

## CANDIDATE SPECIES

One candidate species, the yellow-billed cuckoo, has been identified by the FWS to possibly have potentially suitable habitat on the Fishlake National Forest. This species has not been confirmed on the forest, and its presence is unlikely because it is associated with low elevation cottonwood riparian areas with dense understories. Because the lower elevations of the forest occur much higher than this species is known to occur, limited habitat exists on the forest and therefore it is highly unlikely that this species will be located, however, a specific search image for this species has been developed in cooperation with DWR Avian Program Manager, Dr. Frank Howe, Laura Romin FWS wildlife biologist, and Ron Rodriguez, Dixie and Fishlake National Forest Wildlife, Fish, and Rare Plant Program Manager. Since this is the first year that this species has been identified as possibly occurring on the forest, surveys are ongoing, with no birds being located yet.

### **Yellow-billed Cuckoo (*Coccyzus americanus*)**

Western yellow-billed cuckoos are stunning birds not soon forgotten even if seen only once. Adults are about 12" long and slender in profile. They weigh about two ounces. Brownish from above, they have white undersides including their exceptionally long and beautiful tail. The tail is boldly marked with three large black spots. The spots are most conspicuous when the bird is in flight. The bill is stout, slightly down-curved, and generally blue-black. The species is named for the striking yellow base of the lower mandible. Like all members of the Cuculidae family, it has "zygodactyl" feet with two forward and two rearward pointing toes.

Western yellow-billed cuckoos formerly ranged across southern Canada (British Columbia), northern Mexico (Sonora and Chihuahua) and all states west of the Continental Divide/eastern Rio Grande Basin. The eastern boundary of the western yellow-billed cuckoo, as defined by the U.S. Fish & Wildlife Service (2001), is the crest of the Continental Divide in Montana, Wyoming, and northern and central Colorado. In southern Colorado, New Mexico, and Texas, the crests of mountain ranges forming the eastern edge of the Rio Grande watershed define the eastern boundary.

Though limited interactions may possibly occur between eastern and western yellow-billed cuckoos across the Rocky Mountains in the northern part of the range, the probability is limited because cuckoos do not nest at high elevations, and the species is scarce on both the eastern and western slopes of the Rockies. At the southern extent of its range in Texas, mixing of eastern and western cuckoos is more likely as geographic barriers are not as pronounced.

The current breeding range is much smaller than the historic range. As a breeding species, the cuckoo was extirpated from British Columbia in the 1920's, Washington State in the 1930's, and Oregon in the 1940's. Three populations totaling about 40 pairs of birds remain in California on the Sacramento River (between Colusa and Red Bluff), the South Fork of the Kern River, and the lower Colorado River. About 400 pairs probably inhabit rivers throughout Arizona and New Mexico. Another several hundred remain in western Texas. The cuckoo is extremely rare in the rest of the interior west, with a total population that may not exceed 50 pairs. There may be several hundred birds in northern Mexico, but reports are conflicting.

Biologists have generally distinguished western (*Coccyzus americanus occidentalis*) and eastern (*Coccyzus americanus americanus*) subspecies (Franzreb and Laymon 1993, Pruett et al. 2001). The western subspecies was alternatively called the "western" or "California" yellow-billed cuckoo. Others,

however, have questioned whether the difference between the eastern and western birds is sufficient to declare them separate subspecies (Fleischer 2001).

In the FWS determination that the western yellow-billed cuckoo warrants listing as a federally threatened species, the U.S. Fish & Wildlife Service concluded that the subspecific status of the cuckoo remains unknown, but that it qualifies as a "distinct population segment" due to the following differences:

- 1) The western population is separated from the eastern population by the Rocky Mountains in the Montana, Wyoming and the northern and central parts of Colorado, and by the eastern crest of the Rio Grande watershed in southern Colorado, New Mexico, and western Texas.
- 2) Western yellow-billed cuckoos arrive in the U.S. from their South American wintering grounds, and begin to nest, at least 3-4 weeks later than eastern yellow-billed cuckoos. Their nesting period is shorter. The eggs of the western population are larger, heavier, and have a thicker shell, possibly as an evolved protection against desiccation in the west's drier climate.

Western birds are generally larger and heavier, with orange rather than yellow mandibles. Western juveniles have yellow bills, whereas young eastern birds appear to have black bills. Western cuckoos are sharply limited to narrow streamside forests within an otherwise unsuitably arid landscape, while eastern birds occur in broad flood plains, humid upland forests, and occasionally even in suburban areas. There is genetic evidence of long-term (Pruett et al. 2001) and short-term (Fleischer 2001) isolation between eastern and western birds.

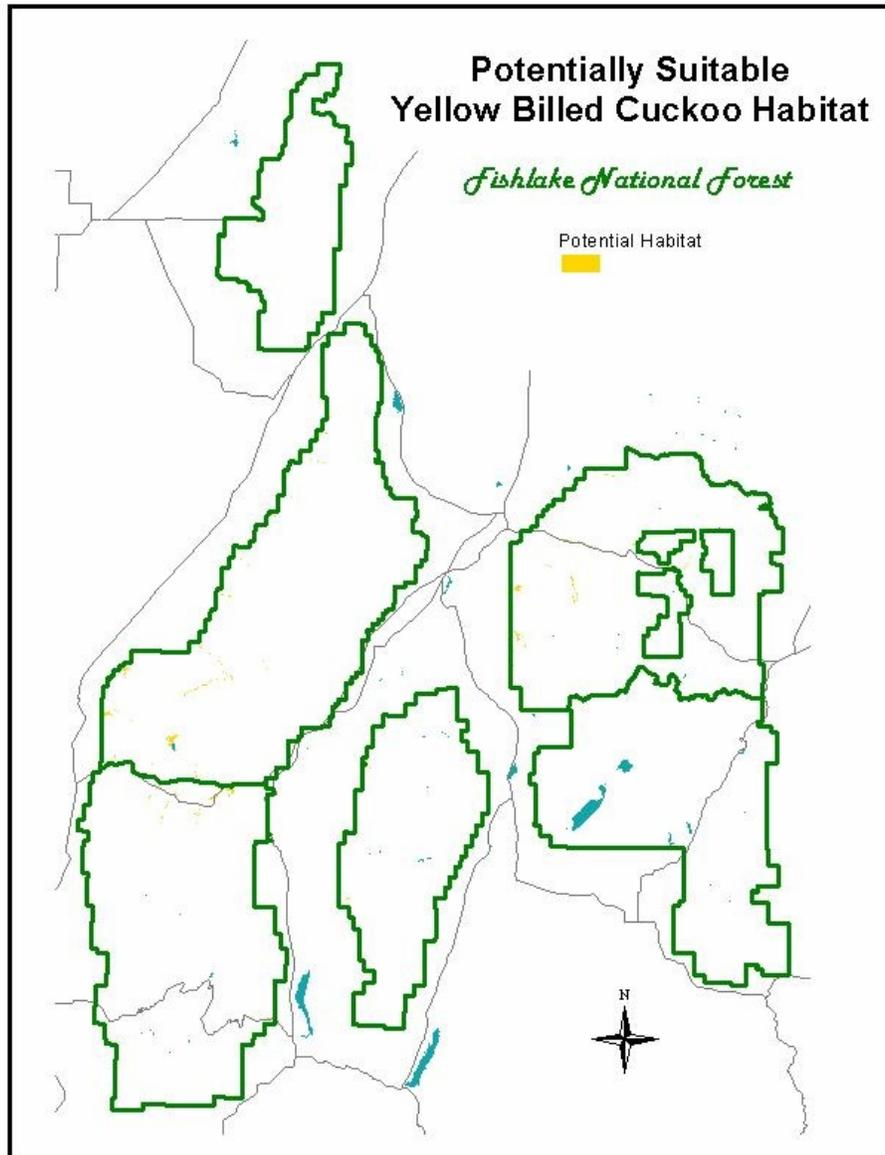
Western yellow-billed cuckoos are obligate riparian nesters—they only breed in streamside forests, especially those dominated by willow and cottonwood stands. The humid, shady environment provided by these forests provides a protective microclimate protecting nesting birds, eggs, and fledglings from the desiccating heat and dryness prevalent in late summer across the western U.S. East of the Continental Divide, where nesting occurs 3-4 weeks earlier and within landscapes which are generally more humid, eastern yellow-billed cuckoos use a broader range of nesting habitats, including some areas of upland forests and parks. Most nesting in the west occurs within relatively large patches of riparian forest, usually 25 to 100 acres in extent. Habitat use and selection in South American wintering grounds is not well known.

Arriving on their western breeding grounds in mid-June and leaving for South America by late August, western yellow-billed cuckoos have the shortest combined incubation/nestling period of any bird species. To find a mate, build a nest, lay eggs, fledge their young, and teach them to fend for themselves in such an incredibly short period of time, western yellow-billed cuckoos have evolved a unique breeding strategy. They typically lay two or three large, heavy, blue eggs. They are among the heaviest eggs of any nidicolous bird. The energy expended to produce such eggs is high—up to 30% of the female's daily intake. The trade-off, however, is that the large eggs allow rapid development of both embryos and nestlings. Indeed, only 17 days pass between egg laying and fledging. This very short time period allows western yellow-billed cuckoos to time their nesting around localized outbreaks of cicadas and tent caterpillars.

Though they occasionally follow the breeding strategy of their European cousins by laying their eggs in the nests of other birds (cuckoos included), this behavior is rare and thus far has not been correlated with any ecological pressures or conditions. Males do up to 30% of the egg incubation. Though unable to fly, the newly fledged young are adept crawlers and may travel up to 150 feet on their first day out of the nest. They are fed for three to four weeks by their parents before beginning their migration to South America.

While yellow-billed cuckoos have been known to eat beetles, cicadas, bugs, wasps, flies, katydids, dragonflies, damselflies, praying mantids, lacewings, mosquito hawks, cankerworms, fall webworms, and even tree frogs, more than 75% of their diet is made up of grasshoppers and caterpillars. The yellow-billed cuckoo is unique among birds in its ability to eat toxic hairy and spiny caterpillars. The tent caterpillar, another insect too hairy for most palates, is commonly eaten as well. The cuckoo's dependence on these insects indicates a highly specialized evolution. They sometimes shear the spines or hair off caterpillars before swallowing them, but not always. Their stomachs are often lined with a carpet of caterpillar hairs and numerous spines often pierce their intestines.

The map displayed below identifies 4,226 acres of potentially suitable habitat for the Yellow-billed cuckoo on the Fishlake National Forest. The search image for the generation of this map was developed based on a conversation with Dr. Frank Howe, Avian Program Manager with the Division of Wildlife Resources, in Salt Lake City, Utah. The search image that was agreed upon was to survey riparian habitats below 7,000 thousand feet, with a cottonwood/willow overstory, and dense brushy understories, with slopes less than 10%.



Based on surveys conducted during the field season of 2002 and 2003, no birds were located. Although no birds have been detected during field reviews, it would be premature to determine that this species does not occur on the Fishlake National Forest.

## **Rabbit Valley gilia (*Gilia caespitosa*)**

Rabbit Valley gilia, a member of the phlox family (Polemoniaceae), grows in clumps from a taproot and branching caudex. It is clothed with persistent leaf bases and is terminated in rosettes of leaves (Spahr et al. 1991). Herbage is glandular, often with adherent sand grains (Atwood et al. 1991). The basal leaves are oblanceolate to linear and 3-20 mm long. Flowering stems (3-8 cm tall) are solitary or few to several per stalk. The petals are scarlet, fading maroon or blue-purple with a 9-17 mm long tube (Spahr et al. 1991). Flowering occurs from June through July with seed set in late July into the end of August.

Rabbit Valley gilia is associated with cliffs, ledges and exposed outcrops, representing eroded or detrital Navajo and Wingate Sandstones. Plants occur in full sun or in shady canyons, on exposed sandstones, cliff walls, to less commonly sandy wash bottoms between 5,200-8,500 feet elevation. This *Gilia* occurs in association with open pinyon-juniper woodlands, which are often mixed with some elements of mountain brush, sagebrush steppe or ponderosa pine forests (USDA et al. 1996).

The Rabbit Valley gilia is restricted to scattered occurrences from the northern Waterpocket Fold to Thousand Lakes Mountain and Rabbit Valley in Wayne County, Utah. This species is a narrow endemic, known only from unstable and faulting soils.

Threats to this species include off-road use, recreational use, road and trail building/maintenance, mining, pesticide use, collection, disease and predation (USDA et al. 1996). Collection for commercial and personal use is thought to be the primary threat to this species. Rabbit Valley gilia is not affected by grazing as it occurs on Carmel Limestone and Navajo sandstone on steep slopes, where cattle grazing does not occur (Atwood et al. 1991).

Rabbit Valley gilia is currently a candidate for federal listing under the Endangered Species Act. A conservation agreement and strategy was written for this species by the Bureau of Land Management, USDA Forest Service, Fish and Wildlife Service, and National Park Service (USDA et al. 1996). Protection measures described in the agreement were designed to achieve long-term conservation of the species so that formal listing would not be warranted.

Rabbit Valley gilia is only known to occur in 4 populations on the Loa Ranger District of the Fishlake National Forest. Recent changes in plant nomenclature have suggested that *Gilia caespitosa* be called *Aliciella cespitosa* (Wonderland alice-flower).