

**CACTUS FERRUGINOUS PYGMY-OWL SURVEY
FOR THE PROPOSED REPAVEMENT OF
CACTUS FOREST LOOP ROAD,
SAGUARO NATIONAL PARK, PIMA COUNTY,
ARIZONA**

Prepared for

SAGUARO NATIONAL PARK

Prepared by

SWCA ENVIRONMENTAL CONSULTANTS

AUGUST 2004

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FOR THE PROPOSED REPAVEMENT OF CACTUS FOREST LOOP ROAD
SAGUARO NATIONAL PARK, PIMA COUNTY, ARIZONA**

Submitted to

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3693 South Old Spanish Trail
Tucson, Arizona 85730-5699**

Submitted by

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1.0 ABSTRACT

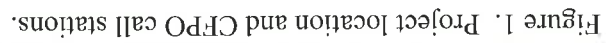
SWCA Environmental Consultants was contracted by Saguaro National Park, Rincon Mountain District, in 2004 to conduct cactus ferruginous pygmy-owl (CFPO) surveys along the Cactus Forest Loop Road and the adjoining roads to the Mica View and Javelina Picnic Areas. No CFPO were detected along this route in 2004 during any of the three surveys that were conducted. CFPO were also not detected in 2003. Given the low rates of CFPO detection in this general area over the past five years and the parameters under which the work will be conducted, it is unlikely that the proposed project will negatively impact any CFPO populations, if present, within Saguaro National Park.

2.0 INTRODUCTION

SWCA Environmental Consultants (SWCA) was contracted by Saguaro National Park, Rincon District, (Park Service) Tucson, Arizona, to conduct cactus ferruginous pygmy-owl (*Glaucidium brasiliannum cactorum*) (CFPO) surveys along the entire Cactus Forest Loop Road, and the adjoining roads to the Mica View and Javelina Picnic Areas (Figure 1). The total length of the route is approximately 9.25 miles. The survey area is located in the east-central portion of Sections 17, 20, 21, 28, 29, 32, and 33 of Township 14 South, Range 16 East, Gila and Salt River Base Meridian, Pima County, Arizona. Elevation in the survey area ranges from approximately 2,800 feet to 3,220 feet above mean sea level (msl). The project area is not located within the proposed critical habitat for CFPO (Federal Register 2003).

On March 10, 1997, the U.S. Fish and Wildlife Service (USFWS) published a final rule to list CFPO as an endangered species in Arizona. In August 2003, the Ninth Circuit Court of Appeals held that the U.S. Fish and Wildlife Service's (USFWS) decision to list the Arizona population of the CFPO as endangered under the Endangered Species Act (ESA) was arbitrary and capricious (National Association of Home Builders v. Norton), and the case was remanded to U.S. District Judge Susan R. Bolton for further proceedings consistent with the opinion. In December 2003, USFWS filed papers asking Judge Bolton to drop the Listing Rule of CFPO. The date for the final designation of critical habitat (September 29, 2003) was vacated in October 2003. On June 28, 2004, Judge Bolton declined to vacate the Listing Rule for CFPO and ordered the USFWS to report to the Court on the status of its reconsideration of the Listing Rule and of its Critical Habitat Designation on or before January 31, 2005. Therefore, pending the outcome of the USFWS's reconsideration, CFPO is still listed and protected as an endangered species under the ESA.

The Park Service is proposing to repave the above named road and requires an evaluation of potential impact of this project to CFPO. Determining the current status of pygmy-owls along the route will provide information that is necessary to assist Park Service personnel in writing the Biological Assessment. This report follows the outline requested by the Park Service and specifically assesses points of information requested.



3.0 DESCRIPTION OF STUDY SITE

3.1 VEGETATION DESCRIPTION

The project area is located in the Arizona Upland subdivision of the Sonoran Desertscrub biotic community (Brown 1994). Within this community, two vegetation types were identified: Sonoran Desertscrub and Xeroriparian Mixed Scrub. The project area has a diverse assemblage of native plant species and undisturbed to lightly developed desert surroundings. Native vegetation within the upland habitat is dominated by foothill palo verde (*Cercidium microphyllum*), velvet mesquite (*Prosopis velutina*), ocotillo (*Fouquieria splendens*) and many scattered mature, branched saguaros (*Carnegeia gigantea*). The mid-story and understory native plants include: creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), fairy duster (*Calliandra eriophylla*), cholla and prickly pear cactus (*Opuntia* spp.), barrel cactus (*Ferocactus wislizenii*) and pincushion cactus (*Mammillaria microcarpa*).

The Cactus Forest Loop Road crosses through many washes that are characterized with Xeroriparian Mixed Scrub vegetation. In general, this vegetation type is similar to what is found in upland areas but plants are usually found in higher densities. Plant species within the washes are dominated by foothill palo verde, desert hackberry (*Celtis pallida*), mesquite, catclaw acacia (*Acacia constricta*), canyon ragweed (*Ambrosia ambrosioides*) and desert broom (*Baccharis sarothroides*). See Appendix A for representative photos of vegetation communities in the project area.

3.1.1 Structural Diversity of Vegetation

Structural diversity was broken up into three canopy cover categories for the two types of vegetation communities in the project area: canopy, mid-story, and understory vegetation species. Dominant plant species within each of those categories are summarized in Table 1.

3.1.2 Composition of Vegetation

No substantial change in the composition of vegetation in the study area was observed between the 2003 and 2004 surveys. Composition of vegetation varies along the length of Cactus Forest Loop Road. Mesquite and palo verde trees, interspersed with areas of dense creosote bush, triangle-leaf bursage, and prickly pear cactus, dominate higher ground along the western and northern portions of the road. There are many scattered mature saguaros present. Mesquites densities increase in and around the wash crossings, where there is also acacia and desert hackberry. The topography becomes steeper towards the east, and saguaros can be found in higher densities among mesquite and palo verde trees. There are scattered stands of ocotillo in places. Along the southern portion of Cactus Forest Loop Road, mesquite, creosote bush and prickly pear cactus are the dominant vegetation.

In consequence of the 1997 U.S. Fish and Wildlife Service (USFWS) final rule to list CFPo as an endangered species in Arizona, biologists must be permitted by the USFWS to conduct surveys for this owl. All surveys were conducted by biologists under USFWS Endangered Species Permits TE798107-0 (issued to SWCA Tucson Office), and TE013149-0 (issued to Thomas Staudt) according to the January 2000 protocol (AGFD and USFWS 2000). The three surveys conducted by SWCA in 2004 complete the first of two consecutive years of surveys as currently recommended by USFWS for project clearance (USFWS 2000). The entire route was surveyed because it fits the description of potentially suitable habitat as defined by the USFWS.

4.0 METHODS

3.1.4 Competitors for Nest Cavities
Potential nest competitors observed within the project area during surveys in 2004 were the same as those observed in 2003: Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chrysoides*), and purple martin (*Progne subis*). Other bird species that may compete with CFPo include European starling, ash-throated flycatcher (*Myiarchus cinerascens*), house sparrow (*Passer domesticus*), elf owl (*Micraethene whitneyi sanfordi*), and western screech-owl (*Otus kennicottii*).

3.1.3 Availability of Nest Cavities
There are numerous potential nest cavities located in a majority of the large saguaros, velvet mesquites, and palo verde trees within the project area.

Vegetation along the road to Mica and Javelina Picnic areas is similar to the western portion of Cactus Forest Loop Road, except that the Javelina Picnic area road has several large stands of ocotillo.

Table 1. Structural Diversity of Vegetation along the Cactus Forest Loop Road Project Area, Saguaro National Park, Pima County, Arizona.			
Overstory Species	Mid-Story Species	Understory Species	
Sonoran Desertscrub velvet mesquite, foothill palo verde, saguaro	creosote bush, brittlebush, ocotillo	cholla, prickly pear cactus, triangle-leaf cactus, bursage, native forbs & grasses	Xeroriparian Mixed Scrub Habitat velvet mesquite, foothill palo verde, catclaw acacia
			white-thorn acacia, desert hackberry, desert broom, canyon ragweed
			native grasses and forbs

Historically, the primary habitat of CFPO in central and southern Arizona was apparently cottonwood-willow forests, mesquite bosques, and Sonoran Desertscrub vegetation communities (USFWS 1997). Geographically, the majority of current CFPO records are concentrated in northwest Tucson and the Altar Valley. The USFWS defines habitat for this owl as "areas below 4,000 feet in elevation characterized by one or more of the following vegetation communities:

Riparian Vegetation, such as cottonwoods, willows, mesquites, ash, or other trees growing along watercourses;
Sonoran desertscrub, particularly areas containing saguaro cactus or other columnar cactus (eight feet or taller), with ironwood, mesquite, palo verde or other trees in association with at least some shrubs (acacia, prickly pear, desert hackberry, graythorn, etc.); or
Semi-desert Grassland, with drainages containing mesquite, hackberry, cottonwood, willow, ash, etc.

Any of these areas with or without saguaros, but which contain the appropriate trees and lower-level cover, are considered suitable if there are individual trees with a trunk diameter of six inches or greater measured at 4.5 feet above the ground." Urban areas within Tucson and Phoenix, as delineated by USFWS, and areas currently devoid of saguaros, other columnar cactus, or trees (such as agricultural fields) are excluded (USFWS 2000).

Thirty-eight call stations for CFPO were established along the project route. Owl surveyors traveled between calling stations, which were placed approximately 400 meters apart, on mountain bicycles for the two survey periods. Locations of the calling stations are shown in Figure 1. All a.m. surveys were conducted within the protocol time period (one hour before sunrise to one after sunrise). Calling times may extend past the two hour period if the last calling point is started before the two hour period ends (pers. comm. S. Richardson, USFWS, 13 August, 2004).

5.0 RESULTS

5.1 SURVEY FINDINGS

No CFPO were detected within or near the Saguaro National Park, Cactus Forest Loop Road project area during the 2004 surveys. On June 23, 2004 a pair of ash-throated flycatchers responded to the taped call by flying up near the surveyor for a few seconds before flying off. Calling stations along the west side of the project area are in close proximity to Old Spanish Trail Road so are prone to background noise caused from vehicles and human activities. However, these noises did not limit the ability of the surveyors to hear potential CFPO within the project area because the surveyors were able to hear other bird species calling within the same area.

Although vegetation association and structure within the project area appears to be suitable for CFPO, the number of both confirmed and unconfirmed sightings within the park has been historically low. The most recent reported sightings occurred in Box Canyon in 1995 (Kline, N., SNP), approximately one mile distant from the southern portion of Cactus Forest Loop Road. A probable, but unconfirmed, detection occurred along the western portion of Cactus Forest Loop Road in 1984, and another probable unconfirmed detection in 2001 within the perimeter of the loop road. There are no records of CFPO from Saguario National Park that have been confirmed by repeated observations by persons known to be

6.0 DISCUSSION

Date	Start Time	End Time	Weather Conditions	No. of Call Stations	Survey Results
02/25/2004	0607	0904	Clear, no breeze, 4-20° C	19	None
02/26/2004	0559	0900	0-5% overcast, no breeze, 3-19° C	19	None
05/12/2004	0430	0727	Clear, no mph breeze, 15-22° C	19	None
05/13/2004	0428	0728	Clear, no breeze, 11-21° C	19	None
06/23/2004	0418	0724	60-90% overcast, 0-2 mph breeze, 19-28° C	19	None
06/24/2004	0418	0717	25-70% overcast, no breeze, 19-32° C	19	None

Table 2. 2004 CFPO Survey Summary along Cactus Loop Project Area, Pima County, Arizona.

This survey represents the first of two consecutive years of CFPO surveys recommended by USFWS, although the project area was surveyed in 2003. The proposed Saguario National Park project is scheduled to begin in May 2005, thus three CFPO surveys will need to be conducted in 2005 before land clearing can occur. If CFPO are not detected in 2005, the survey will be valid from the date of next year's third survey through December 31, 2005. If vegetation clearing is not completed in that time frame and CFPO habitat is still present on January 1, 2006, the USFWS recommends that three additional surveys be completed during the following survey season (January through June) before further land clearing occurs.

Appendix B.

According to USFWS, there are no known owls within the project vicinity. The majority of CFPO have been detected in two general geographical areas in southern Arizona: northwest Tucson and Altar Valley, approximately 25 miles northwest and 50 miles southwest, respectively, of the Rincon Mountain District, Saguario National Park. In addition, past CFPO surveys conducted in the general vicinity of the project area did not detect CFPO. Therefore, it is unlikely that CFPO occur in the project area. A summary of the 2004 survey year efforts is provided in Table 2. Completed CFPO survey forms are provided in

qualified (as evidenced by a permit from USFWS), and there have been no detections by qualified surveyors in the general area east of central Tucson despite multiple surveys over the past five years. Records of CFP in Arizona were common prior to the 1920s, and have been few since then, despite extensive surveys for the species. Possible reasons for this include a reduction of range for this tropical species due to the widespread loss of riparian habitat that has occurred within the last century in Arizona. The declining numbers of CFP records appear to correspond with a decline in broadleaf deciduous riparian vegetation that has happened as a result of widespread water reclamation projects that were initiated in the Southwest after 1902 (Johnson 2003).

7.0 LITERATURE CITED

- AGFD and USFWS (Arizona Game and Fish Department and U.S. Fish and Wildlife Service). 2000 Cactus ferruginous pygmy-owl survey protocol. Revised January 2000. 10pp.
- Brown, D.E. (ed.). 1994 Biotic communities: southwestern United States and northwestern Mexico. University of Utah Press, Salt Lake City. 342 p.
- U.S. Fish and Wildlife Service (USFWS). 1997 Endangered and threatened wildlife and plants; Determination of endangered status for the cactus ferruginous pygmy-owl. Federal Register. 62:10730-10747
- 2000 Recommended guidance for private landowners concerning the cactus ferruginous pygmy-owl.
- 2003 Endangered and threatened wildlife and plants; designation of critical habitat for the Arizona distinct population segment of the cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*). Federal Register. (67)29:71032-71064
- Johnson, R. R., J. E. Cartton, L. T. Haight, R. B. Duncan, and K. J. Kingsley. 2003 Cactus ferruginous pygmy-owl in Arizona, 1872-1971. Southwest Naturalist.
- Kline, N. 2003 Saguaro National Park, Tucson, Arizona. Personal communication with I. Rodden. 15 July 2003.

REPRESENTATIVE PHOTOGRAPHS OF THE PROJECT AREA

APPENDIX A



Photograph 1. Representative upland vegetation near an unpaved pullout along the Cactus Forest Loop Road.



Photograph 2. View of upland vegetation in the project area looking toward the Rincon Mountains



Photograph 3. Xeroriparian vegetation along a major wash crossing within the survey area.



Photograph 4. Unpaved dirt road leading to the Javelina Picnic Area.

2004 CFPO SURVEY FORMS

APPENDIX B

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-0

Project clearance survey ☒ Large area search (research) survey ☐ Date (yyyy/mm/dd): 2004/02/25

Surveyor(s): KIK Investigator Affiliation/Company name: SWCA

Survey route name/description: Cactus Forest Loop

Land ownership (choose one): NPS Quad name (attach map): Tongue Verde Park

Township/Range/Section(s): 29, 28, 29 Elevation (ft.): min. 2860 max. 3151

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 04/18/04 CPO detected (previous survey): ☒ Y

Time of day? ☒ Sunrise ☐ Sunset Official Sunrise/Sunset time: 0656

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

- ☒ AZ upland-Sonoran desertscrub (SDS)
- ☐ Mesoriparian vegetation
- ☐ Xeroriparian vegetation
- ☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 0525 912 N 355 8563

Time (military): 0607 Temp (°): 7 Wind (mph): 0 Cloud (%): 0

END: UTM (end): E 525 396 N 356 1180

Time (military): 0904 Temp (°): 20 Wind (mph): 0 Cloud (%): 0

Moon visible during survey: ☒ Y ☐ N If Yes, Moon phase: new 1/4 1/2 full

Number of call points completed: 10 Length of survey route (m): 4000 meters

Type of player used (brand and model): Radio Shack Powerhorn and Cassette Player

CPO detected? ☒ Y ☐ N If Y, fill out detection form Time detected: Call point detected at: none

Other Avian Responses: (Describe behavior of other bird species responding to CPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 50

Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: Palo Verde

Secondary dominant plant species: Mesquite

Tertiary dominant plant species: creosote bush saguaro

Topographic characteristics: rolling hills

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.):

Birds: great horned owl, cactus wren, western bluebird, house finch

black-throated sparrow, golden-crowned kinglet, white-throated sparrow

northern cardinal, phoebe, white-throated sparrow

Hermit warbler, 200 meters above, northern mockingbird

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107 - 0

☒ Project clearance survey
☐ Large area search (research) survey
 Surveyor(s): R. Llewellyn
 Affiliation/Company name: SWCA
 Date (yyyy/mm/dd): 2004/02/25

Survey route name/description: Cactus Forest Loop Road
 2004 CFP

Land ownership (Choose one): NPS
 Quad. name (Attach map): Jangle Verde Peak
 Township/Range: 14S 16E Section(s): 17, 20, 29 Elevation (ft.): min. 2880 max. 2980

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2003/05/18
 CFPD detected (previous survey): ☒ N
 Time of day? ☒ Sunrise ☐ Sunset
 Official Sunrise/Sunset time: 0656

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):
☒ AZ upland-Sonoran desertscrub (SDS)
☐ Mesoriparian vegetation
☐ Lower Colorado River-SDS
☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83
 START: UTM (start): E 525509 N 3561465
 Time (military): 617 Temp (°C): 4 Wind (mph): 0 Cloud (%): 0
 END: UTM (end): E 526032 N 3563708
 Time (military): 858 Temp (°C): 6.5 Wind (mph): 0 Cloud (%): 0

Moon visible during survey: ☒ Y ☐ N If Yes, Moon phase: new 1/4 1/2 3/4 full
 Number of call points completed: 9 Length of survey route (m): ≈ 1350 m
 Type of player used (brand and model): Radioshack Powerhorn & tape player
 CFPD detected? ☒ Y ☐ N If Y, fill out detection form Time detected: Call point detected at:
 Other Avian Responses: (Describe behavior of other bird species responding to CFPD tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):
 Percent cover for all vegetation - 80
 Number of call points within 10 m of canopy species taller than 2 m - 9

Primary dominant plant species: CEMI, LAR
 Secondary dominant plant species: DRUM, LAR
 Tertiary dominant plant species: BREA, RIV
 Topographic characteristics: rolling foothills of Rincon Mtn
 Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.):
 Coyotes singing 0625
 3 # traffic noise, chain saw
 #3-5

Cactus Ferruginous Pygmy-Owl Survey Form

Project clearance survey ☒ USFWS Permit No.: TE798107-0

Large area search (research) survey ☐ Date (yyyy/mm/dd): 2004/02/26

Surveyor(s): KJ King ☐ Affiliation/Company name: SWCA

Survey route name/description: Cactus Forest Loop

Land ownership (Choose one): NPS

Quad name (Attach map): Tongue Lake Park

Township/Ranger/Section(s): 20/21 Elevation (ft.): min. 2890 max. 3200

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2003/06/18

CFPO detected (previous survey): ☒ Y

Time of day? ☒ Sunrise ☐ Sunset Official Sunrise/Sunset time: 07:55

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS) ☐ Mesoriparian vegetation

☐ Lower Colorado River-SDS ☐ Xeroriparian vegetation

☐ Semidesert grassland ☐ NAD 27 ☐ NAD 83

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 0525 951 N 3562 805

Time (military): 0559 Temp (°C): 3 Wind (mph): 0 Cloud (%): 0

END: UTM (end): E 5276 86 N 3561 717

Time (military): 0900 Temp (°C): 19 Wind (mph): 0 Cloud (%): 5

Moon visible during survey: ☒ Y ☐ N If Yes, Moon phase: new 1/4 1/2 3/4 full

Number of call points completed: 10 Length of survey route (mi): 4000 meters

Type of player used (brand and model): Radioshack Powerhorn and cassette player

CFPO detected? ☒ Y ☐ N (if Y, fill out detection form) Time detected: Call point detected at:

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape) none

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 50

Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: Palo Verde

Secondary dominant plant species: Mesquite

Tertiary dominant plant species: creosote bush

Topographic characteristics: rolling hills

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

unusually dense, forest undergrowth, Gila woodpecker, northern cardinal, gilded finches, black-throated green, canyon towhee, spotted towhee, black-throated sparrow, curve-billed thrasher, white-collared sparrow

CFPO detected? ☐ Y ☐ N (if Y, fill out detection form) Time detected: Call point detected at:

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape) none

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 50

Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: Palo Verde

Secondary dominant plant species: Mesquite

Tertiary dominant plant species: creosote bush

Topographic characteristics: rolling hills

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

unusually dense, forest undergrowth, Gila woodpecker, northern cardinal, gilded finches, black-throated green, canyon towhee, spotted towhee, black-throated sparrow, curve-billed thrasher, white-collared sparrow

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-C

☒ Project clearance survey

☐ Large area search (research) survey

Surveyor(s): R. Lewellyn

Affiliation/Company name: SWCA Inc.

Date (yyyy/mm/dd): 2004/02/26

Survey route name/description:

Cactus Forest Loop Road

Land ownership (choose one):

Federal

Quad name (Attach map): Tanque Verde Peak

Township/Range: 14S 16E

Section(s): 21, 28, 33

Elevation (ft.): min. 3800 max. 3220

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2003/06/14

CFPO detected (previous survey): ☒ N

Official Sunrise/Sunset time: 0655

Time of day? ☒ Sunrise ☐ Sunset

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS)

☐ Mesoriparian vegetation

☐ Xeroriparian vegetation

☐ Lower Colorado River-SDS

☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 527567 N 3561418

Time (military): 0613 Temp (°C): 4.5 Wind (mph): 0 Cloud (%): 0

END: UTM (end): E 524157 N 3558853 Time (military): 1854 Temp (°C): 6.5 Wind (mph): 0 Cloud (%): 0

Moon visible during survey: ☒ N ☐ If Yes, Moon phase: new ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ full

Number of call points completed: 9 Length of survey route (m): ~1350 m

Type of player used (brand and model): Radio Shack Powerhorn & tape player

CFPO detected? ☒ N (if Y, fill out detection form) Time detected: _____ Call point detected at: _____

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 70-80

Number of call points within 10 m of canopy species taller than 2 m - 6

Primary dominant plant species: open, BRBN

Secondary dominant plant species: CEM, CAG1

Tertiary dominant plant species: grass, FOSP

Topographic characteristics: rolling hills of Rincon Mtns

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

Stations 1-3 are upland w/ open being dominant plants.

CRTH are usually the first bird to start calling

Stations 5-9 - this wet habitat has no drops.

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TEO.13149-0

☒ Project clearance survey

☐ Large area search (research) survey

Date (yyyy/mm/dd): 2004, MAY 12

Surveyor(s): THOMAS STANLEY

Affiliation/Company name: SWCA

Survey route name/description: CACTUS FOREST LOOP ROAD

Quadrant name (Attach map): TNAQUE VERDE PK

Land ownership (Choose one): NPS

Section(s): 32, 29 Elevation (ft.): min. 2860 max. 3156

Township/Range: T14S R16E

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 04/22/25

Time of day? ☒ Sunrise ☐ Sunset

Official Sunrise/Sunset time: 0528

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS)

☐ Lower Colorado River-SDS

☐ Mesoriparian vegetation

☐ Semidesert grassland

☐ Xeroriparian vegetation

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 525884 N 3558470

Time (military): 0430 Temp (°C): 15 Wind (mph): 0 Cloud (%): 0

END: UTM (end): E 525411 N 3561138

Time (military): 0625 Temp (°C): 20 Wind (mph): 0 Cloud (%): 0

MOON visible during survey: ☒ N ☐ If Yes, Moon phase: new 1/4 1/2 3/4 full

Number of call points completed: 10

Length of survey route (mi): ~1500

Type of player used (brand and model):

Radio Shack Powerhorn and Cassette Player

CFPO detected? ☒ Y ☐ N (If Y, fill out detection form)

Time detected: Call point detected at:

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

NONE

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 80

Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: Palo Verde

Secondary dominant plant species: Mesquite

Tertiary dominant plant species: Saguaro, Yucca

Topographic characteristics:

Rolling foothills

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

CHT, PORN, AT FLY, WWD, GAW, GTH, LWR, SCAR, BTSP, CBTH

BWR, MOD, CHT, VER, GIL, ENO, BHO, BLF, WIM, HOF, LUM, PRYX

ROAD, FLICKER sp,

NO WATER EVIDENT

5 AUG 05 STAYING TO BLOOM

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-0

Date (yyyy/mm/dd): 2004/05/12

Affiliation/Company name: SWCA

Surveyor(s): R. Leuteny

Survey route name/description: Cactus Forest Loop Road

Quadrant name: Tangut Verde Peak

Land ownership (Choose one): Federal
Township/Range: 14S16E Section(s): 17, 20, 29 Elevation (ft.): min. 2880 max. 2980

Route previously surveyed? ☒ Y ☐ N Date (yyyy/mm/dd): 2004/02/25
CFPO detected (previous survey): ☒ Y ☐ N

Time of day? ☒ Sunrise ☐ Sunset

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

- ☒ AZ upland-Sonoran desertscrub (SDS)
☐ Mesoriparian vegetation
☐ Xeroriparian vegetation
☐ Lower Colorado River-SDS
☐ Semidesert grassland

UTM Datum (Choose one): ☐ NAD 27 ☐ NAD 83

START: UTM (start): E525509 N3961465

Time (military): 446 Temp (°C): 18 Wind (mph): 0 Cloud (%): 0

END: UTM (end): E524032 N3563728

Time (military): 727 Temp (°C): 22 Wind (mph): 0 Cloud (%): 0

Moon visible during survey? ☒ Y ☐ N If Yes, Moon phase: new ☐ 1/4 ☒ 1/2 ☐ 3/4 ☐ full

Number of call points completed: 9 Length of survey route (m): 1350 m
Type of player used (brand and model): Radio Shack Powerhorn and tape player

CFPO detected? ☒ Y ☐ N (If Y, fill out detection form) Time detected: Call point detected at: Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):
Percent cover for all vegetation - 80
Number of call points within 10 m of canopy species taller than 2 m - 9

Primary dominant plant species: CSM, LAR
Secondary dominant plant species: OOH, CAG
Tertiary dominant plant species: BRB, DVE
Topographic characteristics: rolling foothills of Lincoln Mts
Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)
ATC's all singing on top of saguaro.
Two drinking from ATC's water trough.
A pair of cowbirds feeding in ATC's blossom.

1-pr of Huge Ravens!
Sitting, walking around near
nest going to picnic area

ABT @ picnic area, none
as least time

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE 013149-0

☒ Project clearance survey

☐ Large area search (research) survey

Surveyor(s): THOMAS STANDT Affiliation/Company name: SWCA
Date (yyyy/mm/dd): 2004 MAY 13
Survey route name/description: CACTUS FOREST LOOP RD

Land ownership (Choose one): NPS Quad. name (Attach map): THOMAS STANDT
Township/Range: T14S R16E Section(s): 20, 21 Elevation (ft.): min. 2890 max. 3200

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 04/02/26 CFPO detected (previous survey): ☒ N
Time of day? ☒ Sunrise ☐ Sunset Official Sunrise/Sunset time: 0527

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

- ☒ AZ upland-Sonoran desertscrub (SDS) ☐ Mesoriparian vegetation
☐ Lower Colorado River-SDS ☐ Xeroriparian vegetation
☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83
START: UTM (start): E 525960 N 3562905 Wind (mph): 0 Cloud (%): 0
END: UTM (end): E 527689 N 3561628 Wind (mph): 0 Cloud (%): 0
Time (military): 0508 Temp (°): 11
Time (military): 0725 Temp (°): 21 Wind (mph): 0 Cloud (%): 0

Moon visible during survey: ☒ N If Yes, Moon phase: new ☐ 1/4 ☐ 1/2 ☐ 3/4 ☐ full
Number of call points completed: 10 Length of survey route (m): 4000
Type of player used (brand and model): Radio Shack Powerhorn and cassette Player

CFPO detected? ☒ N (If Y, fill out detection form) Time detected: _____ Call point detected at: _____
Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape) NONE

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):
Percent cover for all vegetation - 80
Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: PHILO VENDE
Secondary dominant plant species: MFCO, YTB
Tertiary dominant plant species: CERESOTE, SAGUARO
Topographic characteristics: ROLLING FOOTHILLS
Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)
CHT, LAQU, MOD, BLE, BEAR, CBTH, LUWA, RUSP, LEVI, GILN
LBWP, PAY, CYWR, WUB, LUWA, VEB, BTSP, CAD, CHSP, BGR
GIL

NO WATER VISIBLE

Cactus Ferruginous Pygmy-Owl Survey Form

☒ Project clearance survey

USFWS Permit No.: TE 798107-0

☐ Large area search (research) survey

Surveyor(s): R. Newell
Date (yyyy/mm/dd): 2004/05/13

Affiliation/Company name: SWCA

Survey route name/description:

Cactus Forest Loop Road

Saguaro Nat. Park

Land ownership (Choose one): Federal Quad. name (Attach map): Jangue Verde Peak

Township/Range: 14S 16E Section(s): 21, 28, 33 Elevation (ft.): min. 3000 max. 3220

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2004/02/26

Time of day? ☒ Sunrise ☐ Sunset

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS)

☐ Mesoriparian vegetation

☐ Xeroriparian vegetation

☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 527568 N 3561412

Time (military): 0436 Temp (°C): 17 Wind (mph): 0 Cloud (%): 0

END: UTM (end): E 526159 N 3558848

Time (military): 0728 Temp (°C): 20 Wind (mph): 0 Cloud (%): 0

Moon visible during survey? ☒ N ☐ If Yes, Moon phase: new ☒ 1/4 ☐ 1/2 ☐ 3/4 ☐ full

Number of call points completed: 9 Length of survey route (m): ~1400

Type of player used (brand and model): Radioshack Power-horn and tape player

CFPO detected? ☒ Y (if Y, fill out detection form) Time detected: Call point detected at:

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 70-80

Number of call points within 10 m of canopy species taller than 2 m - 9

Primary dominant plant species: Opuntia, BBG

Secondary dominant plant species: Cereus, Agave

Tertiary dominant plant species: Yucca, Joshua, LITR

Topographic characteristics: rolling hills of Lincoln Mtns.

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-0

☒ Project clearance survey

Date (yyyy/mm/dd): 2004/06/23

☐ Large area search (research) survey

Affiliation/Company name: SWCA Inc.

Surveyor(s): R. Llewellyn

Survey route name/description:

Cactus forest loop Road

Land ownership (Choose one): Federal

Quadrant name (Attach map): Tangier Verde Peak

Township/Range: 14S 16E Section(s): 17, 20 Elevation (ft.): min. 3000 max. 3220

Route previously surveyed? ☒ Yes ☐ No Date (yyyy/mm/dd): 2004/05/13

CFPO detected (previous survey): ☒ Yes ☐ No

Official Sunrise/Sunset time: 0518

Time of day? ☒ Sunrise ☐ Sunset

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS)

☐ Mesoriparian vegetation

☐ Xeroriparian vegetation

☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 525528 N 356145

Time (military): 0424 Temp (°C): 19 Wind (mph): 0 Cloud (%): 60

END: UTM (end): E 526031 N 3523710

Time (military): 0724 Temp (°C): 22 Wind (mph): 1 Cloud (%): 80

Moon visible during survey: ☒ Yes ☐ No If Yes, Moon phase: new 1/4 1/2 3/4 full

Number of call points completed: 9 Length of survey route (m): ~4000

Type of player used (brand and model): Radioshack Powerhorn & tape player

CFPO detected? ☒ Yes ☐ No (if Y, fill out detection form) Time detected: Call point detected at:

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

@ #3 a pair of ATFL were nearby and flew up-curious about the call - then flew off a few seconds later

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 70

Number of call points within 10 m of canopy species taller than 2 m - 9

Primary dominant plant species: cem, pine

Secondary dominant plant species: Aceo, opum

Tertiary dominant plant species: CAM, BBW

Topographic characteristics: rolling hills of Rincon Mtno

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

a pair of Purple Martins are nesting in the large square at the corner leading to the mesa picnic area (#5)

1-pr grouse | newborn babies (6-7) @ #8

yg. flickers on a CAM

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-0

☒ Project clearance survey

☐ Large area search (research) survey

Date (yyyy/mm/dd): 2004/06/23

Surveyor(s): KJ Kinesley Affiliation/Company name: SWCA

Survey route name/description: SAGUARO NP CACTUS FOREST LOOP ROAD

Land ownership (Choose one): NPS Quad name (Attach map): TANQUE VERDE PEAK

Township/Range: 14S 16E Section(s): 32, 29 Elevation (ft.): min. 2860 max. 3157

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2004/05/12

Time of day? ☒ Sunrise ☐ Sunset Official Sunrise/Sunset time: 05:18

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS) ☐ Mesoriparian vegetation

☐ Lower Colorado River-SDS ☐ Xeroriparian vegetation

☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 525915 N 3558370

Time (military): 0418 Temp (°C): 24 Wind (mph): 0 Cloud (%): 90

END: UTM (end): E 525513 N 3561458

Time (military): 0711 Temp (°C): 30 Wind (mph): 2 Cloud (%): 90

Moon visible during survey: ☒ N If Yes, Moon phase: new 1/4 1/2 3/4 full

Number of call points completed: 10 Length of survey route (mi): 4000

Type of player used (brand and model): Radioshack Powerhorn and Cassette Player

CFPO detected? ☒ N If Y, fill out detection form Time detected: Call point detected at: none

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 50

Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: Palo Verde

Secondary dominant plant species: Mesquite

Tertiary dominant plant species: Mesquite, sagebrush, rolling hills

Topographic characteristics: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

Birds: poor with lower light hawk, cowbirds, gila woodpeckers

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-0

☒ Project clearance survey

☐ Large area search (research) survey
Surveyor(s): R. Llewellyn
Date (yyyy/mm/dd): 2004/06/24

Affiliation/Company name: SWCA Inc.

Survey route name/description:

Cactus forest loop Road - Saguardo N.P.

Land ownership (Choose one): Federal
Quad. name (Attach map): Tanguit Verde Peak
Township/Range: 14S 16E Section(s): 21, 28, 33 Elevation (ft.): min. 3060 max. 3225

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2004/05/13
CFPO detected (previous survey): ☒ N

Time of day? ☒ Sunrise ☐ Sunset
Official Sunrise/Sunset time: 0518

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

- ☒ AZ upland-Sonoran desertscrub (SDS)
☐ Mesoriparian vegetation
☐ Xeroriparian vegetation
☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (start): E 527562 N 3562410

Time (military): 0426 Temp (°): 19 Wind (mph): 0 Cloud (%): 70

END: UTM (end): E 526154 N 3558849

Time (military): 714 Temp (°): 28 Wind (mph): 0 Cloud (%): 40

Moon visible during survey: ☒ N If Yes, Moon phase: new 1/4 1/2 3/4 full

Number of call points completed: 9 Length of survey route (m): ~1500

Type of player used (brand and model): Radioshack Powerhorn & tape player

CFPO detected? ☒ N (if Y, fill out detection form) Time detected: Call point detected at:

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 70-80

Number of call points within 10 m of canopy species taller than 2 m - 9

Primary dominant plant species: Opuntia, B. B. B.

Secondary dominant plant species: Ceanothus, Ceanothus

Tertiary dominant plant species: Yucca, Yucca, Yucca

Topographic characteristics: Rolling hills of Rincon Mts

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.)

First rain last night/early am. Saw 3 DOR CRAT after and P. Solare.

Cactus Ferruginous Pygmy-Owl Survey Form

USFWS Permit No.: TE798107-0

☒ Project clearance survey
☐ Large area search (research) survey
Surveyor(s): KAKUSLEY
Affiliation/Company name: SWCA
Date (yyyy/mm/dd): 2004/06/24
Survey route name/description: SAGUARO NP Cactus Forest Loop

Land ownership (Choose one): NPS
Quad name (Attach map): Laguna Verde Park
Township/Range: 14 S 16 E Section(s): 20, 21 Elevation (ft.): min. 2890 max. 3200

Route previously surveyed? ☒ N Date (yyyy/mm/dd): 2004/05/13
Time of day? ☒ Sunrise ☐ Sunset
Official Sunrise/Sunset time: 0518

Habitat type (Brown 1994) (Choose one, if characteristics of another type are found detail in Habitat section below):

☒ AZ upland-Sonoran desertscrub (SDS)
☐ Mesoriparian vegetation
☐ Xeroriparian vegetation

☐ Semidesert grassland

UTM Datum (Choose one): ☒ NAD 27 ☐ NAD 83

START: UTM (East): E 525953 N3522801

Time (military): 0418 Temp (°C): 25 Wind (mph): 0 Cloud (%): 70

END: UTM (East): E 527518 N 3521005

Time (military): 0717 Temp (°C): 32 Wind (mph): 0 Cloud (%): 25

Moon visible during survey: ☒ Y ☐ N If Yes, Moon phase: new 1/4 3/4 full

Number of call points completed: 10 Length of survey route (m): 4000

Type of player used (brand and model): Radioshack Powerhorn and Cassette Player

CFPO detected? ☒ Y ☐ N (If Y, fill out detection form) Time detected: Call point detected at: none

Other Avian Responses: (Describe behavior of other bird species responding to CFPO tape)

Habitat: (Note the habitat conditions across the survey area, make note of any significant variation in habitat in additional comments):

Percent cover for all vegetation - 50

Number of call points within 10 m of canopy species taller than 2 m - 10

Primary dominant plant species: Palo Verde

Secondary dominant plant species: Mesquite

Tertiary dominant plant species: creosote bush, saguaro

Topographic characteristics: rolling hills

Additional comments: (Note disturbances, observed water sources, other birds observations, unique habitat features, etc.):

Birds perched within great horned owl's eff owl, canyon below

birds perched within great horned owl's, creosote bush, creosote bush

birds perched within great horned owl's, creosote bush, creosote bush

birds perched within great horned owl's, creosote bush, creosote bush

birds perched within great horned owl's, creosote bush, creosote bush

birds perched within great horned owl's, creosote bush, creosote bush