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April 9, 2001

Mr. Ron Senn, District Ranger
Santa Catalina Ranger District
Coronado National Forest
5700 North Sabino Canyon Road
Tucson, Arizona 85750

Dear Mr. Senn:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) based on our review of the proposed Roadway Improvements and Construction of Additional Camping Facilities project within Catalina State Park (the Park), in Pima County, Arizona and its effects on the endangered cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*) (CFPO), the Mexican gray wolf (*Canis lupus baileyi*), the ocelot (*Leopardus pardalis*), the jaguarundi (*Felis yagouaroundi tolteca*), the jaguar (*Panthera onca*), the lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) (LLNB), and their respective habitats, in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

Your November 28, 2000, biological assessment and evaluation (BAE) and cover letter requesting consultation was received on December 1, 2000. Your cover letter requested formal consultation if Service review and analysis concluded the proposed project would likely adversely affect any listed species.

The BAE clearly details the project and your effects determinations for the above listed species. During review and analysis, the Service noted the BAE says the project will not affect the LLNB, which differs from the cover letter that says the project is not likely to adversely affect the LLNB. The Service concurs that the proposed project, as described, will not affect the LLNB. The Service concurs that the proposed project, as described, is not likely to adversely affect the Mexican gray wolf, the ocelot, the jaguarundi, and the jaguar due to the lack of historical or current sightings and lack of contiguous habitat that would allow these species to move as far north as the Santa Catalina Mountains from the International Border with Mexico, where they exist today. These five species will not be addressed further in this biological opinion (See Concurrences section).

Consultation History

The Service received your November 28, 2000, BAE and letter requesting formal consultation on December 1, 2000. After a site visit and meetings between the Service, the Park, the Forest Service, and ADOT, the design and layout of the project underwent significant changes per Service-suggested alterations. The project was re-submitted to the Service. Internal Service review incorporated current CFPO information and needs.

The proposed project will include road widening, paving, and painting road stripes, building a erosion-control berm, constructing an additional campground facility (Campground B), and enlarging the existing Group Use Area. Further detailed descriptions of scope, methods, and vegetation removal are clearly addressed in the BAE and include several maps and tables.

This BO is based on information provided in the November 28, 2000, BAE; the November 23, 1998, scoping letter; several meetings and field investigations between Arizona State Parks personnel, consultants, ADOT personnel, engineers, Arizona Game and Fish Department (AGFD) personnel, and Service personnel (from 1998 through 2001); and other sources of information. A complete administrative record of this consultation is on file at our Phoenix office.

BIOLOGICAL OPINION

I. Description of Proposed Action

Catalina State Park operates on U.S. Forest Service (Forest Service) (Coronado National Forest, Santa Catalina Ranger District) land under a special use permit, which is reviewed annually by the Forest Service. The special use permit covers 15 years at a time. The Arizona Department of Transportation (ADOT), on behalf of the Park, proposes to widen, re-pave, and stripe the main entrance roadway into the Park from its junction at State Route 77, and proceed east to the existing road's end (at the Sutherland Canyon and Romero Canyon trailheads). Paved loop roads and campsites for a new campground will be built just north of the existing campground. Campground B's design is similar to the existing camping facility and features paved back-in and pull-through-style camping spaces. The project will result in a wider entrance road to more safely accommodate vehicle, bicycle, and pedestrian traffic that will occur with the increased capacity of park facilities.

Additional project components include construction of a non-paved erosion-control berm north of the Equestrian Center and a non-paved enlargement of the existing Group Use Area. Trees will not be removed for the berm construction; the enlargement of the Group Use Area will involve the loss of small (stems with six inches diameter breast height or less) trees, some shrubs

and grasses. Construction is scheduled during spring and summer of 2001, which coincides with the CFPO breeding season (February 1 through July 31, annually). The proposed project will disturb a total of 26.12 acres.

The Park will replace about 275 large trees removed, damaged, or destroyed, on a 1:1 ratio, with native stock, likely to be five-gallon size trees. The Park will provide supplemental water and care as needed to ensure 100 percent survival of replaced trees for a minimum of two years.

The Forest Service and the Park defines the project areas as the specific work sites within Catalina State Park. The Service defines the action area to include Catalina State Park and adjacent lands surrounding the Park within 14 air miles; this is based on the average flight distance of a dispersing juvenile CFPO (USFWS 1999).

II. Status of the species/critical habitat

Cactus ferruginous pygmy-owl (CFPO)

A detailed description of the life history and ecology of the CFPO may be found in the Birds of North America (Proudfoot and Johnson 2000), Ecology and Conservation of the Cactus Ferruginous Pygmy-owl in Arizona (Cartron et al. 2000), and other information available at the Arizona Ecological Services Field Office in Phoenix.

The Service listed the Arizona population of the CFPO as a distinct population segment (DPS) on March 10, 1997, effective April 9, 1997 (USFWS 1997). Past and present destruction, modification, or curtailment of habitat is the primary reason for the decrease in population levels of the CFPO. CFPO critical habitat was designated on July 12, 1999 (USFWS 1999), but will not be affected by the proposed project.

CFPOs are small birds, averaging 6.75 inches in length. Reddish-brown overall, with a cream-colored belly streaked with reddish-brown, CFPOs are crepuscular/diurnal, with peak activity periods for foraging and other activities occurring at dawn and dusk.

A variety of vegetation communities are used by CFPOs; riparian woodlands, mesquite “bosques” (Spanish for woodlands), Sonoran desert scrub, and semidesert grassland communities (Brown 1994), as well as nonnative vegetation within these communities. While plant species composition differs among these communities, there are certain unifying characteristics; the presence of vegetation in a fairly dense thicket or woodland, the presence of trees or saguaros large enough to support cavity nesting, and elevations below 4,000 feet.

Over the past several decades, CFPOs have been found primarily to occur in the Arizona Upland Subdivision of the Sonoran Desert, particularly Sonoran desert scrub. In southern Arizona, it consists of paloverde (*Cercidium* spp.), ironwood (*Olneya tesota*), mesquite (*Prosopis* spp.), *Acacia* species, bursage (*Ambrosia* spp.), and columnar (*Cereus* and *Stenocereus* spp.) cacti

(Phillips et al. 1964, Monson and Phillips 1981, Davis and Russell 1984, Johnson and Haight 1985, Johnsgard 1988). In the last few years, CFPOs were found in riparian and xeroriparian habitats and semidesert grasslands as classified by Brown (1994). Desertscrub communities are characterized by an abundance of saguaros or large trees, and a diversity of plant species and vegetation strata. Xeroriparian habitats contain a rich diversity of plants that support a wide array of prey species and provide cover.

CFPOs typically hunt from perches in trees with dense foliage using a perch-and-wait strategy; sufficient cover must be present within their home range for them to successfully hunt and survive. Their diverse diet includes birds, lizards, insects, and small mammals (Bendire 1888, Sutton 1951, Sprunt 1955, Earhart and Johnson 1970, Oberholser 1974), and can include frogs (Proudfoot et al. 1994). Density of annuals and grasses, as well as shrubs, may be important to the CFPO's prey base. Shrubs and large trees also provide protection against aerial predation for juvenile and adult CFPOs and cover from which they may capture prey (Wilcox et al. 2000).

CFPOs are considered non-migratory throughout their range by most authors. CFPOs begin nesting activities in late winter to early spring. In Arizona, CFPO began nesting at different sites and at different time; those may vary by as much as two months (Abbate et al. 1996, S. Richardson unpubl. data). Juvenile CFPO may move as far as one mile in a night; however, they typically fly from tree to tree instead of progressing in long, single flights (S. Richardson unpubl. data). Subsequent surveys during the spring have found that locations of male CFPOs are in the same general location as last observed the preceding fall.

Species status and distribution range wide

The CFPO is one of four subspecies of ferruginous pygmy-owl. CFPOs are known to occur from lowland central Arizona south through western Mexico to the States of Colima and Michoacan, and from southern Texas south through the Mexican States of Tamaulipas and Nuevo Leon. It is currently unclear if the ranges of the eastern and western populations of the ferruginous pygmy-owl merge in southern Mexico; however, genetic information indicates that eastern and western populations of the CFPO may be genetically dissimilar (G. Proudfoot, et al. unpubl. data). Further studies are needed to determine their distribution in Mexico.

The range of the Arizona DPS of the CFPO extends from the International Border with Mexico north to central Arizona. The northernmost historic record for the CFPO in Arizona is from New River, about 35 miles north of Phoenix, where Fisher (1893) reported the CFPO to be "quite common" in thickets of intermixed mesquite and saguaro cactus. According to early surveys referenced in literature, the CFPO, prior to the mid-1900s, was "not uncommon," "of common occurrence," and a "fairly numerous" resident of lowland central and southern Arizona in cottonwood forests, mesquite-cottonwood woodlands, and mesquite bosques along the Gila, Salt, Verde, San Pedro, and Santa Cruz rivers and various tributaries (Breninger 1898, Gilman 1909, Swarth 1914). CFPOs were detected at Dudleyville on the San Pedro River as recently as 1985 and 1986 (Hunter 1988).

Records from the eastern portion of the CFPO's range include a 1876 record from Camp Goodwin (nearby current-day Geronimo) on the Gila River, and a 1978 record from Gillard Hot Springs, also on the Gila River. CFPOs were found as far west as the Cabeza Prieta Tanks in 1955 (Monson 1998).

While the majority of Arizona CFPO detections in the last six years have been from the northwest Tucson area, CFPOs have been detected in southern Pinal County, at OPCNM, on the Buenos Aires National Wildlife Refuge (BANWR), and on the Coronado National Forest CNF).

Arizona surveys conducted in 2000 resulted in 24 confirmed CFPO sites (i.e. nests and resident CFPO sites) and several other unconfirmed sites (S. Richardson unpubl. data, T. Tibbitts unpubl. data). Thirty-four adult CFPOs were confirmed. Nesting was documented at seven sites and 23 fledglings were confirmed; however, as in 1999, greater than 50 percent fledgling mortality was documented (S. Richardson unpubl. data). A total of nine juveniles were known to have successfully dispersed from their natal areas in 2000. Successful dispersal was not confirmed at two nests with four fledglings. The status of the remaining fledglings is unknown; however, they are presumed dead. CFPO are known in the following regions of Arizona:

1. **Tucson Basin** - A total of 14 adults confirmed at 10 sites (11 adults at eight sites in northwest Tucson and three adults at two sites in southern Pinal County). Three nests in northwest Tucson produced 10 fledglings, of which five juveniles successfully dispersed. One nest in southern Pinal County produced five fledglings, of which two juveniles successfully dispersed. There were several unconfirmed CFPO sites.
2. **Altar Valley** - A total of seven adult CFPOs were documented at six sites. One confirmed nest produced four fledglings; four juveniles successfully dispersed from their natal area.
3. **OPCNM** - Six sites were confirmed as active, although nesting was not confirmed at any of these sites.
4. **Other** - There were two confirmed CFPO nest sites reported elsewhere in southern Arizona, producing four fledglings. It is unknown how many of these juveniles successfully dispersed. There were several other reported, but unconfirmed, CFPO sightings elsewhere in the state.

Rangewide Trend

One of most urgent threats to CFPOs in Arizona is the rapid and immense loss and fragmentation of habitat (USFWS 1997, Abbate et al. 1999). The complete removal of vegetation and natural features required for many large-scale and high-density housing and commercial developments directly and indirectly affects CFPO survival and recovery (Abbate et al. 1999).

In northwest Tucson, all currently known CFPO locations, particularly nest sites, are in low-density housing areas where abundant native vegetation separates structures. Additionally, they are adjacent to or near large tracts of undeveloped land. CFPOs appear to use non-native vegetation to a certain extent, and have been observed perching in non-native trees in close proximity to individual residences. The persistence of CFPOs in areas with an abundance of native vegetation indicates that a complete modification of natural conditions likely results in unsuitable habitat conditions for CFPOs. While development activities are occurring in close proximity to CFPO sites, particularly nest sites, overall ambient noise levels are low. When housing density is low, human presence is also generally low. Area roads are typically dirt or two-lane paved roads with low speed limits which minimizes traffic noise. Low density housing areas generally have lower levels of traffic noise because of the limited number of vehicles traveling through the area.

Other factors contributing to the decline of CFPO habitat include the destruction of riparian bottomland forests and bosques. It is estimated that 85 to 90 percent of low-elevation riparian habitats in the southwestern United States have been modified or lost; these alterations and losses are attributed to woodcutting, urban and agricultural encroachment, water diversion and impoundment, channelization, groundwater pumping, livestock overgrazing, and hydrological changes resulting from various land-use practices (e.g., Phillips et al. 1964, Carothers 1977, Kusler 1985, Jahrsdoerfer and Leslie 1988, USFWS 1988, USGAO 1988, Szaro 1989, Dahl 1990, State of Arizona 1990, Bahre 1991).

CFPOs have declined throughout Arizona; its distribution is now extremely limited in the state (Johnson et al. 1979, Monson and Phillips 1981, Davis and Russell 1984, Johnson-Duncan et al. 1988, Millsap and Johnson 1988, Monson 1998). The very few CFPOs known to exist in riparian areas in recent years may reflect the loss of habitat connectivity rather than the lack of suitability (Cartron et al. 2000b).

In the United States, CFPOs are rare and highly sought by bird watchers, who concentrate at a few of the remaining known locations. Limited, conservative bird watching is probably not harmful; however, excessive attention and playing of tape-recorded calls may constitute harassment and affect the occurrence and behavior of the CFPO (Oberholser 1974, Tewes 1993). In 1996, a resident in Tucson reported a CFPO sighting which subsequently was added to a local birding hotline and the location was added to their website on the internet. Several carloads of birders were later observed in the area of the reported location (S. Richardson unpubl.data).

Human activities near nests at critical periods of the nesting cycle can cause CFPOs to abandon their nest sites. Noise disturbance during the breeding season may affect productivity; disturbance outside of this period may affect the energy balance and CFPO survival. Knight and Cole (1995) noted wildlife may respond to noise disturbances during the breeding season by abandoning their nests or young. Disturbance outside of a species' breeding season can have equally severe effects (Skagen et al. 1991). Individual CFPOs may react differently to noise disturbances, with some individuals exhibiting less tolerance than others. Noise can affect

animals by disturbing them to the point that detectable behavioral change occurs. Such behavioral changes can affect activity and energy consumption (Bowles 1995). Dangerous or unfamiliar noises are more likely to arouse wildlife than harmless and familiar noises; habituation is the crucial determinant of success in the presence of noisy disturbances. Noise exposure by some experienced birds may produce no or minimal losses (Black et al. 1984). The habituation process can occur slowly, so it may not be detected in the short-term.

Raptors in frequent contact with human activities tend to be less sensitive to additional noise disturbances than raptors nesting in remote areas, but exposure to direct human harassment may make raptors more sensitive to noise disturbances (Newton 1979). Where prey is abundant, some raptors may even occupy areas of high human activity, such as cities and airports (Newton 1979, Ratcliffe 1980, White et al. 1988). The timing, frequency, and predictability of the noise disturbance may also be factors. Raptors become less sensitive to human disturbance as their nesting cycle progresses (Newton 1979). Studies have suggested that human activities within breeding and nesting territories could affect raptors by changing home range movements (Anderson et al. 1990) and causing nest abandonment (Postovit and Postovit 1987, Porter et al. 1973).

Little is known about the rate or causes of mortality in CFPOs; however, they are susceptible to predation from a wide variety of wildlife species. In Texas, eggs and nestlings were depredated by racoons (*Procyon lotor*) and bullsnakes (*Pituophis melanoleucus*). Both adult and juvenile CFPO are likely killed by great horned owls (*Bubo virginianus*), Harris' hawks (*Parabuteo unicinctus*), Cooper's hawks, and eastern screech-owls (*Otus asio*) (Proudfoot and Johnson 2000, G. Proudfoot unpubl. data). CFPOs are particularly vulnerable to predation and other threats during and shortly after fledging (Abbate et al. 1999). Adequate cover near nest sites may be important for young to fledge successfully (Wilcox et al. 1999, Wilcox et al. 2000). Although nest depredation has not been recorded in Arizona, only a few nests have been monitored (n = 21 from 1996 to 1999). Additional research is needed to determine the effects of predation, including nest depredation, on CFPOs in Arizona and elsewhere.

Another factor that may affect CFPOs is interspecific competition/predation. In Texas, depredation of two adult female CFPOs nesting close to screech-owls was recorded. These incidences were recorded as "depredation by screech-owl" after examination of the CFPO corpses and assessment of circumstances (i.e., one CFPO attempted to nest in a box that was previously used as screech-owl roost site, the other established a nest in a box within 16 feet of a screech-owl nest site. Conversely, CFPOs and screech-owls were also recorded successfully nesting within seven feet of each other in the same tree without interspecific conflict. The relationship between CFPO and other similar small owl species needs further study.

Direct and indirect human-caused mortalities [e.g., collisions with cars, glass windows, fences, power lines, predation by domestic cats (*Felis domesticus*)], while likely uncommon, are also often underestimated, and probably increase as human interactions with owls increase (Banks 1979, Klem 1979, Churcher and Lawton 1987). This may be particularly important in the

Tucson area where many CFPOs are located. CFPOs flying into windows and fences, resulting in serious injuries or death to the birds, have been documented twice. A CFPO collided into a closed window of a parked vehicle; it eventually flew off, but had a dilated pupil in one eye indicating serious neurological injury as the result of this encounter (Abbate et al. 1999). In another incident, an adult owl was found dead on a fence wire; apparently it flew into a fence and died (S. Richardson unpubl. data). AGFD also has documented an incident of individuals shooting BB guns at birds perched on a saguaro which contained an active CFPO nest. In Texas, two adult CFPOs and one fledging were killed by a domestic cat. These owls used a nest box about 246 feet from a human residence. Free-roaming cats can also affect the number of lizards, birds, and other prey species available to CFPOs; however, very little research has been done in the Southwest on this potential problem.

Because CFPOs have been observed moving around the perimeter of golf courses (avoiding non-vegetated areas), roads and other openings may act as barriers to their movements (Abbate et al. 1999, S. Richardson unpubl. data). A radio-tagged dispersing juvenile stopped within 0.7 miles of Interstate 10 where there were large openings and few trees or shrubs, and reversed its direction (Abbate et al. 1999). Radio-tagged, juvenile CFPOs have been observed on several occasions crossing two-lane roads with light to moderately heavy vehicular traffic, where trees and large shrubs were present on either side (Abbate et al. 1999).

Fires can affect CFPOs by altering their habitat (Abbate et al. 1999). A recent fire changed the habitat near an active CFPO nest site (Flesch 1999). Although four mature saguaros in the area survived (at least in the short-term), post-fire mortality of saguaros has been recorded (Steenbergh and Lowe 1977 and 1983, McLaughlin and Bowers 1982). Flesch (1999) also noted that approximately 20 to 30 percent of the mesquite woodland within 164 feet of the nest was fire- or top-killed, and ground cover was also eliminated until the summer monsoon rains. Careful use of prescribed fires in areas potentially suitable for CFPOs is necessary so that habitat is not lost or degraded (Flesch 1999).

Low genetic variability in animals can lead to a reduction in reproductive success and environmental adaptability. Caughley and Gunn (1996) further note that small populations can become extinct entirely by chance even when their members are healthy and the environment favorable. The pairing of siblings or parents with their offspring, particularly in raptors, is rare, and has been documented in only 18 cases, representing seven species (Carlson et al. 1998). Four of these species were owls; barn, burrowing (*Athene cunicularia*), screech, and spotted (*Strix occidentalis*). In 1998 and 1999, two cases of CFPO-sibling pairing and breeding were documented (Abbate et al. 1999). In both cases, young were fledged from the nesting attempts. These unusual pairings may have resulted from extremely low numbers of available mates within their dispersal range, and/or from barriers (including fragmentation of habitat) that influenced dispersal and limited the movement of young owls (Abbate et al. 1999). Further, because the CFPO is nonmigratory, there may be an additional limitation on the flow of genetic material between populations which may reduce the chance of demographic and genetic rescue from immigration from adjacent populations.

Environmental, demographic, and genetic stochasticity, and catastrophes have been identified as interacting factors that may contribute to a population's extinction (Hunter 1996). Environmental stochasticity refers to random variation in habitat quality parameters such as climate, nutrients, water, cover, pollutants, and relationships with other species such as prey, predators, competitors, or pathogens. Demographic stochasticity is uncertainty due to random variation in reproductive success and survivorship of individuals. Genetic stochasticity is the random variation in gene frequencies of a population due to genetic drift, bottlenecks, inbreeding, and similar factors. Catastrophes are events such as wildfires, droughts, or hurricanes that occur randomly. When these factors interact with one another, there are likely to be a combination of effects, such that a random environmental change like habitat fragmentation can result in population and genetic changes by preventing dispersal. These factors are much more likely to cause extinction when a species' numbers are already extremely low. The small, fragmented population of CFPOs in Arizona may not have the ability to resist change or dramatic fluctuations over time caused by one or more of the factors mentioned above.

Soule (1986) notes that very small populations are in extreme jeopardy due to their susceptibility to a variety of factors, including demographic stochasticity, where chance variations in birth and death rates can result in extinction. A series of environmental changes such as habitat reduction can reduce populations to a state in which demographic stochasticity takes hold. In small populations (such as the CFPO in Arizona), each individual is important for its contributions to genetic variability of that population. As discussed above, low genetic variability can lead to a lowering in reproductive success and environmental adaptability, affecting recovery of this species.

III. Environmental Baseline

The environmental baseline includes past and present impacts of all federal, State, or private actions in the action area; the anticipated impacts of all proposed federal actions in the action area that have undergone formal or early section 7 consultation; and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Catalina State Park is located about 15 miles north of Tucson, Arizona, in the western foothills of the Santa Catalina Mountains, at Townships 11 and 12 South, Range 14 East, of the Gila and Salt River Meridian. The Park is within Arizona Upland Sonoran Desertscrub vegetation community (Brown 1994), which includes abundant saguaros on slopes and ridges. Cavities in saguaros and large (greater than six inches diameter breast height, or dbh) trees are often available and favored for nesting use by CFPOs. The Park is more specifically situated in the mesquite-dominated floodplains of Canada del Oro and Sutherland Washes. Because of the primary lack of saguaros in the floodplain area (and the Park), and the scattered arrangement of the large mesquites (open canopy in the plain areas; slightly more closed in the drainages), the affected area does not appear to provide current nesting habitat for CFPOs, but does represent foraging, migrating, and

movement habitat that could facilitate CFPO traveling in or through the area, as well as future nesting habitat for CFPO as trees grow over time.

The action area includes Forest Service, National Park, and Bureau of Land Management lands; these are unlikely to be sold or developed for housing or industry, although there are other possible uses (mining, livestock grazing, woodcutting, and various recreation pursuits). State lands (within and outside the Park boundaries) occur within the action area and provide CFPO habitat of varying quality. Privately owned lands in the action area are being developed for various housing and commercial interests, at varying rates and degrees of density. About half of the action area is Federal and State land; the other half is privately held land, including parts of Oro Valley and northwestern Tucson.

Other human uses occurring in the action area include camping, hiking, birding, photography, off-highway vehicle use (including motorcycles), mining, woodcutting, horse riding, hunting, prescribed fire and/or wildfire.

Status of species in action area

In the early 1990s, Rick Bowers, a Naturalist Magazine photographer (EcoPlan Associates, Inc 2000), encountered a single CFPO in lower Montrose Canyon, about 600 feet south of its confluence with Sutherland Wash. This individual CFPO was encountered once, called repeatedly, but could not be visually verified. AGFD conducted CFPO formal surveys in the Park along riparian areas, hiking trails, and near the Equestrian Center in 1993 and 1995 without detecting any CFPOs. CFPO formal surveys by EcoPlan Associates, Inc. biologists were conducted on March 3, 4, 22, and 23, 1999, and on April 19 and 21, 1999, in the vicinity of the Group Use Area and the Campground B site. On April 5, 1999, a CFPO formal survey was conducted in the hills north of Sutherland Wash (from the end of the main road to the Equestrian Center), and another was conducted on April 6, 1999, along the entrance road from the fee station to the road's end. No CFPO detections were recorded.

Three additional CFPO surveys (February 7, March 3, and April 20, 2000), were conducted in the immediate vicinity of the Group Use Area and site of the future campground (Campground B), using the current CFPO survey protocol (AGFD/USFWS 2000). No CFPO detections were recorded.

AGFD personnel placed nine cavity nest boxes within potential CFPO nesting habitat in the Park during February 2000. Followup monitoring of the boxes in May 2000 showed three of the nine boxes had been used. One box contained a nesting Bewick's wren; the second, a nesting screech owl. The third box held nesting material. No CFPO's were observed using the nest boxes (EcoPlan Associates, Inc. 2000).

Activities occurring in the Park include interpretive hikes and related activities, camping, picnicking, hiking, birding, photography, and horse riding.

Effects of the Action

The proposed project will have short- and long-term effects on suitable CFPO habitat as a result of roadway, group area, and campground improvements. Short-term effects will be an immediate reduction in the number and placement of large (stems with six inches dbh or greater) trees, especially at Campground B, where the potential exists for the trees to grow into nesting CFPO habitat. While an equal number of new trees will be planted, and tree planting will be concentrated in and around the new campground, these trees will not achieve large sizes for some years, slowing the development of potential CFPO nesting habitat at this site. The loss of small trees, shrubs, and grasses throughout the project is not anticipated to have significant effects on CFPO or its prey base.

Direct effects (CFPO mortality) are not anticipated to occur due to the remote chance of CFPO use during the proposed action. Indirect effects reasonably certain to occur are increased visitor use and numbers, noise, light, and human activity; increased chances of negative interactions between CFPO and humans and their pets; and exposure of CFPO to possible predators unconcerned with or attracted to camping and human habitation areas (coyote, racoon, skunk, great horned owls, ravens, etc.).

A total of 26.12 acres of suitable habitat will be disturbed for this project. Widening the incoming and outgoing entrance Park roadways (from 12 feet to 16 feet) and additional paving in the area of the contact station and dump station will occur within the existing roadway clear zone and will result in the loss of 0.25 total acre. This additional 0.25 acre of paved area at the contact station and dump station will result in no loss of large trees (stems of six inches dbh or greater).

Widening the main Park roadway from the fee station to its end will add about 1.84 acres of paved roadway. The clear zone on the south side of the roadway will be extended an additional 10 feet, resulting in the loss of 114 large mesquite, reticulate-leaf hackberry, velvet ash, desert willow, and catclaw trees.

Action to clear off grasses, shrubs, and small (stems of less than six inches dbh) trees at the edges of the existing Group Use Area in 0.53 acre will be determined by Park personnel at the time of clearing. Only shrubs and small trees will be removed, resulting in no loss of large trees.

Campground B construction will disturb about 23.50 acres for creating and paving traffic lanes, vehicle pads, and campsites. Of the 575 large mesquite trees within the Campground B and buffer zone area, 134 will be removed. Large trees removed here will result in a decrease of about 23 percent of the existing CFPO habitat available within the proposed campground site. Trimming of another 27 trees for vehicle traffic clearance will result in the additional decrease in habitat quality, which is difficult to assess but is likely less than one percent. Total CFPO habitat loss within Campground B due to removal and trimming of trees will not exceed 25 percent.

The non-paved erosion-control berm constructed just north of the Equestrian Center will be located along an existing service road and will result in no loss of large trees. Roadway stripe painting actions are not anticipated to affect CFPO.

All large trees removed, damaged, or destroyed as a result of the proposed project will be replaced on a 1:1 basis. The Park will provide supplemental water and care as needed to ensure the survival of replaced trees. Planting will be concentrated in and around Campground B to allow for future growth and improvement in the quantity and quality of CFPO habitat on this relatively large site. While this action will not reduce the disturbance of CFPO habitat, it will supplement current habitat.

V. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Future loss of CFPO habitat continues to occur at a rapid pace through private land housing and commercial development in the action area. State lands in the action area continue to experience different actions (mining, livestock grazing, recreational use) that diminish the quality and quantity of CFPO habitat. These actions are not likely to decrease or cease in the future.

VI. Conclusion

After reviewing the current status of the CFPO, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Roadway Improvements and Construction of Additional Camping Facilities within Catalina State Park is not likely to jeopardize the continued existence of the CFPO. Critical habitat for this species has been designated at various locations within the state; however, this action does not affect that area and no destruction or adverse modification of that critical habitat is anticipated.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which

include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The Service does not anticipate the proposed action will incidentally take any CFPO.

CONSERVATION RECOMMENDATIONS

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

1. The Park should increase the ratio of planted trees from 1:1 to 2:1, using five-gallon nursery stock native trees, primarily planting mesquite and palo verde, and concentrate tree planting in and around Campground B. Watering would be more easily accomplished, and quality and quantity of removed CFPO habitat would show the quickest and greatest improvement here.
2. The Park should coordinate with AGFD in adding a significant number of CFPO nesting boxes in the Park, and aid in nest box monitoring efforts.
3. The Park should continue to cooperate with AGFD and the Service in surveying for CFPO.

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

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action(s) outlined in the request. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must immediately cease pending reinitiation.

Mr. Ron Senn

14

The Service appreciates your efforts on behalf of listed species and the lands they occupy. Please contact Thetis Gamberg (520/670-4619) or Sherry Barrett (520/670-4617) with further concerns or questions.

Sincerely,

/s/ David L. Harlow
Field Supervisor

cc: Regional Director, Fish and Wildlife Service, Albuquerque, NM (ARD-ES)

Terry Johnson, Nongame Branch, Arizona Game and Fish Department, Phoenix, AZ

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CONCURRENCES

Mexican Gray Wolf

The Mexican gray wolf formerly ranged throughout Arizona, except for the extreme regions in the southwest and west. This large canid, weighing up to 125 pounds, is variable in color ranging from light to dark gray often with reddish intermixed. The male is larger overall and its skull is proportionally larger than that of the female. The wolf's large size, massive skull, and heavy teeth serve to distinguish it from the coyote and domestic dogs. Evidence suggests that Arizona's wolves were represented by two subspecies: *C. l. youngi* north of the Mogollon Rim, and *C. l. baileyi* in southeastern Arizona. Records of wolves killed in the southeastern mountains of Arizona would suggest that they were at least present in that area through the early 1900's. Wolves forage over a large area, usually following an irregular, looping route, known as a runway, covered over several days. One such runway in southern Arizona, extending into Sonora, Mexico, was in regular use from 1917 through 1940 and was possibly still in use in 1950. The last wolf known to represent the northern subspecies was killed in 1942 (Hoffmeister 1986). By the late 1950's, a wolf was killed only every few years (Hoffmeister 1986). No sightings have been recorded in the vicinity of the Park.

The Mexican gray wolf has been extirpated from its historic range in Arizona, including the action area, if it were ever present there. Occasional individual wolves may have entered into the southern parts of Arizona from Mexico, but the last regular sightings in the collective southwestern United States were reported in the early 1950s (Hoffmeister 1986). In 1998, the Service re-introduced Mexican gray wolves into the Blue River Canyon Wilderness area of east central Arizona. It is unlikely a wolf or pack would travel from Blue River to the action area or emigrate to the action area from Mexico, as the distance is substantial and the travel routes preferred by these stealthy animals much fragmented with opened canopies and human activity. If a wolf or pack were to enter the action area, there would be reduced habitat due to this project. Although habitat would be reduced, it would be insignificant compared to the preferred, available habitat present elsewhere in the action area and the state. Wolves who could be in the action area could be hit by vehicles or become accustomed, and less intimidated by, human presence. Because of the extremely low likelihood of their presence in action area, the Service concurs the proposed project, as described, is not likely to adversely affect the Mexican gray wolf.

Ocelot

The ocelot is a small cat weighing 15 to 40 pounds and measuring two to three feet in head-to-body length. The upper back ranges in color from grayish to orange-yellow and the sides are generally paler. Dark markings form streaks that run obliquely down the sides of the animal. The underside is white with spots and each cheek bears two black stripes (USFWS 1998). The tail is striped or spotted and individuals in scrubland are darker than individuals in forested or savanna areas. The ocelot is an agile climber and a good swimmer. It preys mainly on small mammals, reptiles, and birds, and generally hunts during twilight hours (Kirby 1993a). Although

the ocelot is considered nocturnal, it is more active during daytime than are most other felids (Hoffmeister 1986).

The presence of ocelot is rare in Arizona, where it prefers brushy or shrubby vegetation, especially along streams and riparian areas. In Texas, the ocelot inhabits dense brush thickets. It is also known to occur in coastal mangroves, humid tropical forests, and in swampy savannas south of the United States. Dense cover is the common habitat component in all known occupied areas. The ocelot ranges south from Arizona to northern Argentina. One specimen was collected about 1960 near Patagonia, Arizona. Since then, few reliable observations have been recorded (Turbak, 1993). Several undocumented sightings of ocelots have been made in recent years (USFWS 1998a). If individuals occur in Pima County, they are likely immigrants from Mexico, as resident Arizona populations are considered extinct. Given the rarity of ocelot sightings in Arizona, the likelihood of their presence in the action area extremely low. No sightings have been recorded in the vicinity of the Park.

While it is possible individual ocelot may occasionally emigrate north into Arizona from Mexico, it is extremely unlikely it would enter the action area, as the distance is substantial and the travel routes preferred by these secretive animals much fragmented with opened canopies and human activity. If an ocelot were to enter the action area, there would be reduced habitat due to this project. Although habitat would be reduced, it would be insignificant compared to the preferred, available habitat present elsewhere in the action area and the state. Ocelot that could be in the action area could be hit by vehicles or become accustomed, and less intimidated by, human presence. Because of the extremely low likelihood of their presence in action area, the Service concurs the proposed project, as described, is not likely to adversely affect the ocelot.

Jaguarundi

The jaguarundi is a small cat, weighing 15 to 20 pounds and reaching a head-to-body length of approximately two to two and one-half feet. The body is elongated with legs that are characteristically short, giving this animal an interesting, disjointed, loping gait. Its coat is unspotted and uniformly reddish, gray or black (USFWS 1998b). Coloration is lighter on the chest and belly. Jaguarundi eat mainly of small mammals, reptiles, and birds, and generally hunt during twilight hours (Kerby 1993a). No sightings have been recorded in the vicinity of the Park.

Preferred habitat for the jaguarundi includes thick lowland forests or dense scrub habitat, as well as savanna areas. The jaguarundi's range extends from northern Argentina northward into Arizona, but the species is very rare in the United States. Specimens have been collected as recently as 1986 in southern Texas and an individual was reported in the Huachuca Mountains in 1938 (Turbak 1993). Hoffmeister (1986) states the jaguarundi is only hypothetical in Arizona, but unconfirmed sightings have been reported from Pima, Cochise, and Santa Cruz counties. Given the rarity of jaguarundi sightings in Arizona, the likelihood of their presence in the action area is extremely low. The Service concurs that the proposed project, as described, is not likely to adversely affect the jaguarundi.

Jaguar

The jaguar is the largest cat species native to the Americas and the Western Hemisphere. It can exceed eight feet in total length and weight varies drastically from as little as 90 pounds to as much as 300 pounds (USFWS 1998c). Adults stand two to three feet tall at the shoulder, with the male generally large than the female by about 20 percent. The fur is usually a yellowish-brown, but color can range from white to black. Similar to many big cat species, spots on the back are arranged in rosettes. The chest is pale with irregular spots on the belly. The lower section of the tail is ringed. Solitary except during breeding season, female jaguar birth a litter of two to four young which remain with the mother through the first two years. Sexual maturity occurs at approximately three years of age. Jaguars maintain a home range up to 200 square miles but individuals have been known to travel up to 500 miles. Preferred habitat is forested wilderness areas with adequate cover, but it ranges through various habitats, including savanna and desert regions (Kerby 1993b).

The jaguar is uncommon in Arizona, but is considered a resident species in the southeastern part of the state, mostly south of the Mogollon Rim. The species has been observed throughout most of southeastern Arizona, as far north as Coconino County (Hoffmeister, 1986). Its range extends from central Patagonia to the southern United States (Kerby 1993b). No known breeding populations exist in the United States but an individual was observed as recently as 1996 in Cochise County (USFWS 1998c). Given the rarity of jaguar sightings in Arizona, the likelihood of their presence in the action area is extremely low. No sightings have been recorded in the vicinity of the Park.

While it is possible individual jaguar may occasionally emigrate north into Arizona from Mexico, it is extremely unlikely they would enter the action area, as the distance is substantial and the travel routes preferred by these secretive animals much fragmented with opened canopies and human activity. If an jaguar were to enter the action area, there would be reduced habitat due to this project. Although habitat would be reduced, it would be insignificant compared to the preferred, available habitat present elsewhere in the action area and the state. Jaguar that could be in the action area could be hit by vehicles or become accustomed, and less intimidated by, human presence. Because of the extremely low likelihood of their presence in action area, the Service concurs the proposed project, as described, is not likely to adversely affect the jaguar.