result in incremental economic impacts. Our review of potential economic effects considers baseline impacts (i.e., impacts absent critical habitat designation) and includes probable economic impacts where land and water use may be subject to conservation plans, land management plans, best management practices, or regulations that protect the habitat area as a result of the Federal listing status of the

species. The screening report filters out particular areas of critical habitat that are already subject to such protections and are, therefore, unlikely to incur significant incremental economic impacts. Ultimately, the screening report allows us to focus our analysis on evaluating the specific areas or sectors that may incur probable incremental economic impacts as a result of the designation. The screening report also assesses whether any unoccupied units may require additional management or conservation efforts as a result of the critical habitat designation and whether the units may incur incremental economic impacts. We are not considering designating any unoccupied areas. To better identify the potential economic impacts, we have developed a revised screening analysis memorandum for the revised proposed critical habitat (IEc 2019a, entire; IEc 2019b, entire). Our revised IEM, the screening analysis memorandum, and information described in this rule are what we consider our revised draft economic analysis of the revised proposed critical habitat designation for the western yellow-billed cuckoo. The supporting information for our revised economic analysis is available on <http://www.regulations.gov> (Docket No. FWS-R8-ES-2013-0011).

Executive Orders 12866 and 13563 direct Federal agencies to assess the costs and benefits of available regulatory alternatives in quantitative (to the extent feasible) and qualitative terms. Consistent with the E.O. regulatory analysis requirements, our effects analysis under the Act may take into consideration impacts to both directly and indirectly impacted entities, where practicable and reasonable. We assess to the extent practicable, the probable impacts, if sufficient data are available, to both directly and indirectly impacted entities. As part of our screening report, we considered the types of economic activities that are likely to occur within the areas likely affected by the critical habitat

designation. In our evaluation of the probable incremental economic impacts that may result from the proposed designation of critical habitat for the western yellow-billed cuckoo, first we identified, in our revised IEM, probable incremental economic impacts associated with the following categories of activities: (1) Water management, including hydropower operations; (2) restoration and conservation projects; (3) fire management; (4) transportation activities, including bridge construction; (5) recreation activities; (6) livestock grazing and agriculture; (7) mining; (8) residential and commercial development; and (9) border protection activities. We considered each industry or category individually. Additionally, we considered whether their activities have any Federal involvement. Critical habitat designation will not affect activities that do not have any Federal involvement, as the designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies. In areas where the western yellow-billed cuckoo is present, Federal agencies will already be required to consult with the Service under section 7 of the Act on activities they fund, permit, or implement that may affect the species. If we finalize this revised proposed critical habitat designation, consultations to avoid the destruction or adverse modification of critical habitat would be incorporated into the existing consultation process. Therefore, disproportionate impacts to any geographic area or sector would not likely be a result of this critical habitat designation.

In our revised IEM, we attempted to clarify the distinction between the effects that will result from the species being listed and those attributable to the critical habitat designation (i.e., difference between the jeopardy and adverse modification standards). Because the listing of the western yellow-billed cuckoo is relatively recent, we do not

have an extensive consultation history for the species. As a result, it is difficult to discern which conservation efforts are attributable to the species being listed and those which will result solely from the designation of critical habitat. However, the following specific circumstances in this case help to inform our evaluation: (1) The essential physical and biological features identified for critical habitat are the same features essential for the life requisites of the species, and (2) any actions that would result in harm or harassment sufficient to constitute jeopardy to the western yellow-billed cuckoo would also likely adversely affect the critical habitat containing the physical or biological features essential to the conservation of the species. The revised IEM outlines our rationale concerning this limited distinction between baseline conservation efforts and incremental impacts of the designation of critical habitat for this species. This evaluation of the incremental effects has been used as the basis to evaluate the probable incremental economic impacts of this revised proposed designation of critical habitat.

Except in limited instances, which the Service cannot predict at this time, project modifications requested to avoid adverse modification are likely to be the same as those needed to avoid jeopardy. Notwithstanding the low probability of such limited instances occurring, when the Service completes a consultation for the western yellow-billed cuckoo within critical habitat, that consultation will evaluate whether that project would result in adverse modification.

The Service is not proposing to designate areas outside of the geographical area occupied by the species as critical habitat. All of the proposed units are occupied by the western yellow-billed cuckoo during their breeding season. For migratory species like the western yellow-billed cuckoo, when conducting section 7 consultations the Service treats

the species as “present” in confirmed breeding habitat regardless of where the birds are in the annual cycle (Service 1998, p. xvi). Therefore, the Service will conduct an analysis under the jeopardy standard for projects that affect confirmed breeding habitat of the species. Moreover, occupied breeding habitat is considered by the Service to be occupied year-round for the evaluation of project-related effects that degrade habitat quality. An evaluation of consultations for other riparian-obligate listed migratory bird species that occupy some of the same areas (i.e., southwestern willow flycatcher and least Bell’s vireo) informs the Service that project modifications intended to address adverse project effects focus primarily on various habitat restoration and conservation mechanisms, whether the adverse effects are upon members of the listed species or its designated critical habitat. We anticipate that these mechanisms overlap because the impacts in either case will most likely be affecting the persistence, development, and regeneration of habitat. The result is that the application of such measures is anticipated to simultaneously remove jeopardy and adverse modification outcomes.

Based on our 2013 and 2019 review of potential economic impacts, only administrative costs were expected in the revised proposed critical habitat designation. While additional analysis for critical habitat in a consultation will require time and resources by both the Federal action agency and the Service, it is believed that, in most circumstances, these costs would be predominantly administrative in nature and would not be significant.

The revised proposed critical habitat designation for the western yellow-billed cuckoo includes 72 units in 7 western States: Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah. A total of 493,665 ac (199,779 ha) is proposed of which

145,710 ac (58,968 ha) are being considered for exclusions. Approximately 33 percent of the proposed total acreage is Federal land, 11 percent is State land, 14 percent is owned by Tribal entities, and 42 percent is privately owned or owned by local government entities. All revised proposed critical habitat units are considered to be occupied.

The entities most likely to incur incremental costs are parties to section 7 consultations, including Federal action agencies and, in some cases, third parties, most frequently State agencies or municipalities. Activities we expect would be subject to consultations that may involve private entities as third parties are residential and commercial development that may occur on Tribal or private lands. However, based on coordination efforts with Tribal partners and State and local agencies, the cost to private entities within these sectors is expected to be relatively minor (administrative costs of less than \$5,200 per formal consultation effort) and, therefore, would not be significant.

The probable incremental economic impacts of the western yellow-billed cuckoo critical habitat designation are expected to be limited to additional administrative effort, as well as minor costs of conservation efforts resulting from a small number of future section 7 consultations. This anticipated outcome is due to the revised proposed critical habitat being considered occupied by the species, and incremental economic impacts of critical habitat designation, other than administrative costs, are unlikely. At approximately \$5,200 or less per formal consultation, in order to reach the threshold of \$100 million of incremental administrative impacts in a single year, critical habitat designation would have to result in more than 20,000 formal consultations in a single year. In our 2014 review of the economic analysis, based on consultations for other listed species in the areas occupied by the western yellow-billed cuckoo, we estimated that 100

formal consultations would be initiated in the first year after listing and fewer would be initiated in subsequent years. The actual number of formal consultations for western yellow-billed cuckoo since listing in 2014 was four for the first year (Oct. 2014 to Oct. 2015), three for the second (Oct. 2015 to Oct. 2016), four for the third (Oct. 2016 to Oct. 2017), four for the fourth (Oct. 2017 to Oct. 2018), and one through August 2019. This is a total of 16 formal consultations initiated for the western yellow-billed cuckoo since listing. Our current economic analysis estimates no more than 25 consultations per year (formal and informal combined), with the resulting incremental economic burden estimated to be less than \$74,000 in a given year (IEc 2019a, entire). This estimate calculated the administrative cost (staff time) the Federal agency would need to expend on their analysis of adverse modification of critical habitat for each consultation. Therefore, we have concluded that the future probable incremental economic impacts are not likely to exceed \$100 million in any single year, and disproportionate impacts to any geographic area or sector are not likely as a result of this critical habitat designation. As we stated earlier, we are soliciting data and comments from the public on the 2019 economic screening analysis, our 2019 IEM, as well as all economic aspects of the proposed rule. We seek comment on whether the effects of this designation are limited to the administrative costs and, if not, what other costs our analysis should examine. We may revise the proposed rule or supporting documents to incorporate or address information we receive during the public comment period.

As a result of information received, we may also exclude additional areas from critical habitat if the Secretary determines that the benefits of excluding the area outweigh the benefits of including the area, provided the exclusion will not result in the

extinction of this species.

Required Determinations

In developing this revised proposed rule, we have reevaluated our previous required determinations as outlined in the sections below.

Regulatory Planning and Review (Executive Orders 12866, 13563, and 13771)

Executive Order (E.O.) 12866 provides that the Office of Information and Regulatory Affairs (OIRA) in the Office of Management and Budget will review all significant rules. OIRA has determined that this rule is a significant regulatory action pursuant to E.O. 12866.

Executive Order 13563 reaffirms the principles of E.O. 12866 while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 et seq.), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C 801 et seq.), whenever an agency is required to publish a notice of rulemaking for any

proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include, but are not limited to, businesses with fewer than a given number of employees (depending on the particular subsector), such as manufacturing and mining concerns ranging from fewer than 500 to fewer than 1,500 employees, or wholesale trade entities ranging from fewer than 100 to fewer than 250 employees; or businesses that have less than a given amount of annual sales or business (depending on the particular subsector), such as retail and service businesses ranging from less than \$7.5 million to less than \$38.5 million in annual sales, construction businesses ranging from less than \$15 million to \$36.5 million in annual business, and agricultural, fishing, and hunting businesses with annual sales ranging from less than \$750,000 to \$27 million. To determine whether potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types

of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

The impacts of a rule must be both significant and substantial to prevent certification of the rule under the RFA and thus require the preparation of an initial regulatory flexibility analysis. If a substantial number of small entities are affected by the proposed critical habitat designation, but the per-entity economic impact is not significant, the Service may certify. Likewise, if the per-entity economic impact is likely to be significant, but the number of affected entities is not substantial, the Service may also certify.

Under the RFA, as amended, and as understood in the light of recent court decisions, Federal agencies are required to evaluate only the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself; in other words, the RFA Act does not require agencies to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried out by the agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7, only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies would be directly regulated if we adopt the proposed critical habitat designation. Moreover, Federal agencies are not small entities. Therefore, because no small entities would be directly regulated by this rulemaking, the Service certifies that, if promulgated,

the revised proposed critical habitat designation will not have a significant economic impact on a substantial number of small entities.

Moreover, even if this rulemaking were to result in indirect impacts on small entities, we expect that those impacts would be negligible. First, all of the areas we are proposing to designate as critical habitat are occupied; as a result, we generally expect that any activity that would result in destruction or adverse modification of the critical habitat in those areas would also jeopardize the continued existence of the species, so the critical habitat designation would not have an impact on the need for, or outcome of, consultation. In addition, approximately 16 percent of the area within the critical habitat designation is occupied by other listed species and is already included within the critical habitat designated for one or more of those species.

In summary, we have considered whether the proposed designation would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that, if finalized, the proposed critical habitat designation will not have a significant economic impact on a substantial number of small business entities. Therefore, an initial regulatory flexibility analysis is not required.

Energy Supply, Distribution, or Use—Executive Order 13211

Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. We do not expect that the revised proposed critical habitat designation for the western yellow-billed cuckoo would significantly affect energy supplies, distribution, or use, as the areas identified as revised

proposed critical habitat are along riparian corridors in mostly remote areas with little energy supplies, distribution, or infrastructure in place. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required. However, we will further evaluate this issue as we receive public comment, and will review and revise this assessment as needed.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we propose to make the following findings:

(1) This rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)–(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or Tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or Tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps;

Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal Government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because it will not produce a Federal mandate of \$100 million or greater in any year, that is, it is not a “significant regulatory action” under the Unfunded Mandates Reform Act. The designation of critical habitat imposes no obligations on State or local governments. Therefore, a Small Government Agency Plan is not required. However, we

will further evaluate this issue as we conduct our economic analysis and revise this assessment if appropriate.

Takings—Executive Order 12630

In accordance with E.O. 12630 (Government Actions and Interference with Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the western yellow-billed cuckoo in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership, or establish any closures or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed for the species and concludes that, if adopted, this designation of critical habitat for western yellow-billed cuckoo does not pose significant takings implications for lands within or affected by the designation.

Federalism—Executive Order 13132

In accordance with Executive Order 13132 (Federalism), this proposed rule does not have significant Federalism effects. A Federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce

policy, we requested information from, and coordinated development of, this revised proposed critical habitat designation with appropriate State resource agencies throughout the DPS area (Arizona, California, Colorado, Idaho, Nevada, New Mexico, Montana, Oregon, Texas, Utah, Washington, and Wyoming). Because the species is listed under the Act, the designation of critical habitat in areas currently occupied by the western yellow-billed cuckoo may impose nominal additional regulatory restrictions to those currently in place and, therefore, may have little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments because the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations or section 10 activities to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

Civil Justice Reform—Executive Order 12988

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of

the Solicitor has concluded that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have proposed designating critical habitat in accordance with the provisions of the Act. This proposed rule uses standard property descriptions and identifies the elements of physical and biological features essential to the conservation of the western yellow-billed cuckoo within the proposed designated areas to assist the public in understanding the habitat needs of the species.

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (45 U.S.C. 3501 *et seq.*). We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently-valid OMB control number.

National Environmental Policy Act (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the *Federal Register* on October 25, 1983 (48 FR 49244). This position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995)). However, when the designation of critical habitat includes States within the Tenth Circuit (for this proposal it applies to areas within Colorado, New Mexico, and Utah), such as that of western yellow-billed cuckoo, under

the Tenth Circuit ruling in *Catron County Board of Commissioners v. U.S. Fish and Wildlife Service*, 75 F.3d 1429 (10th Cir. 1996), we undertake a NEPA analysis. We invite the public to comment on the extent to which this proposed regulation may have a significant impact on the human environment, or fall within one of the categorical exclusions for actions that have no individual or cumulative effect on the quality of the human environment. We will complete our analysis, in compliance with NEPA, before issuing a final rule.

Clarity of the Rule

We are required by Executive Orders 12866 and 12988 and by the Presidential Memorandum of June 1, 1998, to write all rules in plain language. This means that each rule we publish must:

- (1) Be logically organized;
- (2) Use the active voice to address readers directly;
- (3) Use clear language rather than jargon;
- (4) Be divided into short sections and sentences; and
- (5) Use lists and tables wherever possible.

If you feel that we have not met these requirements, send us comments by one of the methods listed in **ADDRESSES**. To better help us revise the rule, your comments should be as specific as possible. For example, you should tell us the numbers of the sections or paragraphs that are unclearly written, which sections or sentences are too long, the sections where you feel lists or tables would be useful, etc.

Government-to-Government Relationship with Tribes

In accordance with the President's memorandum of April 29, 1994 (Government-

to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that Tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to Tribes. The following tribes are identified in the proposed designation: Fort Mojave Indian Tribe; Colorado River Indian Reservation; Fort Yuma Indian Reservation; Cocopah Tribe; Yavapai-Apache Nation; Hualapai Indian Tribe; San Carlos Reservation; Navajo Nation; Santa Clara, Ohkay Owingeh, and San Ildefonso Pueblos; Cochiti, Santo Domingo, San Felipe, Sandia, Santa Ana and Isleta Pueblos; Shoshone-Bannock, Fort Hall Reservation; the Cachil DeHe Band of Wintun Indians; the Ute Tribe, and Uinta, and Ouray Reservations. We have been and will continue to work with the tribes identified above throughout the process of designating critical habitat for the western yellow-billed cuckoo.

References Cited

A complete list of references cited in this rulemaking is available on the Internet at <http://www.regulations.gov> in Docket No. FWS-R8-ES-2013-0011 and upon request from the Sacramento Fish and Wildlife Office (see **FOR FURTHER INFORMATION CONTACT**).

Authors

The primary authors of this proposal are Service staff members of the Upper Colorado Basin (Interior Region 7), the Lower Colorado Basin (Interior Region 8), the Columbia-Pacific Northwest (Interior Region 9), and the California Great Basin (Interior Region 10).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Proposed Regulation Promulgation

Accordingly, we propose to further amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as proposed to be amended on August 15, 2014, at 79 FR 48548, as set forth below:

PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361–1407; 1531–1544; and 4201–4245, unless otherwise noted.

2. Amend § 17.95(b) in the entry for “Yellow-billed Cuckoo (*Coccyzus americanus*), Western DPS” by:

- a. Revising paragraphs (1) through (76); and
- b. Removing paragraphs (77) through (88).

The revisions read as follows:

§ 17.95 Critical habitat—fish and wildlife.

* * * * *

(b) *Birds.*

* * * * *

YELLOW-BILLED CUCKOO (*COCCYZUS AMERICANUS*), WESTERN DPS

(1) Critical habitat units are depicted for Arizona, California, Colorado, Idaho, New Mexico, Texas, and Utah, on the maps below.

(2) Within these areas, the specific physical or biological features essential to the conservation of western yellow-billed cuckoo consist of three components:

(i) *Riparian woodlands (including mesquite bosques, desert scrub and desert grassland drainages with a tree component, and Madrean evergreen woodland drainages (in the Southwest))*. This physical or biological feature includes rangewide breeding habitat found throughout the DPS range as well as additional breeding habitat characteristics unique to the Southwest:

(A) *Rangewide breeding habitat (including areas in the Southwest)*. Rangewide breeding habitat is composed of woodlands within floodplains or in upland areas or terraces often greater than 325 ft (100 m) in width and 200 ac (81 ha) or more in extent with an overstory and understory vegetation component in contiguous or nearly contiguous patches adjacent to intermittent or perennial watercourses. The slope of the watercourses are generally less than 3 percent but may be greater in some instances. Nesting sites within the habitat have an above-average canopy closure (greater than 70 percent) and have a cooler, more humid environment than the surrounding riparian and

upland habitats.

(B) *Southwestern breeding habitat*. Southwestern breeding habitat is composed of more arid riparian woodlands, which includes: mesquite bosques, desert scrub and desert grasslands drainages with a tree component, and Madrean evergreen woodlands (oak and other tree species), in perennial, intermittent, and ephemeral drainages. These drainages bisect other habitat types, including Madrean evergreen woodland, native and nonnative desert grassland, and desert scrub. More than one habitat type within and adjacent to the drainage may contribute toward nesting habitat. Southwestern breeding habitat is more water-limited, contains a greater proportion of xeroriparian and nonriparian plant species, and is often narrower, more open, patchier, or sparser than elsewhere in the DPS and may persist only as narrow bands or scattered patches along the bankline or as small in-channel islands. The habitat contains a tree or large-shrub component with a variable overstory canopy and understory component that is sometimes less than 200 ac (81 ha). Riparian trees (including xeroriparian) in these ecosystems may even be more sparsely distributed and less prevalent than nonriparian trees. Adjacent habitat may include managed (mowed) nonnative vegetation or terraces of mesquite or other drought-tolerant species within the floodplain. In narrow or arid ephemeral drainages, breeding habitat commonly contains a mix of nonriparian vegetation found in the base habitat as well as riparian (including xeroriparian) trees.

(ii) *Adequate prey base*. This physical or biological feature includes the presence of prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, crickets, large beetles, dragonflies, moth larvae, spiders), small lizards, or frogs for adults and young in breeding areas during the nesting season and in post-

breeding dispersal areas.

(iii) *Hydrologic processes, in natural or altered systems, that provide for maintaining and regenerating breeding habitat.* This physical or biological feature includes hydrologic processes found in rangewide breeding habitat as well as additional hydrologic processes unique to the Southwest in southwestern breeding habitat:

(A) *Rangewide breeding habitat hydrologic processes (including the Southwest).*

Hydrologic processes (either natural or managed) in river and reservoir systems that encourage sediment movement and deposits and promote riparian tree seedling germination and plant growth, maintenance, health, and vigor (e.g., lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). In some areas where habitat is being restored, such as on terraced slopes above the floodplain, this may include managed irrigated systems that may not naturally flood due to their elevation above the floodplain.

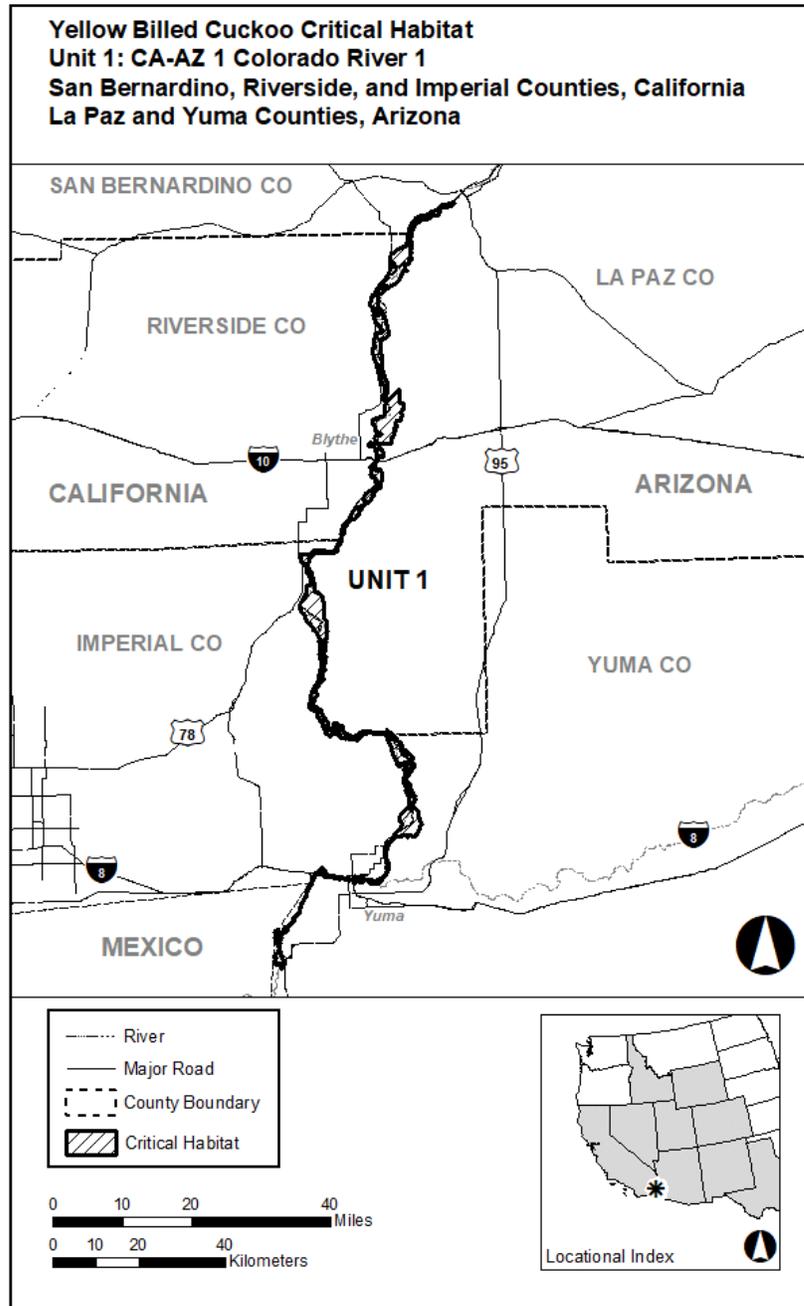
(B) *Southwestern breeding habitat hydrologic processes.* In Southwestern breeding habitat, elevated summer humidity and runoff resulting from seasonal water-management practices or weather patterns and precipitation (typically from North American Monsoon or other tropical weather events) provide suitable conditions for prey-species production and vegetation regeneration and growth. Elevated humidity is especially important in southeastern Arizona, where cuckoos breed in intermittent and ephemeral drainages.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, bridges, and other paved or hardened areas as a result of development) and the land on which they are located existing within the legal boundaries

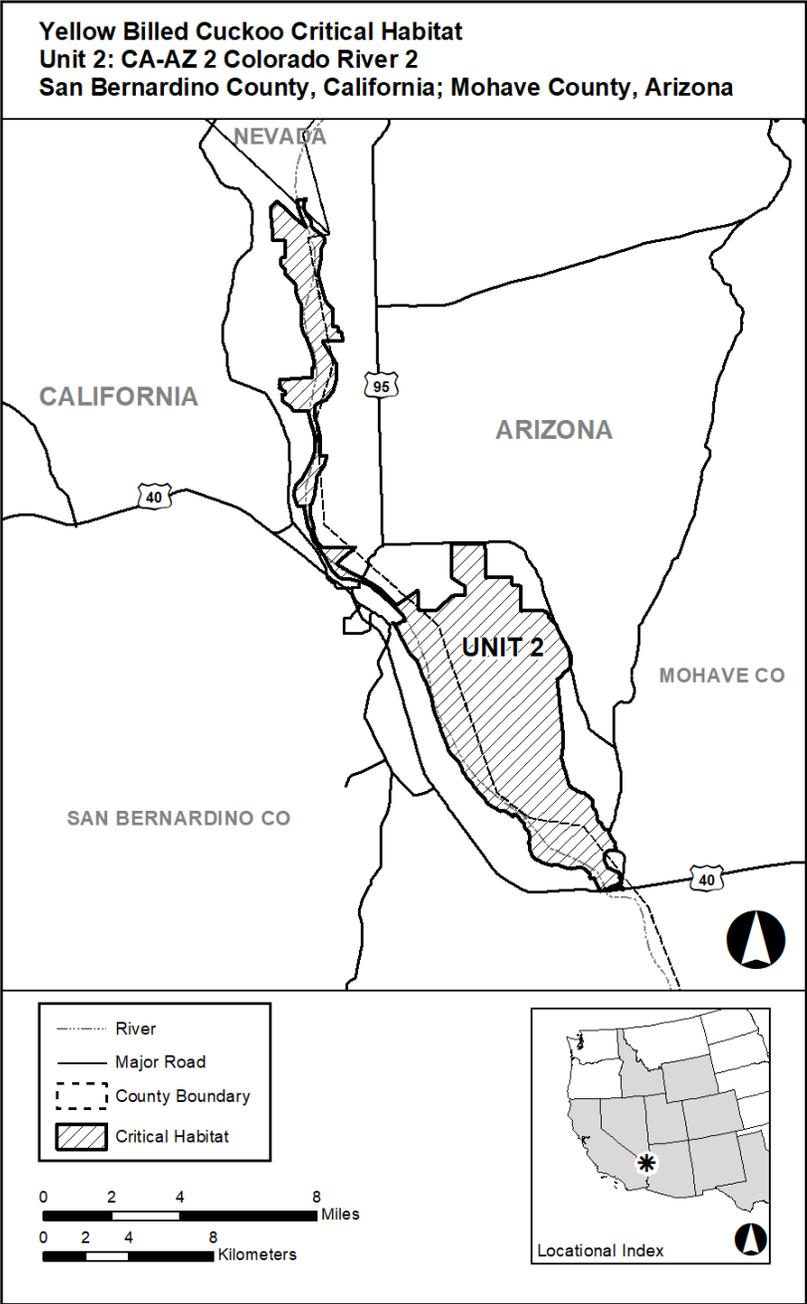
of the critical habitat units designated for the species on the effective date of this rule. Due to the scale on which the critical habitat boundaries are developed, some areas within these legal boundaries may not contain the physical or biological features and therefore are not considered critical habitat.

(4) *Critical habitat map units.* Data layers defining map units were created on a base of the Natural Resources Conservation Service National Agriculture Imagery Program (NAIP 2011), and critical habitat was then mapped using North American Datum (NAD) 83, Universal Transverse Mercator Zone 10N coordinates. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's Sacramento Fish and Wildlife Office's internet site at <http://www.fws.gov/sacramento>, or on <http://www.regulations.gov> at Docket No. FWS-R8-ES-2013-0011. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

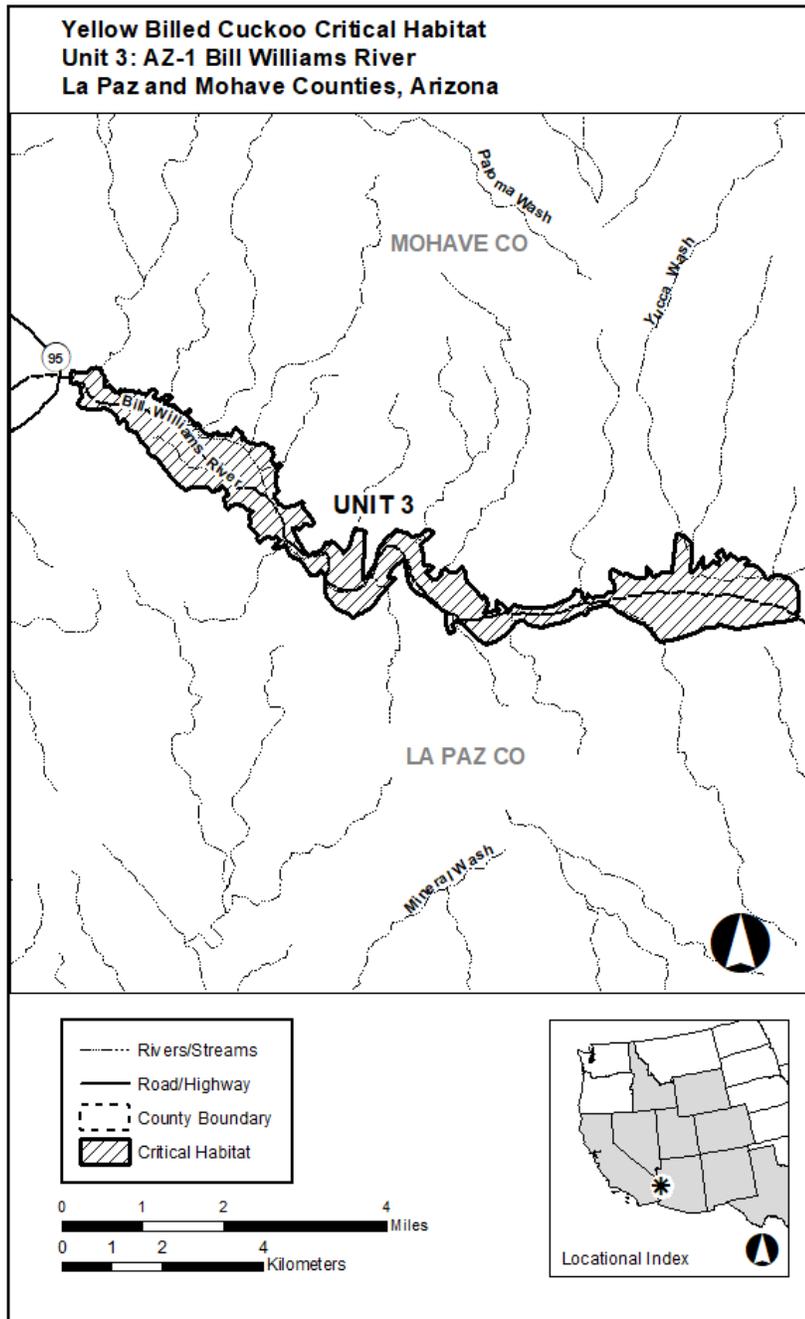
(5) Unit 1: CA/AZ-1, Colorado River 1; Imperial, Riverside, and San Bernardino Counties, California, and Yuma and La Paz Counties, Arizona. Map of Unit 1 follows:



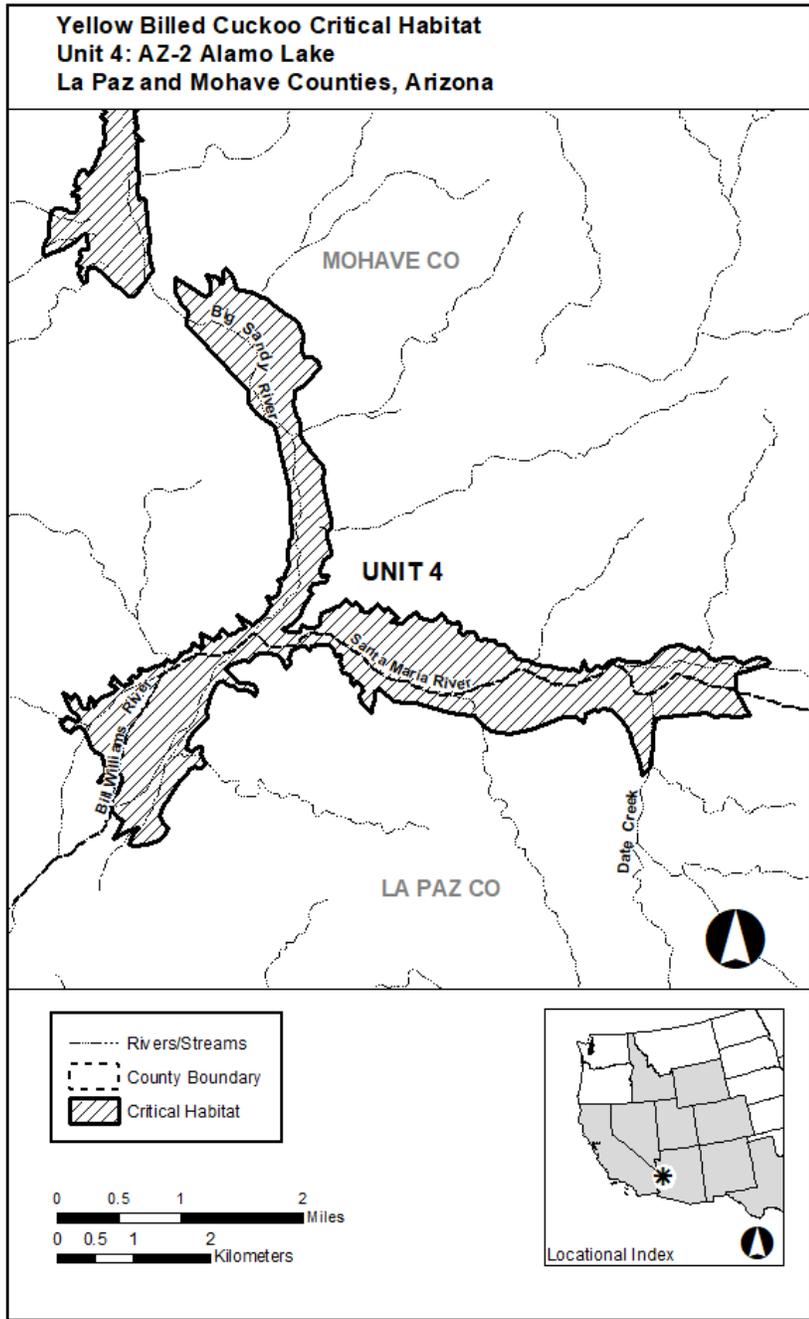
(6) Unit 2: CA/AZ-2, Colorado River 2; San Bernardino County, California, and Mohave County, Arizona. Map of Unit 2 follows:



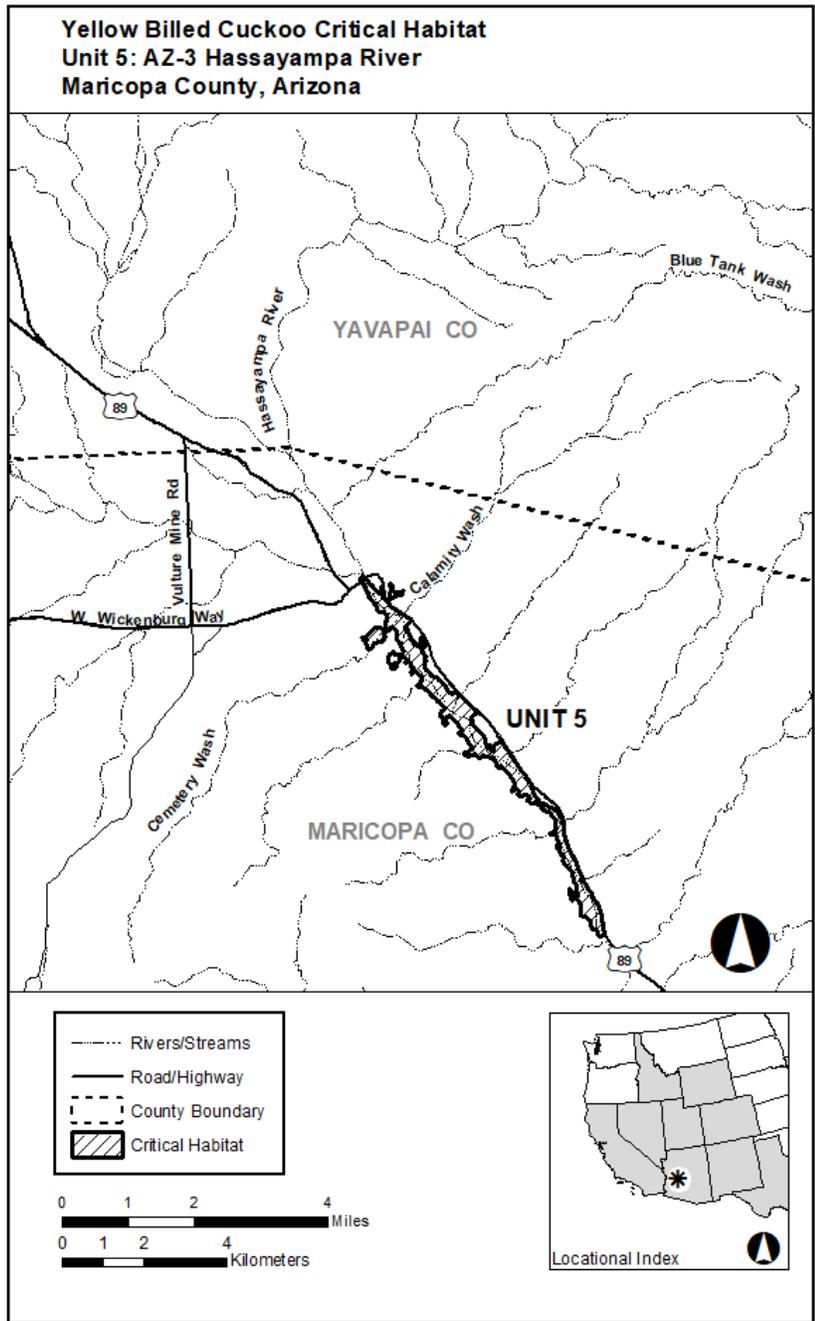
(7) Unit 3: AZ-1, Bill Williams River; Mojave and La Paz Counties, Arizona.
Map of Unit 3 follows:



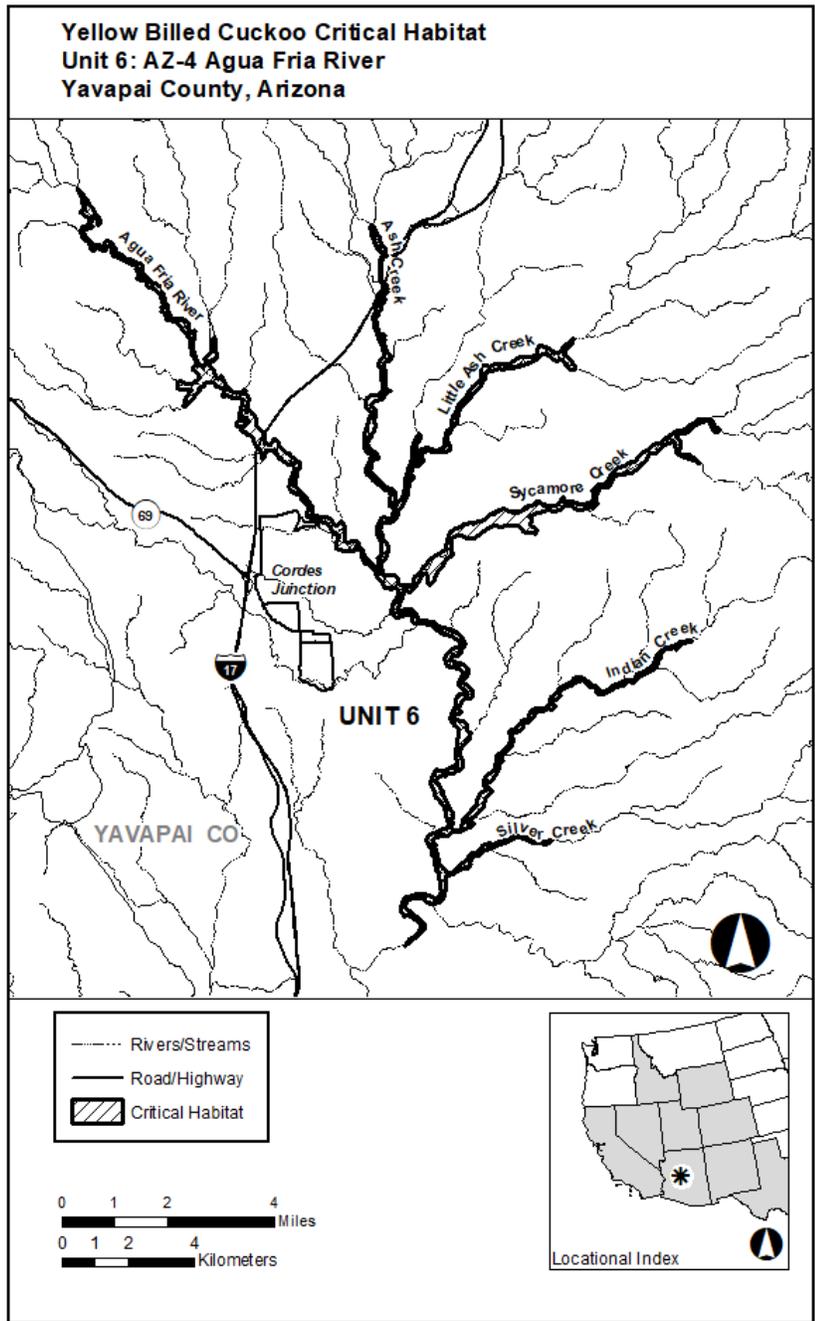
(8) Unit 4: AZ-2, Alamo Lake, Mohave and La Paz Counties, Arizona. Map of Unit 4 follows:



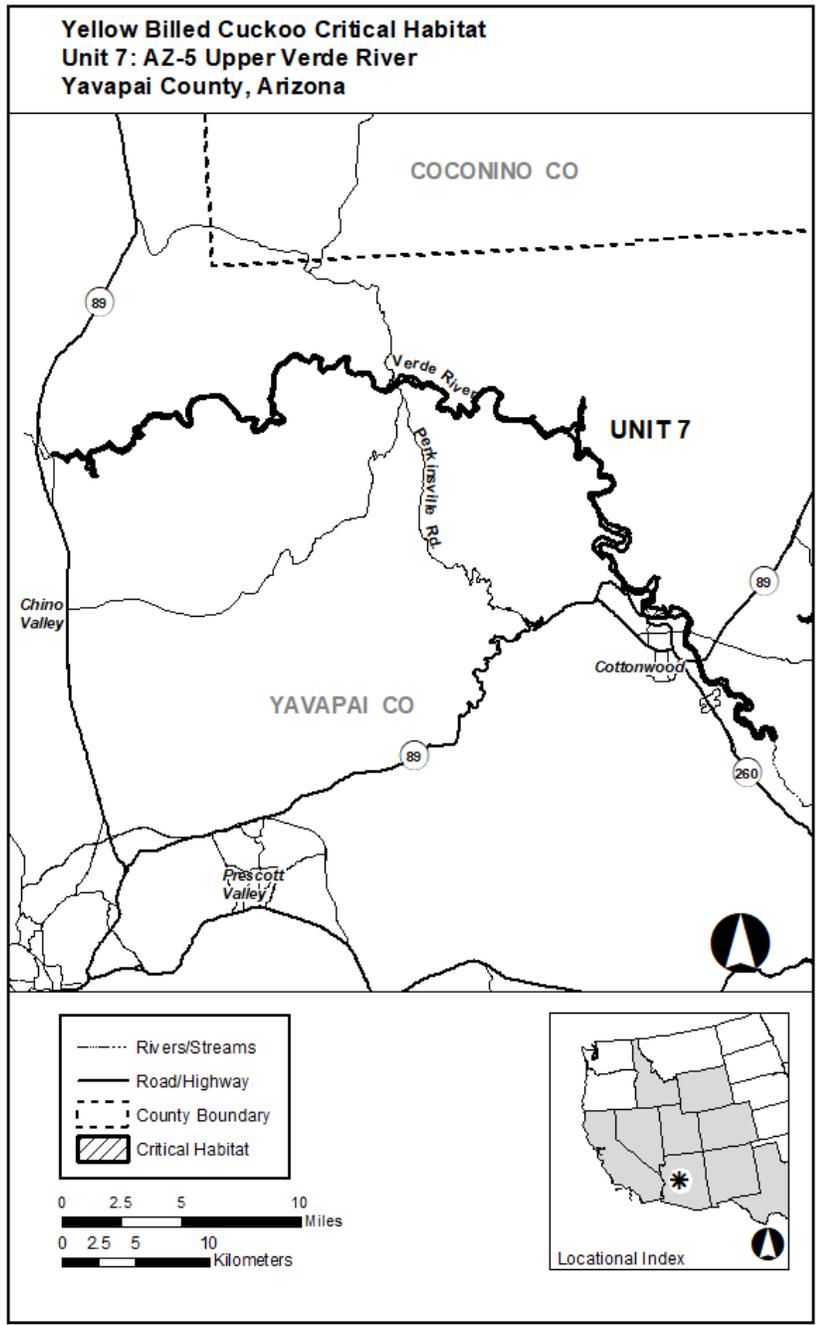
(9) Unit 5: AZ-3, Hassayampa River; Yavapai and Maricopa Counties, Arizona.
Map of Unit 5 follows:



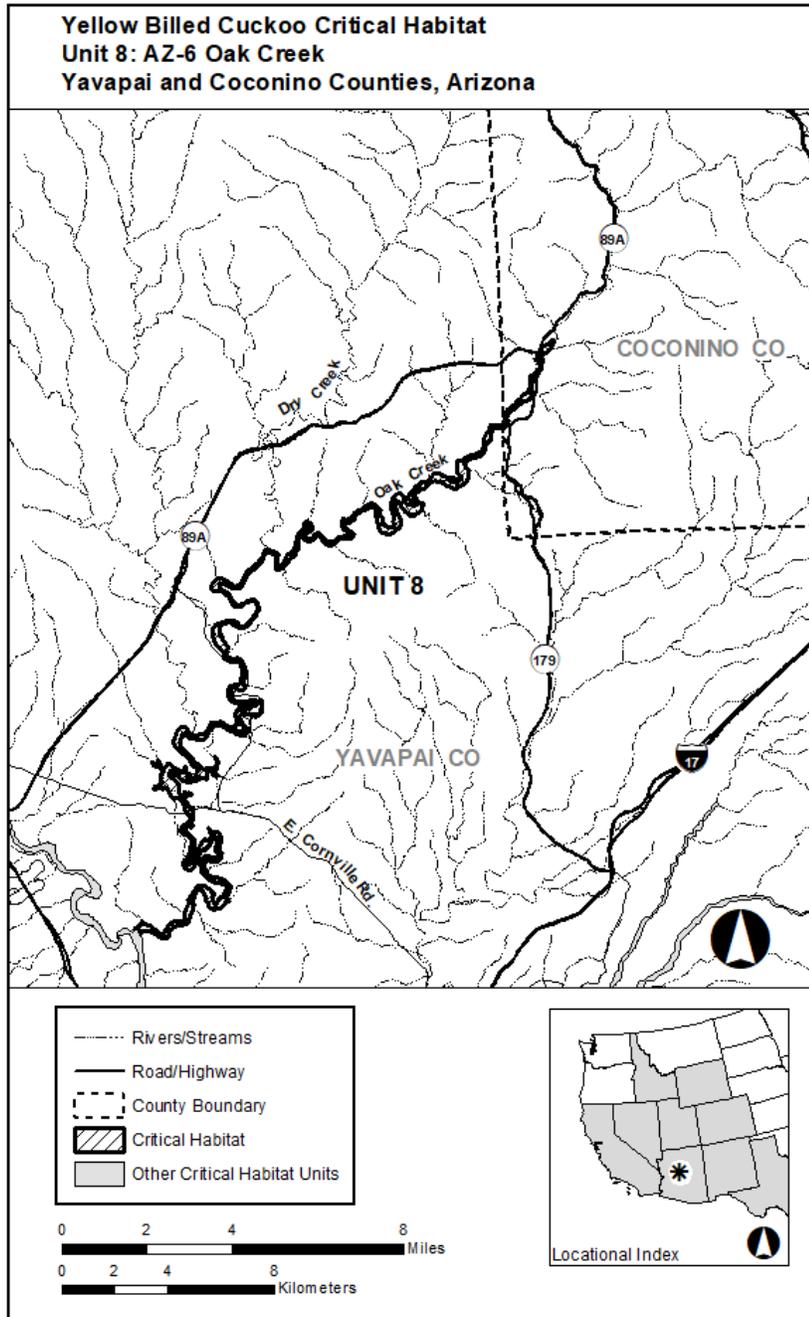
(10) Unit 6: AZ-4, Agua Fria River; Yavapai County, Arizona. Map of Unit 6 follows:



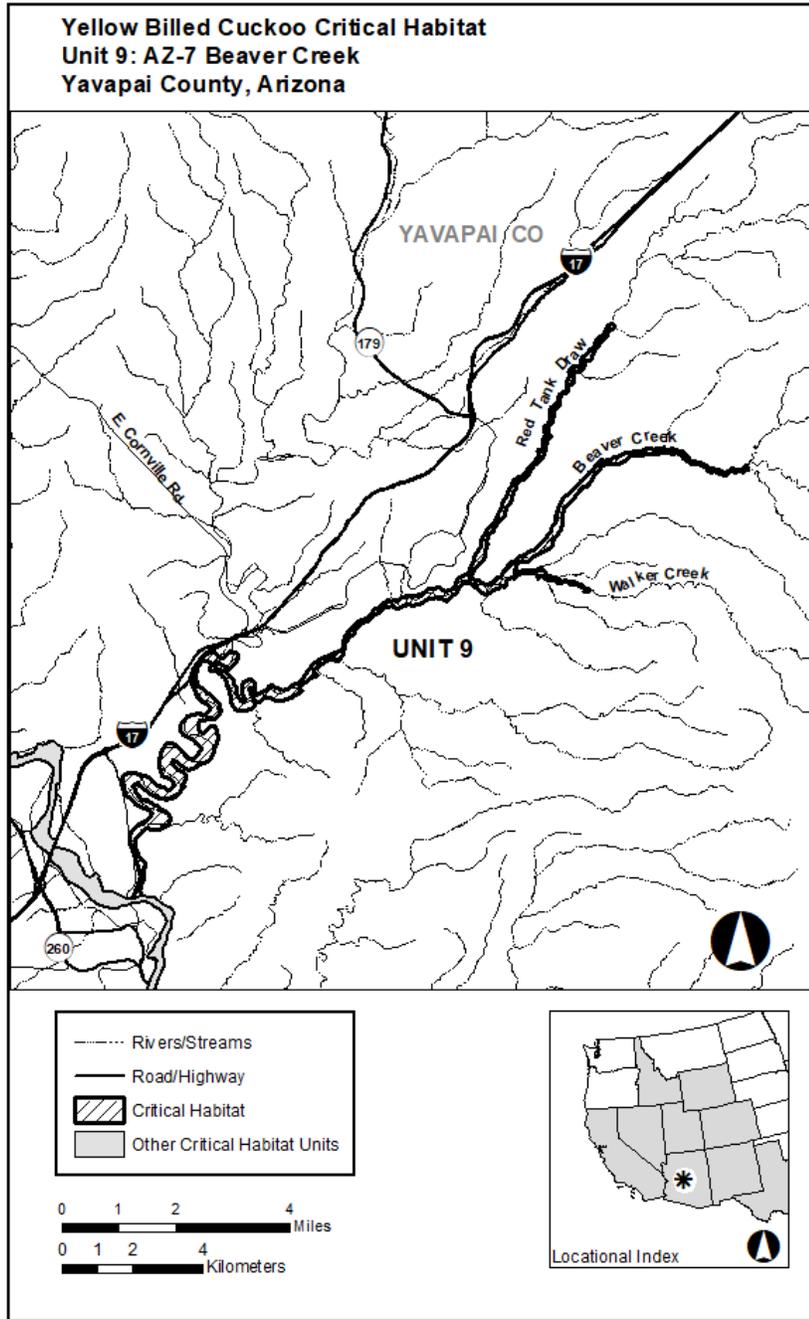
(11) Unit 7: AZ-5, Upper Verde River; Yavapai County, Arizona. Map of Unit 7 follows:



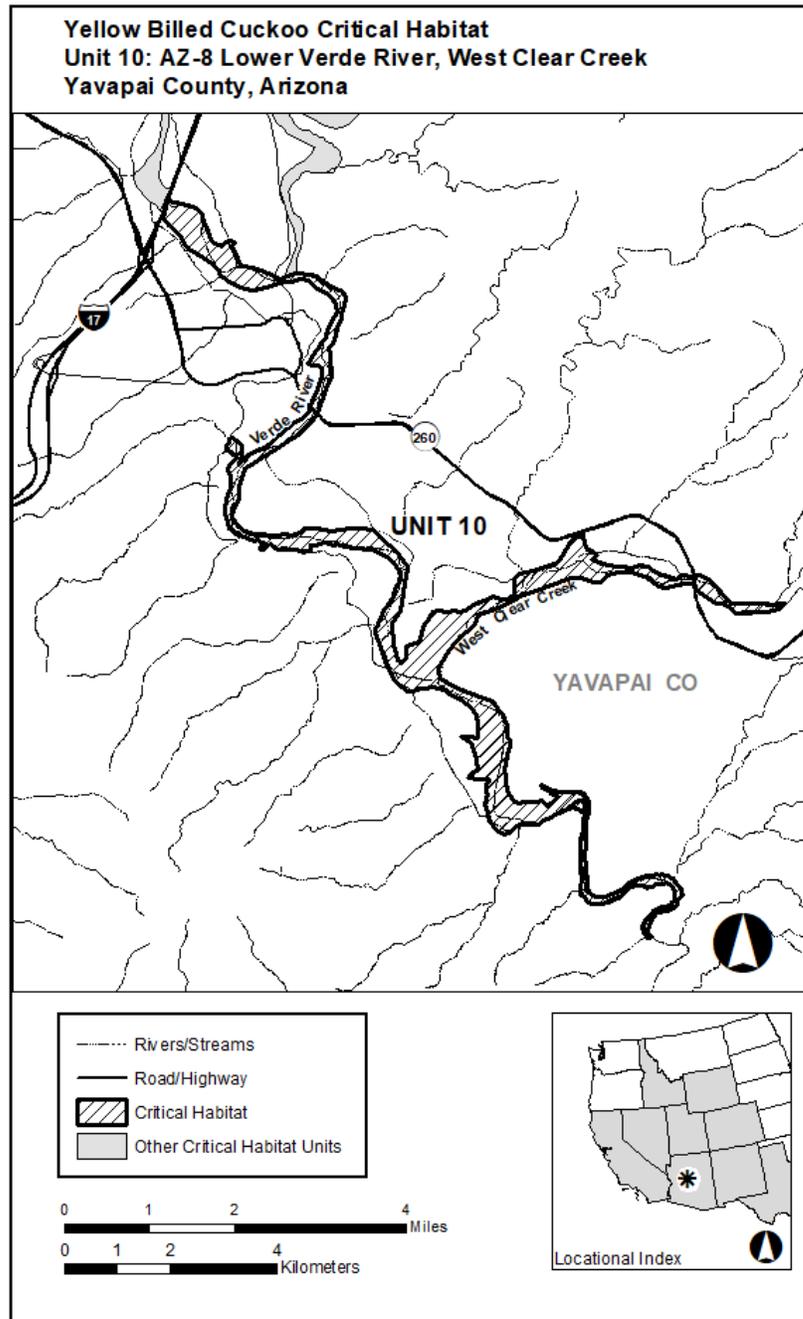
(12) Unit 8: AZ-6, Oak Creek; Yavapai and Coconino Counties, Arizona. Map of Unit 8 follows:



(13) Unit 9: AZ-7, Beaver Creek; Yavapai County, Arizona. Map of Unit 9 follows:

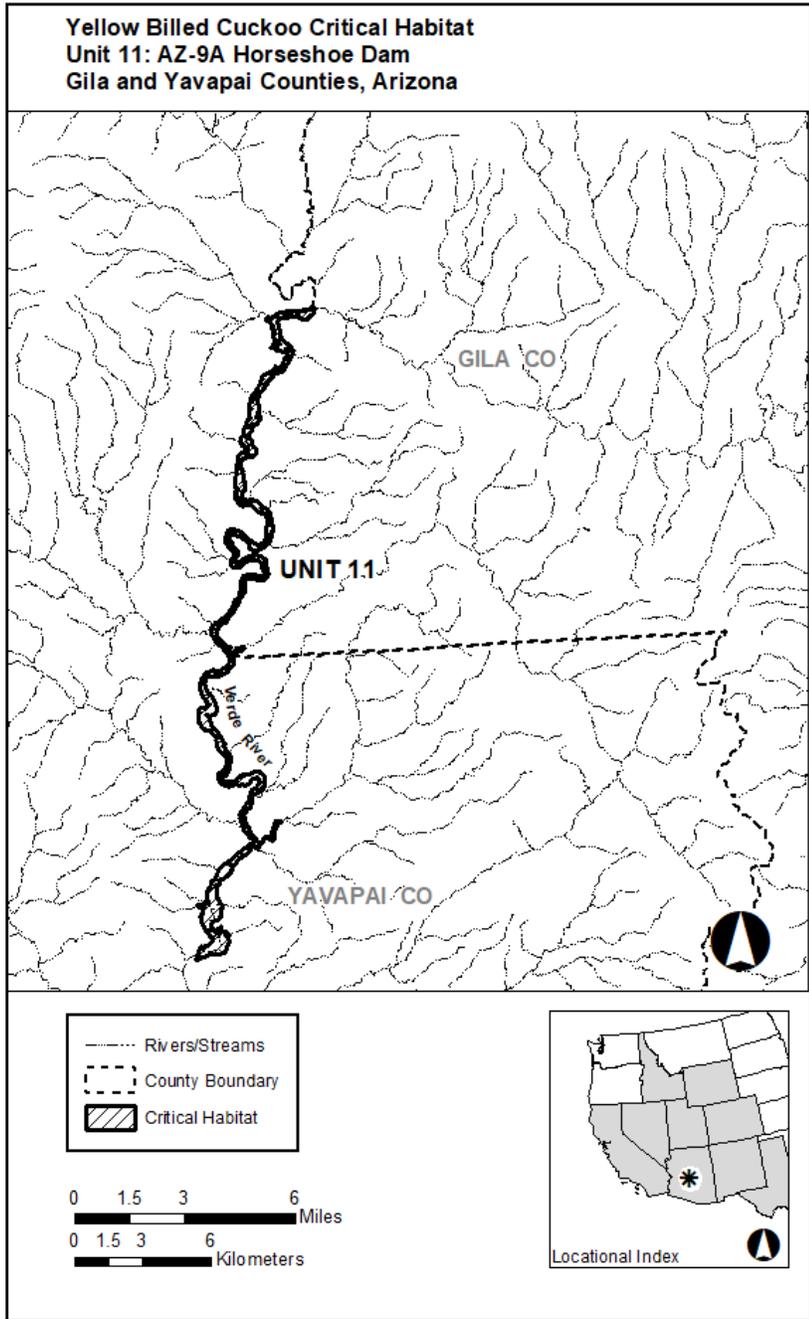


(14) Unit 10: AZ-8, Lower Verde River and West Clear Creek; Yavapai County, Arizona. Map of Unit 10 follows:

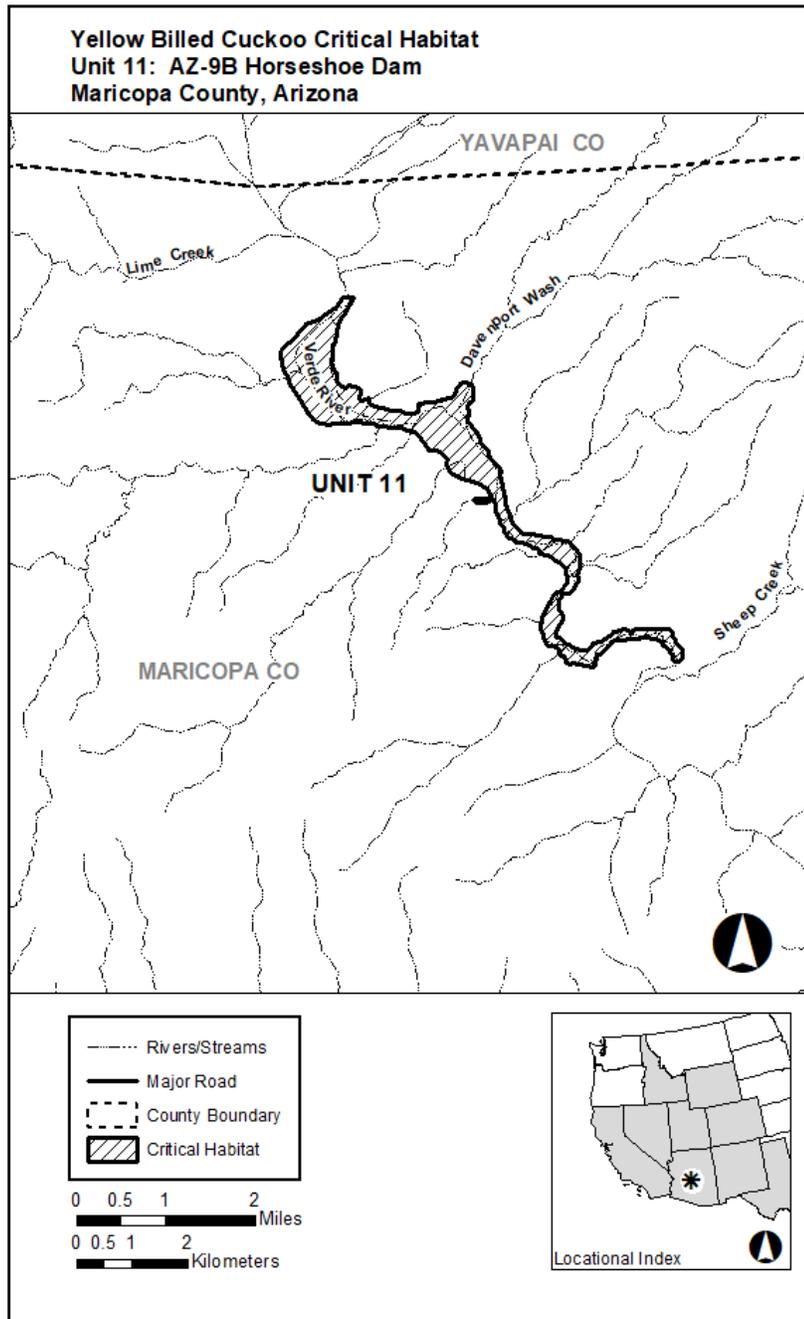


(15) Unit 11: AZ-9A and AZ-9B, Horseshoe Dam; Gila, Maricopa, and Yavapai Counties, Arizona. Maps of Unit 11 follow:

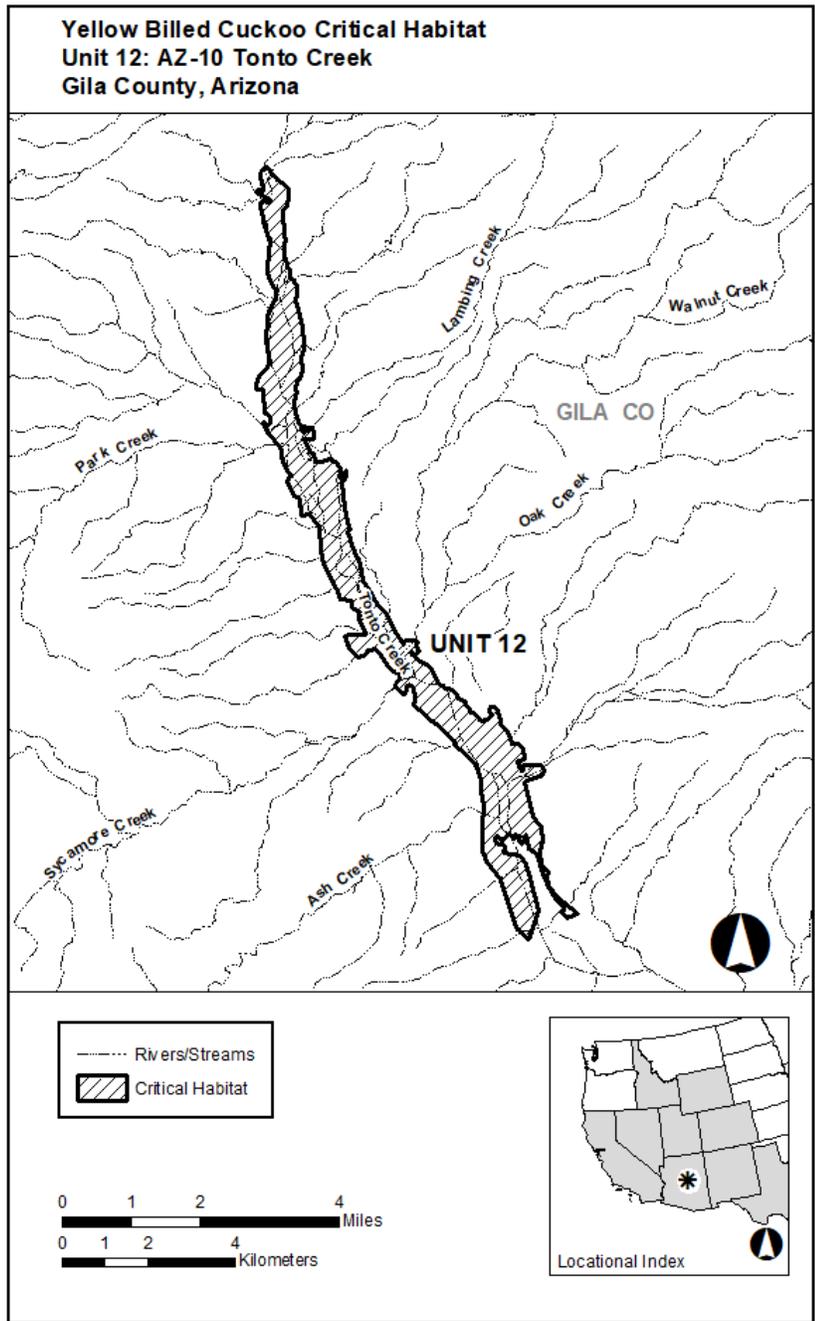
(i) Map of Unit 11: AZ-9A, Horseshoe Dam.



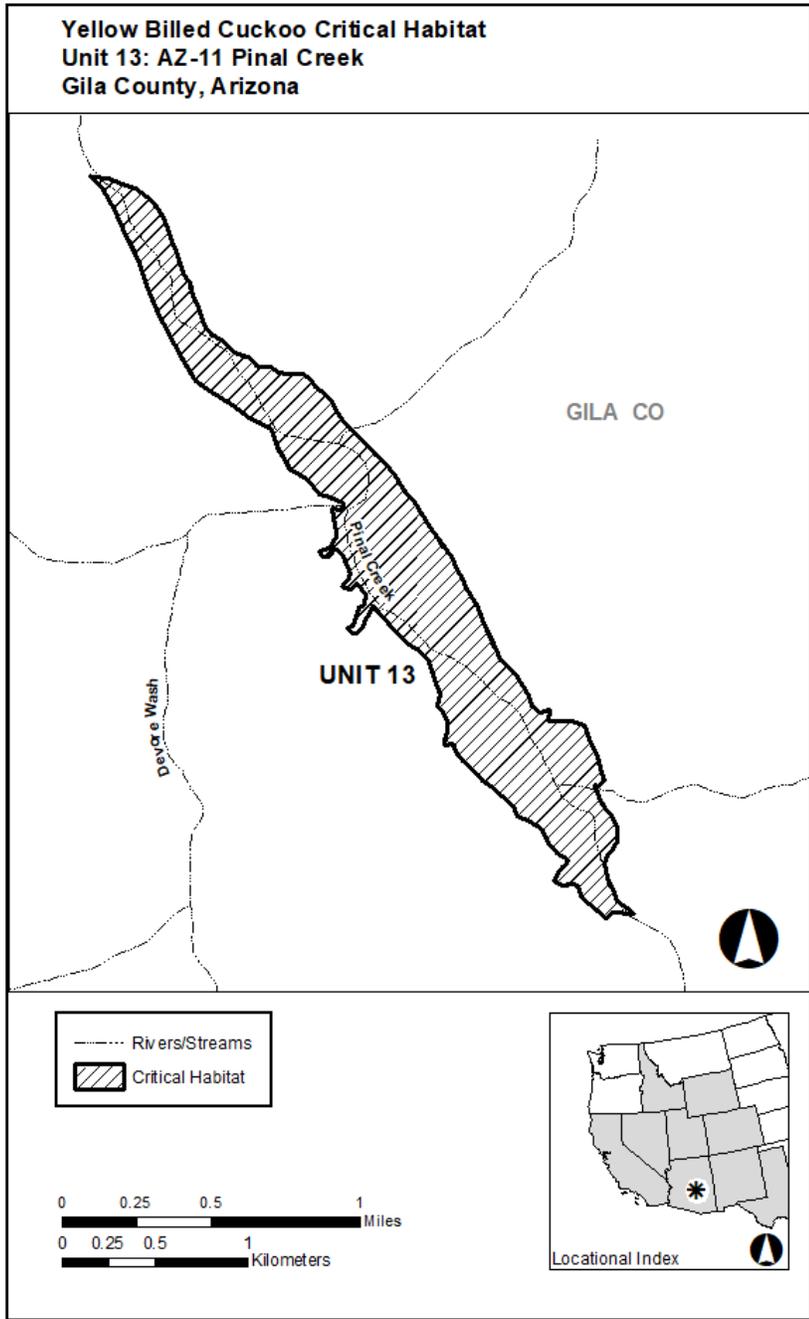
(ii) Map of Unit 11: AZ-9B, Horseshoe Dam.



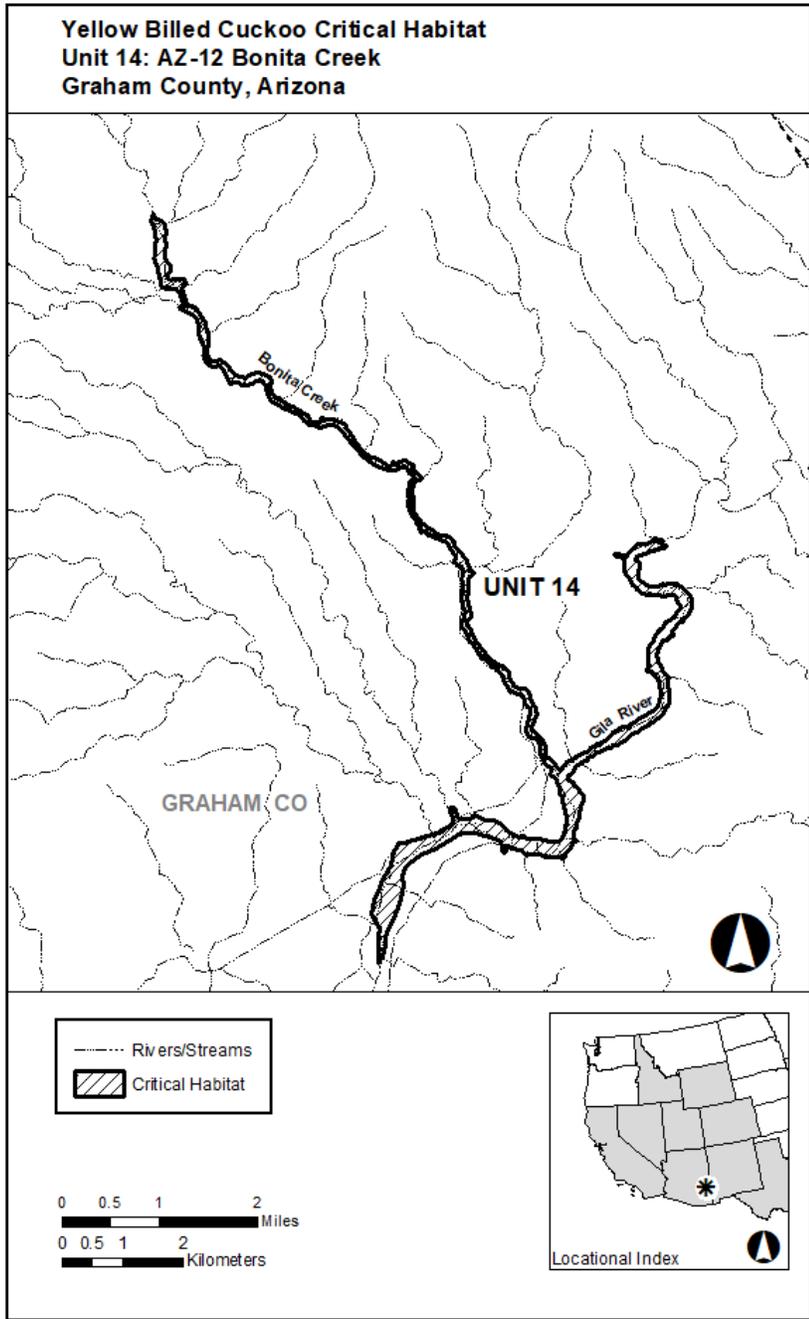
(16) Unit 12: AZ-10, Tonto Creek; Gila County, Arizona. Map of Unit 12 follows:



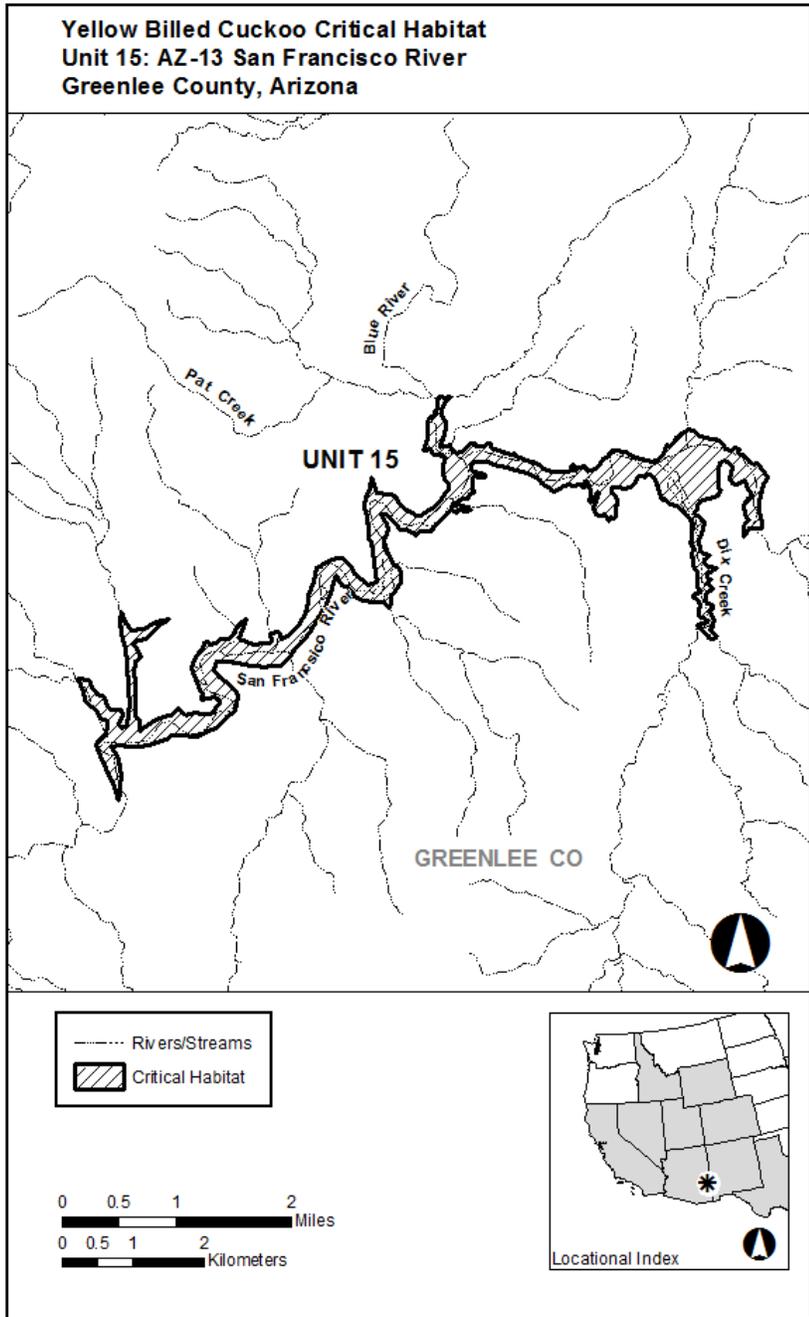
(17) Unit 13: AZ-11, Pinal Creek; Gila County, Arizona. Map of Unit 13 follows:



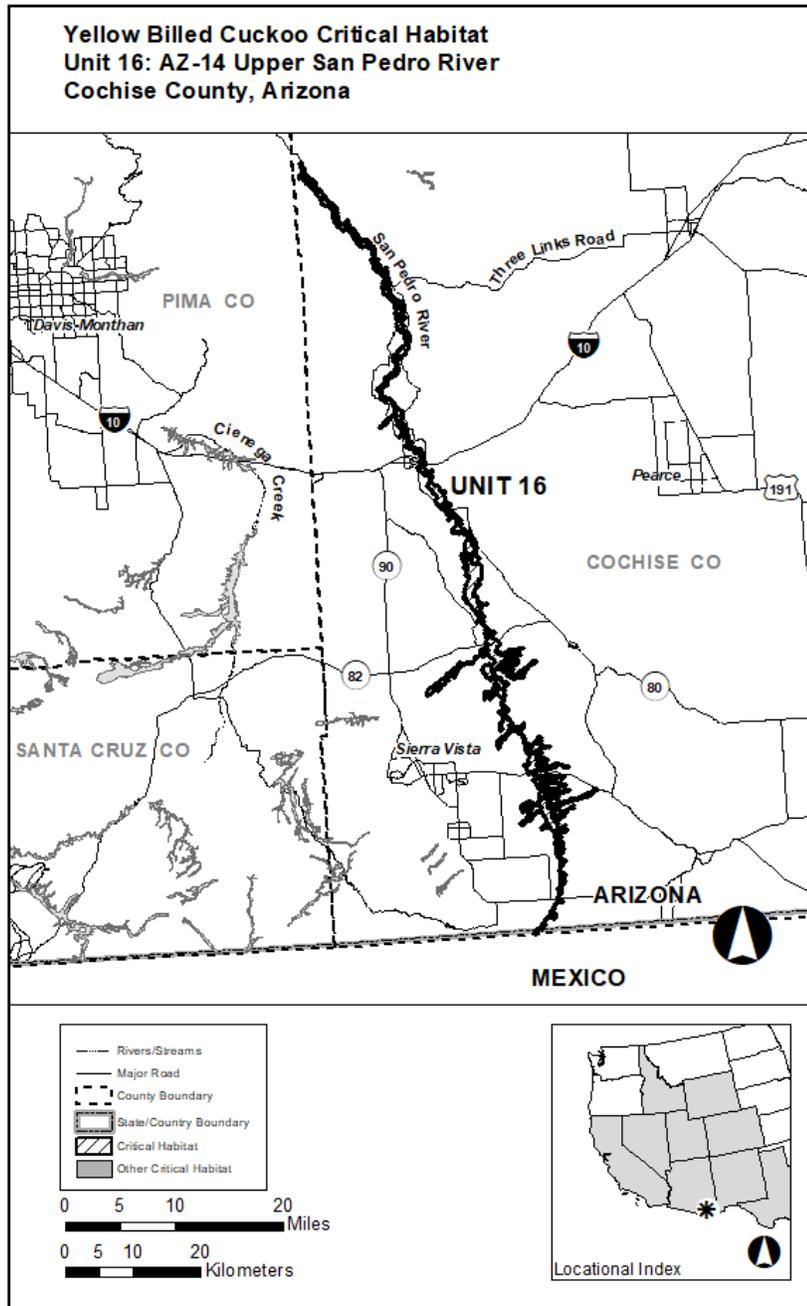
(18) Unit 14: AZ-12, Bonita Creek; Graham County, Arizona. Map of Unit 14 follows:



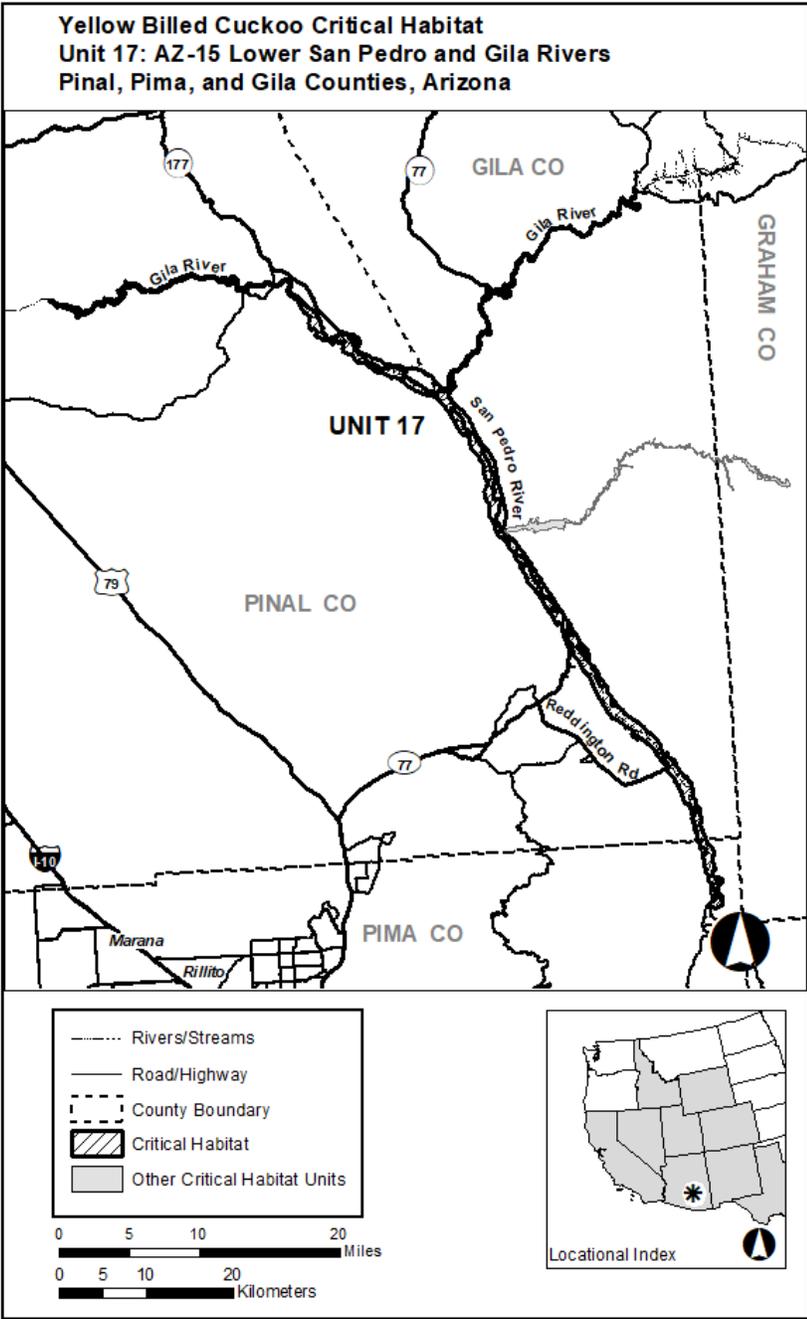
(19) Unit 15: AZ-13, San Francisco River; Greenlee County, Arizona. Map of Unit 15 follows:



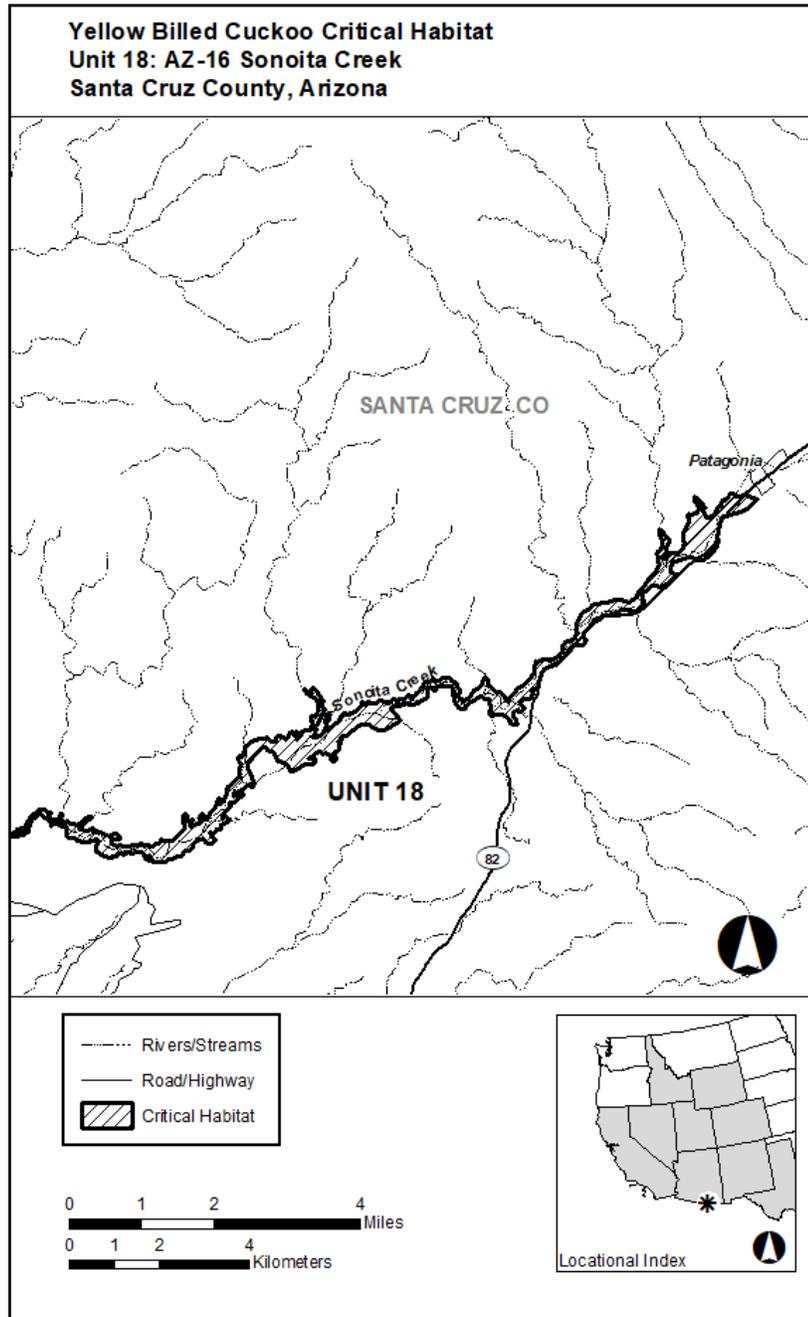
(20) Unit 16: AZ-14, Upper San Pedro River; Cochise County, Arizona. Map of Unit 16 follows:



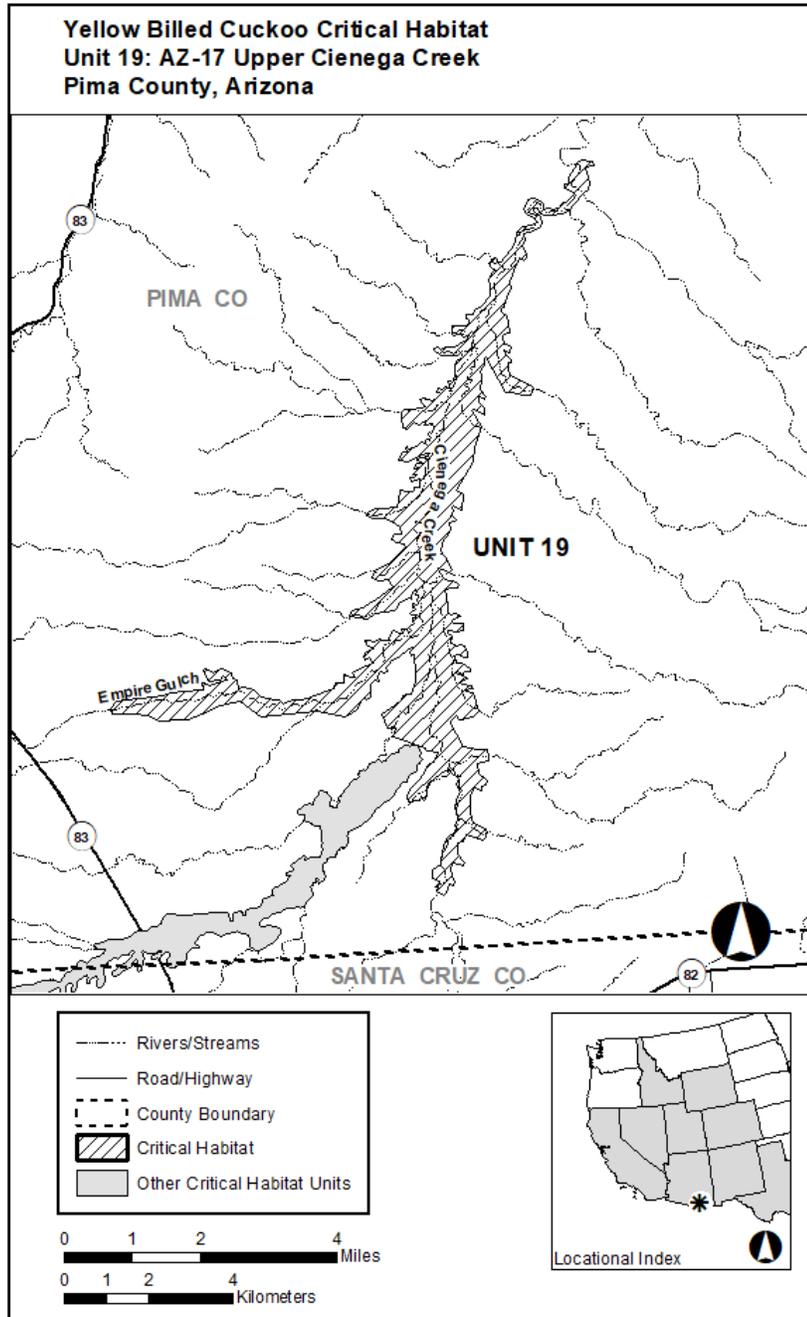
(21) Unit 17: AZ-15, Lower San Pedro River and Gila River; Pima, Pinal, and Gila Counties, Arizona. Map of Unit 17 follows:



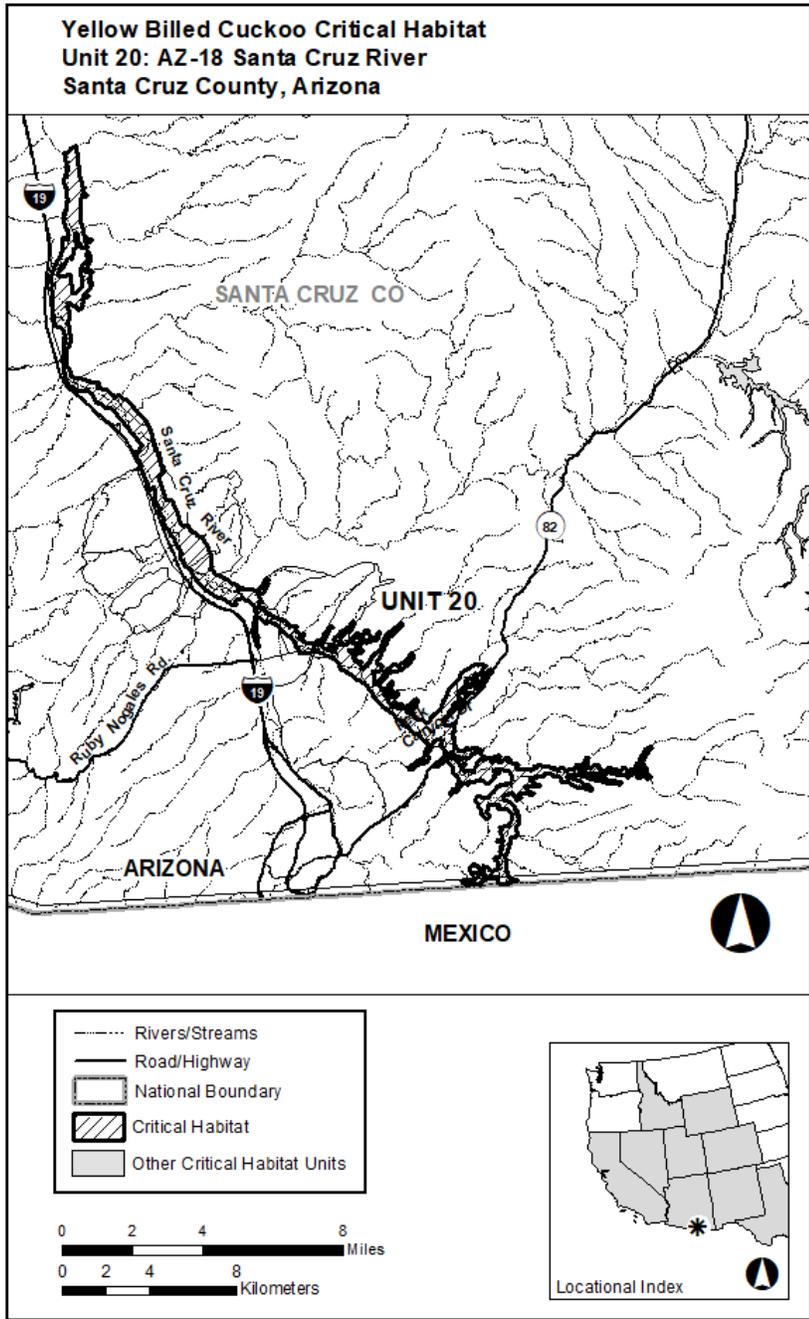
(22) Unit 18: AZ-16, Sonoita Creek; Santa Cruz County, Arizona. Map of Unit 18 follows:



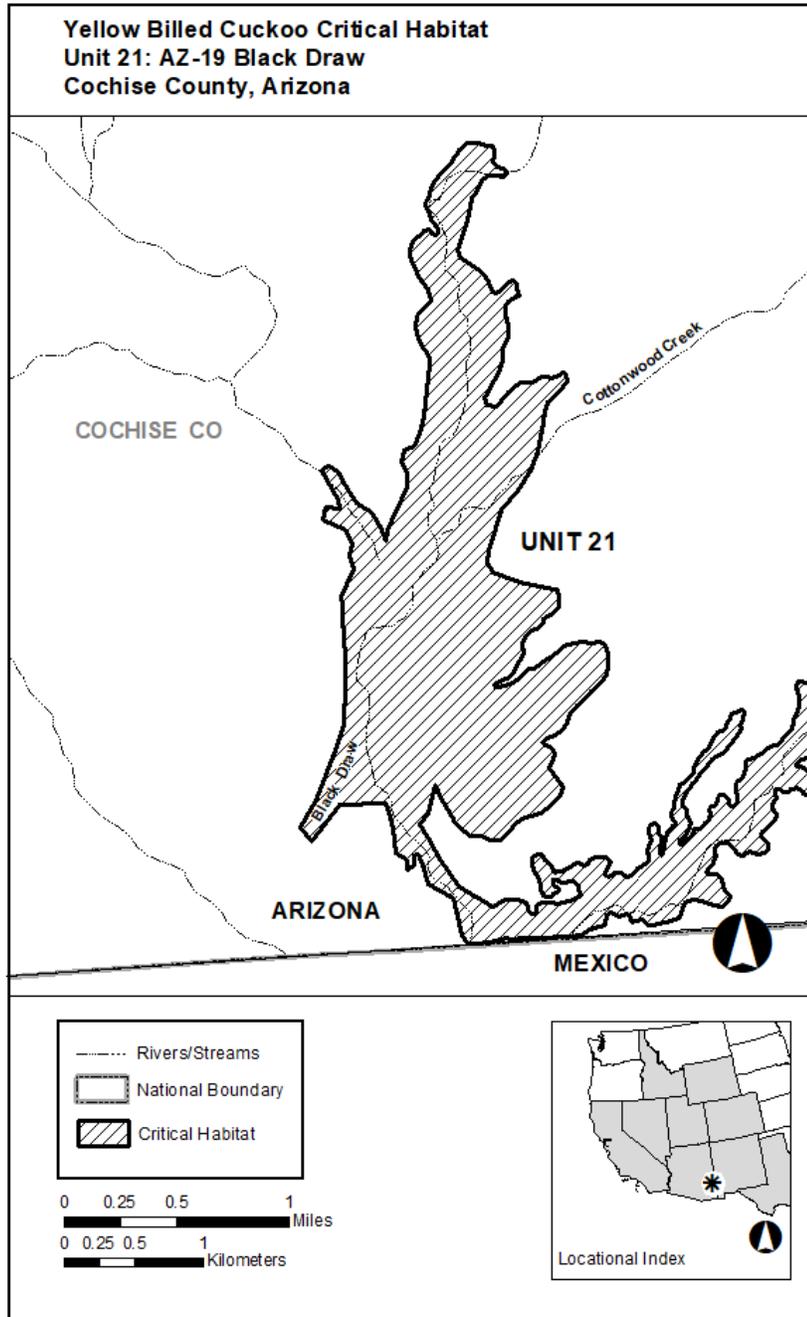
(23) Unit 19: AZ-17, Upper Cienega Creek; Pima County, Arizona. Map of Unit 19 follows:



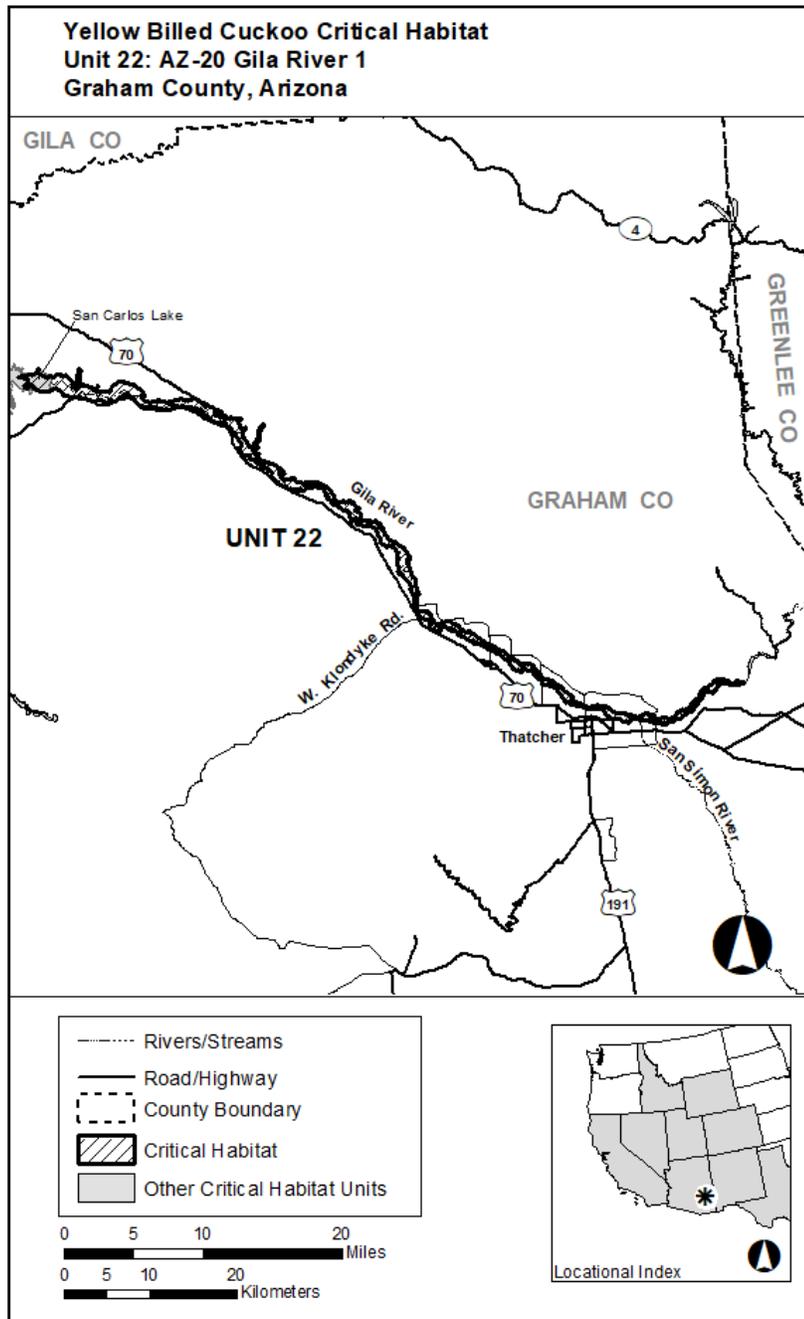
(24) Unit 20: AZ-18, Santa Cruz River; Santa Cruz County, Arizona. Map of Unit 20 follows:



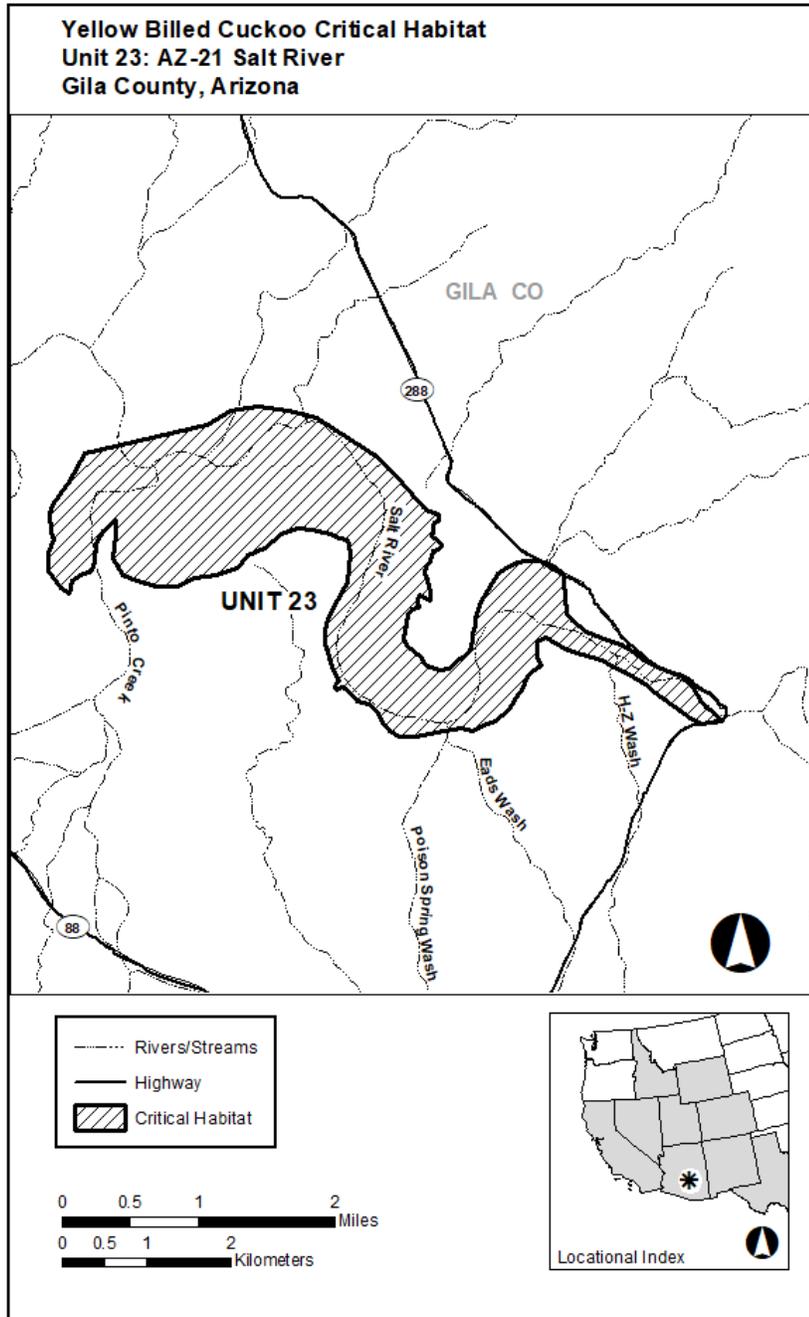
(25) Unit 21: AZ-19, Black Draw; Cochise County, Arizona. Map of Unit 21 follows:



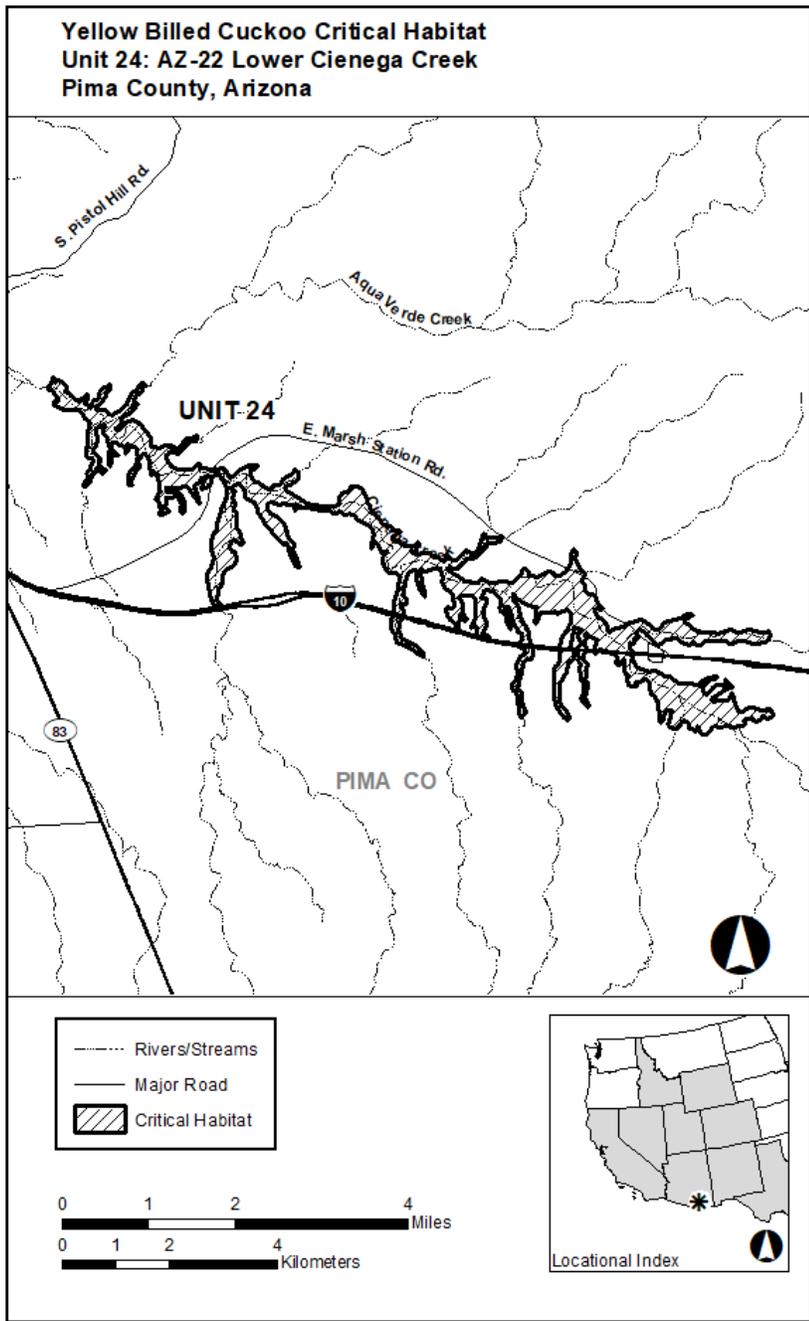
(26) Unit 22: AZ-20, Gila River 1; Graham County, Arizona. Map of Unit 22 follows:



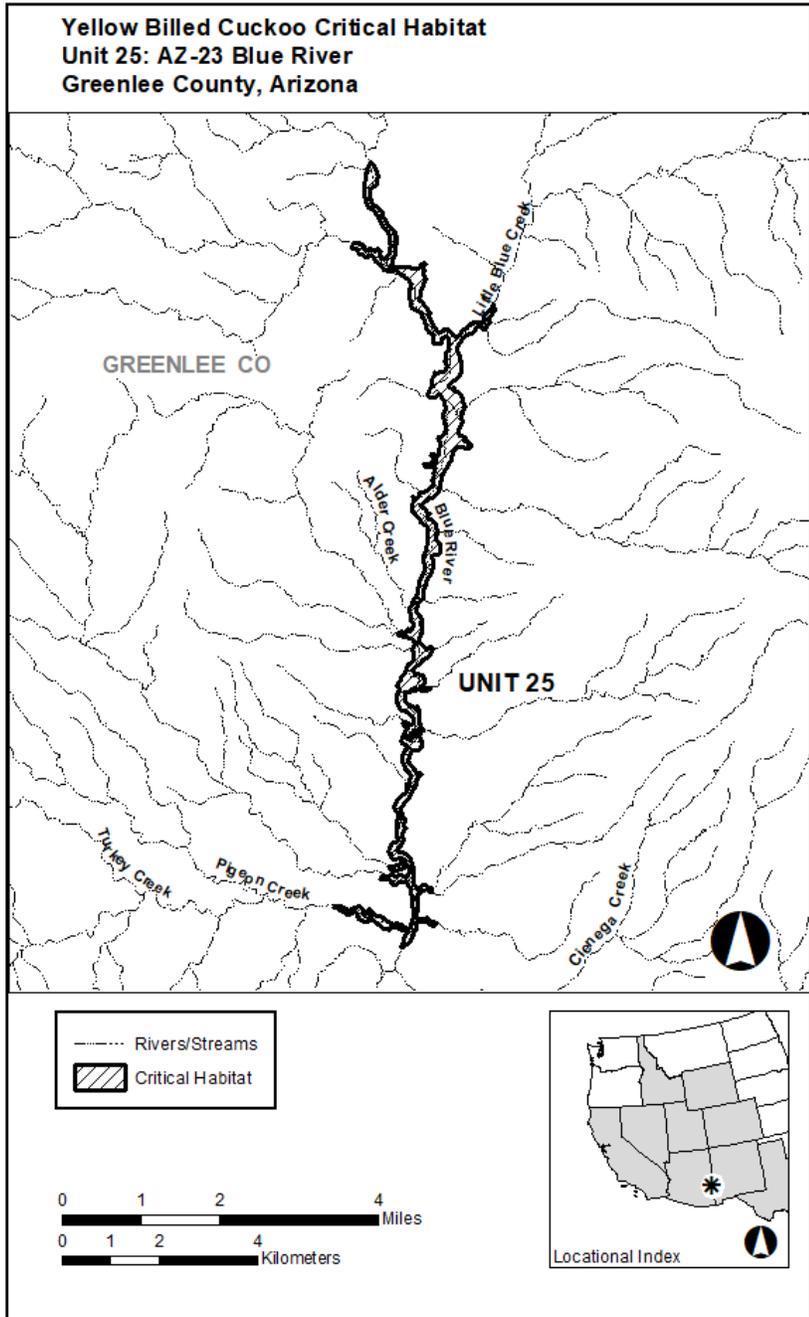
(27) Unit 23: AZ-21, Salt River; Gila County, Arizona. Map of Unit 23 follows:



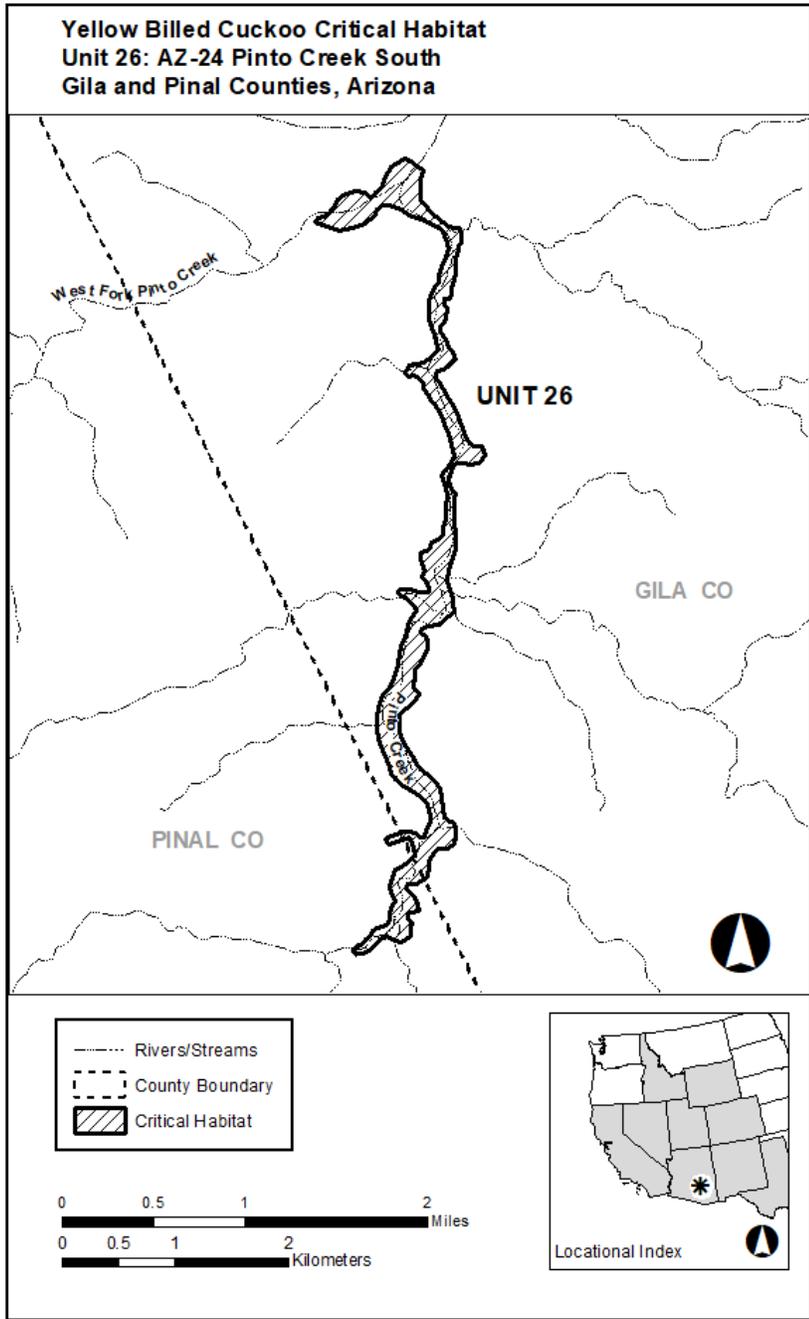
(28) Unit 24: AZ-22, Lower Cienega Creek; Pima County, Arizona. Map of Unit 24 follows:



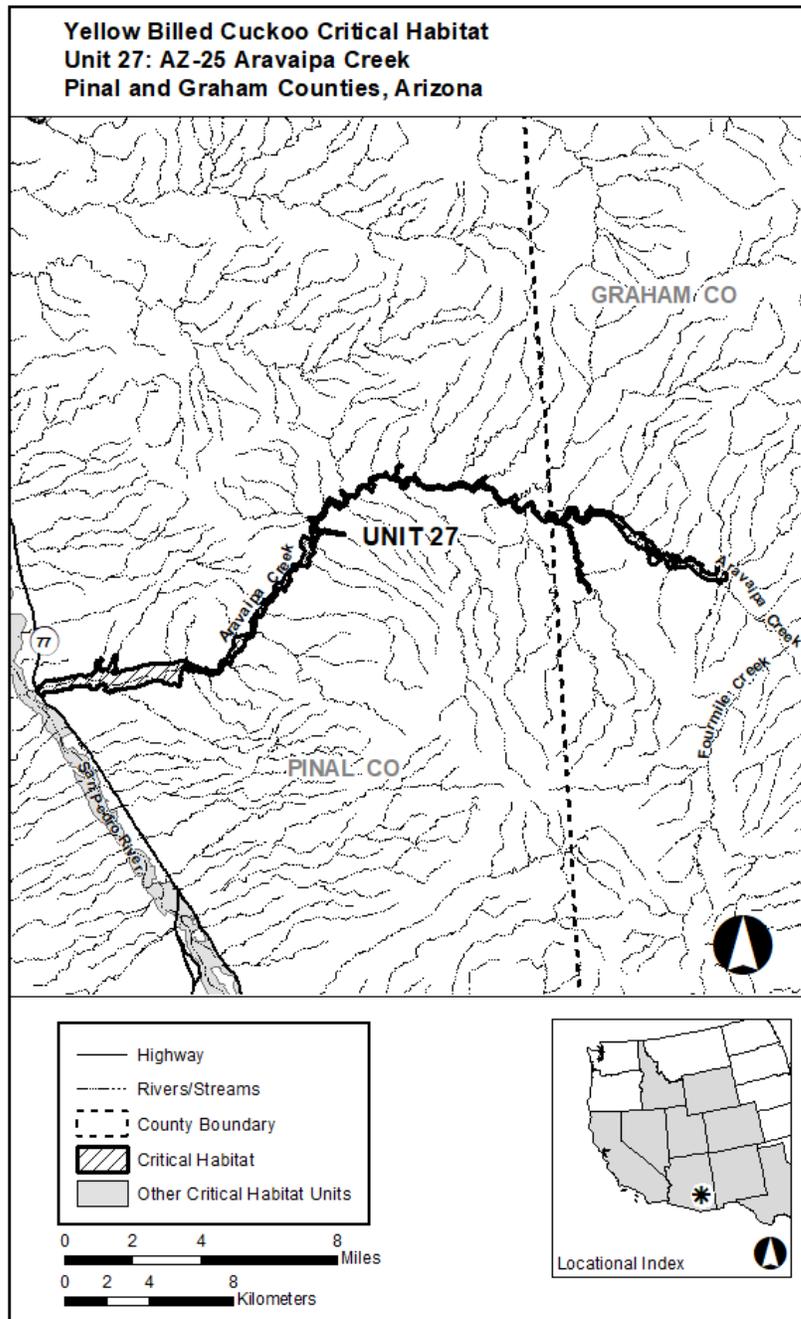
(29) Unit 25: AZ-23, Blue River; Greenlee County, Arizona. Map of Unit 25 follows:



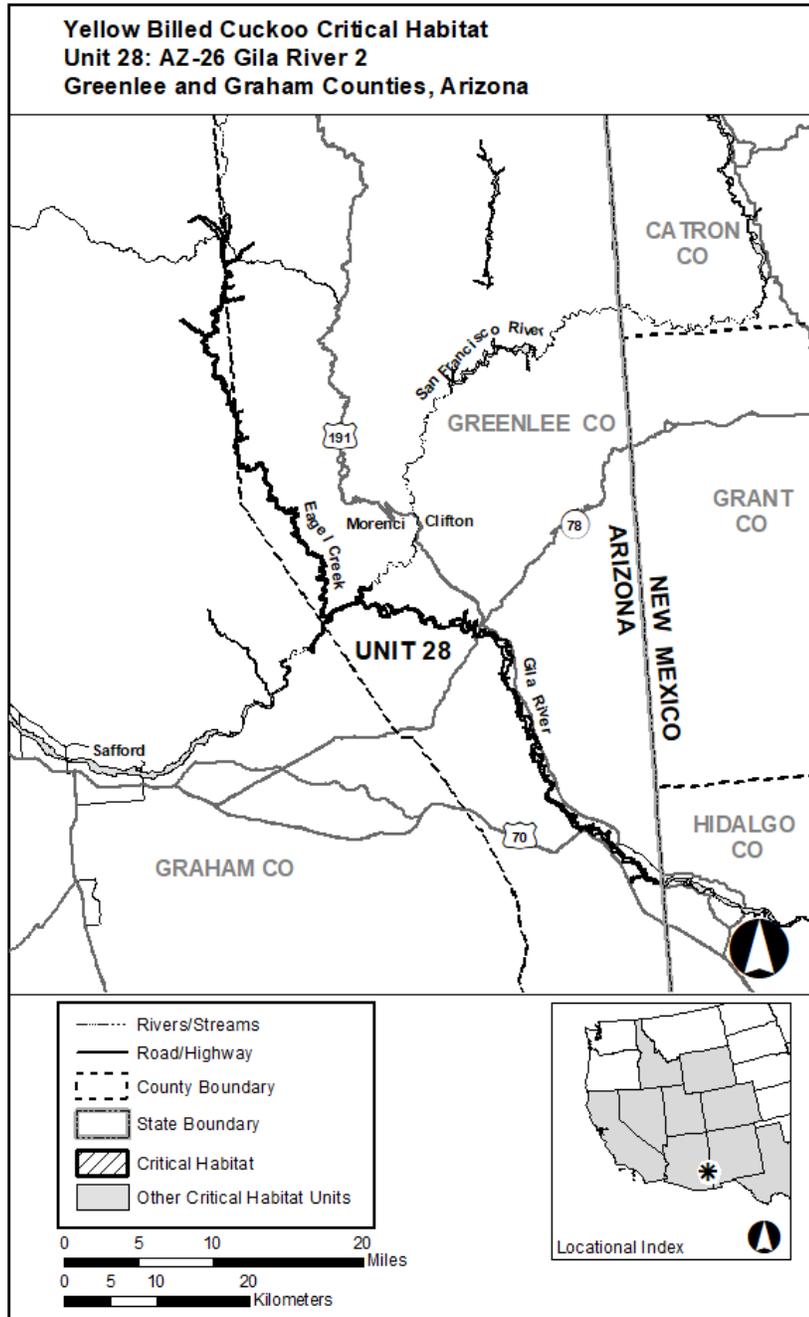
(30) Unit 26: AZ-24, Pinto Creek South; Gila and Pinal Counties, Arizona. Map of Unit 26 follows:



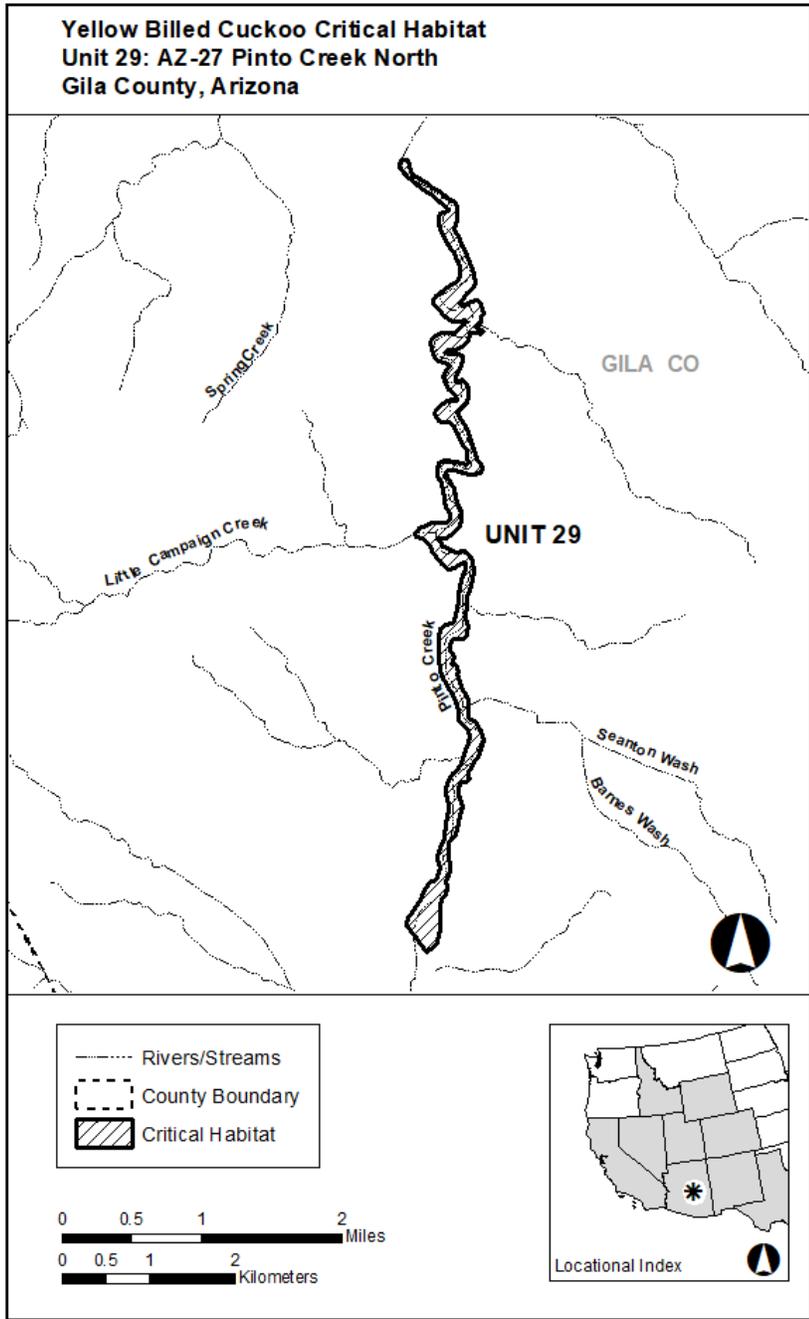
(31) Unit 27: AZ-25, Aravaipa Creek; Pinal and Graham Counties, Arizona. Map of Unit 27 follows:



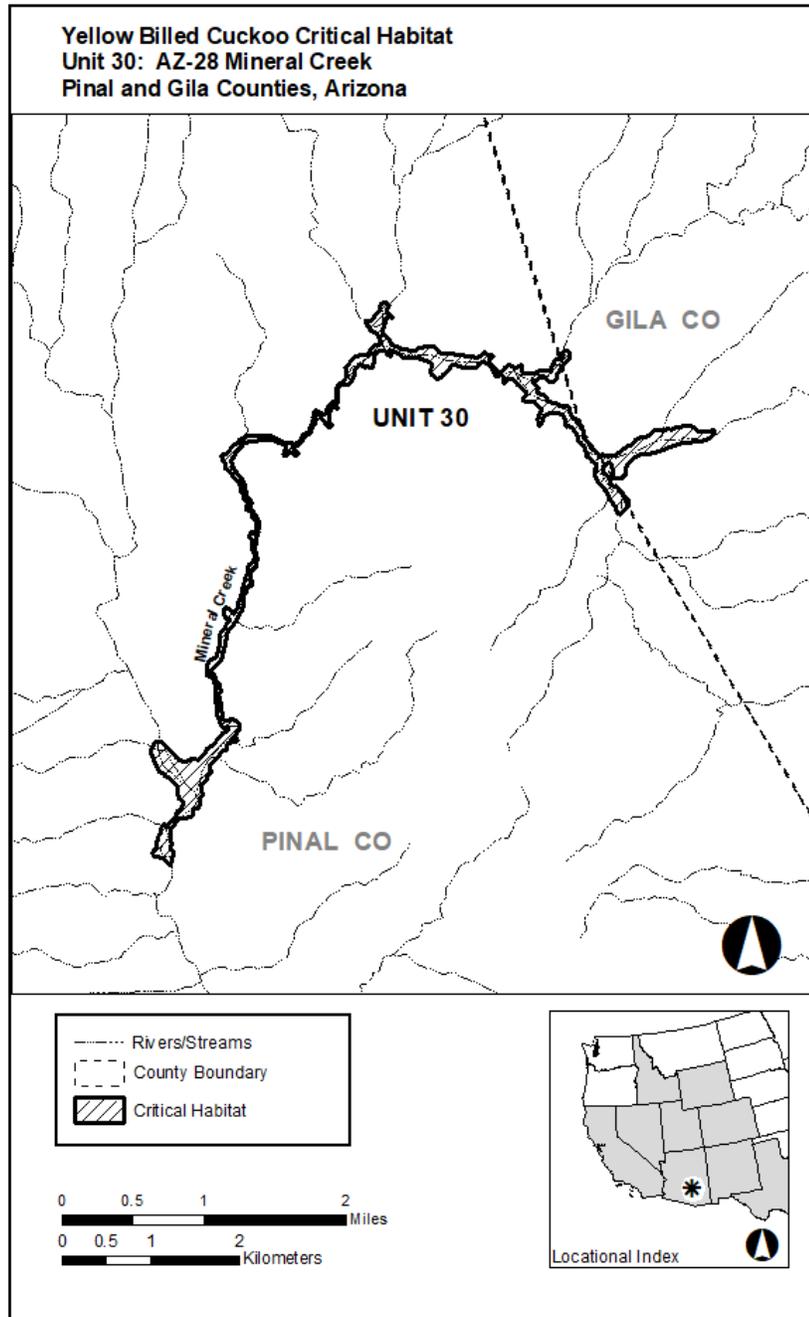
(32) Unit 28: AZ-26, Gila River 2; Graham and Greenlee Counties, Arizona.
Map of Unit 28 follows:



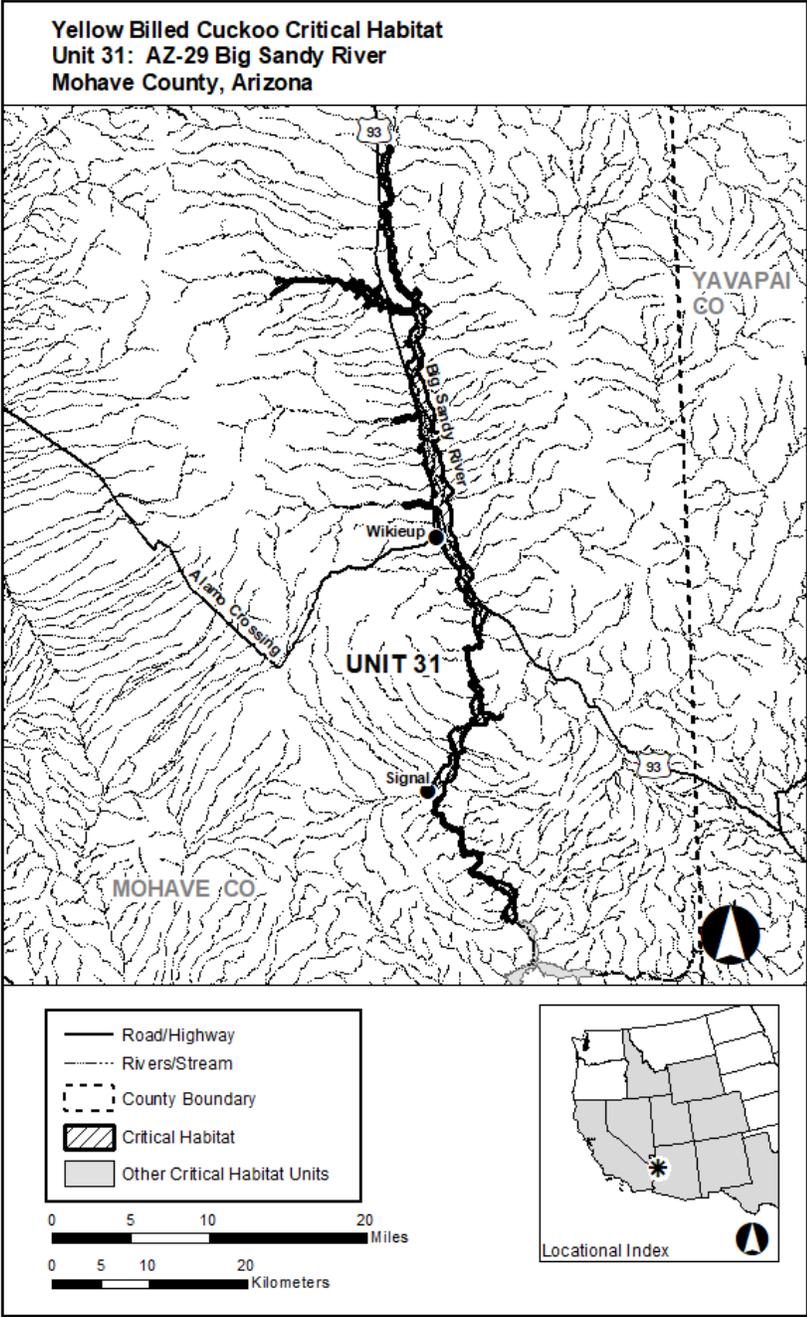
(33) Unit 29: AZ-27, Pinto Creek North; Gila County, Arizona. Map of Unit 29 follows:



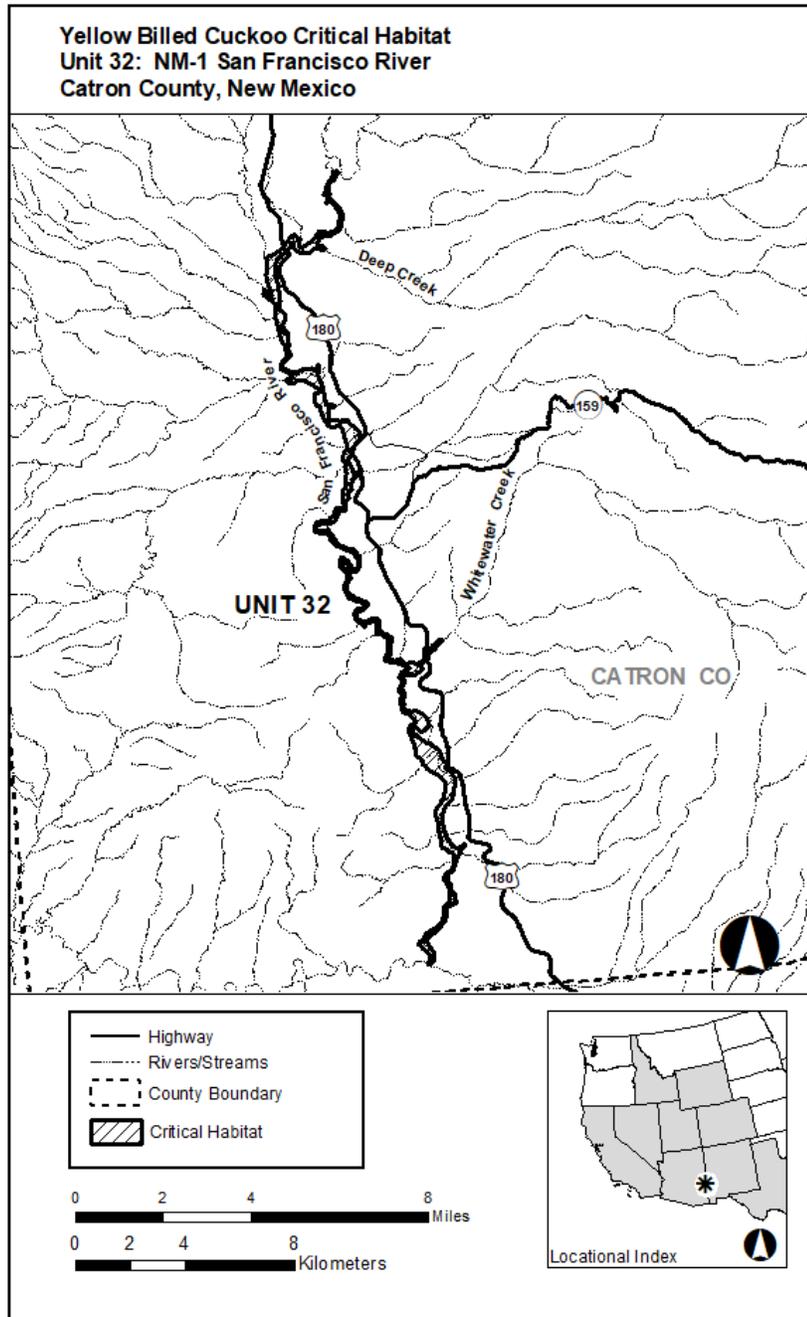
(34) Unit 30: AZ-28, Mineral Creek; Pinal and Gila Counties, Arizona. Map of Unit 30 follows:



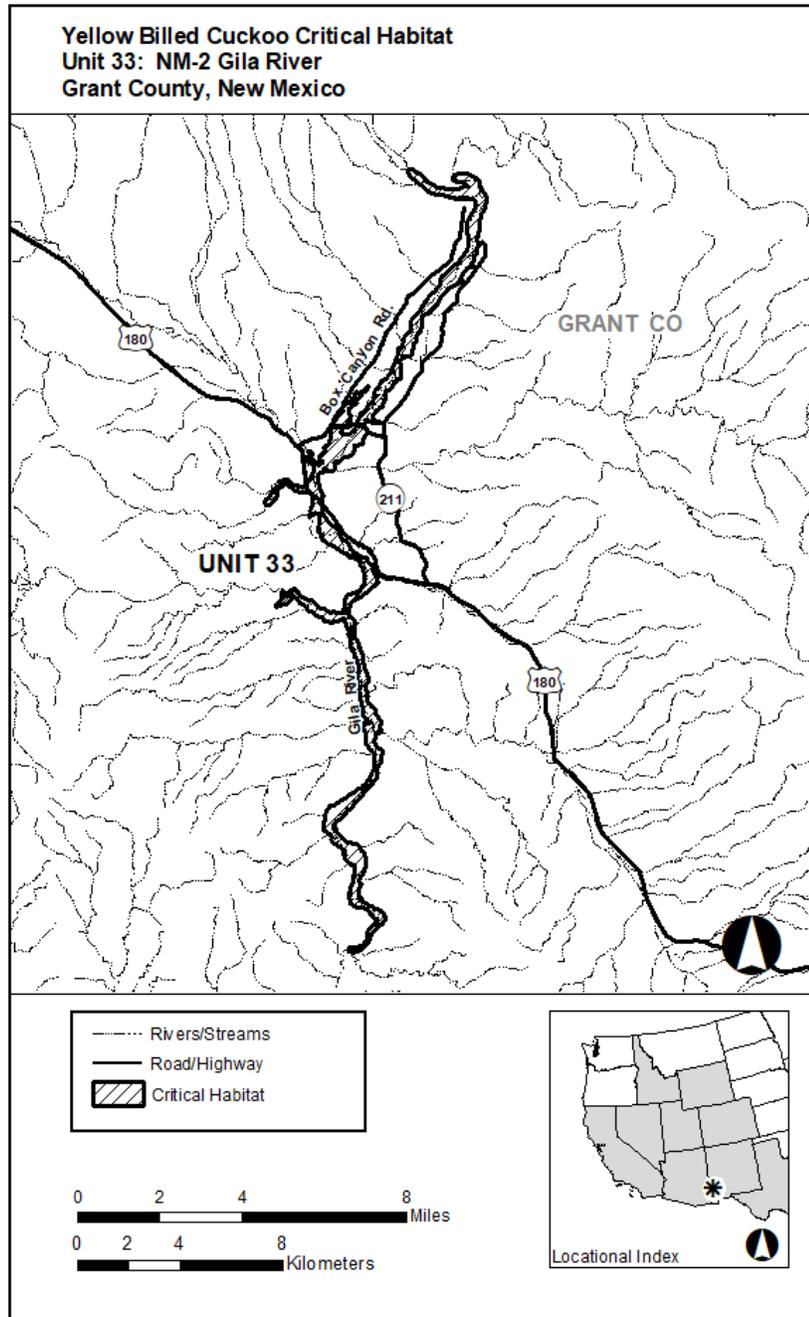
(35) Unit 31: AZ-29, Big Sandy River; Mohave County, Arizona. Map of Unit 31 follows:



(36) Unit 32: NM-1, San Francisco River; Catron County, New Mexico. Map of Unit 32 follows:

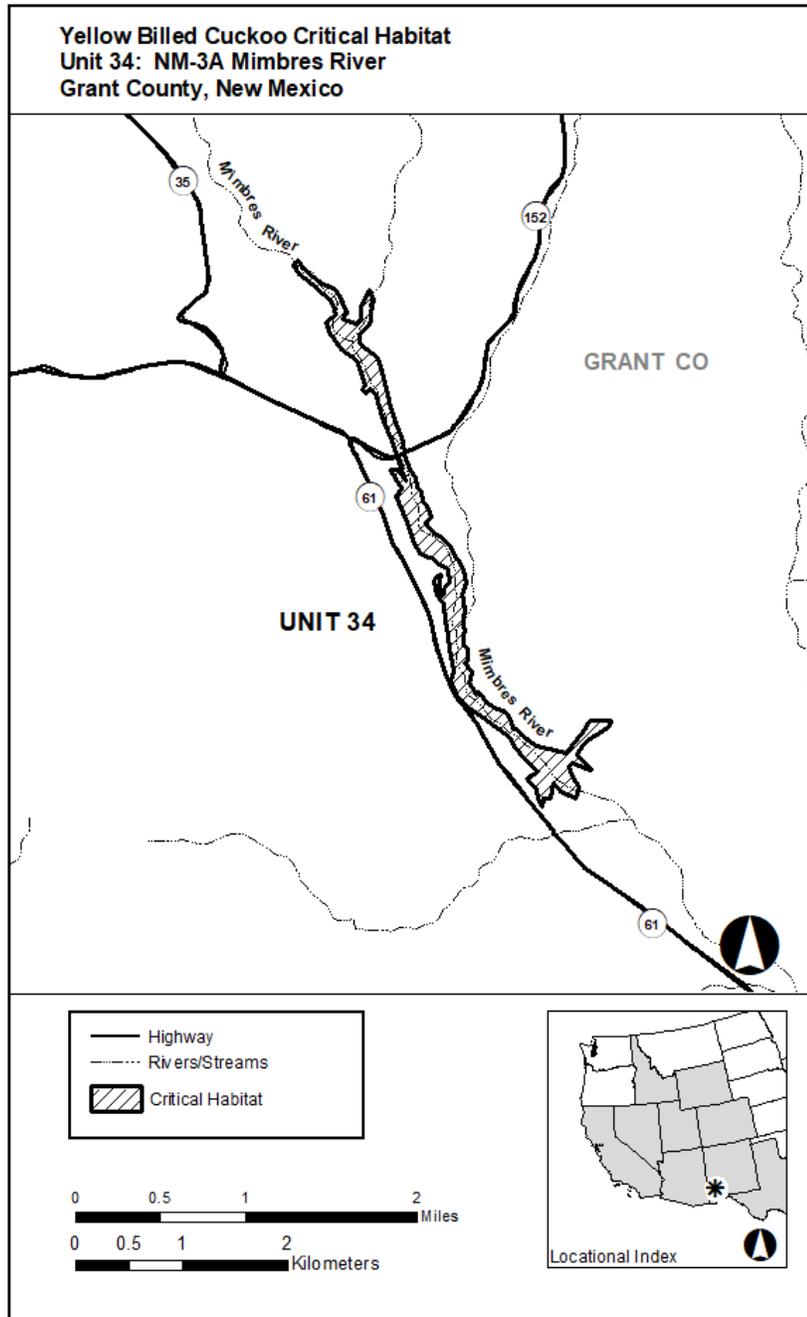


(37) Unit 33: NM-2, Gila River; Grant County, New Mexico. Map of Unit 33 follows:

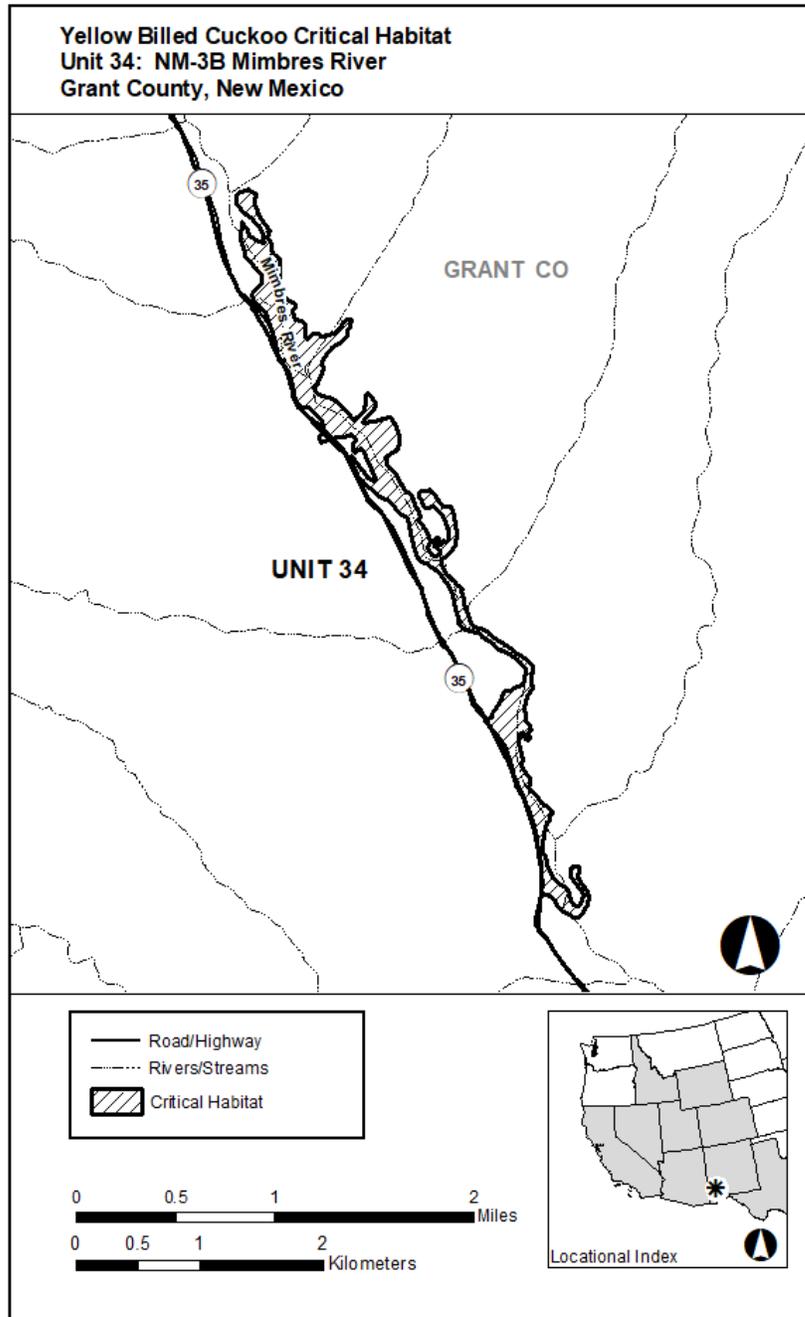


(38) Unit 34: NM-3A and NM-3B, Mimbres River; Grant County, New Mexico.
Maps of Unit 34 follow:

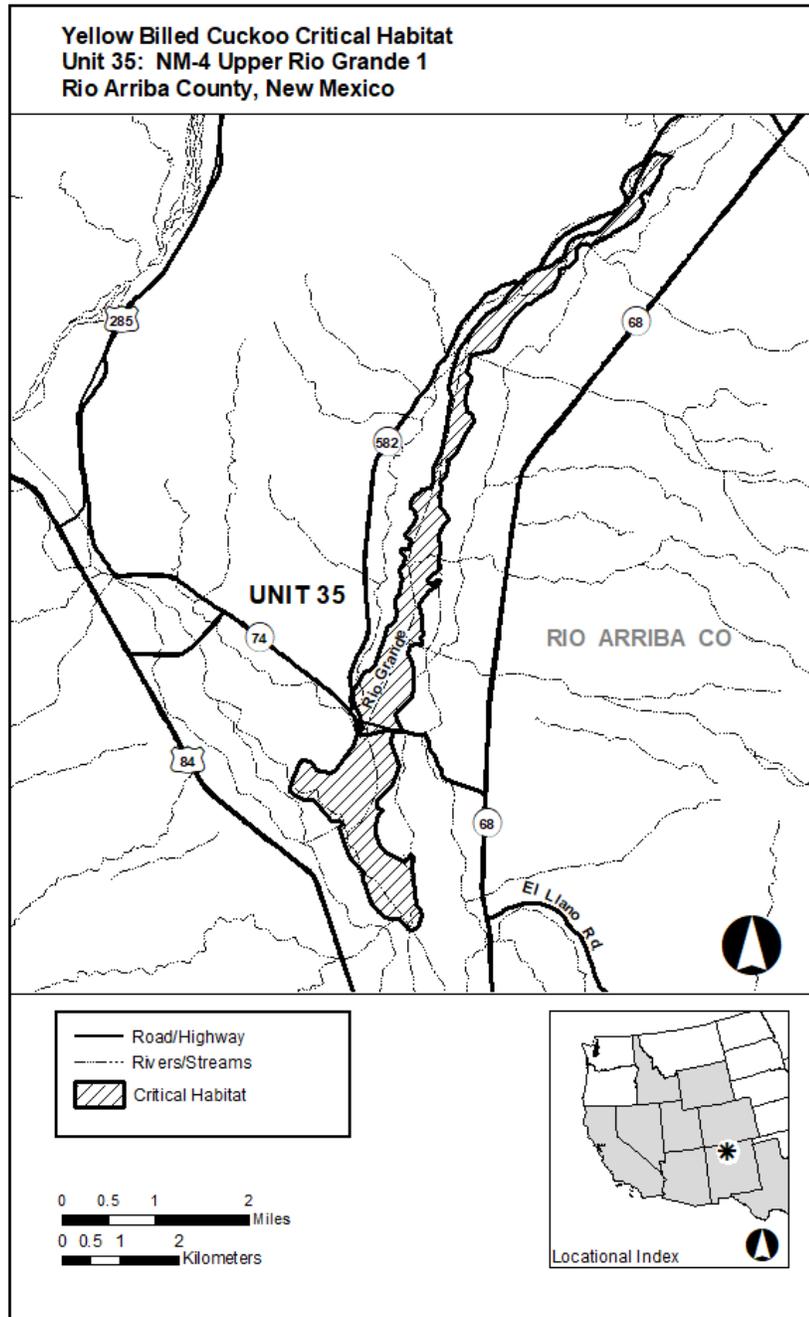
- (i) Map of Unit 34: NM-3A, Mimbres River.



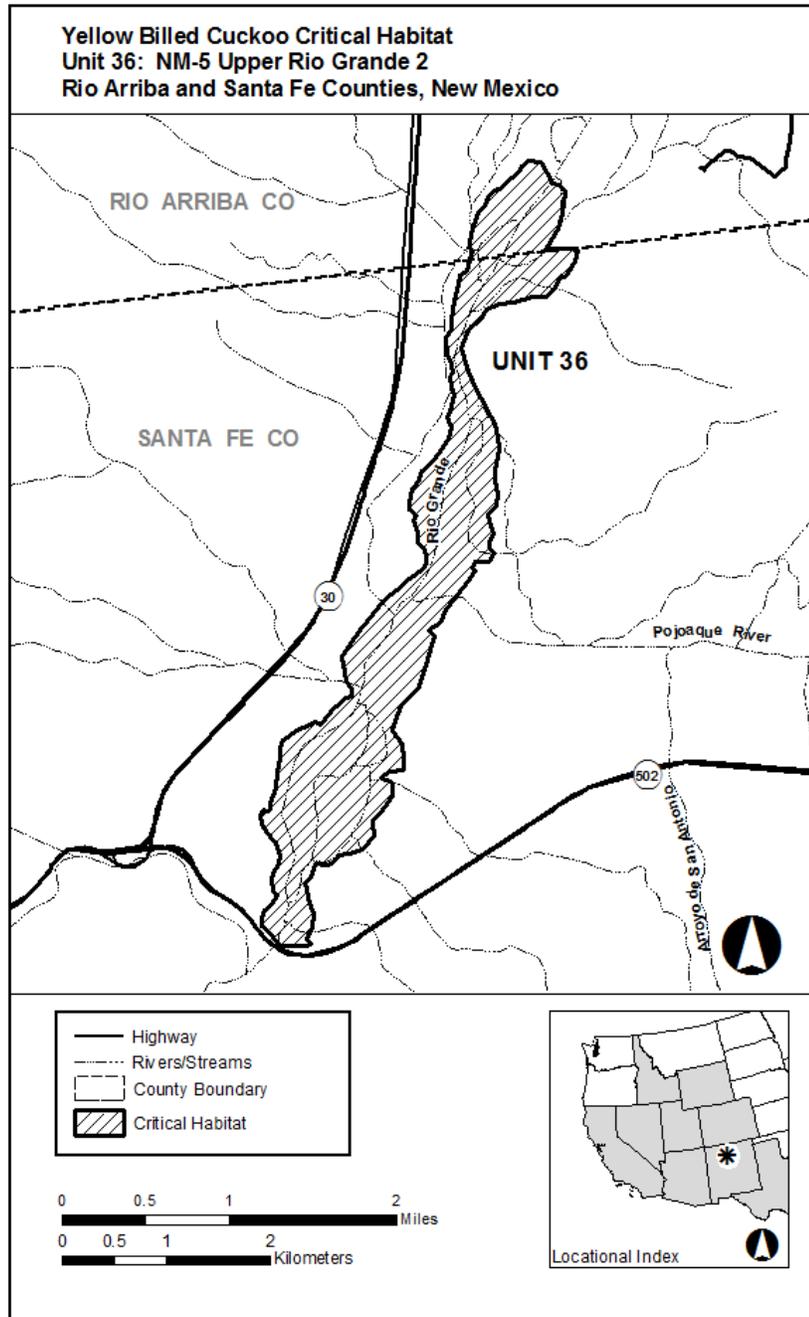
(ii) Map of Unit 34: NM-3B, Mimbres River.



(39) Unit 35: NM-4, Upper Rio Grande 1; Rio Arriba County, New Mexico.
 Map of Unit 35 follows:

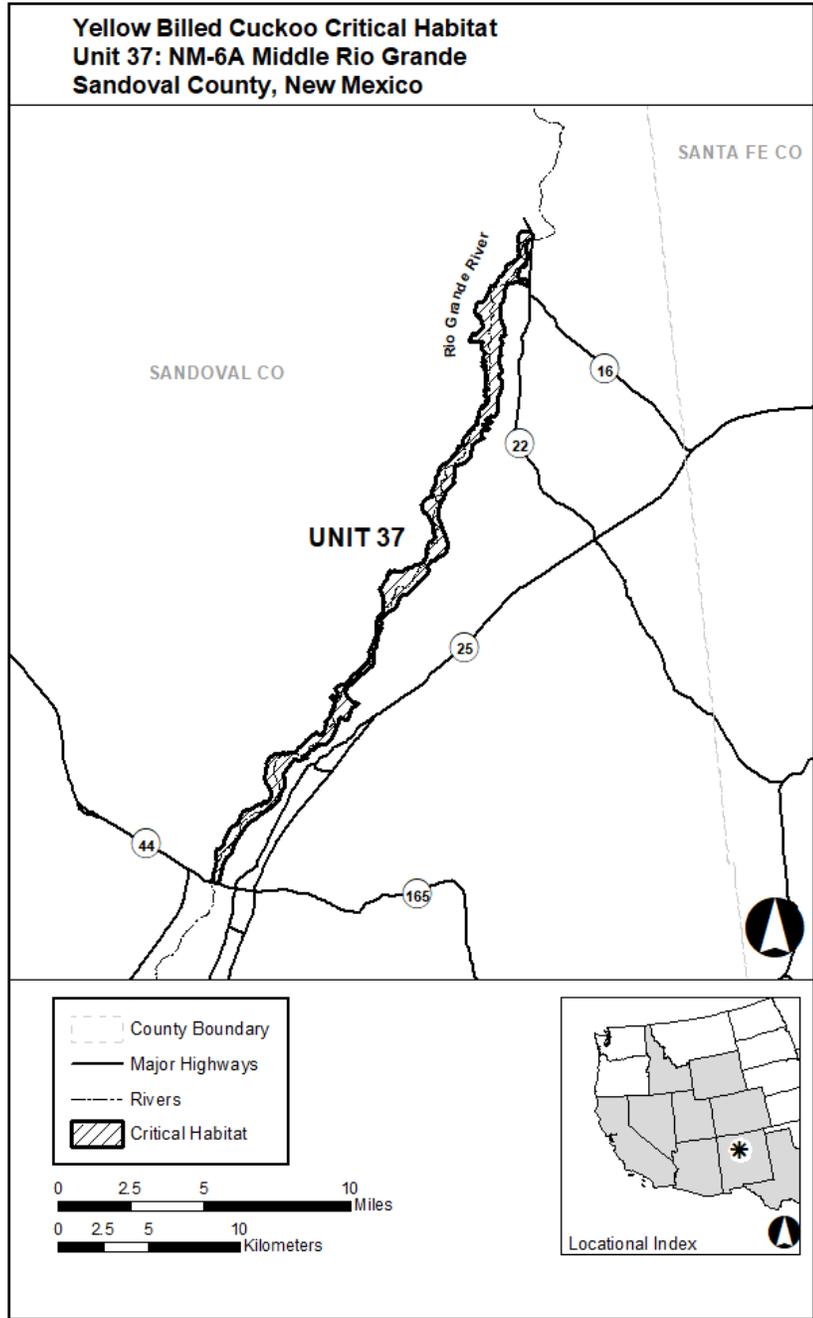


(40) Unit 36: NM-5, Upper Rio Grande 2; Santa Fe and Rio Arriba Counties, New Mexico. Map of Unit 36 follows:

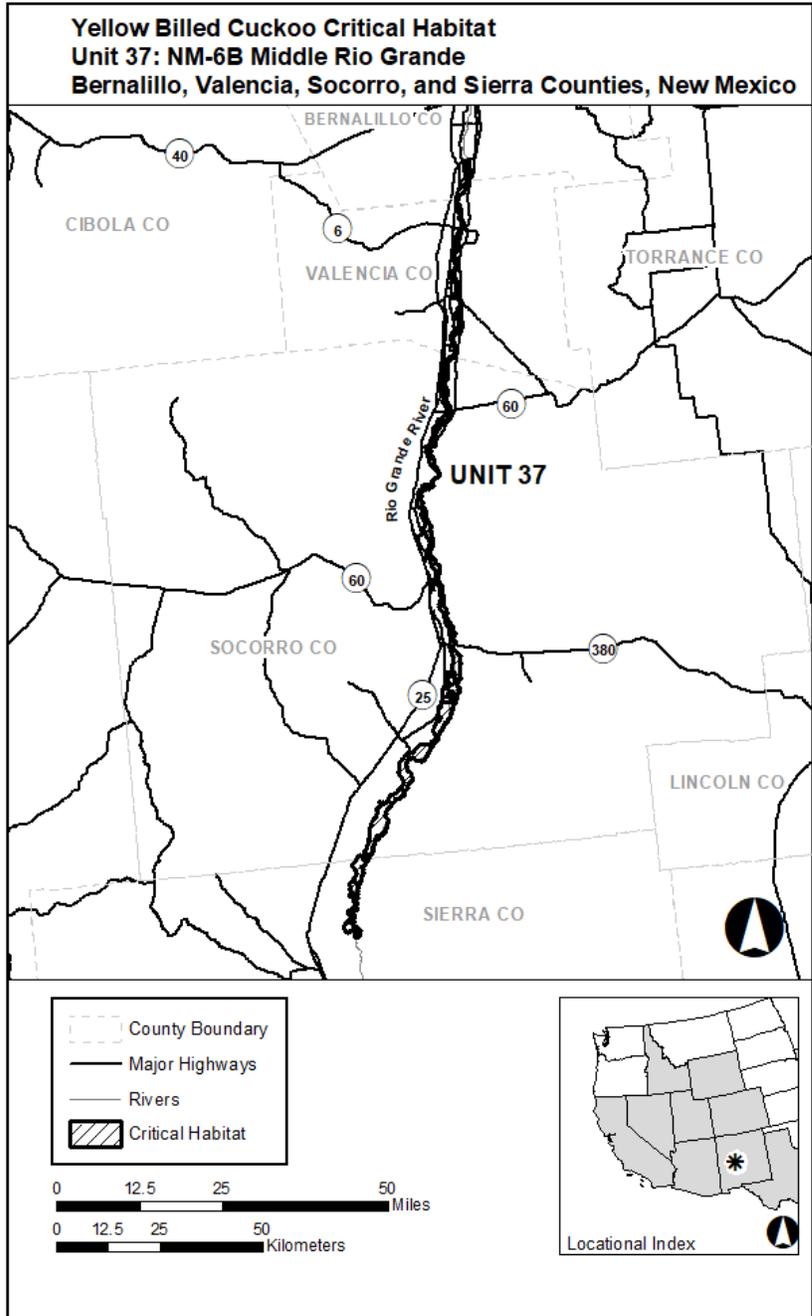


(41) Unit 37: NM-6A and NM-6B, Middle Rio Grande; Sierra, Socorro, Valencia, Bernalillo, and Sandoval Counties, New Mexico. Maps of Unit 37 follow:

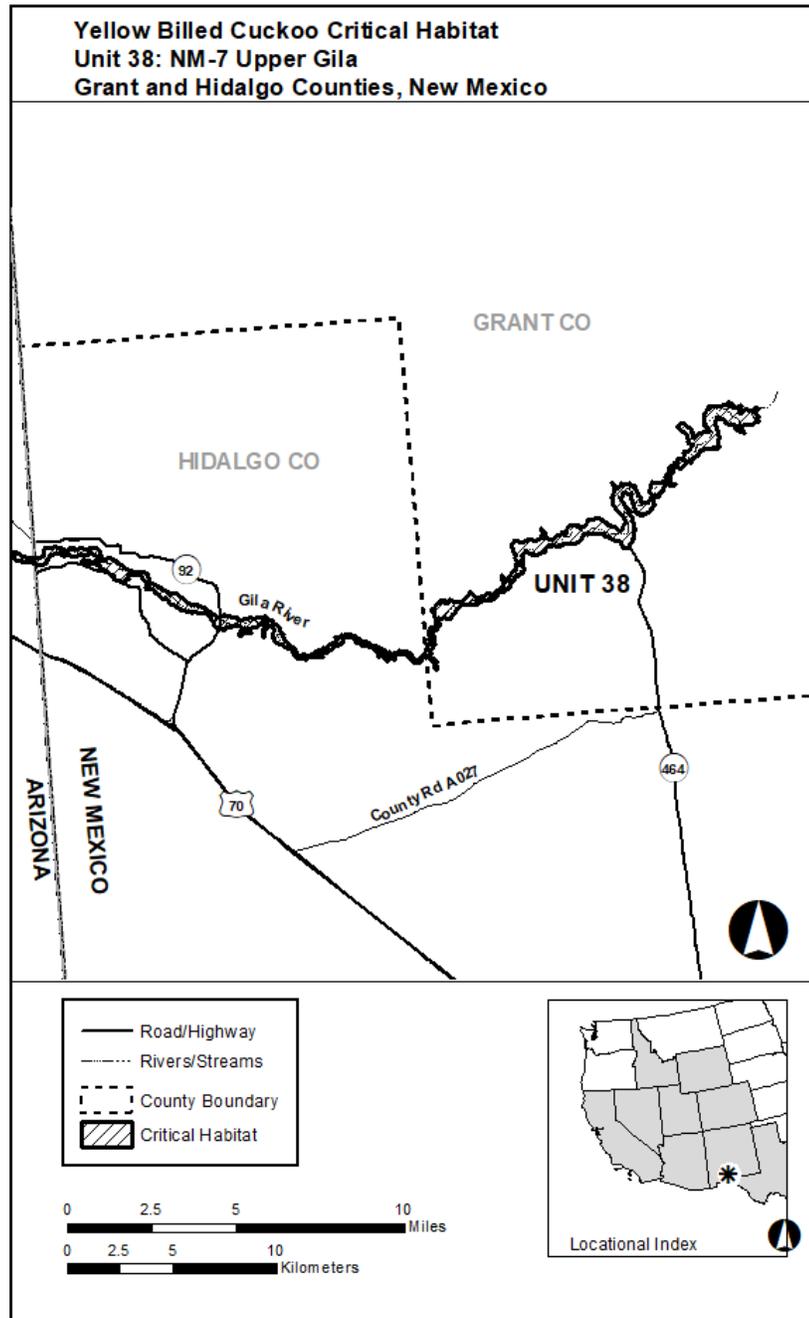
- (i) Map of Unit 37: NM-6A, Middle Rio Grande.



(ii) Map of Unit 37: NM-6B, Middle Rio Grande

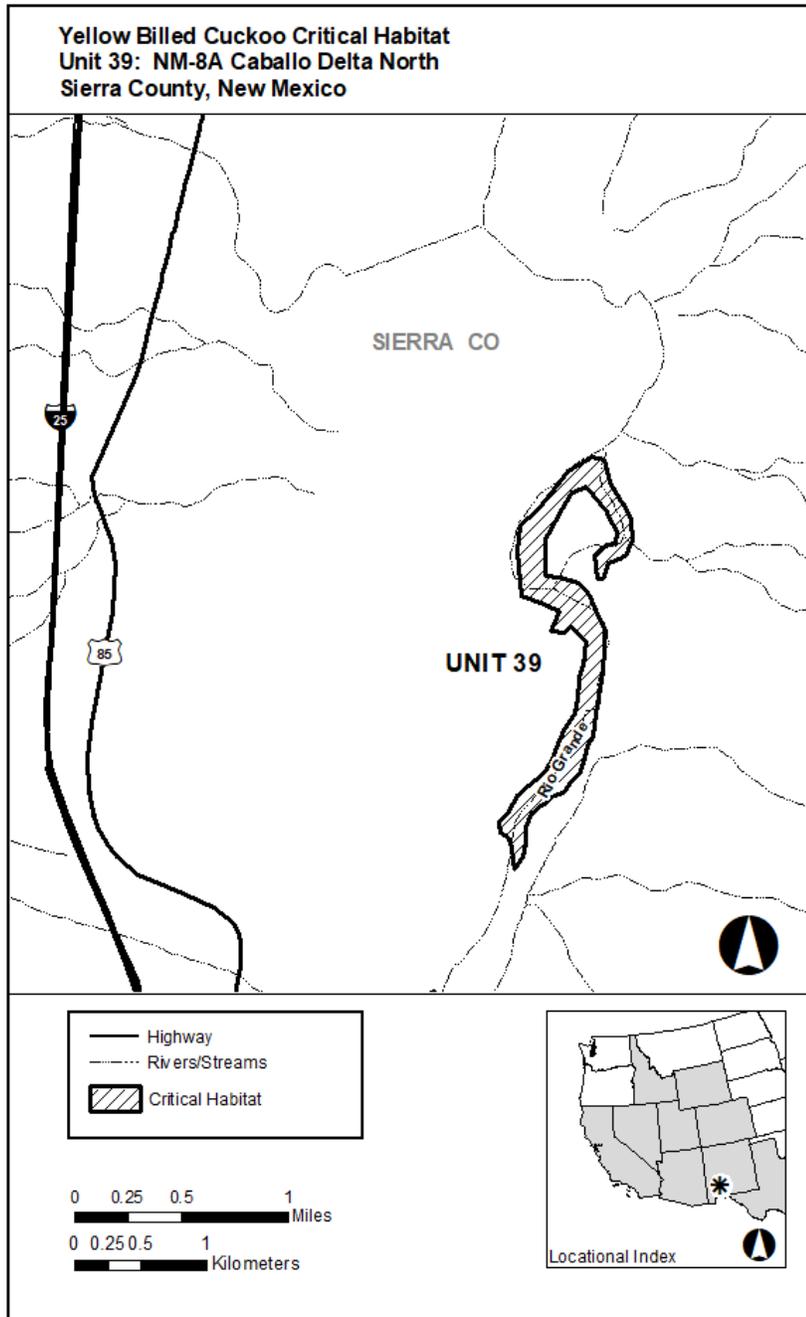


(42) Unit 38: NM-7, Upper Gila River; Grant and Hidalgo Counties, New Mexico. Map of Unit 38 follows:

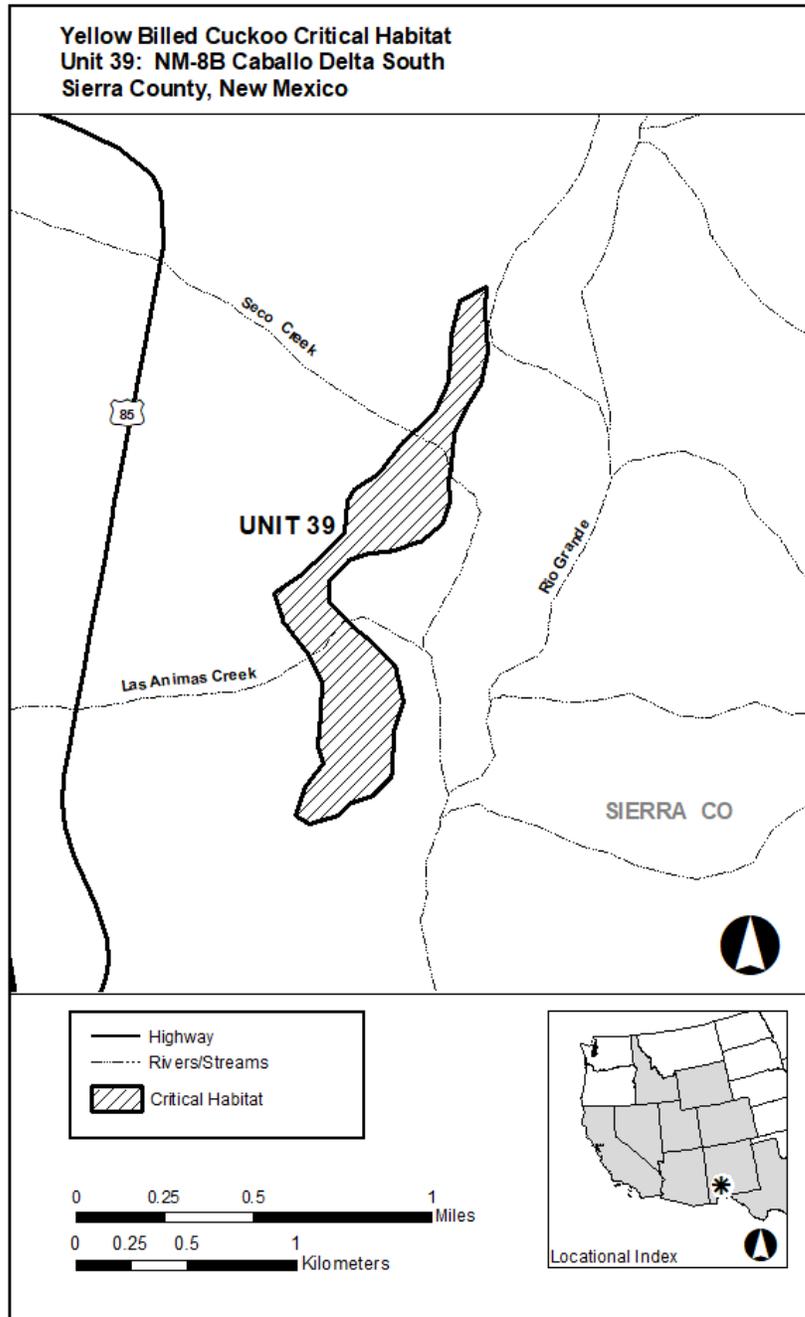


(43) Unit 39: NM-8A, Caballo Delta North and NM-8B, Caballo Delta South; Sierra County, New Mexico. Maps of Unit 39 follow:

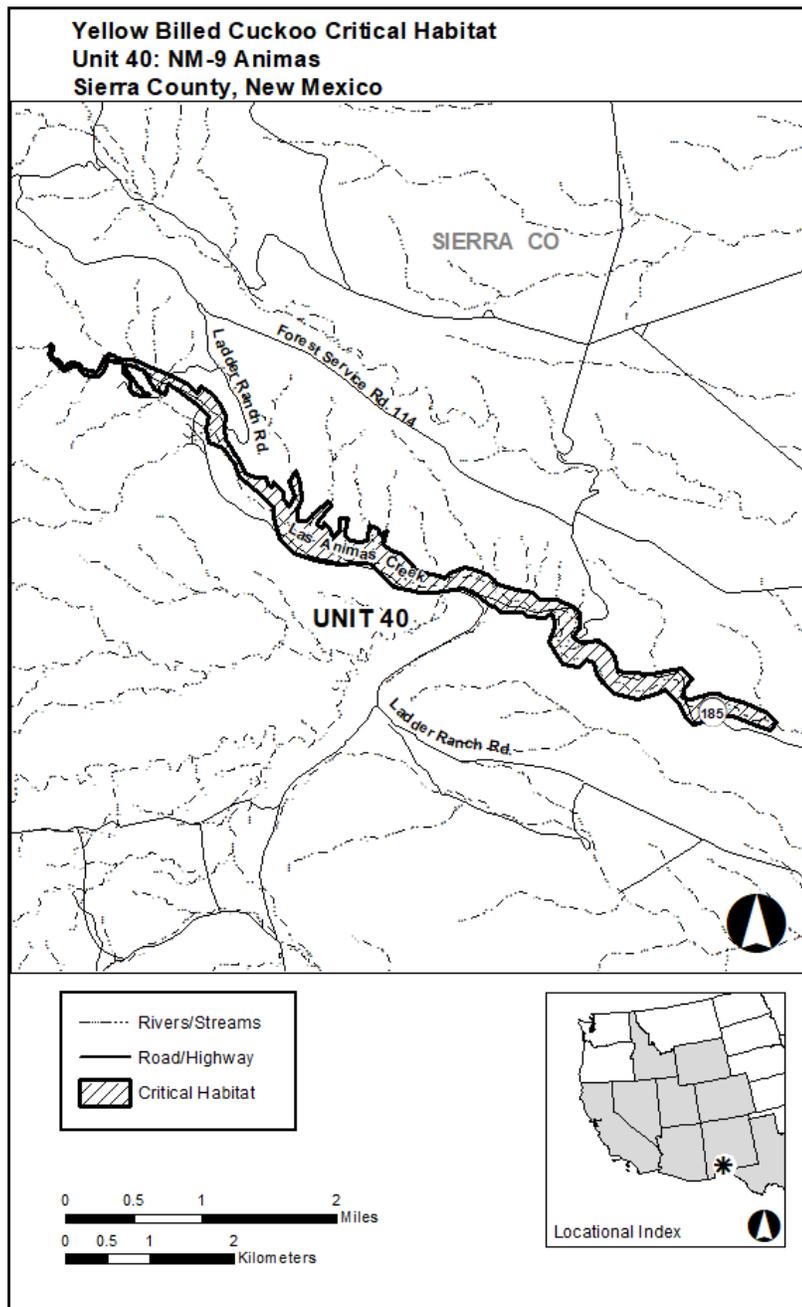
- (i) Map of Unit 39: NM-8A, Caballo Delta North.



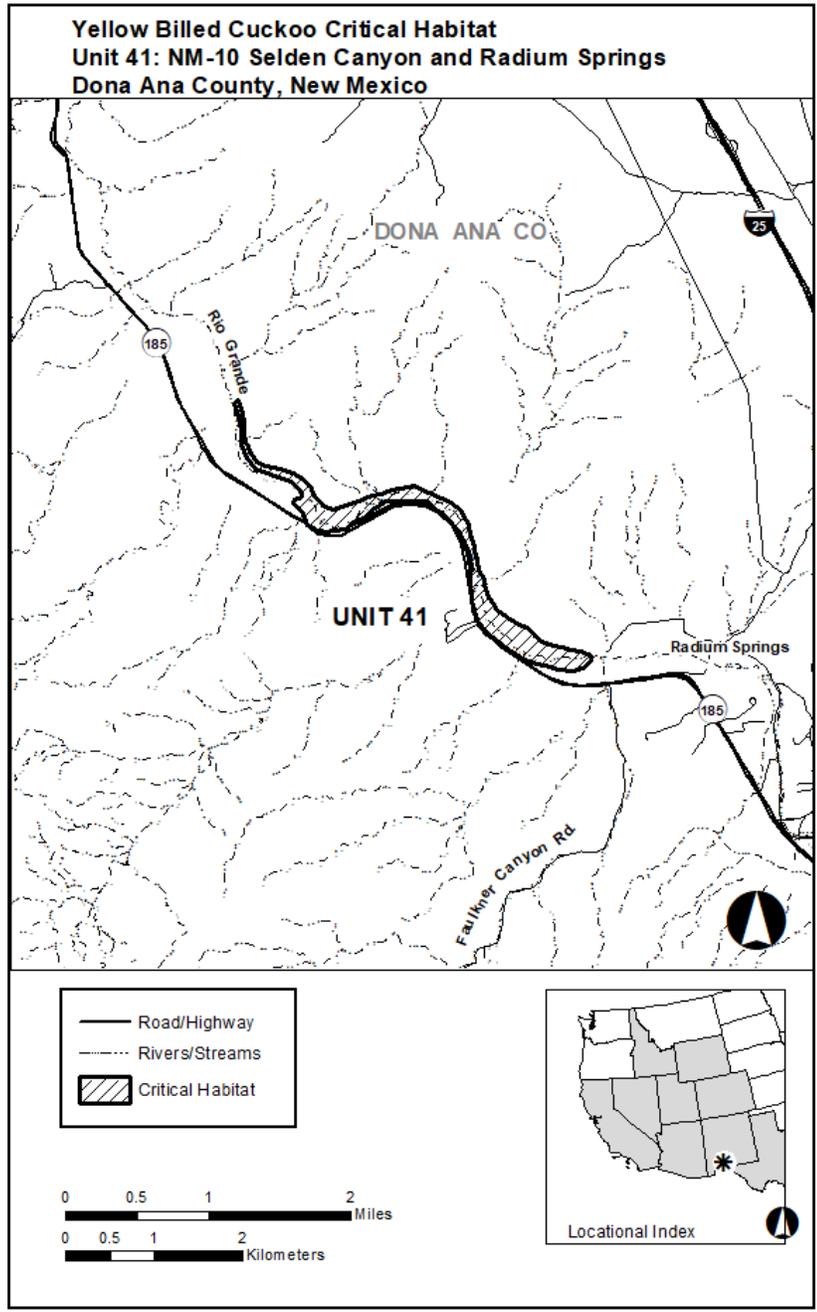
(ii) Map of Unit 39: NM-8B, Caballo Delta South.



(44) Unit 40: NM-9, Animas; Sierra County, New Mexico. Map of Unit 40 follows:

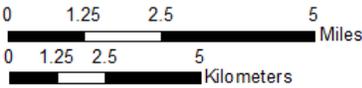
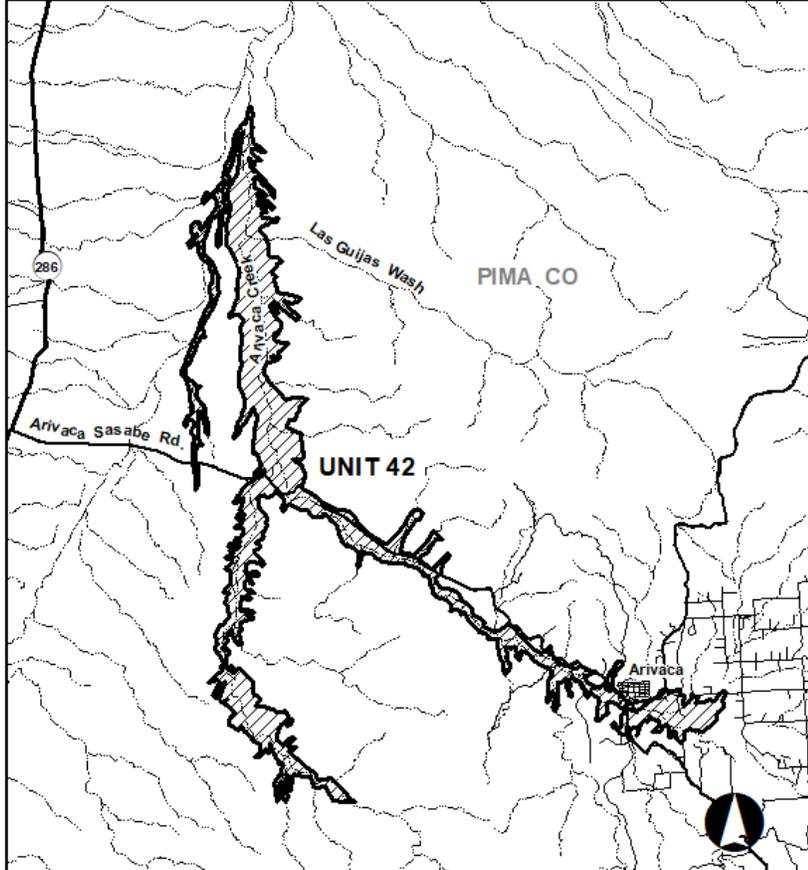


(45) Unit 41: NM-10, Selden Canyon and Radium Springs; Doña Ana County, New Mexico. Map of Unit 41 follows:

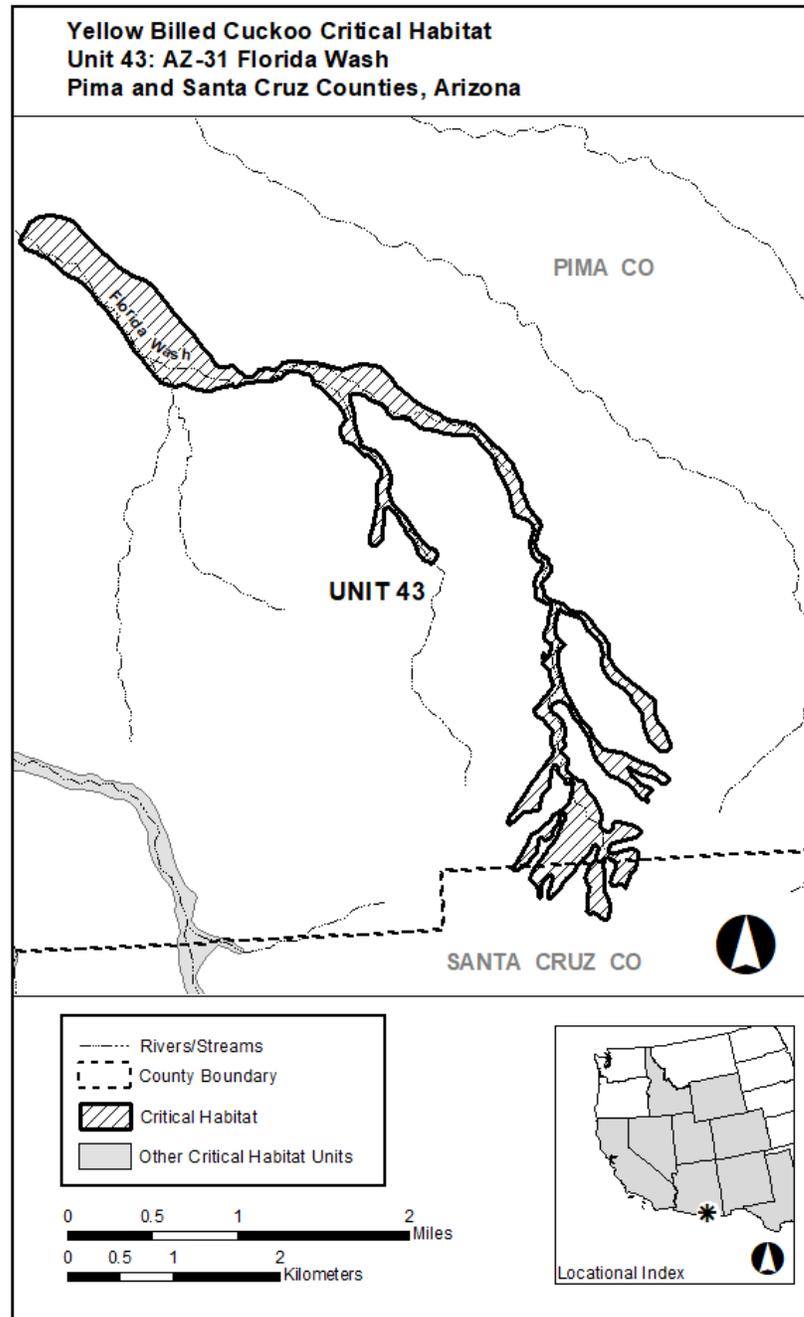


(46) Unit 42: AZ-30, Arivaca Wash and San Luis Wash; Pima County, Arizona.
Map of Unit 42 follows:

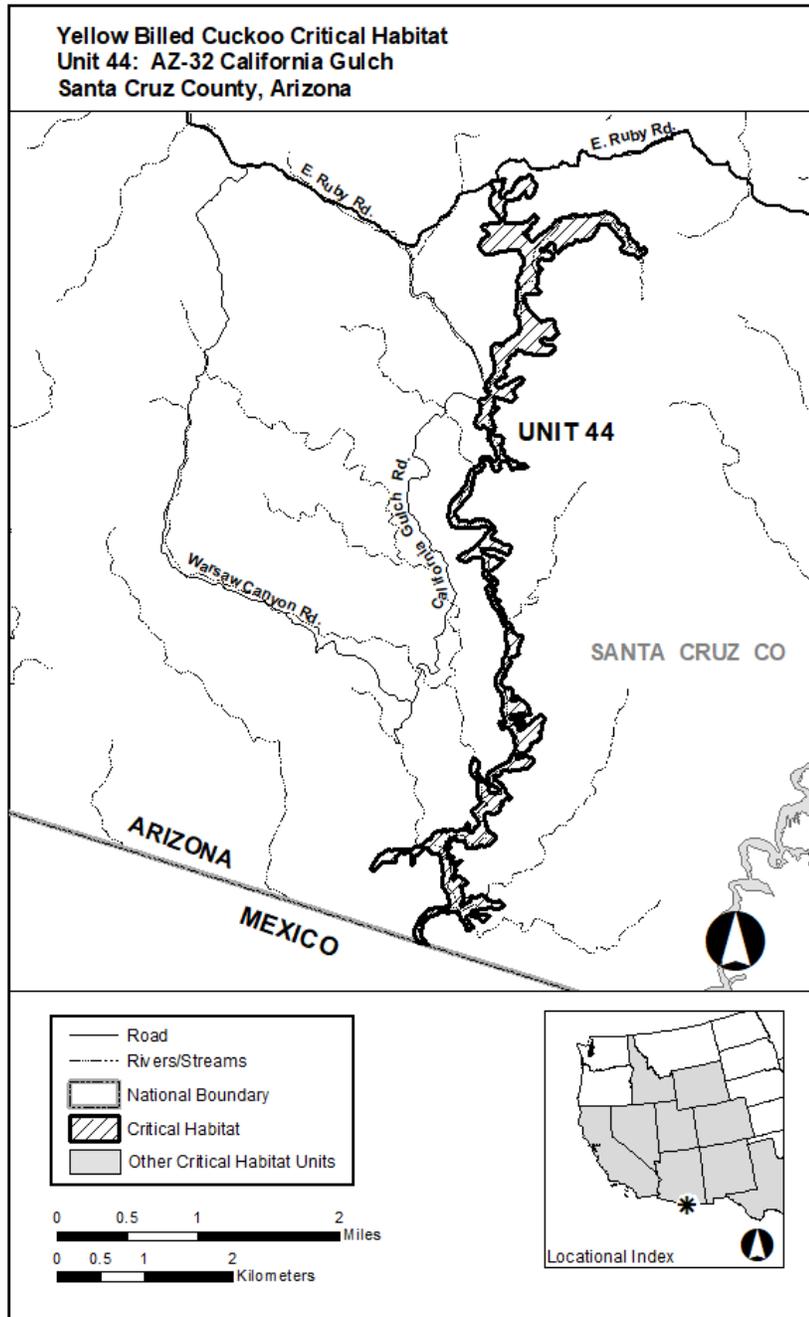
**Yellow Billed Cuckoo Critical Habitat
Unit 42: AZ-30 Arivaca Wash and San Luis Wash
Pima County, Arizona**



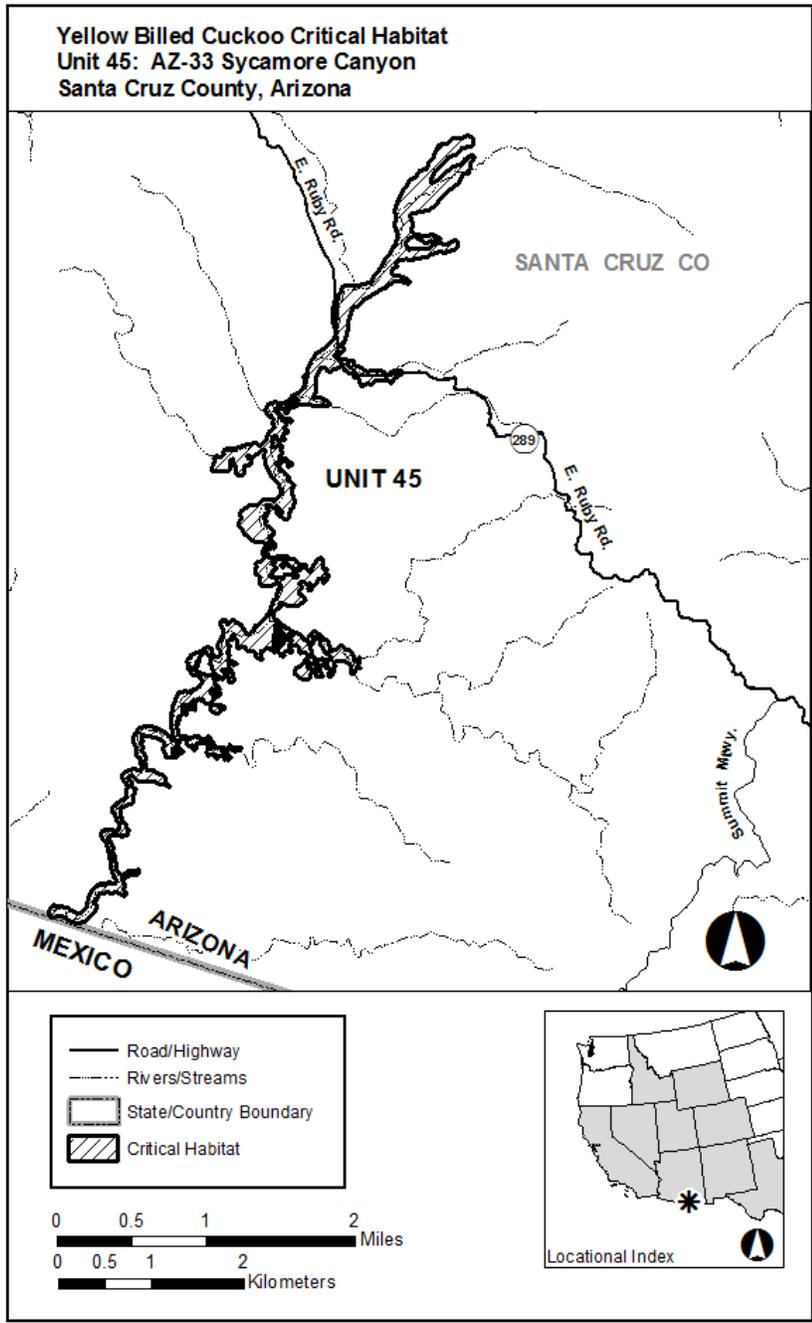
(47) Unit 43: AZ-31, Florida Wash; Pima and Santa Cruz Counties, Arizona.
Map of Unit 43 follows:



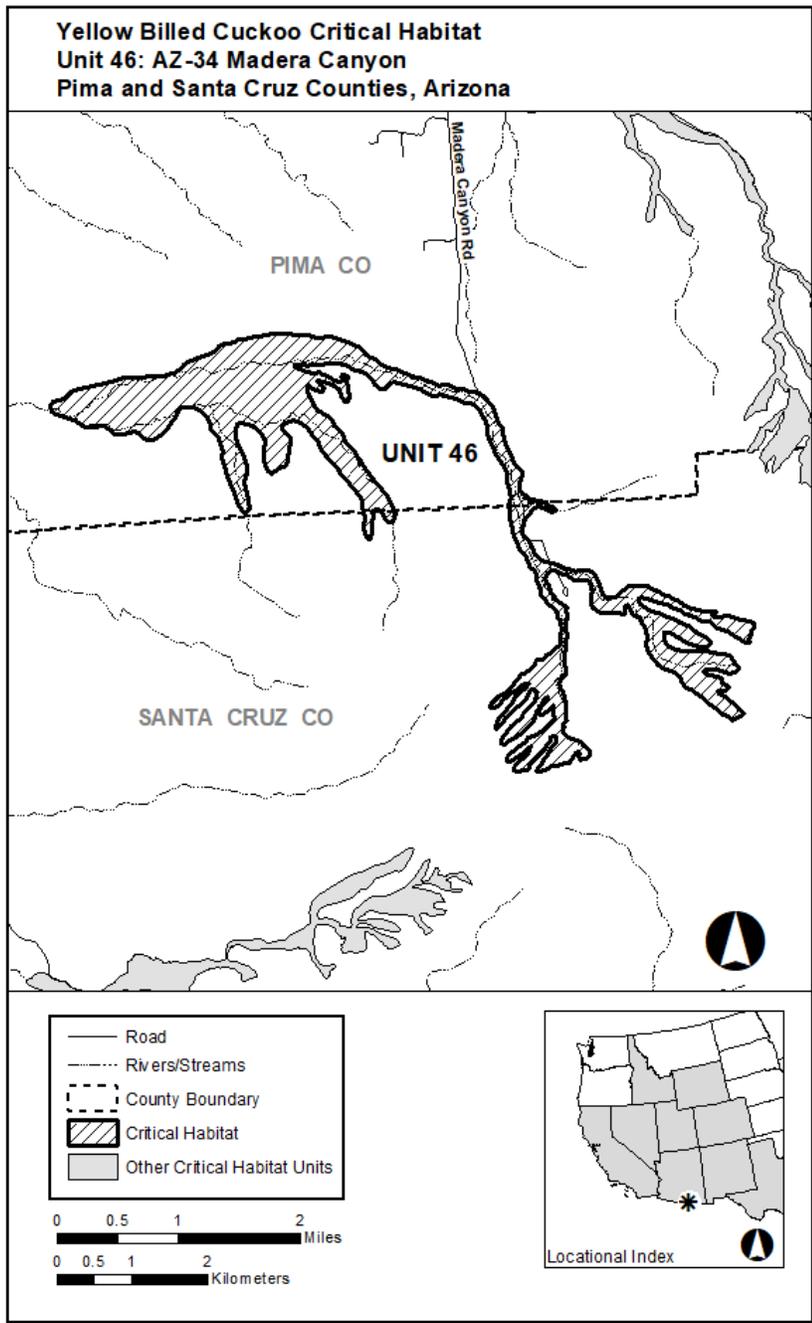
(48) Unit 44: AZ-32, California Gulch; Santa Cruz County, Arizona. Map of Unit 44 follows:



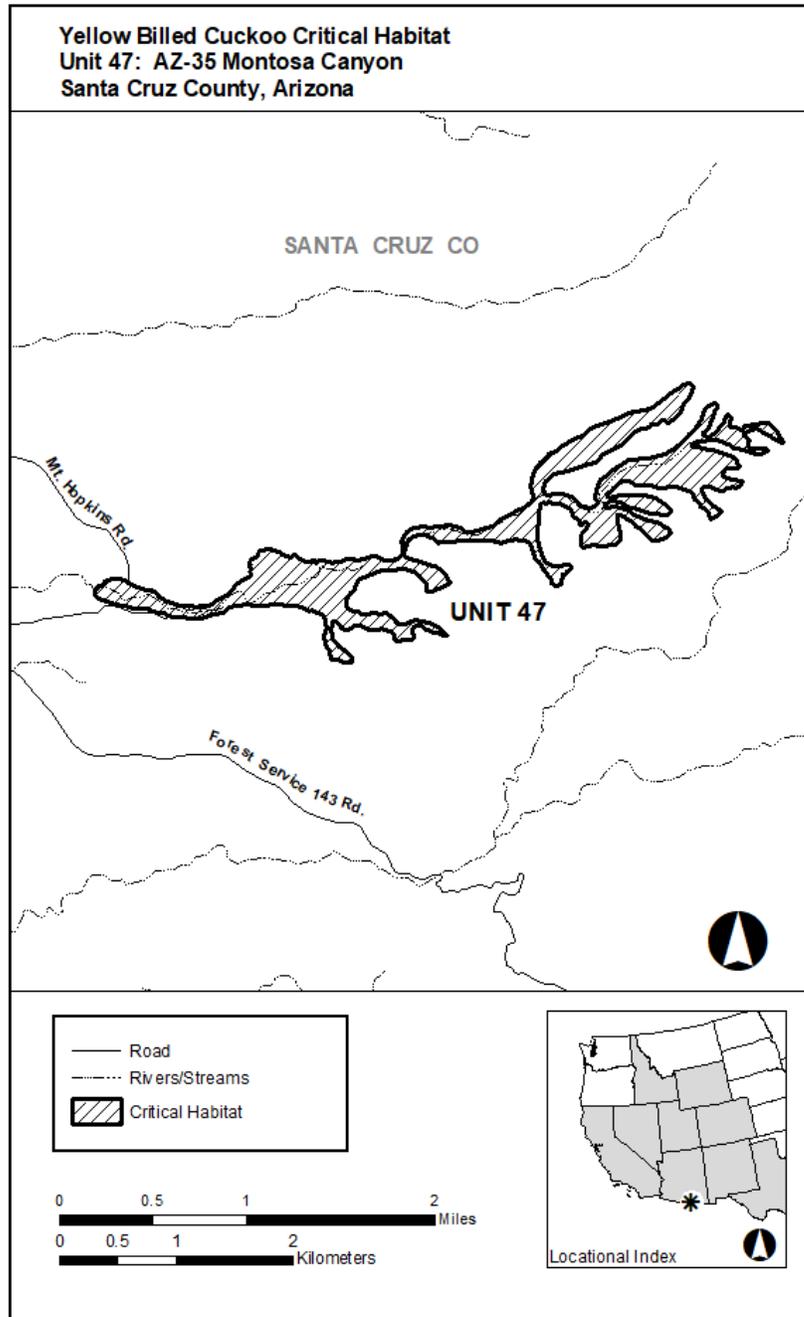
(49) Unit 45: AZ-33, Sycamore Canyon; Santa Cruz County, Arizona. Map of Unit 45 follows:



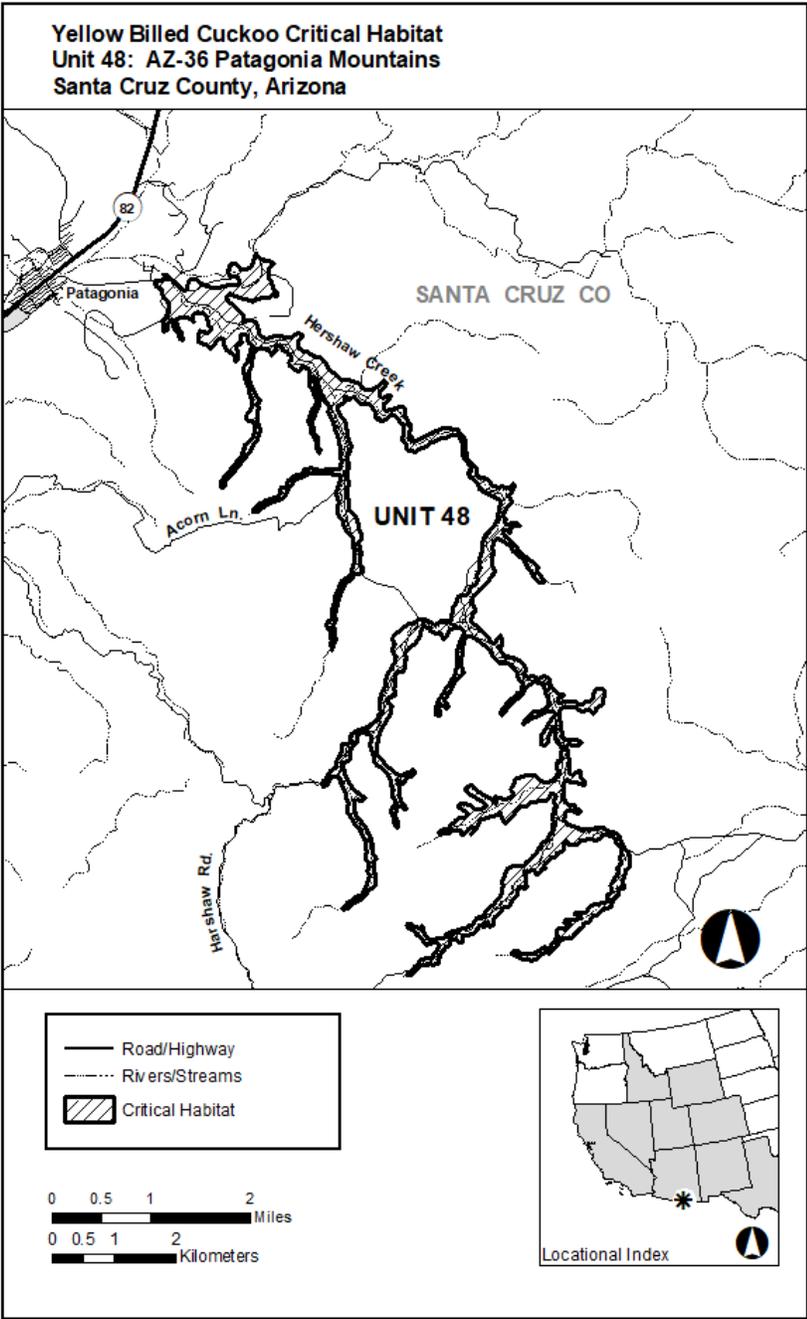
(50) Unit 46: AZ-34, Madera Canyon; Pima and Santa Cruz Counties, Arizona.
Map of Unit 46 follows:



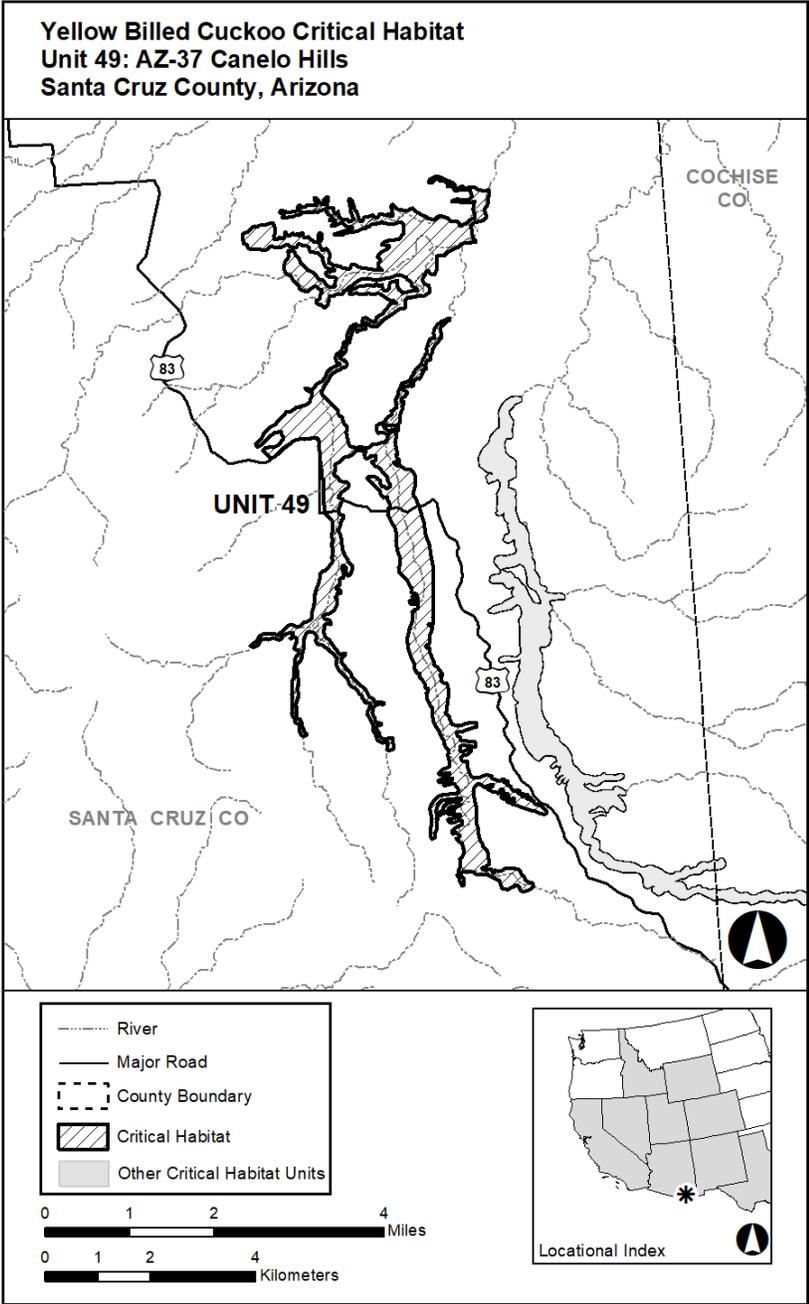
(51) Unit 47: AZ-35, Montosa Canyon; Santa Cruz County, Arizona. Map of Unit 47 follows:



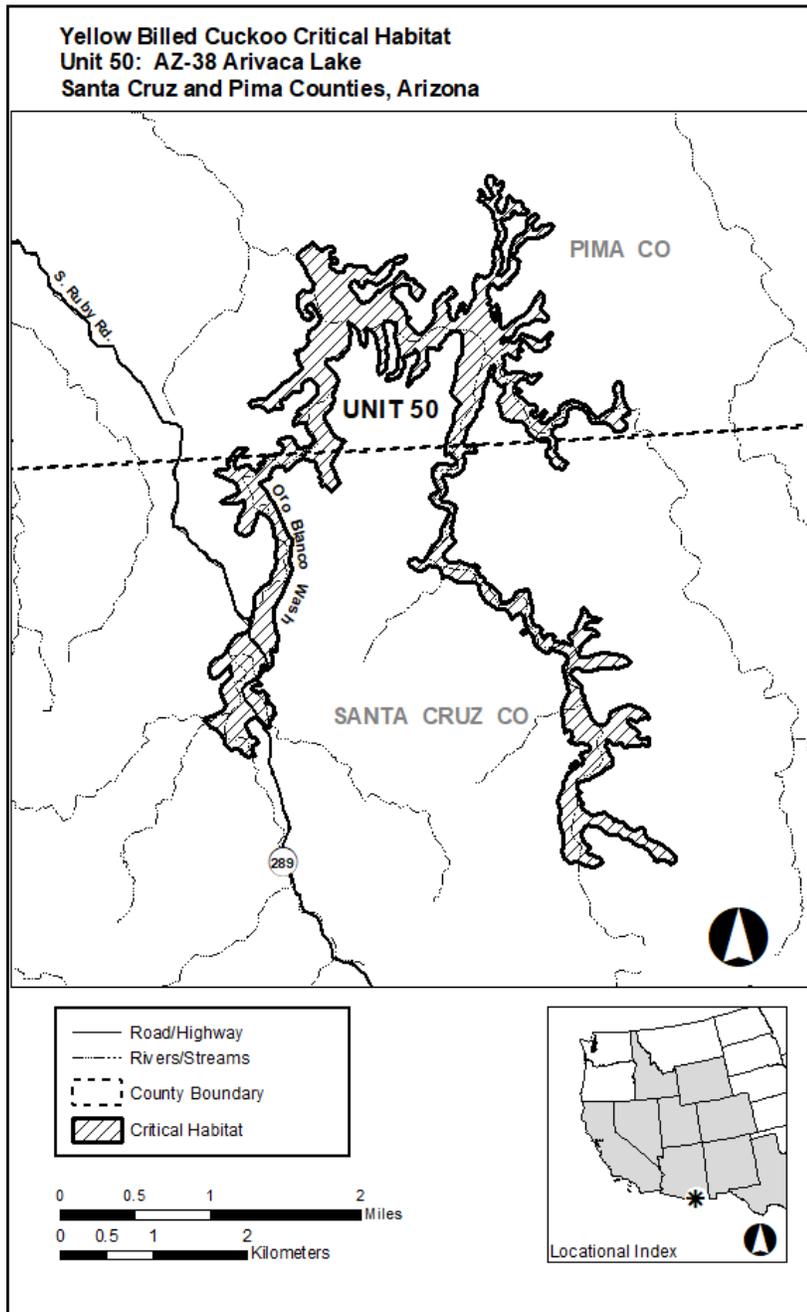
(52) Unit 48: AZ-36, Patagonia Mountains; Santa Cruz County, Arizona. Map of Unit 48 follows:



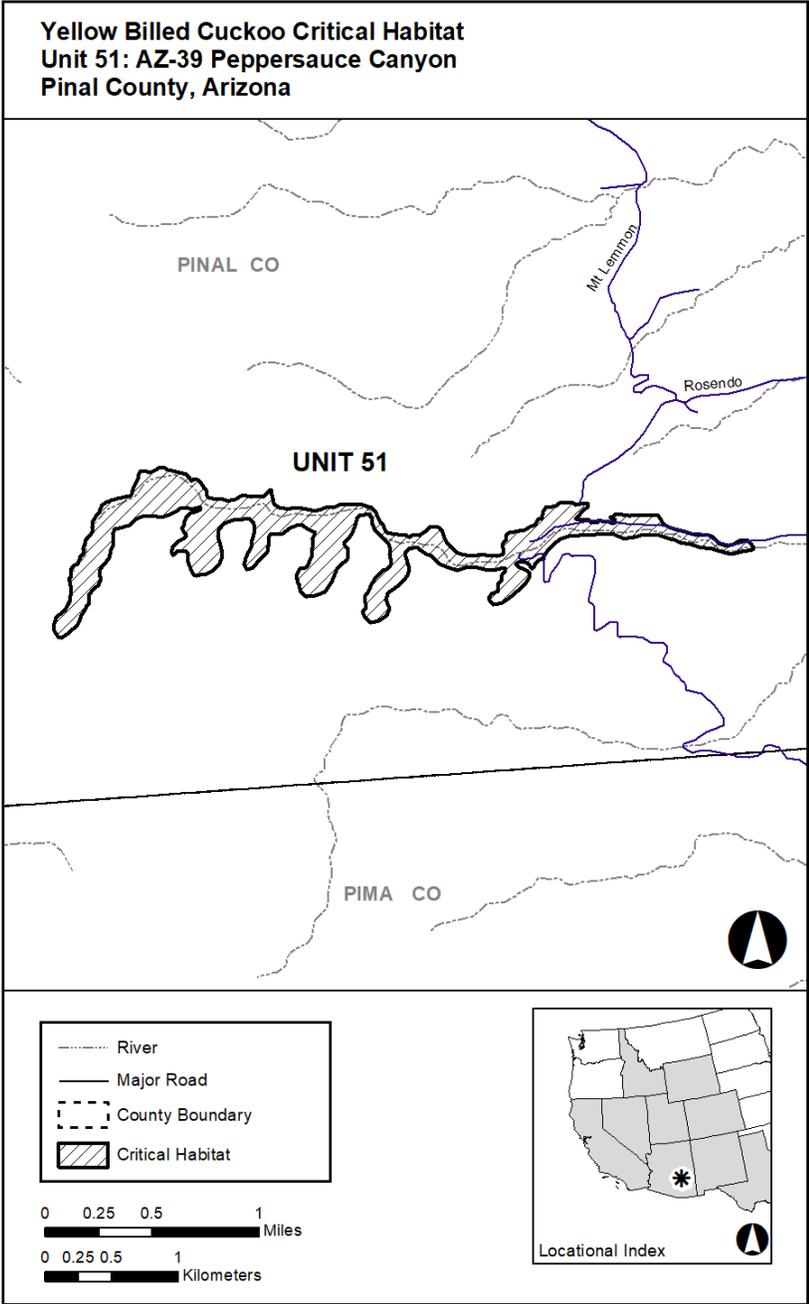
(53) Unit 49: AZ-37, Canelo Hills; Santa Cruz County, Arizona. Map of Unit 49 follows:



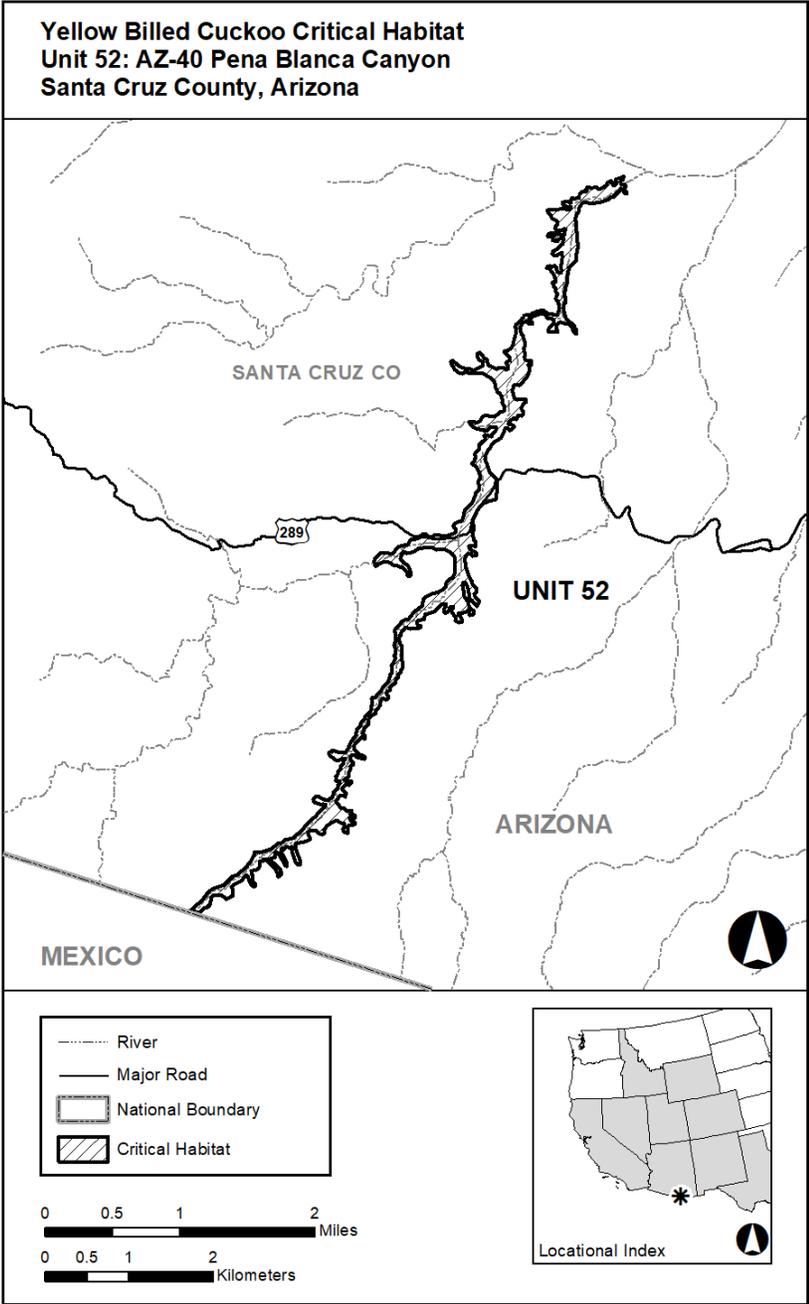
(54) Unit 50: AZ-38, Arivaca Lake; Pima and Santa Cruz Counties, Arizona.
Map of Unit 50 follows:



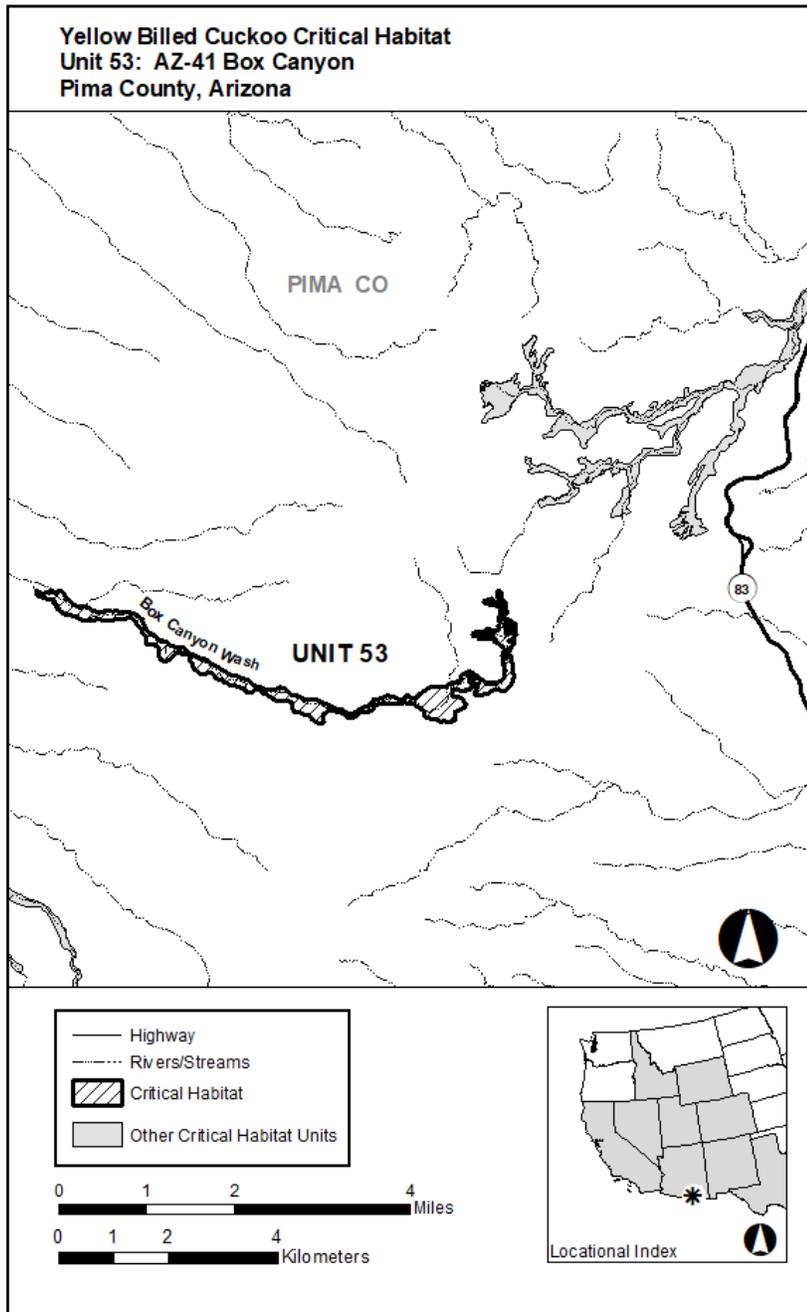
(55) Unit 51: AZ-39, Peppersauce Canyon; Pinal County, Arizona. Map of Unit 51 follows:



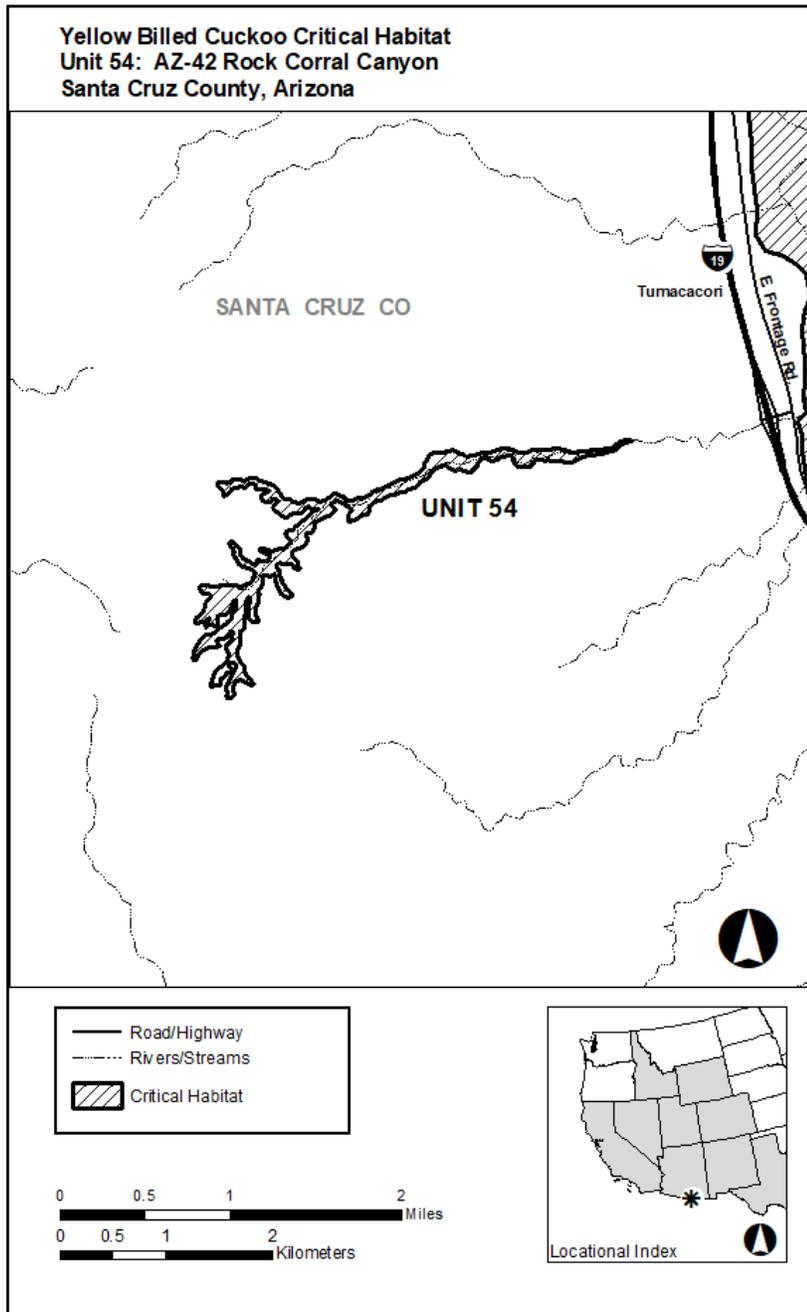
(56) Unit 52: AZ-40, Pena Blanca Canyon; Santa Cruz County, Arizona. Map of Unit 52 follows:



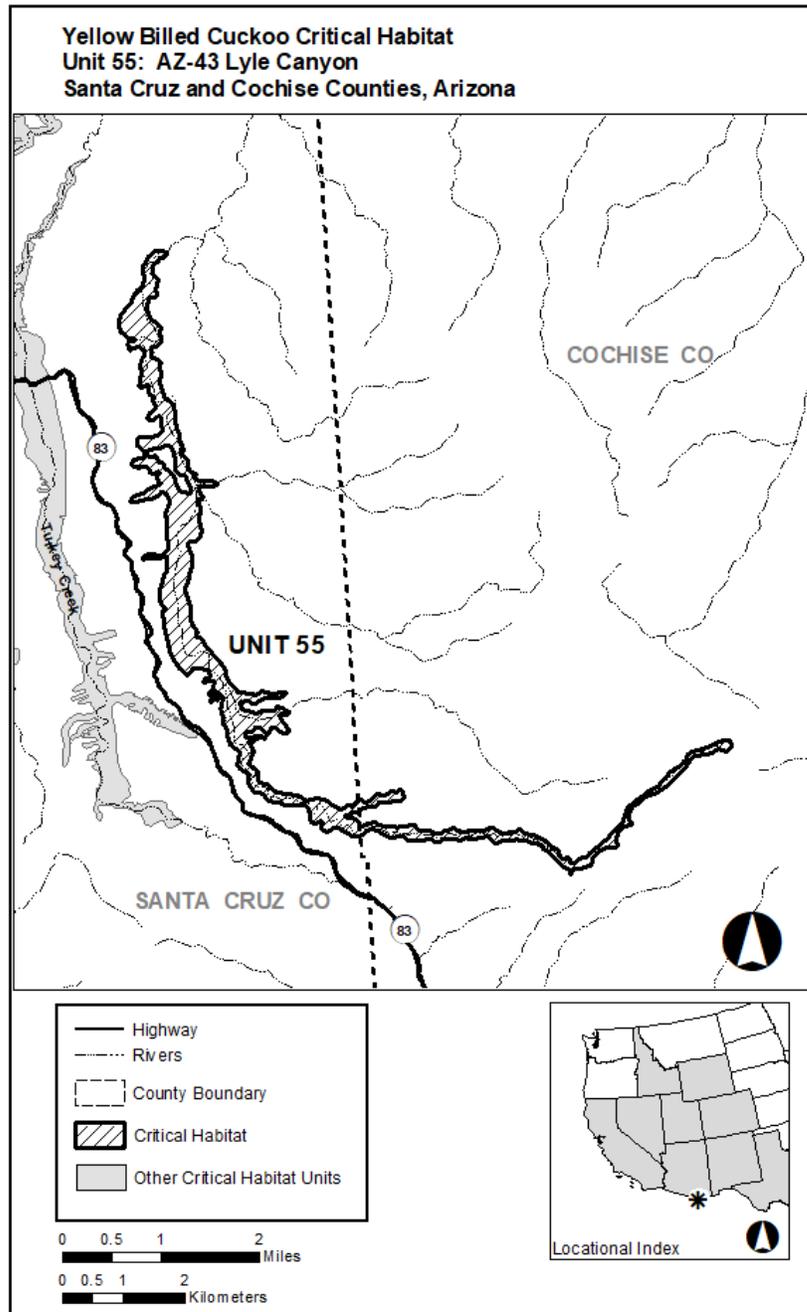
(57) Unit 53: AZ-41, Box Canyon; Pima County, Arizona. Map of Unit 53 follows:



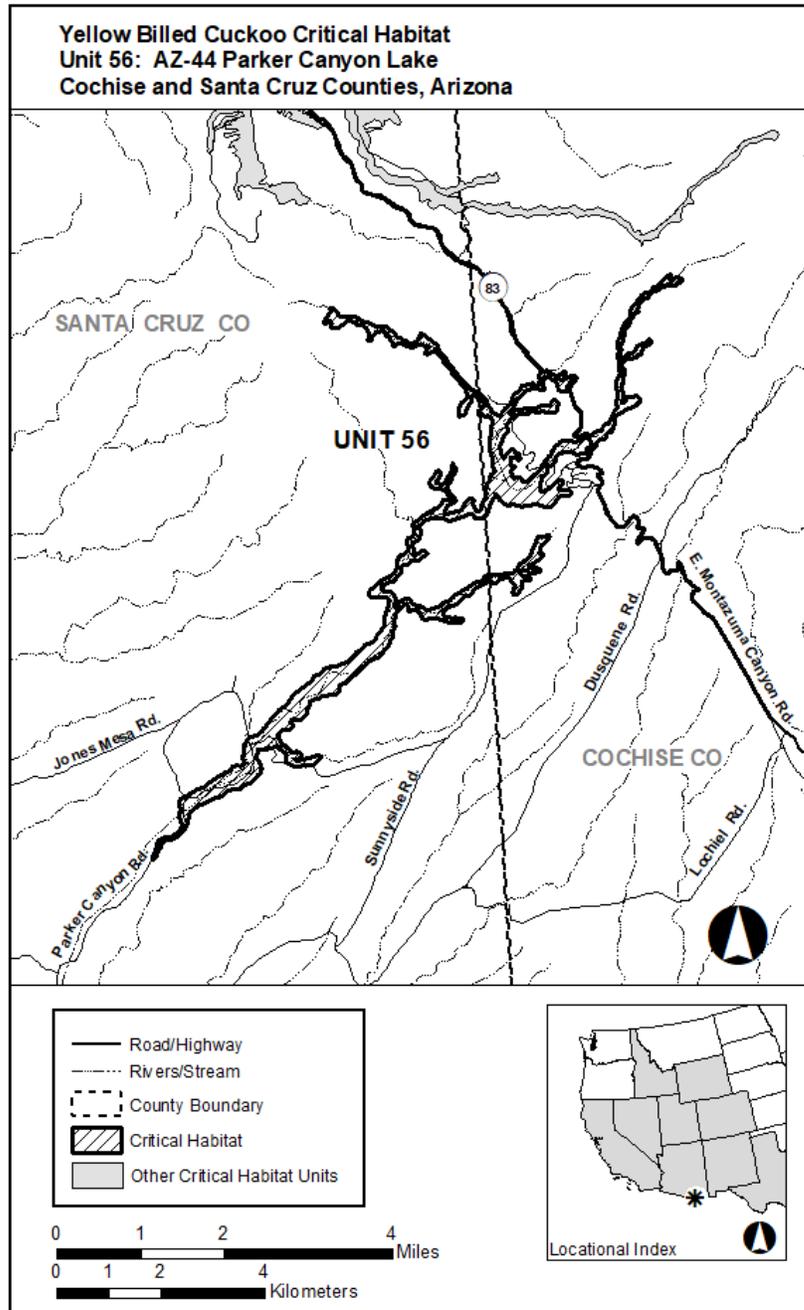
(58) Unit 54: AZ-42, Rock Corral Canyon; Santa Cruz County, Arizona. Map of Unit 54 follows:



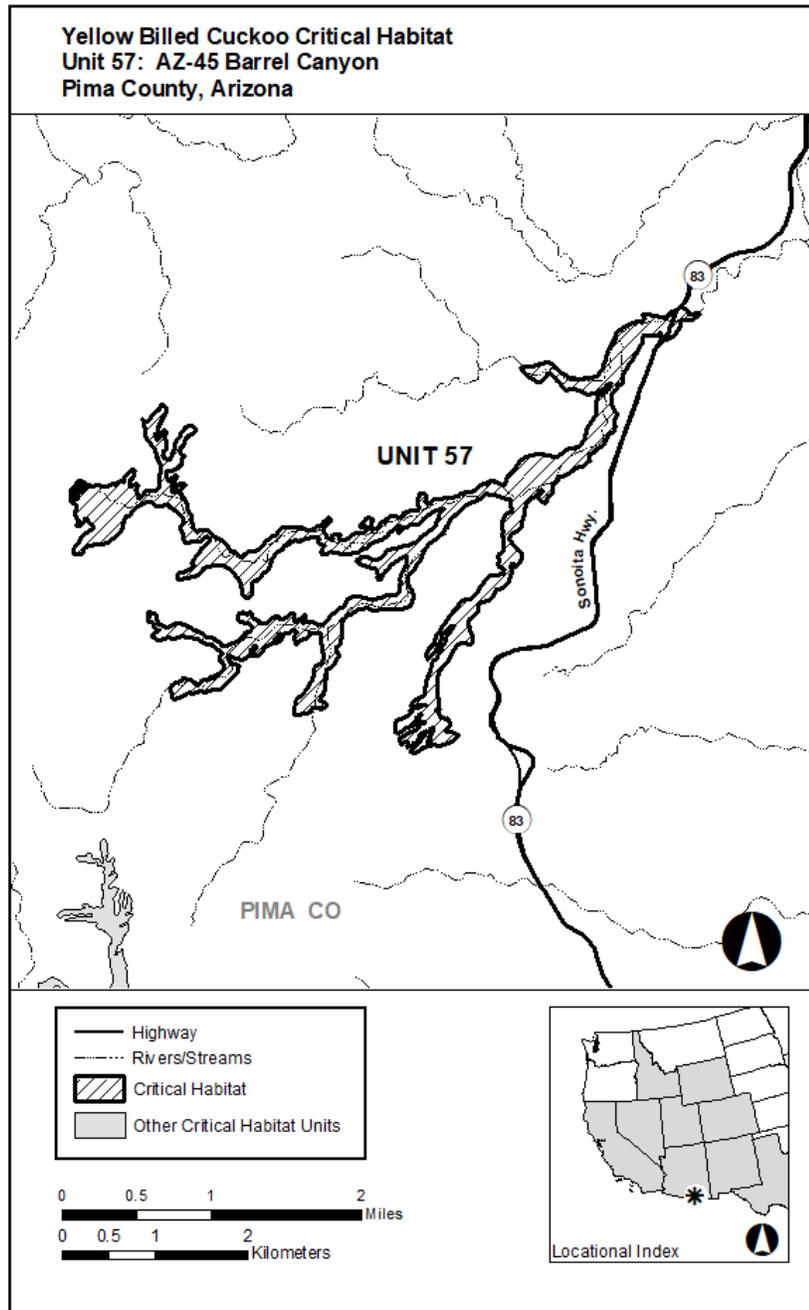
(59) Unit 55: AZ-43, Lyle Canyon; Santa Cruz and Cochise Counties, Arizona.
Map of Unit 55 follows:



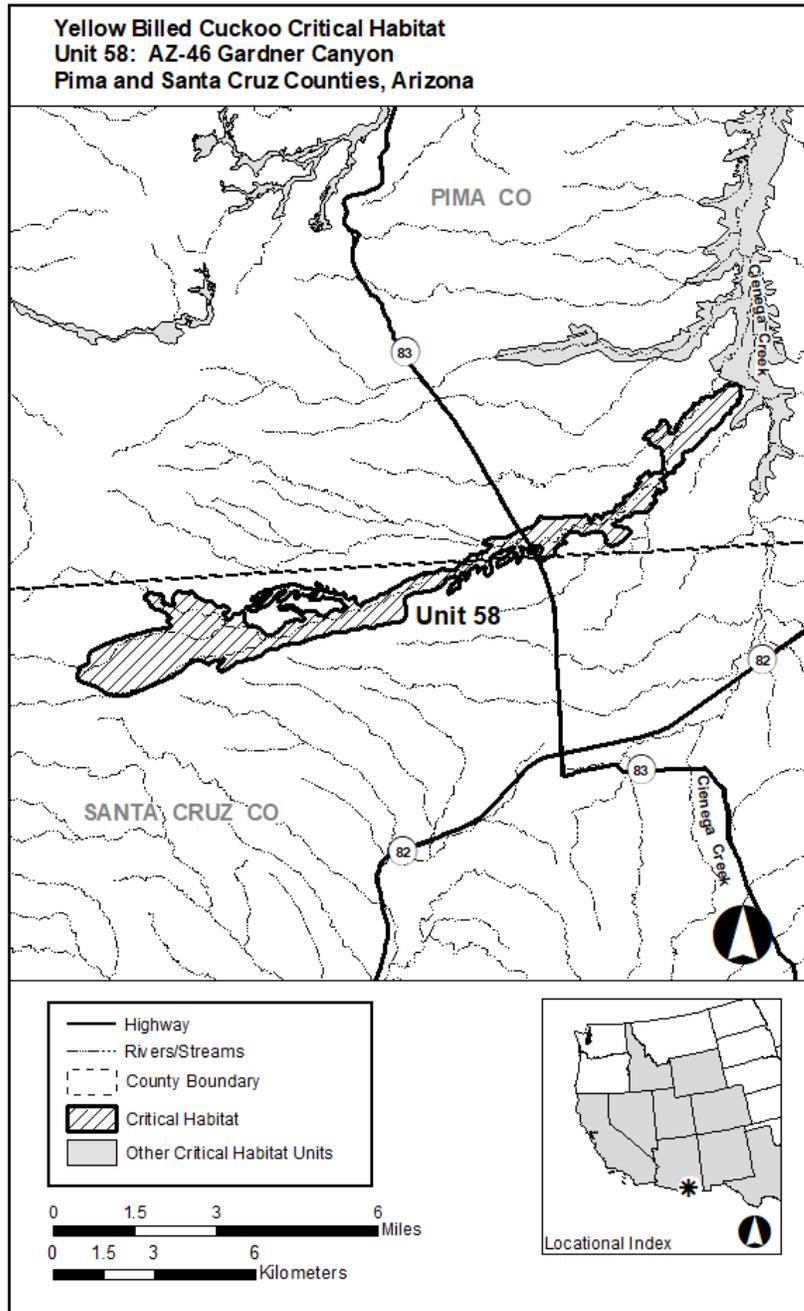
(60) Unit 56: AZ-44, Parker Canyon Lake; Santa Cruz and Cochise Counties, Arizona. Map of Unit 56 follows:



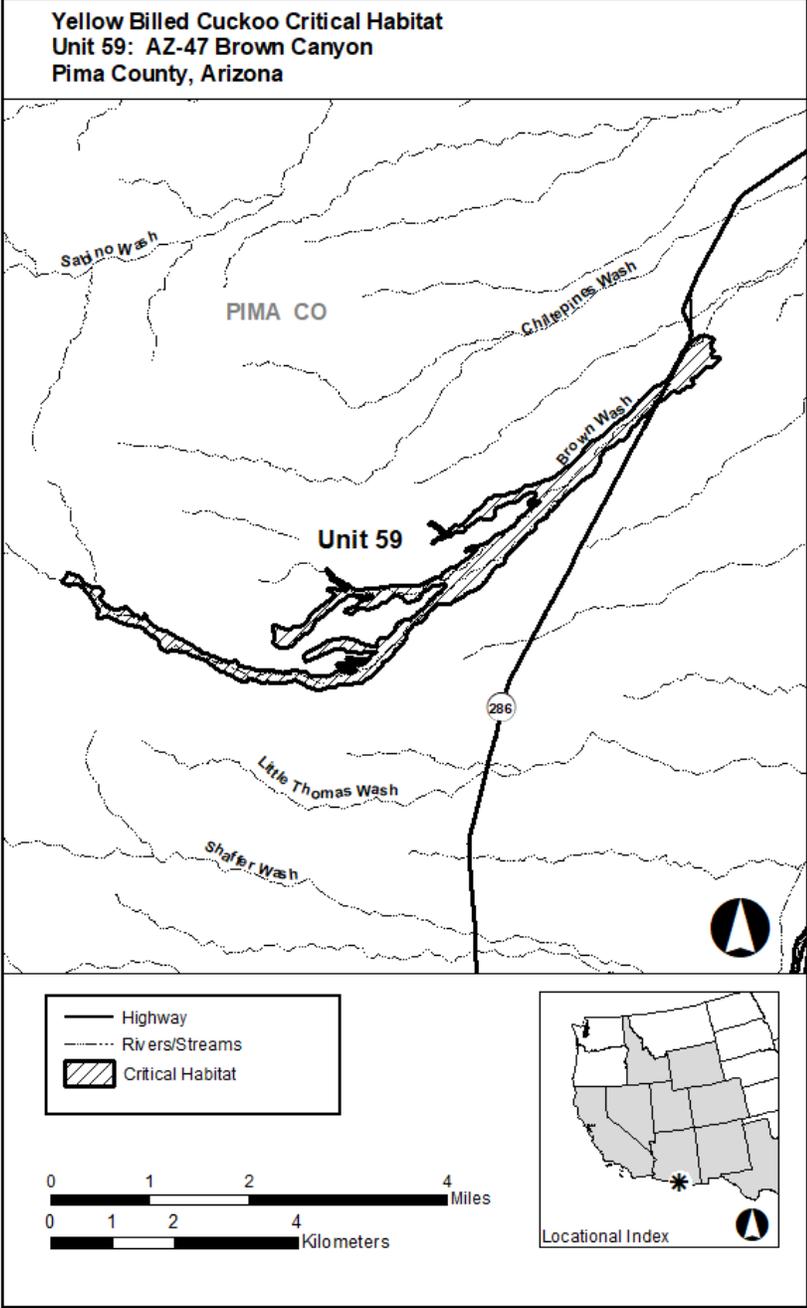
(61) Unit 57: AZ-45, Barrel Canyon; Pima County, Arizona. Map of Unit 57 follows:



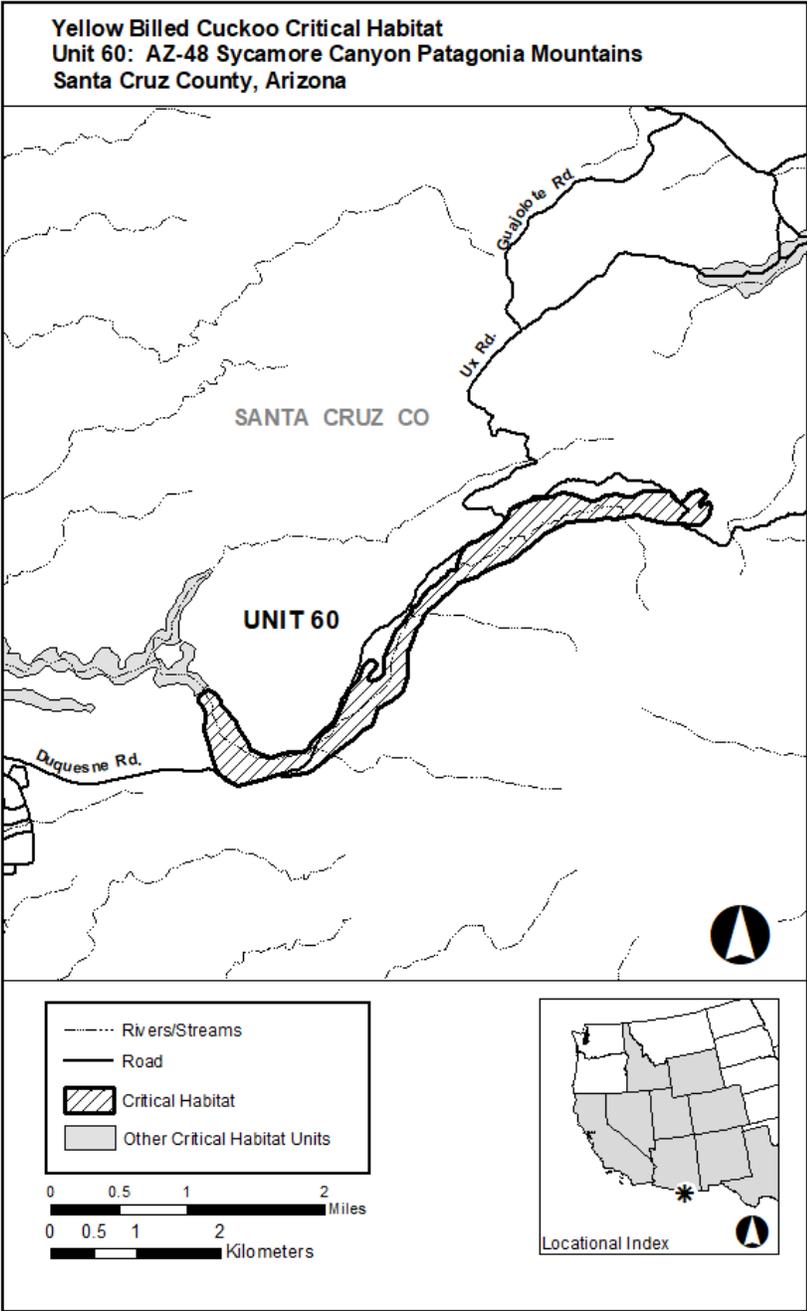
(62) Unit 58: AZ-46, Gardner Canyon; Pima and Santa Cruz Counties, Arizona.
Map of Unit 58 follows:



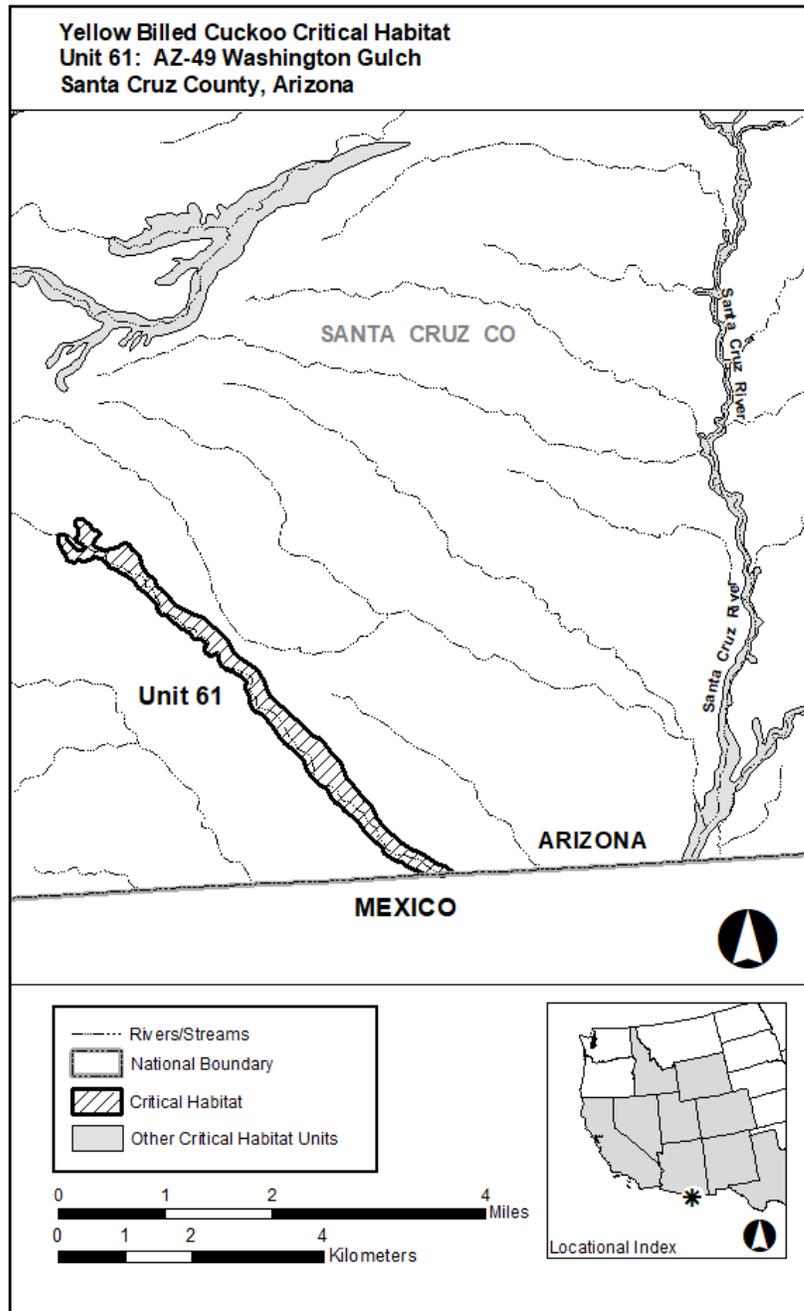
(63) Unit 59: AZ-47, Brown Canyon; Pima County, Arizona. Map of Unit 59 follows:



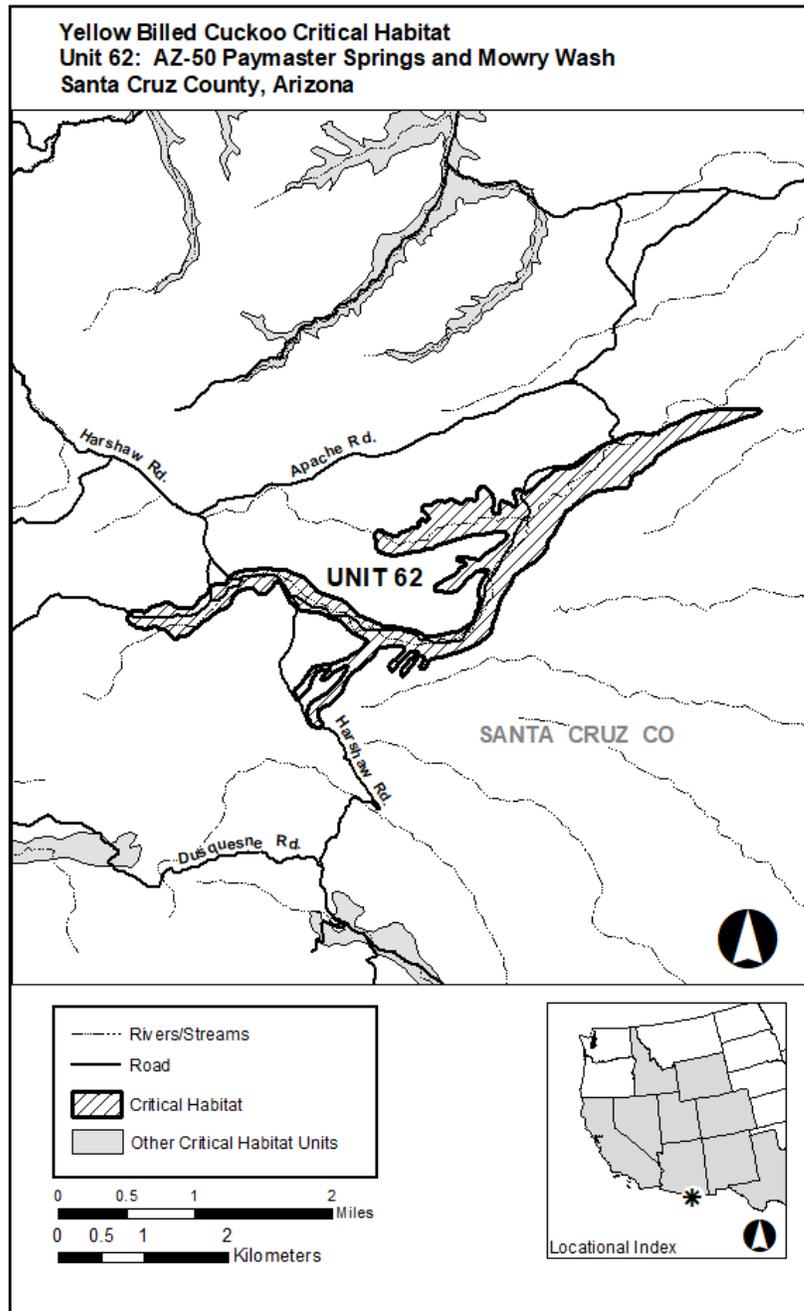
(64) Unit 60: AZ-48, Sycamore Canyon; Santa Cruz County, Arizona. Map of Unit 60 follows:



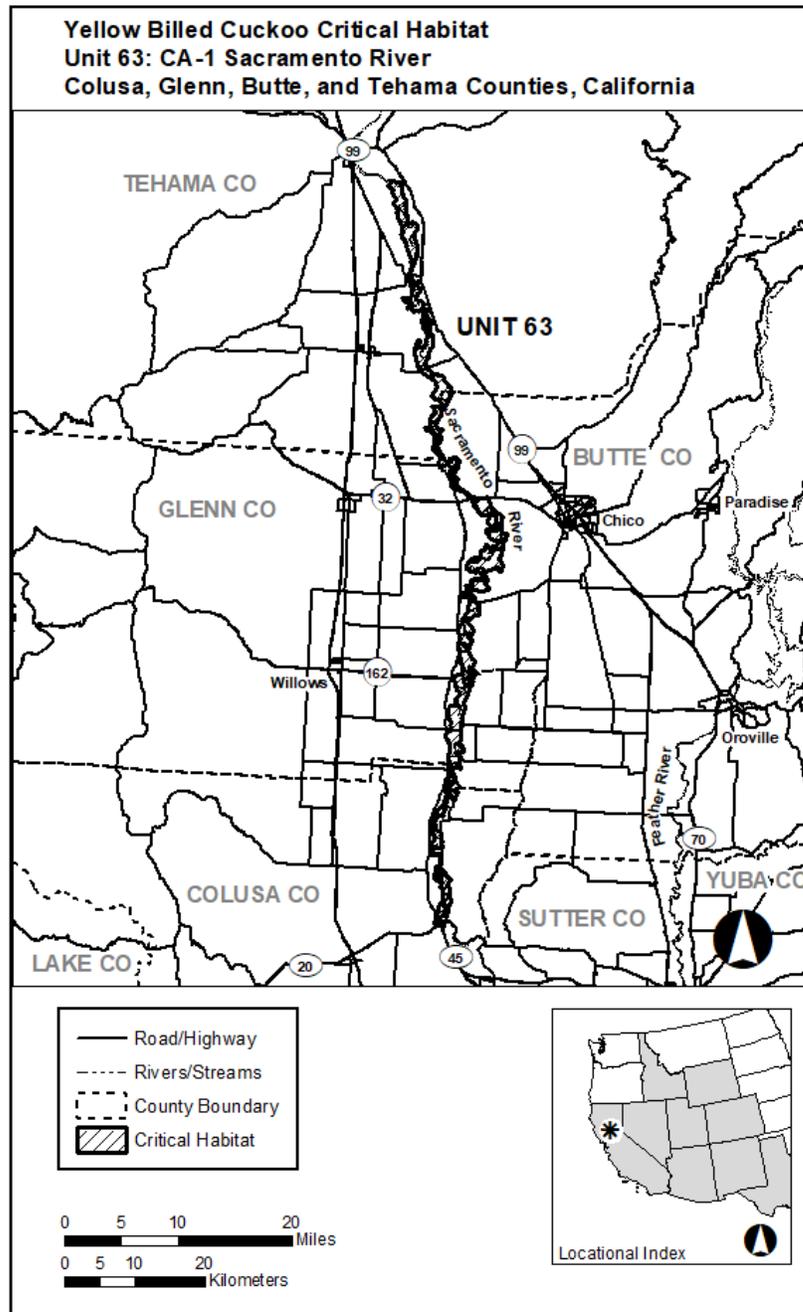
(65) Unit 61: AZ-49, Washington Gulch; Santa Cruz County, Arizona. Map of Unit 61 follows:



(66) Unit 62: AZ-50, Paymaster Spring and Mowry Wash; Santa Cruz County, Arizona. Map of Unit 62 follows:

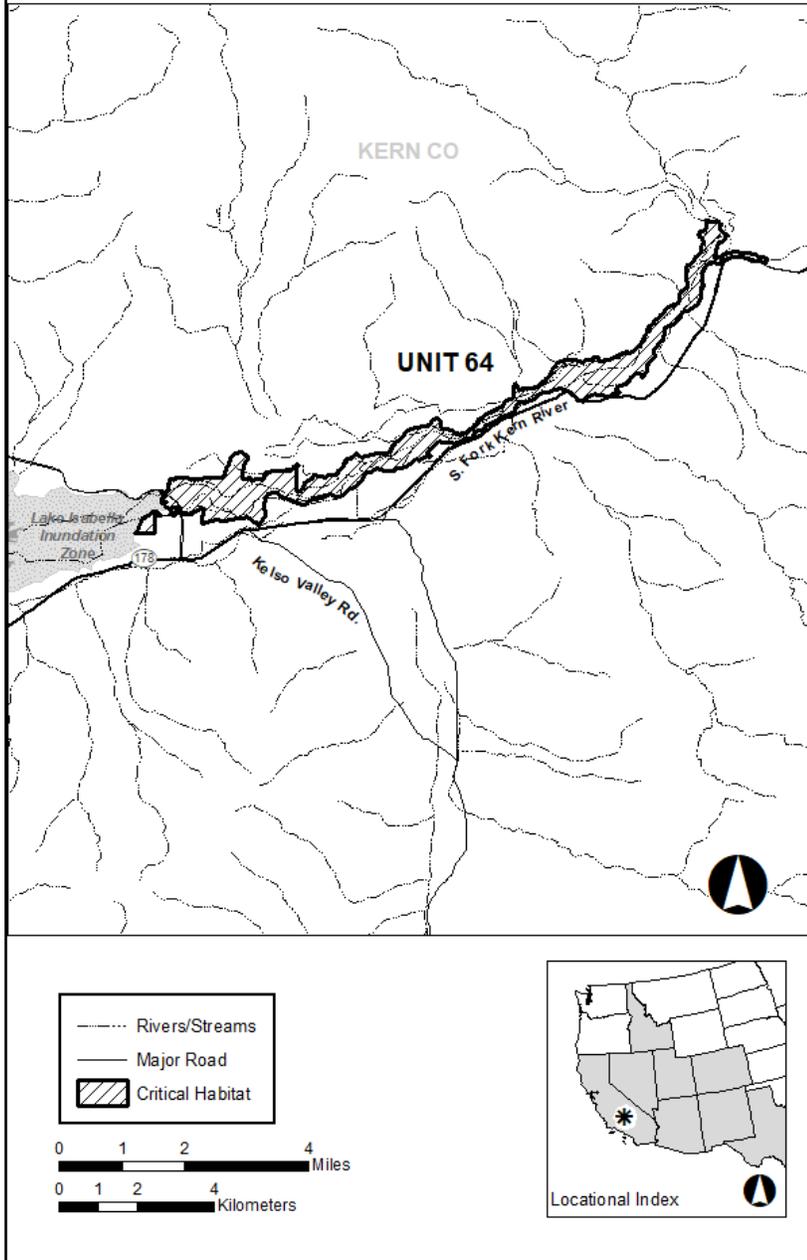


(67) Unit 63: CA-1, Sacramento River, Colusa, Glenn, Butte, and Tehama Counties, California. Map of Unit 63 follows:

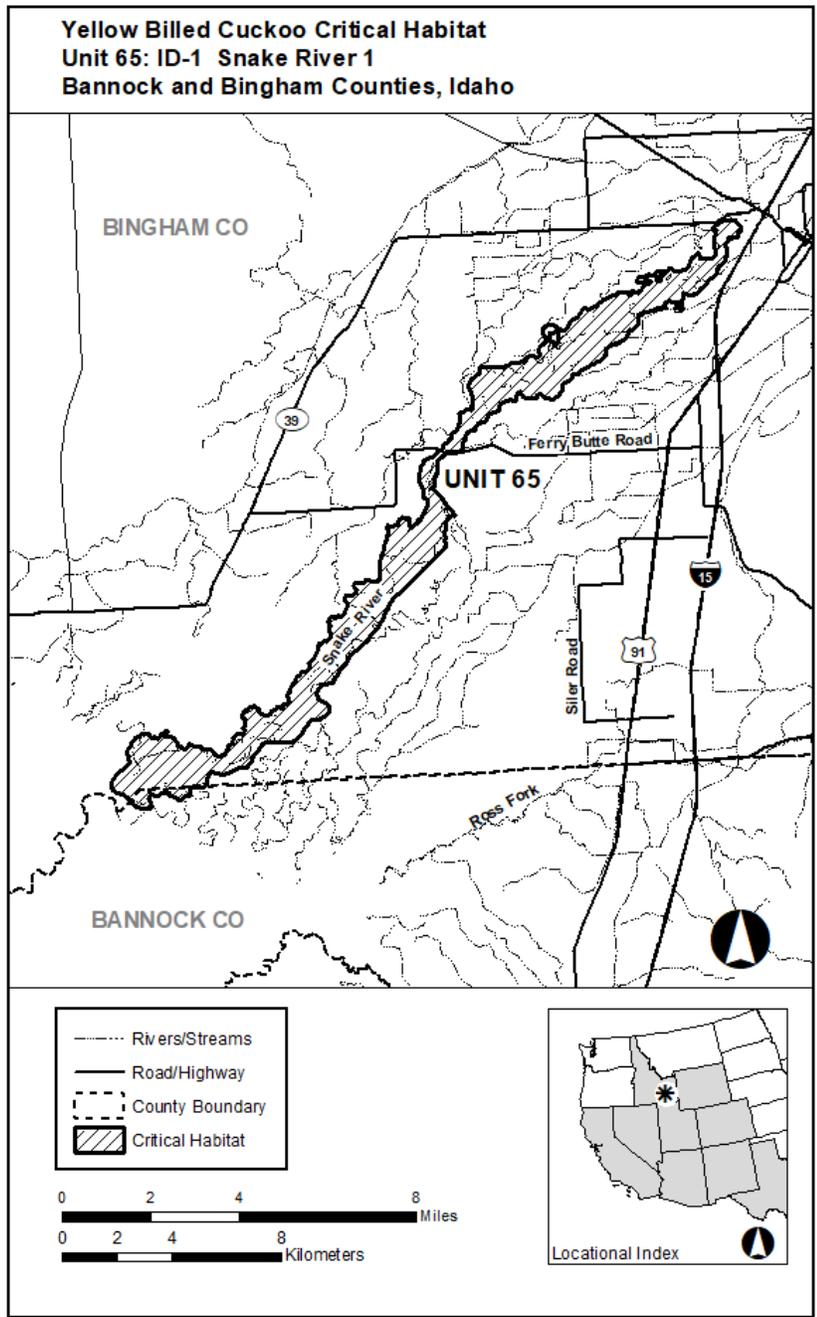


(68) Unit 64: CA-2, South Fork Kern River Valley; Kern County, California.
Map of Unit 64 follows:

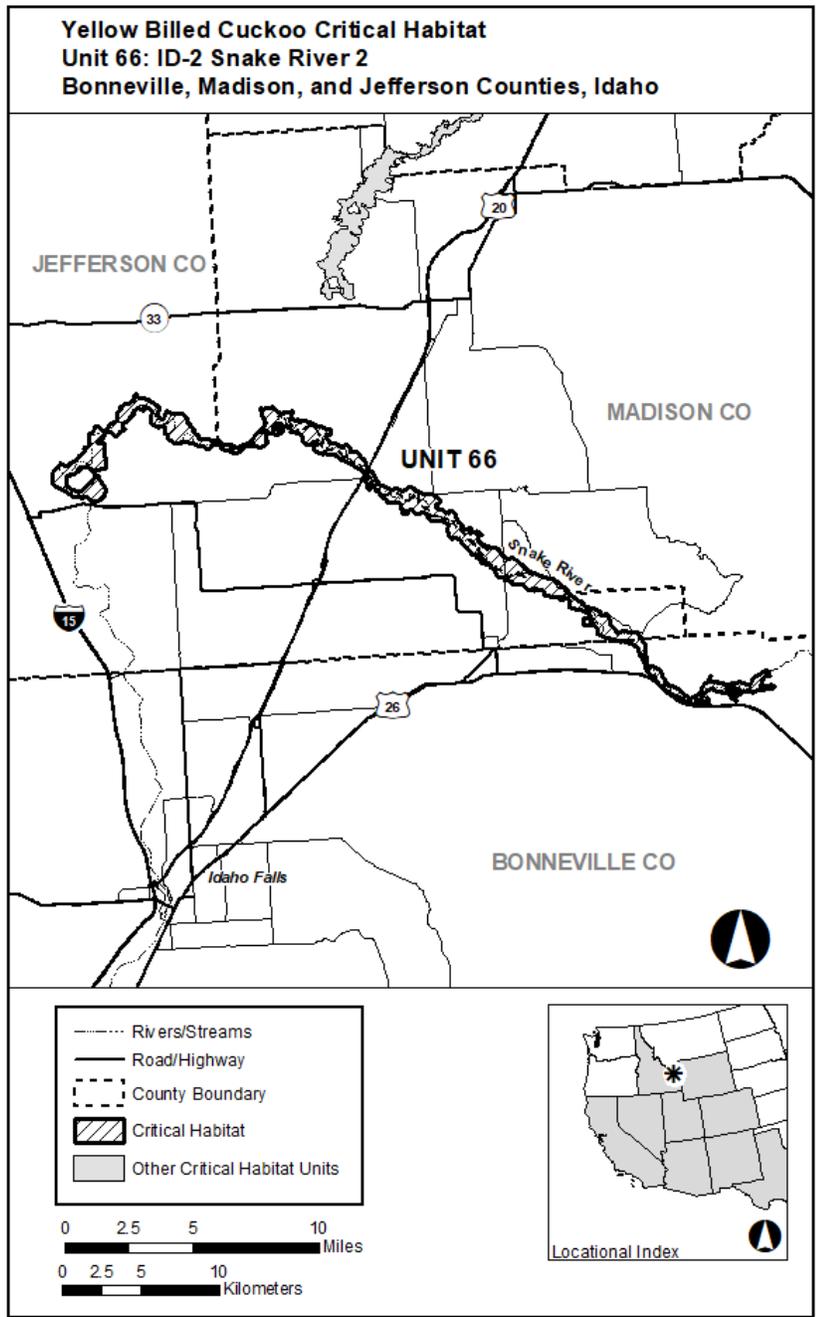
**Yellow Billed Cuckoo Critical Habitat
Unit 64: CA-2 South Fork Kern River Valley
Kern County, California**



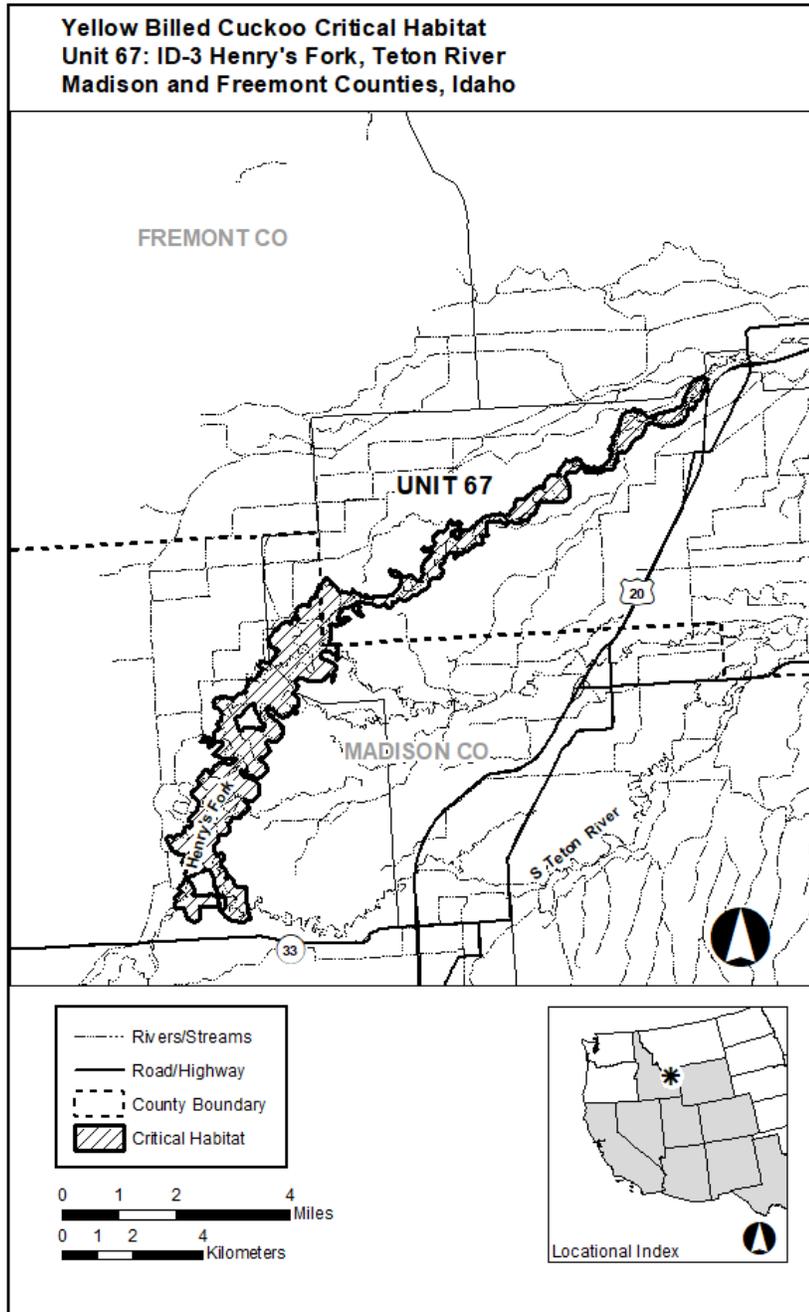
(69) Unit 65: ID-1, Snake River 1; Bannock and Bingham Counties, Idaho. Map of Unit 65 follows:



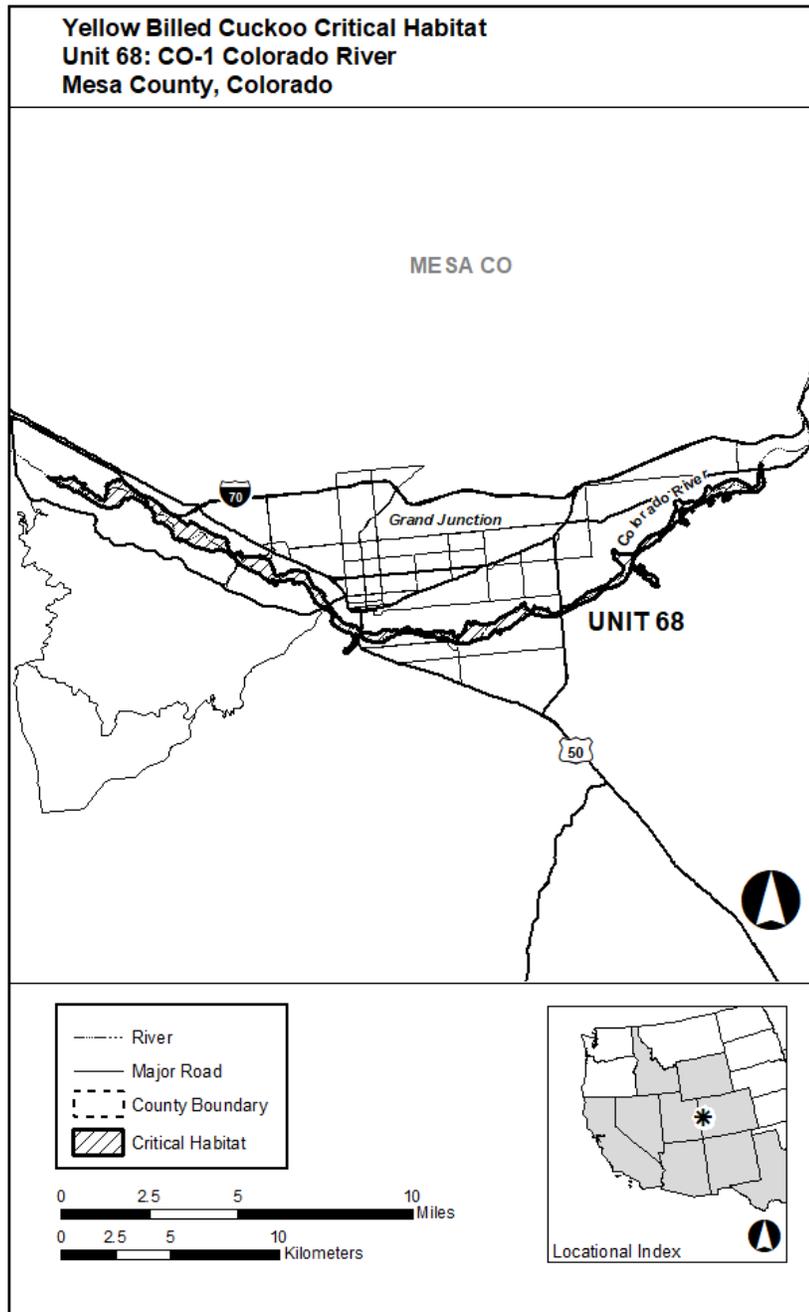
(70) Unit 66: ID-2, Snake River 2; Bonneville, Madison, and Jefferson Counties, Idaho. Map of Unit 66 follows:



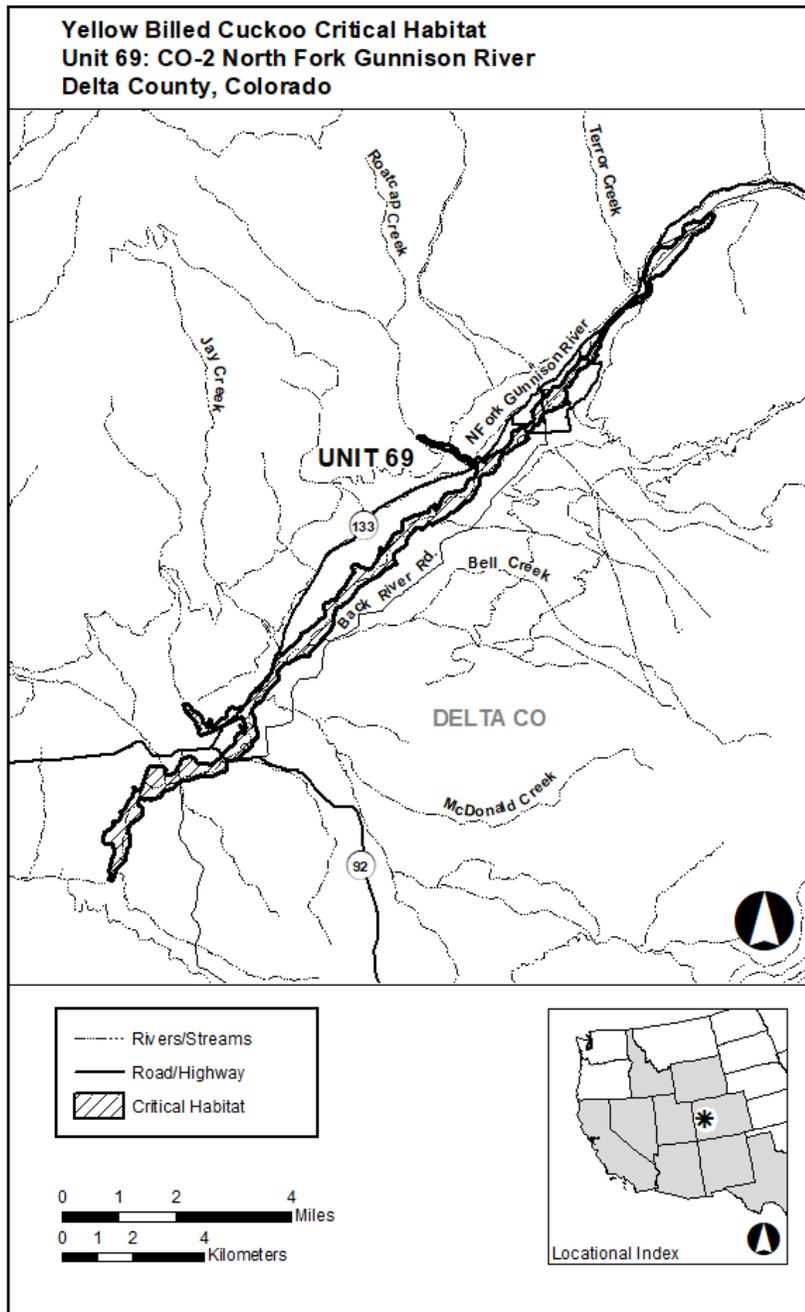
(71) Unit 67: ID-3, Henry’s Fork and Teton Rivers; Madison and Fremont Counties, Idaho. Map of Unit 67 follows:



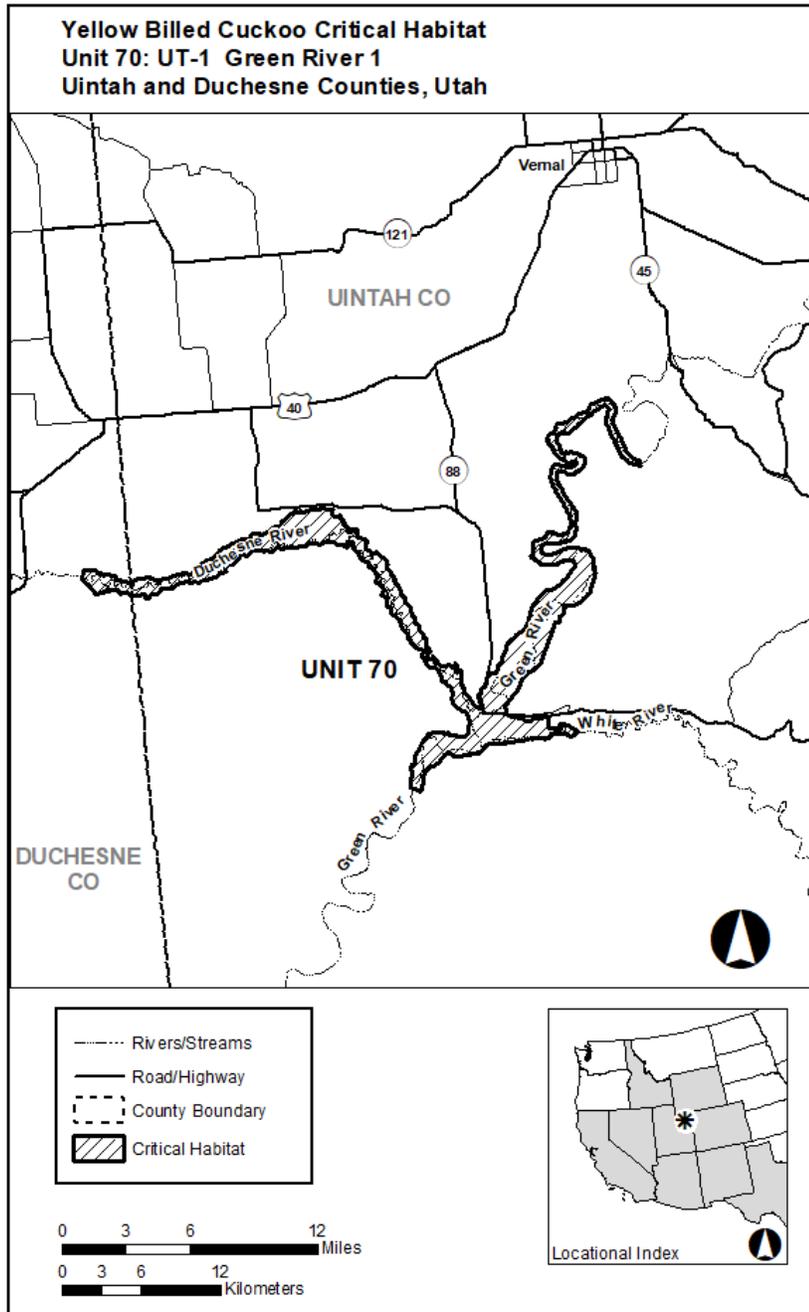
(72) Unit 68: CO-1, Colorado River; Mesa County, Colorado. Map of Unit 68 follows:



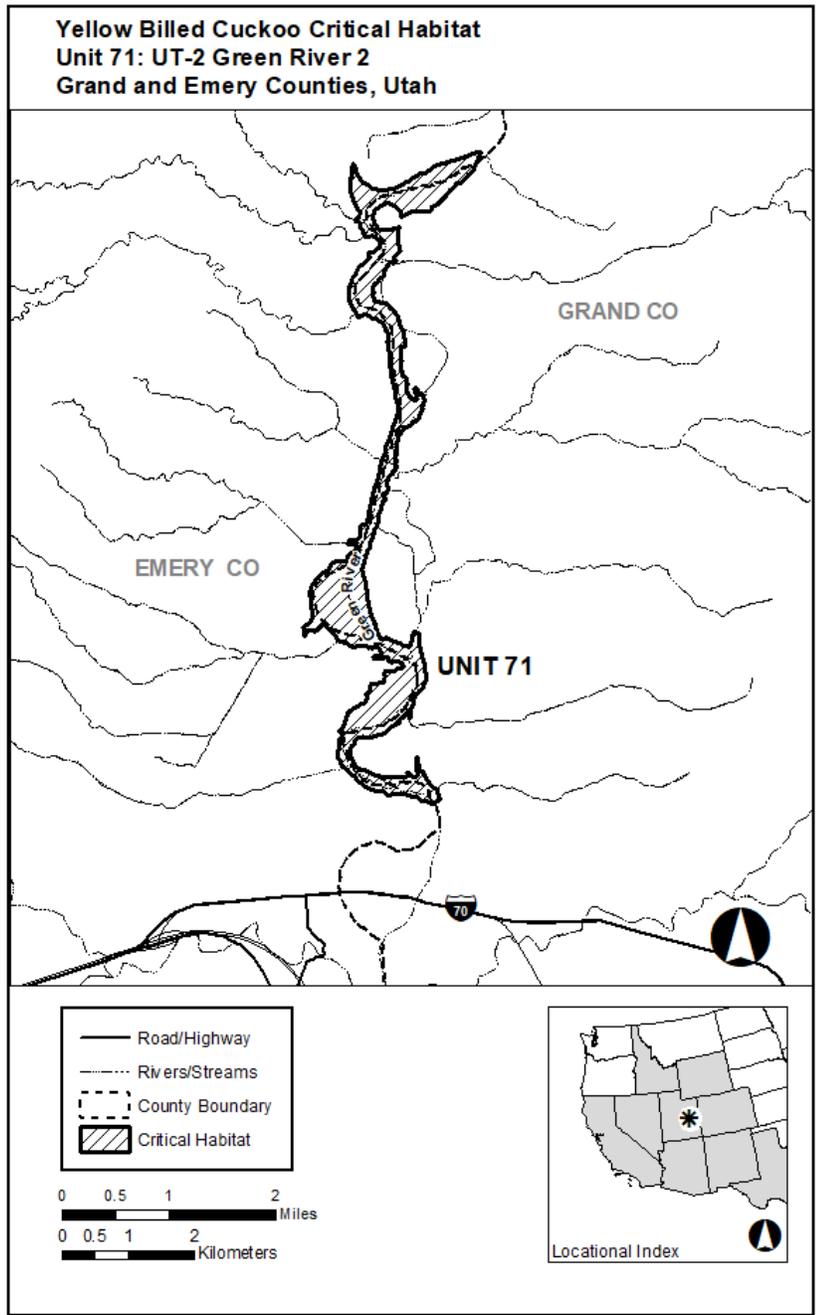
(73) Unit 69: CO-2, North Fork Gunnison River; Delta County, Colorado. Map of Unit 69 follows:



(74) Unit 70: UT-1, Green River 1; Uintah and Duchesne Counties, Utah. Map of Unit 70 follows:

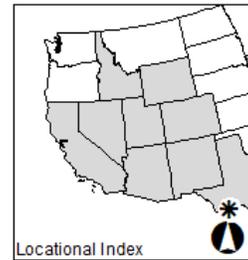
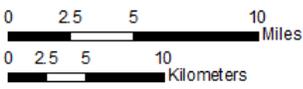
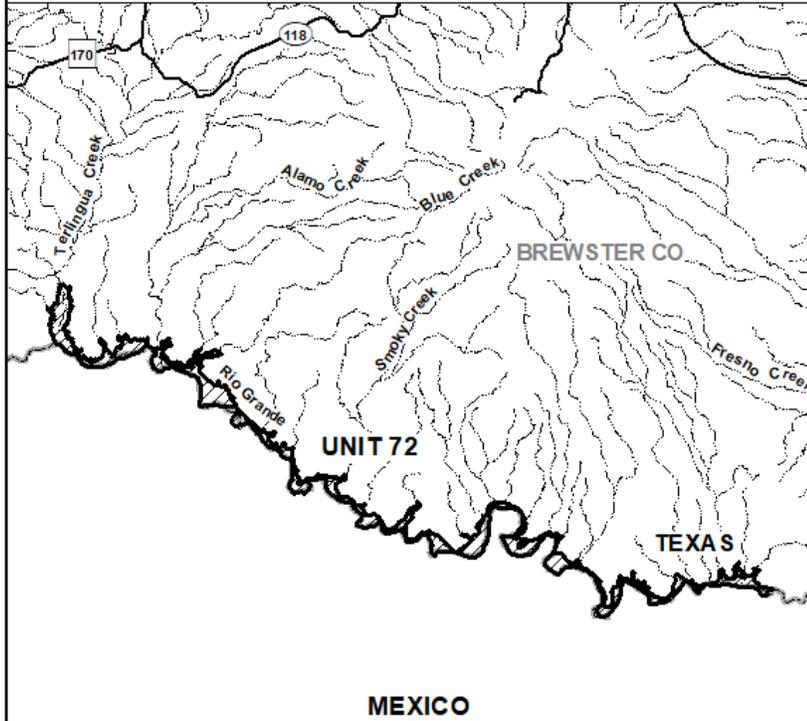


(75) Unit 71: UT-2, Green River 2; Emery and Grand Counties, Utah. Map of Unit 71 follows:



(76) Unit 72: TX-1, Terlingua Creek and Rio Grande; Brewster County, Texas.
Map of Unit 72 follows:

**Yellow Billed Cuckoo Critical Habitat
Unit 72: TX-1 Terlingua Creek and Rio Grande
Brewster County, Texas**



* * * * *

Dated: November 21, 2019

Signed: Margaret Everson

Principal Deputy Director, U.S. Fish and Wildlife Service,

Exercising the Authority of the Director, U.S. Fish and Wildlife Service.

Billing Code 4333-15

[FR Doc. 2020-02642 Filed: 2/26/2020 8:45 am; Publication Date: 2/27/2020]