

requirements, Superfund, Water pollution control, Water supply.

**Authority:** 33 U.S.C. 1321(c)(2); 42 U.S.C. 9601–9657; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; E.O. 12580, 52 FR 2923; 3 CFR, 1987 Comp., p. 193.

Dated: July 12, 2001.

**William W. Rice,**

*Acting Regional Administrator, Region 7.*

[FR Doc. 01–18317 Filed 7–24–01; 8:45 am]

**BILLING CODE 6560–50–P**

## FEDERAL COMMUNICATIONS COMMISSION

### 47 CFR Part 51

[CC Docket No. 96–98; DA 01–1648]

#### Update and Refresh Record on Rules Adopted in 1996 Local Competition Docket

**AGENCY:** Federal Communications Commission.

**ACTION:** Proposed rule.

**SUMMARY:** This document invites parties to update and refresh the record on issues pertaining to the rules the Commission adopted in the First Report and Order in CC Docket No. 96–98, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*.

**DATES:** Comments are due August 24, 2001 and reply comments are due September 10, 2001.

**FOR FURTHER INFORMATION CONTACT:** Jonathan Reel, Attorney Advisor, Policy and Program Planning Division, Common Carrier Bureau, (202) 418–1580.

**SUPPLEMENTARY INFORMATION:** This is a summary of the Commission's document regarding CC Docket No. 96–98, released on July 11, 2001. The complete text of this document is available for inspection and copying during normal business hours in the FCC Reference Information Center, Courtyard Level, 445 12th Street, S.W., Washington, DC, and also may be purchased from the Commission's copy contractor, International Transcription Services (ITS, Inc.), CY–B400, 445 12th Street, S.W., Washington, DC. It is also available on the Commission's website at <http://www.fcc.gov>.

#### Synopsis

1. On August 8, 1996, the Commission released the *Local Competition First Report and Order* (61 FR 45476) as required by the Telecommunications Act of 1996. Many of the parties filed petitions for reconsideration of that

Order and there has been significant litigation concerning many of the rules adopted in that Order. At this time, only certain rules concerning combination and pricing of unbundled network elements remain in dispute. Now that the issues in dispute have narrowed, the Commission will address petitions for reconsideration relating to rules that are not the subject of pending litigation. Since many of these petitions were filed several years ago, the passage of time and intervening developments may have rendered the record developed by those petitions stale. Moreover, some issues raised in petition for reconsideration may have become moot or irrelevant in light of intervening events.

2. For these reasons, the Commission requests that parties that filed petitions for reconsideration in 1996 addressing issues that are not subject to pending litigation now file a supplemental notice indicating which of such issues they still wish to be reconsidered. In addition, parties may refresh the record with any new information or arguments they believe to be relevant to deciding such issues. To the extent parties do not indicate an intent to pursue their respective petitions for reconsideration, the petitions will be deemed withdrawn and will be dismissed. The refreshed record will enable the Commission to undertake appropriate reconsideration of its local competition rules.

#### List of Subjects in 47 CFR Part 51

Communications common carriers, Interconnection.

Federal Communications Commission.

**Michelle M. Carey,**

*Chief, Policy and Program Planning Division, Common Carrier Bureau.*

[FR Doc. 01–18516 Filed 7–24–01; 8:45 am]

**BILLING CODE 6712–01–P**

## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

#### Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition To List the Yellow-billed Cuckoo (*Coccyzus americanus*) in the Western Continental United States

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of 12-month petition finding.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding for a petition to list the yellow-billed cuckoo (*Coccyzus*

*americanus*) in the western continental United States under the Endangered Species Act of 1973, as amended (Act). We find that the petitioned action is warranted, but precluded by higher priority listing actions. We will develop a proposed rule to list this population pursuant to our Listing Priority Guidance. Upon publication of this notice of 12-month petition finding, this species will be added to our candidate species list.

**DATES:** The finding announced in this document was made on July 18, 2001. Comments and information may be submitted until further notice.

**ADDRESSES:** You may submit data, information, comments, or questions concerning this finding to the Supervisor, U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room 2605, Sacramento, California 95825. You may inspect the petition, administrative finding, supporting information, and comments received, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** Stephanie Brady, Fish and Wildlife Biologist, at the above address, by telephone at 916/414–6600, facsimile at 916/414–6613, or electronic mail at [stephanie\\_brady@fws.gov](mailto:stephanie_brady@fws.gov).

#### SUPPLEMENTARY INFORMATION:

##### Background

Section 4(b)(3)(B) of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*), requires that, for any petition to revise the List of Threatened and Endangered Species containing substantial scientific and commercial information that listing may be warranted, we make a finding within 12 months of the date of the receipt of the petition on whether the petitioned actions is: (a) not warranted, (b) warranted, or (c) warranted but precluded from immediate proposal by other higher priority efforts to revise the List of Threatened and Endangered Species. Section 4(b)(3)(C) requires that petitions for which requested action is found to be warranted but precluded should be treated as though resubmitted on the date of such finding, i.e., requiring a subsequent finding to be made within 12 months. Such 12-month findings are to be published promptly in the **Federal Register**.

Section 4(b) of the Act states that we may make warranted but precluded findings only if we can demonstrate that: (1) An immediate proposed rule is precluded by other pending actions, and (2) expeditious progress is being made on other listing actions. Due to the large

amount of litigation over critical habitat, we are working on numerous court orders and settlement agreements. Complying with these orders and settlement agreements will consume nearly all or all of our listing budget for fiscal year 2001. Any funding we may have available for discretionary listing actions will likely be allocated for emergency listings only. However, we can continue to place species on the candidate species list, as that work activity is funded separately from our listing program.

On February 9, 1998, we received a petition, dated February 2, 1998, from Robin Silver, Kieran Suckling, and David Noah Greenwald of the Southwest Center for Biological Diversity on behalf of 22 groups to list the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). The 22 groups are the Maricopa Audubon Society, Tucson Audubon Society, Huachuca Audubon Society, White Mountain Audubon Society, the White Mountain Conservation League, Wildlife Damage Review, Sky Island Alliance, the San Pedro 100, the Zane Grey Chapter of Trout Unlimited, T & E Inc., the Biodiversity Legal Foundation, the Environmental Protection Information Center, the Sierra Nevada Alliance, the Wetlands Action Network, Rangewatch, the Oregon Natural Desert Association, the Oregon Natural Resources Center, the Klamath-Siskiyou Wildlands Center, the Southern Utah Wilderness Alliance, the Wild Utah Forest Campaign, Friends of Nevada Wilderness, and the Toiyabe Chapter of the Sierra Club. The petitioners stated that they believe the yellow-billed cuckoo "is endangered in a significant portion of its range (i.e., the western United States)." The petitioners also stated they "believe this range of endangerment is coterminous with a valid subspecies, the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)," and that they would concur with a decision to list this taxon. Petitioners also requested that critical habitat be designated for the yellow-billed cuckoo concurrent with the listing, pursuant to 50 CFR 424.12 and the Administrative Procedures Act (5 U.S.C. 553). Included in the petition was supporting information on the species relating to taxonomy, ecology, adequacy of existing regulatory mechanisms, historic and present distribution, current status, and threats in the western United States.

On February 17, 2000, we announced a 90-day petition finding in the **Federal Register** (65 FR 8104) concluding that the petition presented substantial scientific or commercial information to

indicate that the listing of the western yellow-billed cuckoo may be warranted. In that finding, we also found that the petition did not present sufficient information to indicate that listing of the species as a whole may be warranted. In addition, the finding stated that the petition presented substantial information that led us to conclude that further investigation, through a status review, was required to determine the taxonomic validity of the western subspecies, and to determine if listing the western yellow-billed cuckoo as a distinct population segment (DPS) may be warranted.

#### Taxonomy

Ridgway (1887) separated the yellow-billed cuckoo into eastern and western subspecies, based on western birds being "larger, with proportionately larger and stouter bill". Wetmore (1968) added that western birds are slightly more gray above, and eastern birds more brown. Ridgway assigned birds from the area north and west from extreme west Texas to the Pacific Coast to the subspecies *Coccyzus americanus occidentalis*, and other cuckoos in North America to *Coccyzus americanus americanus*. Ridgway's western subspecies included birds from the Great Basin portions of Colorado and Wyoming, west and north to the Pacific Coast and southwestern British Columbia. The two subspecies were generally included in ornithological treatments through the 1960s (e.g., American Ornithologists Union (AOU) 1957; Oberholser and Kincaid 1974).

Many ornithologists, however, have questioned the separation of the species into two subspecies (Bent 1940; Monson and Phillips 1981; Van Tyne and Sutton 1937; Swarth 1929; Todd and Carriger 1922), citing the small magnitude and inconsistency of differences between eastern and western yellow-billed cuckoos, and the broad overlap in the size of eastern and western individuals. During this time, though, there was no systematic analysis of geographic variation to determine if there was an eastern and western yellow-billed cuckoo subspecies. Since 1983, AOU checklists (the recognized authority for taxonomy of North American birds) have not used subspecies names for any of the bird species in the checklist since the validity of many described avian subspecies needs to be evaluated, as does the potential for unrecognized subspecies (AOU 1983, 1998). The most recent checklist (AOU 1998) refers readers to the 1957 checklist for subspecies taxonomy, while noting the questionable validity of many subspecies. The AOU Checklist

Committee (which makes taxonomic decisions for North American birds) has begun the process of reviewing the taxonomic status of subspecies for the North American families of birds, a task which is expected to take at least several years (R. Banks, chair of AOU Classification and Nomenclature Committee (North America), pers. comm., 1999).

Yellow-billed cuckoo taxonomy was first reviewed in the late 1980s, when we requested that Dr. Banks, an avian taxonomist, evaluate the validity of the cuckoo subspecies. This request was in response to the 1986 petition to list the yellow-billed cuckoo in the States of California, Washington, Oregon, Idaho, and Nevada. Banks compared three morphological characteristics (bill length, depth of upper mandible, and wing length) of almost 700 adult specimens of yellow-billed cuckoos and visually examined the colors of specimens. He found: (1) no pattern of geographic variation in color; (2) substantial overlap between eastern and western birds in wing length, bill length and mandible depth; and (3) no significant differences for these three characteristics. He concluded that the data did not justify the separation into eastern and western subspecies (Banks 1988). Subsequently, statistical errors were discovered in Bank's study (Spiller 1988), and a re-analysis of the same data indicated statistically significant differences between eastern and western yellow-billed cuckoos ( $p < 0.001$ ) for the three characteristics measured by Banks. Banks published a correction to his earlier paper (Banks 1990), acknowledging the computational error, but stating that the "statistical difference cannot be equated to a biological or practical difference." In support of this, he cited the small differences between mean measurements, the large degree of overlap between eastern and western birds in the ranges of measurements for the three characteristics he measured, and the sensitivity of the statistical procedure to detect very small differences as "significant," given the large sample sizes. Banks concluded that his fundamental finding remained unchanged, that is, separation into subspecies was not warranted by the morphological data, and that all yellow-billed cuckoos in North America should be classified simply as *Coccyzus americanus*.

Banks provided his data to two avian ecologists (Franzreb and Laymon 1993) who analyzed the same data set, supplemented by measurements for a fourth characteristic (tail length), and from a small number of additional

specimens of western birds. Franzreb and Laymon (1993) noted statistical errors by Banks (1988), finding that western birds are larger than eastern birds, and that one could separate a majority of western yellow-billed cuckoos from eastern yellow-billed cuckoos using discriminant analysis. Franzreb and Laymon (1993) also considered behavioral and ecological differences between western and eastern birds, and found evidence of differences in the timing of migration and breeding. They concluded that: (1) "the recognition of subspecies on the basis of measurements of existing specimens is equivocal"; (2) study of geographical variation in vocalizations, bill color, and genetics was warranted; (3) the two subspecies should be retained pending the above studies; and (4) "because the western yellow-billed cuckoo is so critically endangered \* \* \* changes in its classification should be made only after the best possible study." Banks did not respond in print to their paper, but has stated that his conclusion remains unchanged (R. Banks, pers. comm., 1999).

#### Description and Natural History

The yellow-billed cuckoo is a member of the avian family Cuculidae and order Cuculiformes. The approximate 128 members of Cuculidae share the common feature of a zygodactyl foot, in which two toes point forwards and two toes point backwards. Most species have moderate to heavy bills, somewhat elongated bodies, a ring of colored bare skin around the eye, and loose plumage. Six species of Cuculidae breed in the United States, two species of which breed west of the Continental Divide, the yellow-billed cuckoo and the greater roadrunner.

The yellow-billed cuckoo is a medium-sized bird of about 30 centimeters (cm) (12 inches (in.)) in length, and weighing about 60 grams (2 ounces). The species has a slender, long-tailed profile, with a fairly stout and slightly down-curved bill which is blue-black with yellow on the base of the lower mandible. Plumage is grayish-brown above and white below, with red primary flight feathers. The tail feathers are boldly patterned with black and white below. The legs are short and bluish-gray, and adults have a narrow, yellow eye ring. Juveniles resemble adults, except the tail patterning is less distinct, and the lower bill may have little or no yellow.

Mated males have a distinctive "kowlp" call which is a loud, nonmusical series of notes about 2–3 seconds long which slows down and slurs toward the end. Unmated males

use a separate call which is an indeterminate series of soft notes "coo-coo-coo-coo." Both members of a pair may give the "knocker" call, which is a harsh, rattled, series of notes (Hughes 1999).

Western yellow-billed cuckoos breed in large blocks of riparian habitats (particularly woodlands with cottonwoods and willows), while eastern yellow-billed cuckoos breed in a wider range of habitats, including deciduous woodlands and parks (Ehrlich *et al.* 1988). Dense understory foliage appears to be an important factor in nest site selection, while cottonwood trees are an important foraging habitat in areas where the species has been studied in California (Laymon *et al.* 1993). Clutch size is usually two or three eggs, and development of the young are very rapid, with a breeding cycle of 17 days from egg-laying to fledging of young. Although yellow-billed cuckoos usually raise their own young, they are facultative brood parasites, occasionally laying eggs in the nests of other yellow-billed cuckoos or of other bird species (Hughes 1997).

Western yellow-billed cuckoos appear to require large blocks of riparian habitat for nesting. Along the Sacramento River in California, nesting yellow-billed cuckoos occupied home ranges which included 10 hectares (ha) (25 acres (ac)) or more of riparian habitat (Gaines 1974; Laymon *et al.* 1993). Another study on the same river found riparian patches with yellow-billed cuckoo pairs to average 40 ha (99 ac) (Halterman 1991). Home ranges in the South Fork of the Kern River in California averaged about 17 ha (42 ac) (Laymon *et al.* 1993). Nesting densities ranging from 1 to 15 pairs per 40 ha (99 ac) were estimated in a New Mexico study (Howe 1986), and three plots in Arizona had densities ranging of 8.2, 19.8, and 26.5 pairs per 40 ha (99 ac) (Hughes 1999). Nesting west of the Continental Divide occurs almost exclusively close to water, and biologists have hypothesized that the species may be restricted to nesting in moist river bottoms in the west because of humidity requirements for successful hatching and rearing of young (Hamilton and Hamilton 1965; Rosenberg *et al.* 1991). Nesting peaks later (mid-June through August) than in most co-occurring bird species, and may be triggered by an abundance of the cicadas, katydids, caterpillars, or other large prey which form the bulk of the species' diet (Hamilton and Hamilton 1965; Rosenberg *et al.* 1982). The species is inconspicuous on its breeding range, except when calling to attract or to contact mates.

#### Distribution

The breeding range of the yellow-billed cuckoo formerly included most of North America from southern Canada to the Greater Antilles and northern Mexico (AOU 1957, 1998). In recent years, the species' distribution in the west has contracted. The northern limit of breeding in the coastal States is now in Sacramento Valley, California, and the northern limit of breeding in the western interior States is southern Idaho (AOU 1998; Hughes 1999). East of the Continental Divide, the species breeds from southeastern Montana, the Dakotas, Minnesota, southern Ontario, southeastern Quebec and probably southern New Brunswick south to eastern Colorado, Texas, the Gulf coast, northeastern Mexico, the Florida Keys, the Greater Antilles and the northern Lesser Antilles (AOU 1957, 1998). The species overwinters from Columbia and Venezuela, south to northern Argentina (Ehrlich *et al.* 1992; AOU 1998). The extent to which yellow-billed cuckoos nesting in different regions of North America commingle during migration, or while overwintering, is unknown. Data provided by the U.S. Geological Survey-Biological Resources Division, Bird Banding Laboratory (BBL), from bird band returns to date is insufficient to determine migration or wintering patterns (BBL, *in litt.*, 1998).

#### Historic and Current Status

The available data, including that provided by the petitioners, suggest that the yellow-billed cuckoo's range and population numbers have declined substantially across much of the western United States over the past 50 years. Analysis of population trends is difficult because quantitative data, including historical population estimates, are generally lacking. However, historic and recent data are sufficient to allow an evaluation of changes in the species' range in the western United States. Rough extrapolations, which use observed densities of yellow-billed cuckoos and historic habitat distribution, indicate that western populations were once substantial (Service 1985). The following discussion is based on information provided by the petition and in our files, and focuses on western North America, the area for which the petition provides information.

Based on historic accounts, the species was widespread and locally common in California and Arizona, locally common in a few river reaches in New Mexico, common very locally in Oregon and Washington, generally local and uncommon in scattered drainages of

the arid and semiarid portions of western Colorado, western Wyoming, Idaho, Nevada, and Utah, and probably uncommon and very local in British Columbia. Hughes (1999) summarizes the species' historic range and status in these areas, which are described in detail below.

In California prior to the 1930s, the species was widely distributed in suitable river bottom habitats, and was locally common (Grinnell and Miller 1944; Small 1994). Yellow-billed cuckoos nested primarily in coastal counties from San Diego County near the Mexico border to Sonoma County in the San Francisco Bay region, in the Central Valley from Kern County through Shasta County, and along the lower Colorado River (Grinnell and Miller 1944; Dawson 1923; Small 1994; Gaines and Laymon 1984). Yellow-billed cuckoos also bred locally elsewhere in the State, including in Inyo, San Bernardino, and Siskiyou counties (Grinnell and Miller 1944).

The early literature relating to the yellow-billed cuckoo in California has been summarized and evaluated by Gaines (1974), Gaines and Laymon (1984), and Hughes (1999). Collectively they report dozens of locations where the species was historically reported and/or collected, sometimes in apparent abundance, but not subsequently found. Laymon and Halterman (1987b) estimated that in California the species' range was about 30 percent of its historical extent. Hughes (1999) provides an estimate of the California breeding population during the late 19th century of 15,000 pairs of breeding birds. Gaines (1974) believed that pre-development yellow-billed cuckoo populations in California were even greater than implied by the early literature, due to the species' inconspicuous behavior and the fact that large tracts of floodplain riparian habitat had already been removed for development before the first records and accounts of the species began appearing in literature. Most modern investigators believe that a significant decline of the yellow-billed cuckoo in California occurred following the start of the major era of development beginning about the mid-1800s (Gaines and Laymon 1984; Laymon and Halterman 1987a, 1987b; Launer 1990).

The species was listed by the State of California as threatened in 1971, and was reclassified as endangered in 1987. Based on a 1986–87 Statewide survey, only three areas in the State support more than about five breeding pairs on a regular basis: The Sacramento River roughly between Colusa and Red Bluff; the South Fork of the Kern River

upstream of Lake Isabella; and the lower Colorado River (Laymon and Halterman 1987a, b). Laymon and Halterman (1987a) estimated 31–42 breeding pairs in the State, a decline of 66–81 percent from a 1977 survey (Gaines 1974; Gaines and Laymon 1984). Along the lower Colorado River, on the California-Arizona border, Laymon and Halterman (1987a) estimated an 80–90 percent decline by 1986 from an estimated 180–240 pairs in 1976–1977, while Rosenberg *et al.* (1991) estimated a decline of 93 percent over this period, using an initial estimate of 242 pairs in 1976–1977. These declines coincided with habitat losses resulting from high water levels of long duration in 1983–1984 and 1986 (Laymon and Halterman 1987b; Rosenberg *et al.* 1991). Final results from a Service-funded 1999 State-wide survey indicate that yellow-billed cuckoo numbers in the Sacramento Valley and along the Kern River are comparable to numbers from the 1980s, while only two pairs were located on the California side of the Colorado River. No pairs were found in the part of the State west of the Colorado River and south of the Kern River (M. Halterman, Kern River Research Center, pers. comm., 2001; Halterman *et al.* 2001). Although other biologists detected cuckoos at Prado Flood Control Basin, a pair on the Amargosa River, and a single cuckoo at the Mojave River near Victorville (Halterman *et al.*, 2001), the lack of detections during the 1999 survey in these and other southern California areas where comparable previous surveys found cuckoos indicates population declines since the 1970s.

An example of the species' decline in California is found in the San Joaquin Valley. Yellow-billed cuckoo have been recorded from every county in the San Joaquin Valley region except Kings County, and were locally common as a breeding bird at least in San Joaquin, Kern, Fresno, and Stanislaus counties (Gaines and Laymon 1984). Despite surveys for the species (Laymon and Halterman 1987a), there have been few records from the San Joaquin Valley since the 1960s. If the species still breeds there, the number of breeding pairs is very small (Gaines and Laymon 1984; Laymon and Halterman 1987a).

In the Pacific Northwest, the species was formerly fairly common locally in willow bottoms along Willamette and Columbia Rivers in Oregon, and in the Puget Sound lowlands and along the lower Columbia River in Washington (Marshall 1996; Roberson 1980; Jewett *et al.* 1953; Gabrielson and Jewett, 1940). The species was also found locally in southeast British Columbia

(Hughes 1999), but the available data are not adequate to determine historic abundance. The species was rare east of the Cascade Mountains in these states and provinces. The last confirmed breeding records were in the 1930s in Washington, and in the 1940s in Oregon. It may now be extirpated from Washington. The species is ranked as critically imperiled as a breeding bird in Washington and is under review by the Washington Department of Fish and Wildlife for State listing (Washington Natural Heritage Program 1997).

In Oregon, four yellow-billed cuckoo sightings were made west of the Cascade Mountains between 1970 and 1994. At least 20 records occur east of the Cascades (Gilligan 1994), and a few pairs may nest very locally in the eastern part of the State. A 1988 survey in eastern Oregon and Klamath County located no birds, but identified potential breeding habitat along the lower Owyhee River (Littlefield 1988). Most recent records were recorded in May and June of 1999 (Johnson *et al.* 2001), and a single yellow-billed cuckoo was sighted during the breeding season (June 26–27, 1999) along Bonita Road in Malheur County. It is believed that this species has been regularly sighted (without confirmed nesting) at the Malheur National Wildlife Refuge (B. Alterman, pers. comm., 2001).

The species occurred in southwest British Columbia (Victoria, Kamloops, Chilliwack) (Bent 1940), but was apparently never common; the last confirmed breeding was in 1920s. The species has been recorded twice in British Columbia since the 1920s (Siddle 1992), and is considered extirpated (British Columbia Conservation Data Centre 1999; Hughes 1999).

Arizona probably contains the largest remaining yellow-billed cuckoo population among States west of the Rocky Mountains. The species was historically widespread and locally common (Phillips *et al.* 1964; Monson and Phillips 1981; Groschupf 1987). One hundred sixty-eight yellow-billed cuckoo pairs and 80 single birds were located in Arizona in 1999, based on preliminary results from a State-wide survey which covered 427 km (265 mi) of river and creek bottoms (R. Magill, pers. comm., 1999). Based on these results, it is evident that yellow-billed cuckoo numbers in 1999 are substantially less than some previous estimates for Arizona, including a 1976 estimate of 846 pairs for the lower Colorado River and five major tributaries (Groschupf 1987). Losses of riparian habitats from historic levels have been substantial in Arizona (Noss

*et al.* 1995; Ohmart 1994; Rosenberg *et al.* 1991). Losses have been greatest at lower elevations (below about 900 m (3,000 ft) elevation) along the Lower Colorado River and its major tributaries, which have been strongly affected by upstream dams, flow alterations, channel modification, and clearing of land for agriculture (Groschupf 1987). As habitat has declined, yellow-billed cuckoo numbers have likely declined, as has been documented for the lower Colorado River (Rosenberg *et al.* 1991), and described above for California. Following the high water levels of 1983–1984 and 1986, yellow-billed cuckoo numbers also declined by 70–75 percent on the Bill Williams River delta, which abuts the lower Colorado River (Rosenberg *et al.* 1991). Habitat has since recovered on the Bill Williams River delta, but yellow-billed cuckoo numbers remain low (M. Halterman, pers. comm., 1999). In some Arizona areas, such as the San Pedro Riparian National Conservation Area along about 65 km (40 mi) of the upper San Pedro River, ongoing conservation efforts may improve habitat conditions for the species. The species is considered a Species of Concern by the Arizona Game and Fish Department, a designation which does not provide protection to the species (T. Corman, Arizona Game and Fish Department, pers. comm., 1999).

In Colorado, west of the Continental Divide, the species was probably never common (Bailey and Niedrach 1965; Kingery 1998), and is now extremely rare (Kingery 1998). The yellow-billed cuckoo is an uncommon summer resident of Colorado. According to the Colorado Breeding Atlas (Kingery 1998), the general status of the yellow-billed cuckoo in Colorado is that it is nearly extirpated, with once common eastern populations becoming uncommon to rare. Only one confirmed nesting observation occurred along the Yampa River near Hayden during the Breeding Bird Atlas surveys conducted from 1987–1994. Other confirmed nesting records (mid 1980s) have been associated with outbreaks of caterpillar infestations in box elders (*Acer negundo*) in the Four Corners Region/Durango area. However, over recent years, the use of insecticides and the removal of box elders has reduced the outbreaks of insect infestations, resulting in fewer occurrences of yellow-billed cuckoo in the area (Dr. Albert Spencer in Marilyn Colyer, *in litt.*, 2001).

National Park Service (NPS) surveys in southwest Colorado, from 1988 through 1995 for the Colorado Bird Breeding Atlas, found no records of

yellow-billed cuckoo. Park staff also conducted extensive surveys of the Mancos River in the park six times during the past 12 years and adjacent to Yucca House National Monument throughout 2000 with no reports of yellow-billed cuckoos (Marilyn Colyer, *in litt.*, 2001). Few sightings of the yellow-billed cuckoo have occurred in western Colorado along the Colorado River near Grand Junction (Terry Ireland, Service, pers. comm., 2001). In 1998, biologists surveyed 387 km (242 mi) of lowland river riparian habitat along six rivers in west-central Colorado for yellow-billed cuckoos, finding one individual bird (Dexter 1998).

There is very limited data for the area west of the Continental Divide in Montana. Three specimens of the yellow-billed cuckoo have been collected since the early 1960s, and there are few recorded sightings of the yellow-billed cuckoo since the early 1900s (Saunders 1921). Local records for the species around the Flathead River area are scarce and there have been a few records which indicate that they do occur in this area, but no confirmed breeding information exists (S. Lenard, Montana Audubon, pers. comm., 2001). Yellow-billed cuckoos may be seen locally in the southern portion of the State along the larger stream corridors that run from Montana into northeastern Wyoming (L. Nordstrom, Service, pers. comm., 2001).

In Idaho, the species was considered a rare and local summer resident (Burleigh 1972). In northern and central Idaho, there have only been four records of yellow-billed cuckoo over the last century (Taylor 2000). The most recent record for this area comes from the South Fork of the Snake River in 1992 (Stephens and Sturts 1997). In southwestern Idaho, the yellow-billed cuckoo has been considered a rare, sometimes erratic, visitor and breeder in the Snake River valley. Numerous sightings have been recorded in the southwestern part of the State during the past 25 years. The yellow-billed cuckoo appears to be hanging on precariously in Idaho and could easily become extirpated from the State in the near future. The available information is inadequate to judge population or distributional trends, and the breeding population in Idaho is likely limited to a few breeding pairs, at most.

The historic status of the yellow-billed cuckoo in Nevada is poorly documented, although there is evidence it was nesting along the lower Truckee and Carson Rivers and in southern Nevada along the Colorado and Virgin Rivers (Linsdale 1951; Neel 1999). Surveys using call-playback techniques

were done in the early 1970s along the Truckee, Carson, and Walker Rivers. The surveys of the six remaining habitats able to support yellow-billed cuckoos, as described by Gaines (1974), resulted in no birds being heard or seen (Oakleaf 1974). The most recent documentation of the yellow-billed cuckoo nesting in Nevada was a pair at Beaver Dam Wash, Lincoln County in 1979. Since 1990, there have been only sporadic sightings of single birds throughout the State (Neel 1999). The Nevada Division of Wildlife (NDW) (2001) conducted surveys in 2000 in southern Nevada and documented 19 yellow-billed cuckoo, comprising 4 pairs and 11 unpaired birds with no nests being found. An estimate by the NDW put the summer population of yellow-billed cuckoo between 20–30 birds State-wide.

Suitable habitat for the yellow-billed cuckoo is very limited in Nevada, with most areas of cottonwood riparian forests being fragmented (NDW, *in litt.*, 2001). NPS studies from Great Basin National Park (NPS, *in litt.*, 2001) in the South Snake Mountain Range determined that of the 190 ha (469 ac) of existing riparian habitat only 3 ha (8 ac) was suitable for supporting yellow-billed cuckoo. Most of the suitable habitat along the Truckee, Carson, and Walker Rivers has been modified or destroyed (NDW, *in litt.*, 1985, 1990).

The decline of the yellow-billed cuckoo in Clark County, Nevada has been attributed to the reduction or degradation of riparian habitat, river channelization, livestock grazing, use of pesticides, non-native plant encroachment (tamarisk), and brown-headed cowbird parasitism (Clark County 2000). The State of Nevada has listed the yellow-billed cuckoo as State Rank S1 Nevada State Protected. This means that the species is protected in Nevada and is considered critically imperiled due to extreme rarity, imminent threats, and/or biological factors. Under such a designation, the protected species may not be killed, captured, shot at, trapped, wounded, possessed, collected, seined, or netted, nor can a person attempt to do any of these activities.

In Wyoming, population status and trends of yellow-billed cuckoos are unknown (Wyoming Game and Fish Department 1999). Remaining suitable cottonwood riparian habitat for this species is very limited in distribution in the State and is not adequately surveyed. Within the DPS identified in this finding, breeding activity is considered unconfirmed but observations and other anecdotal evidence suggests that breeding may

occur within the Green River Basin and along the Snake River within the State (P. Deibert, Service, pers. comm., 2001).

In New Mexico, the species was historically rare State-wide, but common in riparian areas along the Pecos and Rio Grande Rivers, as well as uncommon to common locally along portions of the Gila, San Francisco and San Juan Rivers (Hubbard 1978; Bailey 1928). Current information is inadequate to judge trends, but the species was fairly common in the mid-1980s along the Rio Grande River between Albuquerque and Elephant Butte Reservoir, and along the Pecos River in southeastern New Mexico. Numbers may have increased there in response to tamarisk (*Tamarix* species) colonization of riparian areas formerly devoid of riparian vegetation (Howe 1986). A review on the status of the species in New Mexico concluded that the species would likely experience future declines in the State due to loss of riparian woodlands (Howe 1986). Riparian habitat degradation and/or loss of cottonwood regeneration are likely occurring in some areas. Along the Rio Grande, water and flood control projects have altered flow regimes and river dynamics, inhibiting regeneration of cottonwood-willow riparian habitats. Elsewhere in the State, grazing also contributes to degradation and loss of riparian habitats. The future degradation and loss of such riparian vegetation would limit the amount of habitat available for the cuckoo (B. Howe, Service, pers. comm., 1999).

The portion of Texas west of the Pecos River has been identified as within the range of the historic western subspecies (Oberholser and Kincaid 1974), but other authors consider birds from this area most similar to eastern yellow-billed cuckoos (Hughes 1999). The species still occurs in this area, but its conservation status is unknown (Groschupf 1987). Population reports of the yellow-billed cuckoo in the trans-Pecos area of western Texas near Big Bend National Park indicate that the area supports scattered populations of yellow-billed cuckoo (Wauer 1971). These populations tend to be associated with areas of springs and developed wells or earthen ponds supporting mesic vegetation such as cottonwood and willow. The bird checklist of Guadalupe Mountains National Park near Beaumont Texas on the New Mexico border lists the yellow-billed cuckoo as a rare summer and fall breeder. Yellow-billed cuckoo population trends from 1966 to 1998 for the entire State of Texas are showing a decline (BBL 1999; Service 1989). Yellow-billed cuckoo call studies from

the University of Texas at El Paso, conducted from 1988 to 1998, noticed a significant decline in response calls over numerous sites in southern New Mexico and western Texas. Average response percentages went from 30 percent in 1988 to 5 percent in 1998. The study concluded that based on the results of the surveys the yellow-billed cuckoo is a rare and highly vulnerable species in the Rio Grande Valley of Southern New Mexico and extreme west Texas (J. Sproul, University of Texas—El Paso, *in litt.*, 2000). The Texas Department of Parks and Wildlife (TDPW) currently does not separate the eastern and western populations of the yellow-billed cuckoo and identifies the species as globally abundant and State secure since the State ranking was last revised in 1994. However, subsequent publications by the TDPW, suggest the species is becoming increasingly rare and declining due to urban development and reduction of habitat (Shakelford and Lockwood 2000). Peterson and Zimmer (1998) reported that the yellow-billed cuckoo may be declining due to habitat destruction in El Paso County. The species is considered to be widespread and uncommon to common in central and eastern Texas (Oberholser and Kincaid 1974; Rappole and Blacklock 1994).

In Utah, the species was historically uncommon to rare along river bottoms. There are at least two recent breeding records (Ouray National Wildlife Refuge on the Green River in 1992; and the Matheson Wetland Preserve near Moab in 1994, L. Romin, Service, pers. comm., 2000), and reports from at least five other areas where breeding has been suspected (E. Owens, Service, pers. comm., 1998). Recent avian surveys of riparian habitats within the historic range (the Salt Lake Valley) recorded three yellow-billed cuckoos in 7,000 survey hours (E. Owens, pers. comm., 1998). Threats to yellow-billed cuckoos and their habitat along the Green River in Utah include habitat loss and fragmentation from flooding and dewatering, encroachment by non-native tamarisk, grazing, and oil and gas development (Hanberg 2000 in Howe and Hanberg 2000). Management of flow regimes was identified as a major impact on habitat with extremely high flows removing habitat, and extended periods of low flows likely drying up yellow-billed cuckoo habitat, which could result in the loss of suitable habitat and invasion by tamarisk. Cattle grazing also was identified as a possible threat to yellow-billed cuckoo habitat by contributing to the loss of subcanopy vegetation and cottonwood regeneration

by grazing and trampling. Another potential threat to yellow-billed cuckoo habitat was attributed to recreational impacts by river users (e.g., use of cottonwood stands for campsites and “lunch spots”). The Utah Division of Wildlife Resources (1998) stated that the yellow-billed cuckoo is threatened by habitat loss from agricultural, water, road and urban development, and has declined significantly across its range.

In the United States east of the Rocky Mountains, the yellow-billed cuckoo is uncommon to common as a breeding bird. The species' habitat in this region, riparian and other broad-leaved woodlands (Ehrlich *et al.* 1988), occupy a significant area of the region (Service 1981). This is in sharp contrast to the west, where suitable habitat is limited to narrow and often widely separated riparian zones that occupy less than one percent of the western landscape (Service 1981; Knopf and Samson 1994).

Trend data based on detections by the Breeding Bird Survey (BBS) program (BBS 1999) indicate significant population declines between 1966 and 1996 in 12 of 29 eastern and central States; the average annual decline during this period was 1.9 percent. Most of these declines have occurred since 1980. The average number of detections of yellow-billed cuckoos increased in these 29 States for the interval from 1966 to 1979; however, the average number of detections decreased in all 29 States between 1980 and 1996. In 15 of these States, the decline between 1980 and 1996 is statistically significant. The average annual decline during this period was 2.8 percent. Trends vary widely between States, ranging from a decline of 15.8 percent (Connecticut, 1966–1996) to an increase of 17 percent (Nebraska, 1966–1979). Bird survey data are insufficient to evaluate population trends in regions west of the Continental Divide, but do provide data for two Service regions which span both sides of the Divide. The BBS data indicate declines of 2.7 percent in Region 2 (Arizona, Oklahoma, Texas, and New Mexico; 1980–1996), and 4.7 percent in Region 6 (Kansas, Nebraska, the Dakotas, Montana, Colorado, Utah, and Wyoming; 1980–1996).

The species breeds locally in Mexico, and is a widespread transient during migration (Howell and Webb 1995). The species has been recorded as a summer resident (presumably breeding) locally within several regions of Mexico, including the State of Baja California Sur; northwest Mexico from Sonora and Chihuahua south to Zacatecas; northeast Mexico on the Atlantic slope from Coahuila to Tamaulipas; and in the northern Yucatan Peninsula (Howell

and Webb 1995). The species has been recorded as locally common in the state of Sonora (Russell and Monson 1998), but recent or quantitative information for that area is lacking (L. Hays, Service, pers. comm., 1999), as is data on the status of yellow-billed cuckoo populations in Mexico.

#### Previous Federal Action

In 1986, we were petitioned to list the yellow-billed cuckoo as endangered in the States of California, Washington, Oregon, Idaho, and Nevada (Manolis *et al.* 1986). We received this petition from Dr. Tim Manolis, Western Field Ornithologists, and it was co-signed by the Animal Protection Institute, Defenders of Wildlife, Sacramento River Preservation Trust, Friends of the River, Planning and Conservation League, Davis Audubon Society, Sacramento Audubon Society, and the Sierra Club. We published a 90-day finding on January 21, 1987, in the **Federal Register**, stating that the petition presented substantial information indicating that the requested action may be warranted (52 FR 2239). In that finding, we acknowledged difficulties in defining a distinct, biologically defensible population of the western yellow-billed cuckoo for possible listing, and that there were gaps in available information as to its status in certain parts of its range. We published a 12-month finding on December 29, 1988, in the **Federal Register** (53 FR 52746), stating that the petitioned action was not warranted, finding that the petitioned area did not encompass either a distinct subspecies or a distinct population segment. The finding cited: (1) A study by Dr. Richard C. Banks (1988) which concluded that the morphological differences between eastern and western birds were too small to merit separate subspecies, and (2) a lack of distinctness for the petitioned "population," noting that yellow-billed cuckoos nest along the Arizona-California border on the lower Colorado River. This indicated that the California population in that area is not distinct, and that if the species was listed per the petition, listed California birds could not be distinguished or separate from unlisted Arizona birds.

On February 9, 1998, we received a petition, dated February 2, 1998, from the Southwest Center for Biological Diversity on behalf of 22 groups. The petitioners requested us to list the yellow-billed cuckoo, stating that they believe the species "is endangered in a significant portion of its range (i.e., the western United States)." The petitioners also stated they "believe this range of endangerment is coterminous with a

valid subspecies the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)," and that they would concur with a decision to list this taxon. Included in the petition was supporting information on the species relating to taxonomy, ecology, and adequacy of existing regulatory mechanisms, and historic and present distribution, current status, and threats in the western United States.

On February 17, 2000, we announced a 90-day petition finding (65 FR 8104) concluding that the petition presented substantial scientific or commercial information to indicate that the listing of the western yellow-billed cuckoo may be warranted. In that finding, we also found that the petition did not present sufficient information to indicate that listing of the species as a whole may be warranted. Our 90-day finding concluded that the available information did not resolve the issue of the validity of separating the yellow-billed cuckoo into two subspecies, but that further investigation, through a status review, was required to determine the taxonomic validity of the western subspecies, and to determine if listing the western yellow-billed cuckoo as a DPS may be warranted.

Since publication of the finding, we have gathered additional information, as a result of three actions: (1) We asked the AOU Committee on Classification and Nomenclature (Committee) to review the available information, particularly the published taxonomic studies of Banks (1988, 1990) and Franzreb and Laymon (1993), and to make a recommendation as to the validity of the yellow-billed cuckoo subspecies; (2) we funded an analysis of the geographic variation in population genetics throughout the species' United States range, conducted by Dr. Robert C. Fleischer, head of the Molecular Genetics Laboratory of the Smithsonian Institution; and (3) we solicited, in our 90-day finding, and during two open comment periods, information regarding the taxonomic status of the species, information on behavioral and ecological differences between eastern and western yellow-billed cuckoos, and other information which might aid in differentiating population segments.

In a letter dated March 10, 2000, we requested the Committee's review of the taxonomic validity of the subspecies, and indicated that this would greatly assist us in preparing the 12-month finding, which would address the potential conservation needs of the species (Service, *in litt.*, 2000). The Committee, consisting of six professional North American ornithologists, responded in a letter

dated November 17, 2000. They agreed with Dr. Bank's original 1988 conclusion that the yellow-billed cuckoo should be considered monotypic, that is, the named western form *C. a. occidentalis* is not a recognizably distinct subspecies. The Committee went on to say that they believe that the differences between the western populations and those in the rest of the range of the species are so small and the degree of overlap so great as to preclude separation at any level compatible with recognition of a subspecies (Committee, *in litt.*, 2000).

On January 14, 2000, the Service and United States Geological Service (USGS) solicited proposals via a market survey, for a genetic analysis throughout the species breeding range in the United States and Mexico (USGS, *in litt.*, 2000). We wanted to determine if a valid subspecies or DPS exists for the yellow-billed cuckoo, and for which a listing proposal could be supported under the Act. From a total of five proposals received, we selected and funded a proposal submitted by Dr. Robert Fleischer. We received the final genetics study prepared by Dr. Fleischer on April 24, 2001. In the report, Dr. Fleischer concluded from his analysis of two mitochondrial genes (ATPase 8 and the control region) sequenced from 66 yellow-billed cuckoos samples across the continental United States and Mexico, that no valid subspecies exists (R. Fleischer, *in litt.*, 2001).

On June 5, 2001, we announced in the **Federal Register** (66 FR 30148), the Notice of Availability of Dr. Fleischer's report, reopened the comment period until June 20, 2001, and sent the report to six professionals in the field of population genetics, or knowledgeable of the life history and distribution of the yellow-billed cuckoo in North America for peer review. The individuals and institutions which were asked to review the study included: Dr. George Barrowclough of the American Museum of Natural History, New York, NY; Dr. Susan Haig of the USGS Forest and Rangeland Ecosystem Science Center; Dr. Eben Paxton of the USGS Colorado Plateau Field Station; Dr. Allen Barker of the Royal Ontario Museum, Ontario, Canada; Dr. Robert Zink, University of Minnesota; and Dr. Oliver Ryder of the Center for Reproduction of Endangered Species, San Diego CA. We received three responses to the six inquiries for review within the comment period. These responses were from Dr. George Barrowclough; Dr. Susan Haig; and Dr. Oliver Ryder.

During this comment period, we received additional review of the study from individuals in the field of

population genetics. These individuals included: Dr. Peter Stacey of the University of New Mexico; Dr. Leo Joseph of the Academy of Natural Sciences Philadelphia, Pennsylvania; Dr. Phil Hedrick of Arizona State University; and Dr. Martin Taylor of the Center for Biological Diversity. We also received comments from the Wyoming Department of Game and Fish. All three of the peer reviewers, and the five reviewers sending additional comments, acknowledged Dr. Fleischer's determination from his study that there was a general lack of differentiation between the eastern and western populations of yellow-billed cuckoo. However, three individuals concluded that there was evidence which suggested that the yellow-billed cuckoo has undergone a recent range expansion and appears to have separated from each other in the relatively recent past. All of the reviews, except that of Dr. George Barrowclough, Dr. Susan Haig, and Wyoming Department of Game and Fish, stated that the use of mitochondrial DNA (mtDNA) sequences for markers would not necessarily show more recent diversions of populations since mtDNA evolve more slowly, and that perhaps other genetic markers would.

Since February 17, 2000, when the first open comment period was announced for the 90-day finding on the petition, we have received information from the public as a result of a mass mailing to over 2,500 individuals including Federal, State and local agencies and Tribes throughout North America. This list was partially created from the 45th edition of the Conservation Directory published annually by the National Wildlife Federation, and The Flock (a biennial membership directory for several North American ornithological societies; The Association of Field Ornithologists, The Waterbird Society, The Cooper Ornithological Society, The Raptor Research Foundation, and The Wilson Ornithological Society). We received over 100 responses from agencies and individuals in the form of letters, reports, survey information and e-mails. We also received additional information from Dr. Steve Laymon, one of the petitioners (S. Laymon, *in litt.*, 2000). This information consisted of additional biological, behavioral, and ecological data and professional correspondence on the yellow-billed cuckoo in support of the petition.

This 12-month finding is made in accordance with a court order which requires us to complete a finding by July 19, 2001 (*Southwest Center for*

*Biological Diversity v. Badgley et al.* (No. 00-1045-KI (D.OR.)).

#### **Distinct Vertebrate Population Segment**

Under the Act, we must consider for listing any species, subspecies, or, for vertebrates, any DPS of these taxa if there is sufficient information to indicate that such action may be warranted. To implement the measures prescribed by the Act and its Congressional guidance, we (along with the National Marine Fisheries Service) developed policy that addresses the recognition of DPSs for potential listing actions (61 FR 4722). The policy allows for more refined application of the Act that better reflects the biological needs of the taxon being considered and avoids the inclusion of entities that do not require its protective measures.

Under our DPS policy, we use two elements to assess whether a population segment under consideration for listing may be recognized as a DPS. The elements are: (1) The population segment's discreteness from the remainder of the taxon, and (2) the population segment's significance to the taxon to which it belongs. If we determine that a population segment being considered for listing represents a DPS, then the level of threat to the population segment is evaluated based on the five listing factors established by the Act to determine if listing it as either threatened or endangered is warranted.

Below, we address under our DPS policy the population segment of yellow-billed cuckoos that occurs in the western United States. The area for this DPS would be the area west of the crest of the Rocky Mountains. For the northern tier of Rocky Mountain States (Montana, Wyoming, northern and central Colorado), the crest coincides with the Continental Divide. In the southern Colorado and New Mexico the crest coincides with the eastern boundary of the Rio Grande drainage, including the Sangre de Cristo Mountains and excluding the drainage of the Pecos River. In west Texas the DPS boundary is the line of mountain ranges that form a southeastern extension of the Rocky Mountains to the Big Bend area of west Texas, and which form the western boundary of the Pecos River drainage.

#### **Discreteness**

A population segment of a vertebrate species may be considered discrete if it satisfies either one of the following two conditions: (1) It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological or behavioral factors. Quantitative measures of genetic

or morphological discontinuity may provide evidence of this separation; and (2) it is delimited by international governmental boundaries within which significant differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist.

The proposed DPS is based primarily on the first of the those two conditions, the marked separation from other populations. In addition, the northern and southern boundaries of the proposed DPS are the international boundaries with Canada and with Mexico. Although observed locally into British Columbia, Canada, in the early 1900s, the yellow-billed cuckoo is believed to have been extirpated from that province (AOU 1998; Hughes 1999).

The status of the yellow-billed cuckoo in Mexico is of great concern because most of its habitat is privately or communally owned, and severe degradation has occurred and continues to occur from grazing, wood cutting, recreation, and agricultural practices (Robert Mesta, Service, *in litt.*, 2001). In addition, the yellow-billed cuckoo is not officially protected by the Mexican government, there are no Federal laws which require mitigation for loss or destruction of habitat, and there is little authority on private and communal lands to protect and manage for the yellow-billed cuckoo without the consent and cooperation of the landowners (R. Mesta, *in litt.*, 2001). The DPS policy allows us to delimit the boundaries of a DPS by international boundaries where differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant in light of section 4(a)(1)(D) of the Act. For the reasons stated above, we believe that these factors collectively play a role in delimiting the southern DPS boundary along the international border with Mexico from the Big Bend area of Texas westward to the Pacific Ocean.

We recognize that yellow-billed cuckoos within the described DPS are not wholly isolated from eastern yellow-billed cuckoo populations by the Rocky Mountain crest in west Texas, and to a lesser extent, further north. As discussed elsewhere, recent genetic data do not support separation of the yellow-billed cuckoo into eastern and western subspecies. Our DPS policy explicitly states that complete reproductive isolation is not required to recognize discreteness of a DPS, and DPS recognition can be appropriate where differences between populations are not sufficiently large to merit recognition of subspecies. Several lines of evidence contributed to our conclusion that the

population of yellow-billed cuckoos west of the Rocky Mountain crest meets the discreteness criteria. This evidence is discussed below.

### Physical Discreteness

Yellow-billed cuckoos breed on both sides of the crest of the Rocky Mountains where suitable habitat occurs (Johnsgard 1986). Although the Rocky Mountains may not wholly prevent movement of yellow-billed cuckoos across the Rocky Mountain crest, the available information indicates that the Rocky Mountains substantially separate yellow-billed cuckoo populations occurring east and west of their crest. In this section, we relate the pattern of yellow-billed cuckoo distribution to geographic and other physical factors. Physical factors also interact with ecological factors, as altitudinal, topographic, and climatic factors influence the distribution of suitable habitat for nesting yellow-billed cuckoos. We address these interactions in the following section on ecological discreteness.

The eastern boundary of the western DPS spans a distance of about 2,400 kilometers (km) (1,500 miles (mi)), from the Montana-Canada border to the Texas-Mexico border in the Big Bend area. As will be detailed below, the degree of separation varies from north to south, but is substantial along more than 87 percent of the boundary, encompassing the DPS boundary from the Canada border to southern New Mexico. From the Canada border to the southern end of the Sangre de Cristo Mountains in northern New Mexico, a distance of about 1,700 km (1,050 mi), nesting birds and habitat in the western DPS are separated physically from nesting yellow-billed cuckoo populations in the east by an extensive high elevation zone of the Rocky Mountains, and/or by extensive areas where records of cuckoos, and cuckoo habitat, are very sparse. This barrier becomes less defined for the small area of northern Santa Fe County and western Mora and San Miguel counties. In this area, cuckoos in the western DPS breed along the Rio Grande near Los Alamos, while it is assumed that eastern cuckoos nest as little as 100 km (60 mi) to the east along the Mora and upper Pecos Rivers (Hubbard 1978; Howe 1986). However, eastern cuckoo records in this area of proximity are few, and the areas of regular cuckoo occurrence (Howe 1986) remain separated by about 200 km (124 mi).

Just to the south of the Sangre de Cristo Mountains, the area of separation broadens again. From here to the New Mexico-Texas border is about 380 km

(236 mi), and a broad band, about 160 km (100 miles) east-west, supports little cuckoo habitat and has very few cuckoo records. The lone exception is a small, isolated riparian area near Alamogordo, where cuckoos regularly occur (Howell 1986). This southern New Mexico zone of separation includes extensive highlands and mountains exceeding 1,800 meters (m) (6,000 feet (ft)) elevation, as well as the desert basin between the Rio Grande and Sacramento Mountains.

In west Texas and southern New Mexico, the physical separation is less marked, where the Rocky Mountains become a series of relatively low, isolated ranges within a high plateau, stretching between the Guadalupe Mountains on the Texas-New Mexico border to the Chisos Mountains in the Big Bend National Park, on the border with Mexico. In this region, the DPS boundary and the separation between eastern and western birds may be less complete than for the rest of the DPS. In our administrative finding for our 90-day finding for this petition (65 FR 8104), we noted the lack of a barrier between the Rio Grande and Gila River drainages in southern New Mexico. This problem is addressed by the DPS boundary, which includes both of these drainages, for reasons described above. The affinity of yellow-billed cuckoos from west Texas is still problematic, however, in that the Pecos River drainage is not strongly separated from the Rio Grande drainage upstream of the Big Bend, and yellow-billed cuckoo movement and interchange across the DPS boundary is expected to be greater in this region than along the rest of the DPS boundary. Such interchange and resulting diffusing of differences may be the reason why west Texas yellow-billed cuckoos have been reported to be morphologically aligned with both eastern yellow-billed cuckoo populations (Hughes 1999) and with western yellow-billed cuckoos. The majority of the available information, including timing of nesting, indicates that birds from Texas west of the Pecos River and from the Big Bend upstream exhibit greater similarity to western yellow-billed cuckoos (Wauer 1973; Oberholser and Kincaid 1974; Franzreb and Laymon 1993; J. Sproul, *in litt.*, 2001). Considering these factors, along with the information on physical factors, we have included west Texas within the western DPS.

In the northern Rocky Mountains and northern Great Plains, from the Canada border south through Colorado, the yellow-billed cuckoo is "extremely rare and local" as a breeding bird (Hughes 1999). While the species breeds locally

in southeast Montana, southern Idaho, northeast and southwest Wyoming, west Colorado, and Utah (Hughes 1999), it is quite rare or absent within the higher Rocky Mountains. An examination of the distributional records for the Rocky Mountain region indicates that within this area of few yellow-billed cuckoos, the species is even more scarce at elevations above approximately 2,000 m (6,600 ft). Most sources describe the species' range as extending up to this elevation (often described as occurring in the Sonoran Life Zones in older works) (Bailey 1928; Bailey and Niedrach 1965; Phillips *et al.* 1964; Johnsgard 1986; Corman and McGill 2000; Hanberg 2000; M. Long, Service, pers. comm., 2001).

Within western Montana and southern Wyoming, the Rocky Mountain crest is less marked. In western Montana, the unoccupied region includes the area west of the Continental Divide, and extends into the panhandle of northern Idaho. The high elevation zone in western Montana narrows to a width of 80 km (50 mi) and sometimes less, where deep river valleys of the Columbia River drainage cut through the high mountains. However, the scarcity of records from this region indicates that nesting west of the Continental Divide in Montana is at most very limited and sporadic (Hughes 1999; P. Hendricks, Montana Natural Heritage Program, *in litt.*, 2001), and the region of effective separation in Montana may be as wide as 800 km (500 mi) (S. Laymon, *in litt.*, 2000). Coupled with the rarity of yellow-billed cuckoos in adjacent areas to the west and east, the available information indicates that the Rocky Mountain region in Montana and northern Idaho forms a wide break between yellow-billed cuckoo populations to the east and west.

Suitable habitat in Wyoming is limited to Park, Fremont, western Hot Springs, and central and eastern Sweetwater counties. However, there is no data which suggests these areas are occupied by yellow-billed cuckoos (P. Deibert, pers. comm., 2001). In southern Wyoming, the crest of the Rocky Mountains dips to near 2,300 m (7,500 ft) to the southeast of the Wind River Range. In this area, the Great Divide Basin forms a high, internal basin which separates the Snake River drainage from the Missouri River drainage. This basin, while not a physical barrier topographically, is a high desert lacking in yellow-billed cuckoo habitat (P. Deibert, pers. comm., 2001; T. Collins, Wyoming Game and Fish Department, pers. comm., 2001). The basin consists mostly of rolling plains, extensive playas and dune fields that receives 2.25

cm (0.9 in.) of precipitation annually (Reiners and Thurston 1996). Although this lower area may be less of a physical barrier to birds, reported yellow-billed cuckoo sites to the east and west in this area are separated by about 240 km (150 mi) of unsuitable habitat, as is true for the rest of the Rocky Mountains' crest from the Montana to Colorado border (Reiners and Thurston 1996; Wyoming Game and Fish, *in litt.*, 2001). Therefore, we find that the appropriate DPS boundary is that which encompasses the Snake River basin, as it follows the southern and western edge of the Great Divide Basin.

In Colorado, the band of high-elevation is over 150 km (100 mi) wide along the entire north-south axis of the Rocky Mountains. The available data indicate that yellow-billed cuckoos was probably never common on the western slope of the Rocky Mountains in Colorado (Bailey and Niedrach 1965; Kingery 1998), and is now extremely rare (Kingery 1998). Based on the available information, the Rocky Mountains in Colorado form a substantial break between yellow-billed cuckoo populations east and west of the crest, a break which is accentuated by the species' current extreme rarity in Colorado west of the Great Plains.

The separation of western and eastern populations of yellow-billed cuckoo continues south along the Rocky Mountain crest into Southern Colorado, eastern New Mexico and southwest Texas, terminating at the Rio Grande river in the Big Bend National Park. Thus, the western yellow-billed cuckoo DPS includes portions of the Rio Grande hydrological basin, and excludes the Pecos River drainage.

The Rio Grande basin differs from the rest of the DPS in that it includes an area which drains to the Gulf of Mexico. However, its inclusion is consistent with the DPS in other respects. First, the DPS boundary follows the crest of the southeastern extent of the Rocky Mountains. This crest region encompasses a series of mountain ranges and other highlands above 1,800 m (6,000 feet), including the Sange de Cristo, Sandia, Manzano, San Andres, Sacramento, and Guadalupe mountains. In this region, the DPS boundary also includes as extensive desert basins, notable the Tularosa and Jornada del Muerto basins. Together, these highlands, mountains, and desert basins, centered on the ranges that divide the Pecos and Rio Grande rivers, form a broad zone that lacks suitable nesting habitat and is expected to separate the eastern and western cuckoo populations, as do the higher mountains along the crest farther north. Second,

ecologically, the portion of the Rio Grande basin within the DPS has greater affinity with the western United States than with the area east of the Rocky Mountains (Graham 1993; U.S. North American Bird Conservation Initiative (NABCI), *in litt.*, 2000; Pashley *et al.* 2000), whereas regions east of the DPS (lower Rio Grande) have greater affinity for the Great Plains and other eastern ecological regions. The riparian habitats in the Rio Grande of New Mexico and west Texas are similar to those occupied by yellow-billed cuckoos in other western regions, being dominated by Fremont cottonwood and willows, whereas most yellow-billed cuckoo habitat along the Pecos River in New Mexico historically lacked cottonwood forests, and today is dominated by non-native tamarisk trees, which have allowed an expansion of the cuckoo population along the Pecos River (W. Howe, pers. comm., 1999; Hunter *et al.* 1988; Ellis 1995). West Texas has been recognized by ecologists as part of a distinct ecological province or region, the Chihuahuan Desert, which is ecologically different from areas to the east which are not within the boundary of this DPS. In fact, the DPS boundary and Chihuahuan Desert boundary closely coincide in west Texas (e.g., see Chihuahuan Desert map at <http://nasa.utep.edu/chih/chihdes.htm>). Third, as discussed elsewhere in this finding, cuckoos nesting along the Rio Grande of west Texas and New Mexico behave as do other western cuckoos in the timing of their spring migration, arriving on their breeding grounds at least 3–4 weeks later than their eastern counterparts (Bailey 1928; Bent 1940; Oberholser and Kincaid 1974; Hughes 1999; Sprull *in litt.* 2000). For these reasons, the crest of the Rocky Mountains presents a clearer geographic and biologic separation in New Mexico and west Texas, than does the Continental Divide.

In general, the western Great Plains region lacks suitable habitat and contributes to the separation between eastern and western yellow-billed cuckoos. However, the Great Plains are not a complete barrier to yellow-billed cuckoos because the species nests in riparian corridors that extend westward towards the Rocky Mountains along tributaries of the Mississippi and Missouri Rivers. These riparian corridors connect with extensive yellow-billed cuckoo habitat to the east that quite possibly support large yellow-billed cuckoo populations, notably in the bottomlands of the Mississippi River and its major tributaries. Thus, these corridors decrease the physical

separation between yellow-billed cuckoos east and west of the Rocky Mountain crest. The effect of these corridors on gene flow and population interchange is unknown. Evidence from other bird species provide examples of boundaries between eastern and western taxa which meet and are maintained in the eastern Rocky Mountain-western Great Plains region (Gill 1989; Ehrlich *et al.* 1988). For example, the ranges of at least fourteen pairs of closely related eastern and western bird species meet in Great Plains, with minimal overlap between the species in most cases (Ehrlich *et al.* 1988). Although the yellow-billed cuckoo question does not involve separate species, this example suggests some underlying differences between eastern and western regions that may help maintain boundaries between species in the area of the Rocky Mountains-Great Plains.

More relevant to the question of separation of yellow-billed cuckoo populations are bird species for which recognized eastern and western bird subspecies meet along a north-south boundary in the Rocky Mountain-western Great Plains region. These species include several which, like the yellow-billed cuckoo, migrate south to neotropical wintering areas: Bell's vireo (*Vireo bellii*) (AOU 1957; Sibley 2000), yellow warbler (*Dendroica petechia*), yellow-rumped warbler (*D. coronata*), and yellow-breasted chat (*Icteria virens*) (Dunn and Garrett 1997). Of further interest and relevance to the question of separateness of western and eastern yellow-billed cuckoos is the evidence that eastern and western subspecies of several species of neotropical migrants winter in separate areas. These species include Bell's vireo (AOU 1957) and yellow warbler, orange-crowned warbler (*Vermivora celata*), Nashville warbler (*V. ruficapilla*), yellow-rumped warbler, Wilson's warbler, and yellow-breasted chat (Dunn and Garrett 1997). These examples indicate that the Rocky Mountains-western Great Plains region does serve to separate populations of other neotropical migrant birds sufficiently to maintain measurable, subspecific differences.

Little is known about the migratory paths of individual species or populations, but some evidence exists to support that eastern and western bird populations tend to follow different migratory paths. First, the primary migratory paths are north-south, parallel to the axis of the Rocky Mountains and most other western mountain ranges, and in general, bird migration in North America is primarily along four north-south routes or flyways (Pacific, Central, Mississippi, and Atlantic) (Ehrlich *et al.*

1988). Thus, eastern and western birds tend to follow distinct migration routes, with western (Pacific flyway) birds following different paths than Great Plains (Central Flyway) and eastern birds (Mississippi, Atlantic flyways). In addition, studies to date in Europe and North America indicate that migrating birds do respond to major topographic features such as mountain ranges (Walcott and Lednor 1983; Williams *et al.* 2001). We are not aware of migration route studies in the Rocky Mountains, but a recent study in the northern Appalachian Mountains found that southbound avian migrants oriented to topography (Williams *et al.* 2001). The authors of that study concluded that, as observed in the Alps of Europe, landforms have a significant guiding effect on migrating birds, with lower-flying birds tending to change course to fly parallel to mountain ridges, and to use passes when their migration route required crossing the axis of a range (Williams *et al.* 2001).

In our 90-day administrative finding for this petition (65 FR 8104), we discussed the fact that the yellow-billed cuckoo is a mobile species, migrating to South America during the non-breeding season. This mobility raises the question of whether 240 km (150 mi) of mountains poses a barrier to movement between populations east and west of the crest of the Rocky Mountains. We are unaware of scientific data which would allow us to directly address the effectiveness of the mountains as a physical separation between yellow-billed cuckoo populations, but some evidence bears on the question. We have already described the observation that a broad area of unsuitable habitat largely separates suitable, occupied habitat east and west of the crest of the Rocky Mountains. Also, many other bird species migrate between Central/South America and North America and have maintained discrete populations or subspecies, which are separated by the Rocky Mountains (Pitelka 1947; Udvardy 1963; Johnsgard 1986).

Data from movements of banded yellow-billed cuckoos provide no evidence of movement between eastern and western yellow-billed cuckoo populations, across the Rocky Mountain crest. Analyzing BBL banding data found that of a total of 8,673 banded yellow-billed cuckoos, of which 26 bands were recovered, no western birds were found east of the Rocky Mountain crest, nor eastern birds recovered west of the crest. While the data provide no evidence for movement between eastern and western yellow-billed cuckoo populations, the sample size is too small to adequately test the hypothesis that

movement is limited between eastern and western regions. Only 251 yellow-billed cuckoos were banded in western States, with only one band recovery. Eight of the 26 recovered birds were found in a State different from where it was banded. Of these, only one significant displacement occurred on an east to west axis, for a bird banded in Iowa and recovered in Pennsylvania.

The extent to which yellow-billed cuckoos nesting in different regions of North America commingle during migration, or while overwintering, is unknown. Data provided by the BBL, from bird band returns to date is insufficient to determine migration or wintering patterns (BBL, *in litt.*, 1998). While some scientists have provided information supporting the hypothesis that yellow-billed cuckoos breeding in the western United States winter in different regions of South America than do yellow-billed cuckoos nesting east of the Rocky Mountains (R. Ridgely, *in litt.* 2000; J. Hughes *in litt.* 2000; S. Laymon *in litt.* 2000), the information available is not sufficient to test the hypothesis.

Western yellow-billed cuckoos have historically occurred and/or still occur in several distinct ecoregions including the Great Basin, Sonoran Desert, Sonoran and Mohave Deserts, Northern Pacific Rainforest, Northern Rockies, Southern Rockies/Colorado Plateau, Coastal California, and Sierra Madre Occidental ecoregions (Graham 1993; NABCI, *in litt.*, 2000; Pashley *et al.* 2000). While these western ecoregions differ in many respects, they are joined by common factors, which also distinguish them from most eastern ecoregions within which yellow-billed cuckoos occur. Foremost among these is the fact that western yellow-billed cuckoo populations occur along narrow and patchy riparian corridors that provide suitable moist deciduous woodlands within otherwise unsuitable arid landscapes. By contrast, east of the Rocky Mountains, the yellow-billed cuckoo occurs in extensive bottomland forests in the Mississippi River and other drainages, as well in deciduous woodlands in non-riparian situations, including deciduous forests such as oak hickory forests, parks, and some suburban areas (Wilson 1999; Amundson *et al.*, *in litt.*, 2000).

#### **Morphological, Physiological, Behavioral, and Genetic Discreteness**

Data collected from publications and other sources demonstrate, to varying degrees of certainty, the existence of morphological, physiological, and behavioral differences between eastern and western yellow-billed cuckoos.

Based on the available information, the best evidence of behavioral/physiological differences between yellow-billed cuckoos populations west and east of the Rocky Mountain crest is differences in the timing of arrival during the spring migration, and the timing of nesting. Several authors have observed that western yellow-billed cuckoos arrive and nest substantially later than do eastern yellow-billed cuckoos (Hughes 1999; Franzreb and Laymon 1993; S. Laymon *in litt.* 2000), while an Arizona study found less of a pattern, but noted that Arizona yellow-billed cuckoos appeared to nest several weeks later than California yellow-billed cuckoos (Hamilton and Hamilton 1965). Franzreb and Laymon (1993) and Hughes (1999) concluded that the nesting season in western States begins a full three to four weeks later than it does east of the Rocky Mountains, and that western yellow-billed cuckoos arrive on their breeding grounds 4 to 8 weeks later than do eastern yellow-billed cuckoos at similar latitudes. One scientist has also suggested that the breeding season of western birds is shorter than for eastern birds, due to later spring arrival and earlier fall departure, and that is evidence of evolved behavioral differences between eastern and western yellow-billed cuckoos (Hughes, *in litt.* to K. Suckling, 2000).

We compared the timing of arrival on breeding grounds from several studies and concluded that there is at least a 3 to 4 week difference in the peak of migration and onset of nesting season, with eastern yellow-billed cuckoos being the earliest (Chapman 1903; Bent 1940; Franzreb and Laymon 1993; Hughes 1999; S. Laymon, *in litt.*, 2000). In our 90-day finding for this petition (65 FR 8104), we speculated that differences in timing of arrival on breeding grounds and in breeding could be the result of genetically-similar birds responding to local environmental cues. We believe this remains as one hypothesis for timing of breeding (Hamilton and Hamilton 1965), although the difference could also reflect genetic-based differences. In the case of timing of arrival on breeding grounds, comments received in response to the 90-day finding (S. Laymon *in litt.*, 2000; J. Hughes *in litt.* to K. Suckling, 2000; Amundson *et al.*, *in litt.*, 2000) provide a persuasive argument that timing of arrival is more likely the result of an evolved response to east-west differences, via mechanisms likely under genetic control.

Other differences between yellow-billed cuckoos in the proposed western DPS and eastern yellow-billed cuckoos

exist and provide additional evidence of discreteness. For example, western yellow-billed cuckoos have larger egg size and weight (mass in grams), with thicker egg shells than the eastern yellow-billed cuckoo (Hughes 1999). This difference may correlate with potential higher egg water loss from hotter, dryer conditions in the west than the east (Hamilton and Hamilton 1965; Ar *et al.* 1974; Rahn and Ar 1974).

Eastern juveniles have been reported to have yellow bills (Oberholser and Kincaid 1974), while western juveniles in California are reported to have all-black bills (Franzreb and Laymon 1993). However, since bill color in juveniles changes from grayish, to yellow and black around the age of 60 days (Hughes 1999), this reported difference needs to be verified, taking into account juvenile age.

Western adult yellow-billed cuckoos have been reported to have an orange lower mandible, while eastern adults have a yellow lower mandible (Franzreb and Laymon 1993; S. Laymon, *in litt.* 2000). No scientific data are available to verify this, and the reported difference has not been the subject of a published scientific study. However, Dr. Stephen Laymon has worked extensively with western yellow-billed cuckoos and is a species expert.

Western adults, on average, are larger and heavier than eastern adult birds. These differences are discussed above and in the literature (Banks 1988, 1990; Franzreb and Laymon 1993; Oberholser and Kincaid 1974), and are evidence of some degree of physical isolation. However, as discussed by Banks (1988, 1990), and in our 90-day administrative finding, the differences are not strong, and may be clinal. We believe that these differences merit further analysis, with greater sample sizes and using a greater number of morphological characteristics.

From the analysis of two different mtDNA genes (control region and ATP8) totaling 736 base pair sequences, Dr. Fleischer concluded that there was significant divergence in haplotype (set of genes that determine different antigens) frequencies between eastern and western samples, which suggests that they may not currently be exchanging many migrants (Fleischer 2001).

In view of the above information, we find that the available information supports the recognition of a western DPS of the yellow-billed cuckoo, as described, based on the physical, ecological, and behavioral discreteness of the population segment.

### Significance

Under our DPS policy, once we have determined that a population segment is discrete, we consider its biological and ecological significance to the larger taxon to which it belongs. This consideration may include, but is not limited to, evidence of the persistence of the discrete population segment in an ecological setting that is unique for the taxon; evidence that loss of the population segment would result in a significant gap in the range of the taxon; evidence that the population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range; and evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics. Significance is not determined by a quantitative analysis, but instead is a qualitative finding. It will vary from species to species and cannot be reduced to a simple formula or flat percentage. We have found substantial evidence that three of these significance factors are met by the discrete population segment of yellow-billed cuckoos that occurs west of the Rocky Mountain crest.

Loss of the western yellow-billed cuckoo population segment would result in loss of the species from the United States west of the continental divide and the Rocky Mountain crest. This represents a loss of the species from about 28 percent of its historic range in the continental United States. If one assumes that the species is already extirpated from the States of Washington and Oregon, the loss would still exceed more than 20 percent of the species' current range, and recent records indicate that the species may still persist in small numbers in eastern Oregon. Because the proportion of the total suitable yellow-billed cuckoo habitat in the west is lower than the proportion of the range (because the cuckoo uses more narrowly circumscribed habitat types in the west than the east), we do not believe that loss of the species from the west would by itself require listing the species as a whole; however, we emphasize that the "significant gap in the range" analysis required for a DPS is different than the "significant portion of the range" analysis required for a listing decision for the entire species. We believe that loss of the species from the United States west of the continental divide and the Rocky Mountain crest would result in a significant gap in the range of the species as a whole.

We discussed above the manners in which the ecological setting used by western yellow-billed cuckoos differs fundamentally from that of eastern yellow-billed cuckoos, because of the western population segment's strong association with non-montane riparian woodlands, contrasting sharply with States east of the Rocky Mountains, where yellow-billed cuckoos nest across a much broader range of habitat conditions. In the western States, the yellow-billed cuckoo occurs primarily in arid regions where riparian woodlands, particularly those which include cottonwood trees as a dominant component, provide ecological conditions which are unique for the region. These conditions are essential to the survival of yellow-billed cuckoo in the west, as well as to the survival of many other riparian-dependent species (Hunter *et al.* 1987; Sanders and Edge 1998; Knopf and Samson 1994).

The western yellow-billed cuckoo populations have persisted over long periods, despite the small number of breeding pairs which breed in relatively isolated areas. Although site fidelity and dispersal patterns have not been studied, a limited number of banding returns from the yellow-billed cuckoo population on the South Fork Kern River in California indicate that adult birds return to the same nesting areas in subsequent years (S. Laymon, *in litt.*, 2000). Although the species is reported to have nomadic tendencies (Hughes 1999), the repeated return from South America each spring to relatively isolated breeding sites is strongly suggestive of site fidelity. A scenario of strong breeding site fidelity, and often isolated breeding populations, combined with most river reaches supporting very few (less than 20) breeding pairs, suggests that local western populations may constitute important isolated units. Under this same scenario, these units may contain important genetic and phenotypic diversity.

While recent analysis of the genetic differences between the eastern and western population segments of yellow-billed cuckoos (Fleischer 2001) indicates that these differences may not rise to the level typical of different subspecies, they do suggest that eastern and western populations are not now exchanging many migrants. Furthermore, analysis of the pattern of variation suggests that yellow-billed cuckoos may have recently (since the last glacial retreat) spread from a refugial population, released by habitat changes as the climate in North America warmed (Fleischer 2001). We believe that the existing western discrete

population segment of yellow-billed cuckoos may represent an early stage of evolutionary differentiation. Loss of this discrete population segment would result in the loss of genetic differences from eastern cuckoos.

### Conclusion

We have evaluated as a DPS the population of western yellow-billed cuckoos from the portion of the United States west of the Rocky Mountain crest, addressing the two elements which our policy requires us to consider in deciding whether a vertebrate population may be recognized as a DPS and considered for listing under the Act. In assessing the population segment's discreteness from the remainder of the taxon, we have described the physical separation, ecological discreteness, behavioral discreteness as reflected in the timing of migration and nesting, and morphologic data. We considered distributional data, ecological, behavioral, morphologic and genetic information, information from banding returns, and geographic and biogeographic patterns and have concluded that this population segment is discrete under our DPS policy. In assessing the population segment's significance to the taxon to which it belongs, we have considered the available information, including the large geographic area represented by the western DPS, its ecological distinctness, which is typified by cottonwood-willow riparian woodlands upon which the western DPS largely depends for breeding, its genetic differences from other cuckoo populations in the eastern United States, and other considerations and factors discussed above. We have concluded that loss of the species from the portion of the United States west of the Rocky Mountain crest would represent a significant gap in the species' range, the loss of the species from a unique ecological setting, and the loss of genetic differences from eastern yellow-billed cuckoos. Therefore, as the population segment meets both the discreteness and significance criteria of our DPS policy, the DPS qualifies for consideration for listing. An evaluation of the level of threat to the DPS based on the five listing factors established by the Act to determine if listing of the DPS follows.

### Summary of Factors Affecting the DPS

Section 4 of the Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act describes the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more

of the five factors described in section 4(a)(1). These factors, and their application to the yellow-billed cuckoo, are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Principal causes of riparian habitat losses are conversion to agricultural and other uses, dams and river flow management, stream channelization and stabilization, and livestock grazing. Available breeding habitats for yellow-billed cuckoos have also been substantially reduced in area and quality by groundwater pumping, and the replacement of native riparian habitats by invasive non-native plants, particularly tamarisk (Groschupf 1987; Rosenberg *et al.* 1991). Estimates of riparian habitat losses include 90–95 percent for Arizona, 90 percent for New Mexico, 90–99 percent for California, and more than 70 percent nationwide (Noss *et al.* 1995; Ohmart 1994). Much of the remaining habitat is in poor condition and heavily affected by human use (U.S. Department of Interior 1994; Almand and Krohn 1978). Fragmentation effects include the loss of patches large enough to sustain local populations, leading to local extinctions, and the potential loss of migratory corridors, affecting the ability to recolonize habitat patches (Hunter 1996).

Dahl (1990) reviewed estimated losses of wetlands between 1780 and the 1980s in the Southwest: California is estimated to have lost 91 percent, Nevada 52 percent, Utah 30 percent, Arizona 36 percent, New Mexico 33 percent, and Texas 52 percent. As much as 90 percent of major lowland riparian habitat has been lost or modified in Arizona (State of Arizona 1990). Franzreb (1987) noted that “(B)ottomland riparian forests are the most highly modified of natural landscapes in California.”

Much of the dramatic decline of the yellow-billed cuckoo in California has been directly attributed to breeding habitat loss from clearing and removal of riparian forest for agriculture, urban development and flood control (Gaines 1974; Gaines and Laymon 1984; Laymon and Halterman 1987b; Launer *et al.* 1990; Hughes 1999). Losses in the Central Valley alone have been relatively large, especially along the Valley's formerly free-flowing rivers such as the Sacramento where, under pristine conditions, broad overflow plains and dense riparian forests extended for up to 8 km (5 mi) from both banks (Service 2000). Following the most intense reclamation and development period, Kabitah (1984)

estimated that Central Valley riparian forests had been reduced by more than 95 percent from historical condition and that a large proportion of remaining forests were in highly disturbed or degraded condition. A recent study of the San Joaquin River between Friant Dam and Merced River confluence found that between 1937 and 1993, the area of riparian forest and scrub decreased 28 percent, from 2,745 to 1,989 ha (6,787 to 4,914 ac) (Jones & Stokes Associates, Inc. 1998).

Suitable habitat for the yellow-billed cuckoo is very limited in Nevada with most areas of cottonwood riparian forests being fragmented (NDW, *in litt.*, 2001). Studies from Great Basin National Park (NPS, *in litt.*, 2001) in the South Snake Mountain Range determined that of the 190 ha (469 ac) of existing riparian habitat only 3 ha (8 ac) was suitable for supporting yellow-billed cuckoo. Most of the suitable habitat along the Truckee, Carson, and Walker Rivers has been modified or destroyed (NDW, *in litt.*, 1985, 1990).

Loss and modification of southwestern riparian habitats have occurred from urban and agricultural development, water diversion and impoundment, channelization, livestock grazing, off-road vehicle and other recreational uses, and hydrological changes resulting from these and other land uses. Rosenberg *et al.* (1991) noted that “it is the cottonwood-willow plant community that has declined most with modern river management.” Loss of the cottonwood-willow riparian forests has had widespread impact on the distribution and abundance of bird species associated with that forest type (Hunter *et al.* 1987; Hunter *et al.* 1988; Rosenberg *et al.* 1991).

Overuse by livestock has been a major factor in the degradation and modification of riparian habitats in the western United States. The effects include changes in plant community structure and species composition, and relative abundance of species and plant density. These changes are often linked to more widespread changes in watershed hydrology (Rea 1983; General Accounting Office (GAO) 1988). Livestock grazing in riparian habitats typically results in reduction of plant species diversity and density, especially of palatable broadleaf plants like willows and cottonwood saplings, and is one of the most common causes of riparian degradation (Carothers 1977; Rickard and Cushing 1982; Cannon and Knopf 1984; Klebenow and Oakleaf 1984; GAO 1988; Clary and Webster 1989; Schultz and Leininger 1990).

Increases in abundance of riparian bird species have followed reduction,

modification, or removal of cattle grazing. Krueper (1993) found the following increases in birds associated with cottonwood-willow habitat on Arizona's San Pedro River 4 years after the removal of livestock: yellow warbler, 606 percent; common yellow-throat, 2,128 percent; yellow-breasted chat, 423 percent. Bock *et al.* (1993) found that 40 percent of the riparian bird species they examined were negatively affected by livestock grazing. As shady, cool, wet areas providing abundant forage, they are disproportionately preferred by livestock over the surrounding xeric uplands (Ames 1977; Valentine *et al.* 1988; A. Johnson 1989). Harris *et al.* (1986) believed that termination of grazing along portions of the South Fork of the Kern River in California was responsible for increases in riparian vegetation.

Another likely factor in the loss and modification of the habitat for yellow-billed cuckoo is the invasion by the non-native tamarisk. Tamarisk was introduced into western North America from the Middle East in the late 1800s as an ornamental windbreak and for erosion control. It has spread rapidly along southwestern watercourses, typically at the expense of native riparian vegetation, especially cottonwood/willow communities. Although tamarisk is present in nearly every southwestern riparian community, its dominance varies. It has replaced some communities entirely, but occurs at a low frequency in others.

The spread and persistence of tamarisk has resulted in significant changes in riparian plant communities. In monotypic tamarisk stands, the most striking change is the loss of community structure and diversity. The multilayered community of herbaceous understory, small shrubs, middle-layer willows, and overstory deciduous trees is often replaced by one monotonous layer. Plant species diversity has declined in many areas, and relative species abundance has shifted in others. Other effects include changes in percent cover, total biomass, fire cycles, thermal regimes, and perhaps insect fauna (Kerpez and Smith 1987; Carothers and Brown 1991; Rosenberg *et al.* 1991; Busch and Smith 1993).

Disturbance regimes imposed by man (e.g., grazing, water diversion, flood control, woodcutting, and vegetation clearing) have facilitated the spread of tamarisk (Behle and Higgins 1959; Kerpez and Smith 1987; Hunter *et al.* 1988; Rosenberg *et al.* 1991). Cattle find tamarisk unpalatable. However, they eat the shoots and seedlings of cottonwood and willow, acting as a selective agent

to shift the relative abundance of these species (Kerpez and Smith 1987). Degradation and, in some cases, loss of native riparian vegetation lowered the water table and has resulted in the loss of perennial flows in some streams. With its deep root system and adaptive reproductive strategy, tamarisk thrives or persists where surface flow has been reduced or lost. Further, tamarisk establishment often results in a self-perpetuating regime of periodic fires, which were uncommon in native riparian woodlands (Busch and Smith 1993).

Manipulation of perennial rivers and streams has resulted in habitats that tend to allow tamarisk to out-compete native vegetation. Construction of dams created impoundments that destroyed native riparian communities. Dams also eliminated or changed flood regimes, which were essential in maintaining native riparian ecosystems (Vogl 1980; Richter and Richter 2000). Changing (usually eliminating) flood regimes provided a competitive edge to tamarisk. In contrast to native, deep-rooted species, tamarisk does not need floods and is intolerant of submersion when young. Diversion of water caused the lowering of near-surface groundwater and reduced the relative success of native species in becoming established. Irrigation water containing high levels of dissolved salts also favors tamarisk, which is more tolerant of high salt levels than most native species (Kerpez and Smith 1987; Busch and Smith 1993).

Conversion to tamarisk typically coincides with reduction or complete loss of bird species strongly associated with cottonwood-willow habitat, including the yellow-billed cuckoo (Hunter *et al.* 1987; Hunter *et al.* 1988; Rosenberg *et al.* 1991). While Brown and Trosset (1989) believed tamarisk may serve as an "ecological equivalent" to native vegetation, they noted that their study occurred where a tamarisk community became established where no native equivalent existed before. This is especially evident along the Pecos River in Texas (Hunter *et al.* 1988).

Water developments also likely reduced and modified yellow-billed cuckoo habitat. The series of dams along most major southwestern rivers (Colorado, Gila, Salt, Verde, Rio Grande, Kern, San Diego, and Mojave) have altered riparian habitats downstream of dams through hydrological changes, vegetational changes, and inundated habitats upstream. New habitat is sometimes created along the shoreline of reservoirs, but this habitat (often tamarisk) is often unstable because of fluctuating levels of regulated reservoirs

(Grinnell 1914; Phillips *et al.* 1964; Rosenberg *et al.* 1991).

Diversion and channelization of natural watercourses are also likely to have reduced yellow-billed cuckoo habitat. Diversion results in diminished surface flows and increased salinity of residual flows. Consequent reductions and composition changes in riparian vegetation are likely. Channelization often alters stream banks and fluvial dynamics necessary to maintain native riparian vegetation (Vogl 1980; Richter and Richter 2000).

River channelization, construction of levees close to the river, and riprap along the levees have fragmented riparian habitat along the Sacramento River and disrupted the ecological processes which both renew and restore riparian and aquatic habitats (Laymon and Halterman 1987a; Halterman 1991; Service 2000). More than one-half of the Sacramento River's banks within the lowermost 312 km (194 mi) of river have been riprapped over the last four decades (Service 2000). The result is that much of the River's remaining riparian habitat now occurs in the form of narrow disconnected linear patches (Service 2000; Halterman *et al.* 2001), unsuitable for yellow-billed cuckoo nesting (Gaines 1974). This may be due to the loss of continuous migration corridors, lack of patches of adequate size for nesting, and the species' inability to use highly isolated patches (Halterman 1991). Exacerbating such problems is the fact that the yellow-billed cuckoo now, for unknown reasons, utilizes a narrower range of habitats in California, now predominantly cottonwood-willow complex, than it did historically (Laymon and Halterman 1987b).

The yellow-billed cuckoo is considered very vulnerable from deforestation of its wintering grounds (Morton 1992), and while losses of neotropical forests and woodlands have been substantial and ongoing, particularly in Central America and northern South America (Hartshorn 1992; Brown and Lomolino 1998), the relationship between overwintering habitat and yellow-billed cuckoo populations has not been studied or documented.

*B. Over-utilization for commercial, recreational, scientific, or educational purposes.* We are unaware of threats resulting from overutilization.

*C. Disease or predation.* We are unaware of any disease or predation that constitutes a significant threat to yellow-billed cuckoos. However, adults have been preyed upon by falcons (Hector 1985; Bob Altman, North American Bird Conservation Initiative,

Northern Pacific Rain Forests Region, Oregon, pers. comm., 2001), and nestlings have been taken by hawks, jays, grackles (Launer *et al.* 1990; Nolan and Thompson 1975), and by various snake and mammal species (Nolan 1963). In eastern Mexico, adults are frequently attacked by raptors during migration (J.K. Wilson, pers. comm., in Hughes 1999; Wilson 1999). In a recent study of 252 yellow-billed cuckoo nests in Arkansas, predation accounted for 91 percent of all nest failures, with small mammals, birds, and reptiles depredate the greatest proportion (Wilson 1999).

*D. The inadequacy of existing regulatory mechanisms.* The Migratory Bird Treaty Act (MBTA) (16 U.S.C. Sec. 703–712) is the only current Federal protection provided the yellow-billed cuckoo. The MBTA prohibits “take” of any migratory bird, which is defined as: “\* \* \* to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect \* \* \* .” However, unlike the Endangered Species Act, there are no provisions in the MBTA preventing habitat destruction unless direct mortality or destruction of active nests occurs.

The majority of the occupied areas west of the Continental Divide for the yellow-billed cuckoo lies within California, Arizona, and New Mexico (Hughes 1999). Only California classifies the yellow-billed cuckoo as endangered (California Department of Fish and Game (CDFG) 2001). In Arizona, the species was formerly State-listed as threatened, but is now considered a Wildlife of Concern, a designation which the Arizona Game and Fish Department now uses for wildlife instead of “threatened”. Neither its past status as threatened nor its current status as a species of concern confers any protection to the species in Arizona. The bird has no special protective status in Wyoming, New Mexico, Colorado, Idaho, or Texas (Groschupf 1987), and habitat protection or protection of individuals is not provided beyond existing regulations on capture, handling, transportation, and take of native wildlife. Utah considers the yellow-billed cuckoo as threatened. In Nevada, the yellow-billed cuckoo is identified as critically imperiled due to extreme rarity, imminent threats, or biological factors, and is proposed for protection as threatened. The California Endangered Species Act (CESA) prohibits unpermitted possession, purchase, sale, or take of listed species. However, the CESA definition of take does not include harm, which under the Act can include destruction of habitat

that actually kills or injures wildlife by significantly impairing essential behavioral patterns (50 CFR 17.3). CESA does require consultation between the CDFG and other State agencies to ensure that activities of State agencies will not jeopardize the continued existence of State-listed species (CERES, *in litt.*, 2001). Yellow-billed cuckoos have no State status in Oregon because it has not been considered an active breeding species since the 1940s (B. Alterman, pers. comm., 2001). In Washington, the yellow-billed cuckoo is considered critically imperiled (five or fewer occurrences). However, no active nesting has been documented since the 1930s. We believe that these, and other regulatory mechanisms, are inadequate to ensure the continued existence of the western DPS of yellow-billed cuckoo.

*E. Other natural or human caused factors affecting the DPS’ continued existence.* Environmental, demographic, and genetic vulnerability to random extinction are recognized as interacting factors that might contribute to a population’s extinction (Hunter 1996). The riparian habitat on which the yellow-billed cuckoo depends has been reduced and degraded throughout the western continental U.S. Its habitat rarity and small, isolated populations make the remaining yellow-billed cuckoo populations in this region increasingly susceptible to local extirpation through stochastic events such as floods, fire, predation, depredation, and land development.

Brood parasitism by the brown-headed cowbird (*Molothrus ater*) has been documented only six times (Wilson, *in litt.*, 1999; Friedmann 1971), and less so by the bronzed cowbird (*Molothrus aeneus*) (Clotfelter and Brush 1995). With an incubation period of 10–13 days, and fledging in 10–11 days, the brown-headed cowbird requires more development time before fledging than the yellow-billed cuckoo. Therefore, successful parasitism of yellow-billed cuckoo nest by brown-headed cowbird is unlikely (Ehrlich *et al.* 1988).

In addition to destruction and degradation of riparian habitats, pesticides may affect yellow-billed cuckoo populations (Groschupf 1987; Hughes 1999). Although the evidence is too limited to evaluate this effect, it warrants further study. In areas where riparian habitat borders agricultural lands, such as in California’s Central Valley, pesticide use may affect yellow-billed cuckoos indirectly by reducing prey numbers, or directly by poisoning nestlings if sprayed in areas where the birds are nesting (Laymon and Halterman 1987b).

Accumulation of chlorinated hydrocarbon pesticides, particularly DDT, has affected other bird species, particularly top predators (Robinson and Bolen 1989). Although DDT use has been banned in the United States since 1972, yellow-billed cuckoos may be exposed to DDT on wintering grounds where DDT use has not been banned. Analysis of two eggs collected in California in 1979 showed very low levels of DDE, a stable metabolite of DDT, but eggshell fragments collected in 1985 from three nests along the South Fork of the Kern River in California averaged 19 percent thinner than pre-DDT era eggshells (Laymon and Halterman 1987b). DDT has caused eggshell thinning in other bird species, but its role in the Kern River observations is unknown.

### Finding

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species. We reviewed the petition, information available in our files, other published and unpublished information submitted to us during the public comment period following our 90-day petition finding, consulted with recognized yellow-billed cuckoo experts, avian molecular geneticists, and other Federal, State, and Tribal resource agencies throughout the country. On the basis of the best scientific and commercial information available, we find that listing the yellow-billed cuckoo western DPS as threatened is warranted, but precluded by higher priority listing actions.

In making this finding, we recognize that there have been declines in the distribution and abundance of yellow-billed cuckoos throughout the western States, primarily attributed to habitat loss, degradation and fragmentation, overgrazing, replacement of native riparian woodland species by tamarisk and other non-native plants, and river management, including altered flow and sediment regimes, and flood control practices, such as channelization and bank protection.

We conclude that the overall magnitude of threats to the western yellow-billed cuckoo DPS is high, and that the overall immediacy of these threats is non-imminent. Pursuant to our Listing Priority Guidance (64 FR 7114), a DPS for which threats are high but non-imminent is assigned a Listing Priority Number of 6. While we conclude that listing the western DPS of the yellow-billed cuckoo is warranted, an immediate proposal to list is precluded by other higher priority listing actions. During this fiscal year,

2001, we must spend nearly all of our Listing Program funding to comply with court orders and judicially approved settlement agreements, which are now our highest priority actions. The western DPS of the yellow-billed cuckoo will be added to the list of candidate species upon publication of this notice of 12-month finding. We will continue to monitor the status of this species and other candidate species. Should an emergency situation develop with one or more of the species, we will act to provide immediate protection, if warranted.

We intend that any proposed listing action for the yellow-billed cuckoo western DPS will be as accurate as possible. Therefore, we will continue to accept additional information and comments from all concerned governmental agencies, the scientific community, industry, or any other interested party concerning this finding. Before we proceed with listing the yellow-billed cuckoo we will solicit a scientific peer review of the DPS boundary.

#### References Cited

A complete list of references cited herein, as well as others, is available upon request from the Sacramento Fish and Wildlife office (see **ADDRESSES** section).

#### Author

This document was prepared by the Sacramento Fish and Wildlife Office (see **ADDRESSES** section).

#### Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: July 18, 2001.

**Marshall P. Jones, Jr.,**

*Acting Director, U.S. Fish and Wildlife Service.*

[FR Doc. 01-18560 Filed 7-24-01; 8:45 am]

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## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

#### 50 CFR Part 679

[Docket No. 010710172-1172-01; I.D. 061301A]

RIN 0648-AL92

#### Fisheries of the Exclusive Economic Zone Off Alaska; Western Alaska Community Development Quota Program

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Proposed rule; request for comments.

**SUMMARY:** NMFS proposes a change in the Community Development Quota (CDQ) regulations for crab to allow the State of Alaska greater flexibility in establishing fishing seasons. This action is proposed to achieve the conservation and management goals for the crab CDQ program and is intended to further the objectives of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Fishery Management Plan for the Bering Sea and Aleutian Islands King and Tanner Crabs (FMP).

**DATES:** Comments on the proposed rule must be submitted on or before August 24, 2001.

**ADDRESSES:** Comments on this proposed rule should be submitted to Sue Salvesson, Assistant Regional Administrator, Sustainable Fisheries Division, Alaska Region, NMFS, P.O. Box 21668, Juneau, AK 99802-1668, Attn: Lori Gravel. Comments may also be sent via facsimile (fax) to 907-586-7465. Comments will not be accepted if submitted via e-mail or Internet. Courier or hand delivery of comments may be made to NMFS in the Federal Building, Room 453, Juneau, AK. Copies of the Draft Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (Draft EA/RIR/IRFA) prepared for this action are available from NMFS (see **ADDRESSES**).

**FOR FURTHER INFORMATION CONTACT:** Gretchen Harrington, 907-586-7228, or gretchen.harrington@noaa.gov.

**SUPPLEMENTARY INFORMATION:** The Magnuson-Stevens Act required the North Pacific Fishery Management Council (Council) and NMFS to establish a CDQ program under which a percentage of the guideline harvest level

(GHL) of Bering Sea and Aleutian Island (BSAI) crab fisheries is allocated to the program. In 1998, NMFS issued regulations implementing the crab CDQ program (50 CFR 679.31; 63 FR 8356, February 19, 1998) and crab CDQ fisheries began that year. Section 305(i)(1)(C)(iii) of the Magnuson-Stevens Act required that 7.5 percent of the total allowable catch of each crab fishery for 2000 and beyond shall be allocated to the crab CDQ program.

Under the FMP, the Council and NMFS defer management of the BSAI king and Tanner crab fisheries, including the CDQ fisheries, to the State of Alaska (State), with Federal oversight. The State/Federal cooperative management regime established in the FMP specifies three categories of management measures that provide the framework for the State management of the crab fisheries, including the determination of the GHLs and fishery seasons. The FMP also provides the State with the authority to manage CDQ crab harvesting activity, including when CDQ fishermen may harvest the CDQ reserve.

The State sets crab fishing seasons according to a shellfish management cycle based on stock assessment surveys conducted in the summer and establishes GHLs for the upcoming fall and winter fishing seasons according to those surveys. The CDQ reserve is a portion of the GHL. Currently, CDQ crab fisheries are conducted after the regular commercial fishery; however, State regulations provide the regulatory flexibility to conduct a CDQ fishery before the regular commercial fishery for snow crab (*Chionoecetes opilio*).

Although Federal regulations implementing the crab CDQ reserve specify that the crab CDQ reserves be allocated by calendar year, the Magnuson-Stevens Act does not dictate when the reserve is available for harvest, only that the reserve be a portion of the annual harvest amount. By allocating to the crab CDQ reserve on a calendar year basis, the State is prevented from conducting a CDQ crab season before the regular commercial fishery for snow crab because of the timing of the snow crab fishing season. The regular commercial fishery for snow crab starts on January 15 and ends when the GHL is harvested. Additionally, State stand-down provisions prohibit vessels that intend to participate in the snow crab fishery from being on the fishing grounds 14 days prior to the opening of the fishery. Thus, a CDQ season before the regular snow crab fishery could only start in December of the previous calendar year.