# 2011 RAPTOR SURVEYS OF MINE AREA AND VICINITY

# **RESOLUTION COPPER MINING**

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**July 2012** Project No. 807.50

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(follow text)

Attachment 1. Data sheets from 2011 Raptor survey

## **EXECUTIVE SUMMARY**

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Mining, LLC (RCM) to conduct a raptor survey near Superior, Pinal County, Arizona. The survey was conducted on lands administered by the Arizona State Land Department (State Lands), lands administered by the US Forest Service (Tonto National Forest [TNF]), and private lands owned by RCM. These areas are being studied as sites for facilities that may be needed to develop the Resolution Copper Mine. Apache Leap, the Mine Area, Queen Creek, Devils Canyon, and Mineral Creek comprise the Study Area. The purpose of the survey was to locate raptor nesting territories and to monitor existing locations of raptors in the Study Area in order to contribute to baseline of information that will be available to analyze potential impacts of proposed mine features. This report provides an inventory of the birds observed as well as a discussion of results from the field surveys. Also included are the results of several years of raptor surveys that WestLand has conducted as part of the multi-year baseline study effort.

During the 2011 survey, eight active breeding territories and four breeding raptor species were observed in the Study Area: a Peregrine Falcon (*Falco peregrinus*) eyrie on Apache Leap, a Zone-tailed Hawk (*Buteo albonotatus*) breeding area in Queen Creek Canyon, a Peregrine Falcon eyrie, Zone-tailed Hawk nest, and Common Black-hawk (*Buteogallus anthracinus*) breeding area in Devils Canyon, and a Cooper's Hawk (*Accipiter cooperii*) breeding territory, a Zone-tailed Hawk nest, and a Common Black-hawk breeding territory along Mineral Creek. No active breeding territories were identified in the Mine Area.

A possible Prairie Falcon (*Falco mexicanus*) breeding area was suggested from an observation in lower Devils Canyon in 2008. In the same location in 2011, a fledgling falcon was heard screeching, which may have been either a Prairie Falcon or a Peregrine Falcon.

The initial baseline inventory and ongoing monitoring of the Study Area have documented occupied breeding territories of five raptor species: Cooper's Hawks, Common Black-hawks, Zone-tailed Hawks, Peregrine Falcons, and Western Screech-owls (*Megascops kennicottii*). Nine additional species of unknown breeding status have been observed, including Turkey Vultures (*Cathartes aura*), which are abundant throughout the Study Area.

## 1. INTRODUCTION

WestLand Resources, Inc. (WestLand) was retained by Resolution Copper Mining, LLC (RCM) to conduct a raptor<sup>1</sup> survey near Superior, Arizona. The survey was conducted on lands administered by the Arizona State Land Department (State Lands), lands administered by the US Forest Service (the Tonto National Forest [TNF]), and private lands owned by RCM. These areas are being studied as sites for facilities that may be needed to develop the Resolution Copper Mine. Apache Leap, the Mine Area, Queen Creek Canyon, Devils Canyon, and Mineral Creek comprise the Study Area (*Figure 1*). This study is one of several conducted to understand baseline biology of the Resolution Copper Study Area and to support licensing for the proposed future mining operation.

The purpose of the survey was to locate raptor nesting territories and to monitor locations of previous raptor sightings in the Study Area to contribute to the baseline of information that will be available to analyze potential impacts of proposed mine features. This report provides an inventory of the birds observed as well as a discussion of results from the field surveys. The 2011 findings are also compared with the results of several years of raptor surveys that WestLand has conducted as part of the multi-year baseline study effort.

#### 1.1. STUDY AREA DESCRIPTION

The Study Area is situated in foothills of the Pinal Mountains immediately east of Superior (*Figure 1*). The major biotic communities in the Study Area include Interior Chaparral, Madrean Evergreen Woodland, the Arizona Upland Subdivision of Sonoran Desertscrub (Arizona Upland Desertscrub), and Interior Riparian Deciduous Forest (Brown 1994). The Study Area is composed of five locations: 1) Apache Leap, 2) Queen Creek Canyon, 3) The Mine Area, 4) Devils Canyon, and 5) Mineral Creek (*Figure 2*).

## 1.1.1. Apache Leap

The Apache Leap formation rises abruptly to the east of the town of Superior (*Figure 3*). These west-facing cliffs attain a maximum height of approximately 600 ft (180 m) and extend for approximately 6 mi (10 km) in a north-south direction. The highest elevation in the Study Area is 4,817 ft (1,469 m) at a high point on Apache Leap (*Figure 2*). Interior Chaparral vegetation is present at this point and east of Apache Leap generally. West of Apache Leap, very steep headwaters of ephemeral channels drain west through Arizona Upland Desertscrub vegetation toward Superior and Queen Creek.

The vertical cliff faces of Apache Leap provide nesting sites for raptors. In 2003, WestLand identified a Peregrine Falcon (*Falco peregrinus*) eyrie on Apache Leap that has been active during all subsequent raptor surveys. Due to the height of these steep cliffs, this eyrie is virtually inaccessible to mammalian predators.

<sup>&</sup>lt;sup>1</sup> Raptors in this report are defined as birds of prey that use sight or sound to hunt and kill prey, typically including hawks and eagles (Falconiformes) and owls (Strigiformes). These birds have sharp talons and curved beaks that are adapted for killing and tearing apart prey. Using a broader definition of this term to include groups of scavenging birds, new world vultures (Cathartidae) are also included in our study.

## 1.1.2. Queen Creek Canyon

Queen Creek Canyon, an east-west trending canyon paralleled by US 60, runs from the Mine Area west to the town of Superior. This canyon is about 3,800 ft (1,160 m) in elevation near the Mine Area and descends to approximately 3,000 ft (910 m) in Superior (*Figure 3*). Within this steep-walled canyon, Queen Creek flows ephemerally and supports a stand of Interior Riparian vegetation. Outside of the riparian zone of the canyon, Arizona Upland Desertscrub vegetation is present at lower elevations and Madrean Evergreen Woodland and Interior Chaparral vegetative communities are present at higher elevations (*Figure 2*). Within Queen Creek Canyon, large Arizona sycamores (*Platanus wrightii*) provide nesting substrates for raptors. There is also much evidence of disturbance from prior road construction and sediment transport.

#### 1.1.3. Mine Area

The Mine Area, the location of the East Plant and underground mine, is bounded on the north by US 60 and Queen Creek Canyon, on the east by the cliff top of Devils Canyon, on the south by Rancho Rio Creek, and on the west by the crest of Apache Leap. This area includes Oak Flat, where a TNF campground is located. Parallel ridges and drainages trend toward the northeast from the Apache Leap ridgeline, becoming relatively level in the northeastern portion near Oak Flat. A subtle topographic divide separates these channels into those that drain north through Oak Flat to Queen Creek and those that drain east through Rancho Rio Creek and Hackberry Creek to Devils Canyon (*Figure 3*).

The Mine Area is dominated by Interior Chaparral vegetation, though elements of Madrean Evergreen Woodland are present at several ponds and reservoirs in the area (*Figure 2*). Unlike the west face of Apache Leap and Queen Creek, which have numerous nest site locations for raptors, the Mine Area has only a few large trees in scattered locations. The low vegetation structure of Interior Chaparral does not provide suitable nest sites for raptors.

## 1.1.4. Devils Canyon

Devils Canyon is a steeply walled north-south oriented drainage located east of the Mine Area (*Figures 4 and 5*). Surface water in the canyon is seasonally intermittent in the north and perennial in the south. Cliff faces occur intermittently along both sides of this drainage from its confluence with Rancho Rio Creek downstream for approximately six miles. These cliffs attain a maximum height of approximately 400 ft (120 m). Two reaches of Devils Canyon can be accessed on foot. The northern reach extends from the confluence of Rancho Rio Creek south for approximately 1.2 mi (1.9 km). The southern reach extended approximately 1.1 mi (1.8 km). Between these segments, the canyon is not easily accessible because of narrow canyon walls and vertical drops that make it unsafe to traverse without climbing gear. Elevations within the two segments of Devils Canyon surveyed for this study range from a maximum of approximately 4,000 ft (1,219 m) on a high ridge near the northern limit of the surveyed area to a minimum of roughly 3,000 ft (914 m) at the canyon bottom near the southern limit of the surveyed area (*Figures 4 and 5*).

In Devils Canyon, there are numerous nesting locations for raptors, including Saguaro cactus (*Carnegiea gigantea*), large trees, and vertical cliff faces. Stands of Arizona alder (*Alnus oblongifolia*), scattered

Arizona sycamore, and velvet ash (*Fraxinus velutina*) dominate the riparian zone in the canyon bottom. In the lower reaches of Devils Canyon, alders give way to stands of Goodding willow (*Salix gooddingii*) and a few scattered Fremont cottonwoods (*Populus fremontii*). Large specimens of any of these riparian species may be used as nesting sites for riparian-nesting raptors.

## 1.1.5. Mineral Creek

Mineral Creek is a largely perennial creek defining the eastern and southern extent of the Study Area. This drainage flows southwest from the Pinal Mountains and joins Devils Canyon at the Big Box Dam site. The stretch of Mineral Creek included in the Study Area extends from Government Spring near the junction of Lyons Fork Road to the southern edge of State Lands. The segment of Mineral Creek in our study area on Government Springs Ranch is 0.4 mi (0.6 km) in length, and the segment of Mineral Creek traversing the State land is 3.9 mi (6.2 km) in length. Elevations in the Mineral Creek site range from roughly 2,800 ft (853 m) at the camping location on Government Spring Ranch to approximately 2,400 ft (732 m) at the lower boundary of the State land (*Figures 6 and 7*). Along Mineral Creek, Interior Riparian vegetation provides suitable nesting substrate for raptors. Riparian species composition includes a diverse mixture of Bonpland willow (*Salix bonplandiana*), Goodding willow, velvet ash, Fremont cottonwood, Arizona sycamore, and Arizona walnut (*Juglans major*). Steeply sloping hillsides along the creek rise rapidly through velvet mesquite (*Prosopis velutina*) groves into Arizona Upland Desertscrub vegetation. Nearby cliffs may provide suitable nest sites for raptors, including Peregrine Falcons, Prairie Falcons (*Falco mexicanus*), and Golden Eagles (*Aquila chrysaetos*).

## 2. METHODS

WestLand conducted linear transects, point transects, variable transects, cliff surveys for diurnal raptor species, nighttime passive listening surveys for owls, and made opportunistic sightings to document occurrence, breeding, and nesting status of raptorial birds. Surveys were timed during the season to encompass the range of territorial, breeding, and nesting activities of the raptor species known to occur in the area and other species that might potentially occur in the area. Before initiating surveys, maps were prepared of the study sites. Suitable observation locations that provided a representative sample of each study site and that provided sufficient spacing to minimize overlapping observations (about 1640 ft [500 m] depending on terrain) were selected in advance.

Linear transects were conducted on foot along Queen Creek from the bridge crossing below Queen Creek Tunnel to the Magma Mine Road turnoff, and along two tributary drainages within the western portion of the Mine Area (*Figure 3*). Transects were walked along an easily accessible route such as a road or trail to sample large areas in a relatively short period of time (Cooperrider et al. 1986). Within these narrow canyon bottoms, groves of Arizona sycamore, velvet ash, and Emory oak (*Quercus emoryi*) provide potential nest trees for raptors. Linear transects were also conducted along approximately 5 mi (8 km) of roads and trails in the Mine Area that afforded wide views for detecting soaring raptors. Surveyors proceeded on foot along transects, scanning the treetops with binoculars for evidence of raptors or their nests.

Point transects were also used in Queen Creek Canyon and in the Mine Area to sample large areas. Using this method, surveyors drove to specified locations and surveyed for raptors from outside of their vehicle. Surveyors scanned the treetops and sky with binoculars and a spotting scope for 10 minutes at each location. Survey points were selected at regularly spaced intervals along roads. This survey method was employed at 14 points in the Mine Area and one point in Queen Creek Canyon (*Figure 3*). These daytime surveys were conducted mostly in the early morning or evenings, which coincided with the greatest activity periods for diurnal raptors.

Variable transects were conducted in Devils Canyon and Mineral Creek, where larger areas containing groves of Fremont cottonwood, Arizona sycamore, and other trees and areas with steep topography and rocky outcrops provided potential nest sites (*Figures 4 and 5*). Observers conducting variable transects moved through the survey areas in a meandering fashion, scanning all appropriate nest sites with binoculars. This method was employed to locate nests when activities of raptors in the vicinity suggested a potential nesting pair of hawks or owls.

Cliff surveys were conducted of the face of Apache Leap from four fixed points located at intervals along the length of the cliff (*Figure 3*) and at three points in Devils Canyon (*Figures 4 and 5*). These surveys were conducted primarily to detect breeding activity and nests of Peregrine Falcons (or possibly Prairie Falcons [*Falco mexicanus*]) that are known to use these cliffs for nesting. Peregrine survey protocol (US Fish & Wildlife Service [USFWS] 2003) was followed. Surveyors scanned the cliff face with the aid of binoculars and a spotting scope for a period of 2 hours. Observations took place during the early morning hours from one-half hour before sunrise until 4 hours after sunrise or during the late afternoon. The exception was one survey on April 6, 2011 at the lowest Devils Canyon observation point, which was conducted during midday. Evidence of Peregrine Falcon habitation (including stick nests, whitewash, and visual observations of birds) was recorded on data forms. If Peregrine Falcons were present, behavioral observations were made to determine breeding status. Specific indicators of breeding activities include the following (Postulpalsky 1974).

- Presence of a nest or eyrie<sup>2</sup>
- Young in nest
- Adult in nest in incubation posture
- Mating behavior
- Prey deliveries
- Nest maintenance
- Adult near nest

Nighttime owl surveys were conducted in Queen Creek Canyon and the Mine Area. Surveys took place in the first three hours after sunset. Equipped with sound amplifying headphones (Action Ear<sup>®</sup> Sport, Silver Creek Industries), surveyors listened quietly for owl calls from outside of their vehicle for 10 minutes at each survey location. The survey locations were the same as the diurnal point transect survey locations.

<sup>&</sup>lt;sup>2</sup> The eyries of cliff nesting raptors can consist of a stick nest, scrape, ledge, or cavity.

When an owl was detected, the species of the owl, a true bearing, and an estimated distance to the owl were recorded.

Surveys in 2011 were conducted over four periods that were timed to coincide with the breeding, nesting, and fledgling periods for most raptors in the area. The first surveys were conducted on March 15, 16, 17, and 25; the second on April 4, 5, 6, 25, 26, and 27; the third on May 11, 24, 25, 26, and 27; and the fourth on June 20, 21, 28, and 29. Approximately 23 person-hours of survey time were conducted at Apache Leap, five person-hours in Queen Creek Canyon, 24 person-hours in the Mine Area, 21 person-hours in Devils Canyon, and 21 person-hours in Mineral Creek. Opportunistic observations of raptors were also recorded by WestLand field personnel during the course of other field activities. These observations are reported and identified accordingly.

Nest record cards were completed for all species where nests were located (USFWS 1989) (Appendix 1).

## 3. RESULTS AND DISCUSSION

A total of 220 observations of raptor individuals belonging to 12 species were made during this survey (*Tables 1 and 2*). Data recorded included the number of observations of individual raptor species by study site, the numbers of pairs observed, and whether breeding behaviors, nests were located, and juvenile birds were observed (*Table 2*). *Table 3* presents the species, the dates they were observed, and comments by study site. All data sheets and incidental observation reports are compiled in *Attachment 1*.

A large proportion of raptor observations (143/220 = 65%) were of Turkey Vultures (*Cathartes aura*), which are ubiquitous in the skies over each of the study sites (*Table 2*). A well-known Turkey Vulture communal roost is located near the Boyce Thompson Arboretum, where up to 100 Turkey Vultures roost nightly. None of the individuals observed during the survey displayed any behaviors that would suggest that they were breeding nearby (e.g., courtship flight or carrying nest material).

#### 3.1. APACHE LEAP

Six raptor species were observed along Apache Leap during this survey (*Table 1*). Peregrine Falcon adults were observed engaged in breeding behaviors and visiting the previously occupied Peregrine eyrie. Because these birds prefer to build nests in recessed locations in cliffs, the location of the nest is known but no nest was seen directly. None of the five other raptor species observed along Apache Leap: Turkey Vultures, Zone-tailed Hawks (*Buteo albonotatus*), Red-tailed Hawks (*Buteo jamaicensis*), Great Horned Owls (*Bubo virginianus*), and Elf Owls (*Micrathene whitneyi*) were observed displaying behaviors that would indicate they were breeding at Apache Leap (*Table 2*; *Figure 3*).

#### 3.2. QUEEN CREEK CANYON

Three raptor species were observed in Queen Creek Canyon (*Table 1*). On multiple occasions, Zonetailed Hawks observed in the canyon exhibited breeding behaviors, such as carrying nesting material, though no nest was located in the canyon. None of the numerous Turkey Vultures or the single American Kestrel (*Falco sparverius*) observed in the canyon exhibited any behaviors that indicated they were breeding in Queen Creek Canyon (*Table 2; Figure 3*).

## 3.3. MINE AREA

Seven raptor species were observed in the Mine Area (*Table 1*). Turkey Vultures were observed during all daytime surveys and represented 91% (84/92) of all raptor observations (*Table 2*). Great Horned Owls (possibly a pair) were heard on the first survey night in March, but not on subsequent survey nights in April and June. Cooper's Hawks (*Accipiter cooperii*) were observed in the vicinity of the previously identified Cooper's Hawk nest near Dry Reservoir (WestLand 2009a), but no breeding behaviors were recorded and neither nests nor young were observed. A Common Black-hawk (*Buteogallus anthracinus*) seen roosting on a pole in the middle of a stock tank likely came from Devils Canyon where a pair nested (*Table 2*). An individual Sharp-shinned Hawk (*Accipiter striatus*), Zone-tailed Hawk, and Red-tailed Hawk were each observed once. No nests were located or breeding behaviors were observed for any of the raptors observed in the Mine Area (*Figure 3*).

#### 3.4. DEVILS CANYON

Surveys in 2011 in Devils Canyon identified seven species of raptors (*Table 1*), three of which were documented breeding in the canyon (*Table 2*). A pair of adult Peregrine Falcons was observed engaged in breeding behavior and visiting suspected nest sites near the confluence of Rancho Rio Creek. As with the eyrie along Apache Leap, the location of the nest is known but no nest was seen directly because the nest was recessed in the cliff. Additionally, young birds were heard at the time of fledging, confirming the location of this eyrie and the successful breeding of this pair of falcons. The screams of a fledgling falcon, which might have been either a Prairie Falcon or a Peregrine Falcon, were also heard in lower Devils Canyon. These observations were made near a potential Prairie Falcon breeding area that was tentatively identified in 2008 (*Figures 4 and 5*).

A pair of Common Black-hawks and a pair of Zone-tailed Hawks were also documented breeding in Devils Canyon in 2011. The Zone-tailed Hawk nest identified in 2008 was active in 2011 and a pair of Common Black-hawks was observed at the Zone-tailed Hawk nest in a territorial interaction with the Zone-tailed Hawk pair indicative of an active breeding territory. Two recently fledged Cooper's Hawks were seen near the confluence of Rancho Rio Creek, suggesting that Cooper's Hawks breed in the area, though no nest was located in the canyon. Turkey Vultures, Red-tailed Hawks, and a Golden Eagle was spotted in Devils Canyon, but no breeding behaviors were observed and no nests of these species were located (*Figures 4 and 5*).

## 3.5. MINERAL CREEK

Surveys in Mineral Creek identified nine species of raptors (*Table 1*), including a pair of Cooper's Hawks, a pair of Common Black-hawks, and a pair of Zone-tailed Hawks (*Table 2*). The Cooper's Hawk nest and young were seen incidentally while conducting a plant survey near a spring, just to the north of the creek. Also observed were Red-tailed Hawks, a Golden Eagle, and Great Horned Owls along Mineral Creek. On one occasion a Red-tailed Hawk that appeared to be sick or injured was noted. During the course of studies conducted in Mineral Creek, WestLand biologists identified Western Screech-owls (*Megascops kennicottii*) six times and Elf Owls eight times based on vocalizations near the north end of

the Mineral Creek on Government Spring Ranch (*Figures 6 and 7*). These repeated observations suggest that these owl species were breeding in the area.

#### 3.6. Previous Surveys of the Mine Area and Vicinity

WestLand prepared a *Baseline Biology and Land Use Report* (2004a) describing the Study Area's overall biological resources. Three active raptors nests were observed during the 2003 survey. A Cooper's Hawk nest was recorded in an Emory oak located near Dry Reservoir in Oak Flat Campground. An active Peregrine Falcon eyrie was detected on the face of Apache Leap. In addition, three active Zone-tailed Hawk nests were observed: two on Queen Creek and one in Devils Canyon. Although no nest sites were located, Great Horned Owls were observed in the vicinity of Apache Leap Pond (*Table 4*).

In 2004, WestLand repeated the raptor surveys in the Study Area (WestLand 2004b). These surveys verified the continued occupancy of the Peregrine Falcon eyrie on Apache Leap as well as a single Zonetailed Hawk nest at Queen Creek. The Cooper's Hawk nest observed near Dry Reservoir in 2003 was vacant in 2004 (*Table 4*).

The 2008 raptor survey documented the continued occupancy of the Peregrine Falcon eyrie on Apache Leap as well as the Zone-tailed Hawk breeding area in Queen Creek (WestLand 2009). A Western Screech-owl activity center was noted in the vicinity of Oak Flat Campground in 2008. Although no nest was observed, a pair of these small owls was repeatedly observed, both visually and aurally, during the course of the breeding survey. It is WestLand's opinion that this activity center represented an active breeding territory. Opportunistic observations in Devils Canyon in 2008 identified an active Zone-tailed Hawk nest and Common Black-hawk, Peregrine Falcon, and a possible Prairie or Peregrine Falcon sighting was based on a call by a juvenile bird (*Table 4*).

The Maricopa Audubon Society commissioned two surveys of the vegetation and wildlife of Devils Canyon. In 2007, the first survey identified a pair of Common Black-hawks and two pairs of Zone-tailed Hawks nesting in the canyon. A Peregrine Falcon, a Red-tailed Hawk pair, and numerous Turkey Vultures were also observed in the canyon, though no evidence suggested these species were breeding in the area (Jacobs and Flesch 2007). In 2009, the second survey identified a pair of Common Black-hawks and a pair of Zone-tailed Hawks nesting in the canyon. The behavior of a pair of Peregrine Falcons suggested that they were likely nesting in the canyon as well. A Cooper's Hawk, Western Screech-owl, Elf Owl, and numerous Turkey Vultures were also observed (Jacobs 2009) (*Table 4*).

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**TABLES** 

# Table 1. List of Raptor Species Observed at the Each of the Five Study Areas

Table 1a. Apache Leap

Turkey Vulture (Cathartes aura)	Peregrine Falcon (Falco peregrinus)			
Zone-tailed Hawk (Buteo albonotatus)	Great Horned Owl (Bubo virginianus)			
Red-tailed Hawk (Buteo jamaicensis)	Elf Owl (Micrathene whitneyi)			

## Table 1b. Queen Creek Canyon

Turkey Vulture (Cathartes aura)	American Kestrel (Falco sparverius)
Zone-tailed Hawk (Buteo albonotatus)	

## Table 1c. Mine Area

Turkey Vulture (Cathartes aura)	Zone-tailed Hawk (Buteo albonotatus)
Sharp-shinned Hawk (Accipiter striatus)	Red-tailed Hawk (Buteo jamaicensis)
Cooper's Hawk (Accipiter cooperii)	Great Horned Owl (Bubo virginianus)
Common Black-hawk (Buteogallus anthracinus)	

## Table 1d. Devils Canyon

Turkey Vulture (Cathartes aura)	Red-tailed Hawk (Buteo jamaicensis)
Cooper's Hawk (Accipiter cooperii)	Golden Eagle (Aquila chrysaetos)
Common Black-hawk (Buteogallus anthracinus)	Peregrine Falcon (Falco peregrinus)
Zone-tailed Hawk (Buteo albonotatus)	

## Table 1e. Mineral Creek

Turkey Vulture (Cathartes aura)	Golden Eagle (Aquila chrysaetos)
Cooper's Hawk (Accipiter cooperii)	Great Horned Owl (Bubo virginianus)
Common Black-hawk (Buteogallus anthracinus)	Western Screech-owl (Megascops kennicottii)
Zone-tailed Hawk (Buteo albonotatus)	Elf Owl (Micrathene whitneyi)
Red-tailed Hawk (Buteo jamaicensis)	

Table 2. Raptor Observations and Breeding Status by Species.

Raptor	Location	Number of Sightings	Number of Pairs	Breeding Behaviors	Nest Location Observed	Young Observed
	Apache Leap	34				
	Queen Creek	13				
Turkey Vulture	Mine Area	84				
(Cathartes aura)	Devils Canyon	12				
	Mineral Creek	No data collected				
Sharp-shinned Hawk (Accipiter striatus)	Mine Area	1				
Commun's Howle	Mine Area	2				
Cooper's Hawk (Accipiter cooperii)	Devils Canyon	2				Yes
(Heelpiner coopern)	Mineral Creek	3	1			Yes
Common Black-hawk	Mine Area	1				
(Buteogallus	Devils Canyon	4	1	Yes		
anthracinus)	Mineral Creek	6	2	Yes	Yes	Yes
	Apache Leap	1				
7	Queen Creek	4	1	Yes		
Zone-tailed Hawk (Buteo albonotatus)	Mine Area	1				
(Buteo attomotatus)	Devils Canyon	3	1	Yes	Yes	Yes
	Mineral Creek	1	1	Yes		
	Apache Leap	5	1			
Red-tailed Hawk	Mine Area	1				
(Buteo jamaicensis)	Devils Canyon	6				
	Mineral Creek	6				
Golden Eagle	Devils Canyon	2				
(Aquila chrysaetos)	Mineral Creek	1				
Peregrine Falcon	Apache Leap	2	1	Yes	Yes	Yes
(Falco peregrinus)	Devils Canyon	5	1	Yes	Yes	Yes
American Kestrel (Falco sparverius)	Queen Creek	1				
	Apache Leap	1				
Great Horned Owl (Bubo virginianus)	Mine Area	2				
(Buoo virginianus)	Mineral Creek	1				
Western Screech-owl (Megascops kennicottii)	Mineral Creek	6				
Elf Owl	Apache Leap	1				
(Micrathene whitneyi)	Mineral Creek	8				

Table 3. Dates of sightings of species of raptors detected during planned surveys and incidental observations in 2011.

Table 3a. Apache Leap

g .				Sighting <sup>1</sup>	rubic ou. 71p			
Species	1	2	3	4	5	6	7	Comments
Turkey Vulture (Cathartes aura)	3/16	4/4	4/27	5/11	6/20			Numerous individuals were seen flying over the sites during all daytime visits.
Zone-tailed Hawk (Buteo albonotatus)	4/4	6/20						Birds were seen soaring along the northern portion of Apache Leap.
Red-tailed Hawk (Buteo jamaicensis)	4/4	5/11						Pair observed flying together over Apache Leap on 5/11.
Peregrine Falcon (Falco peregrinus)	5/27	6/20						Repeated observations of two falcons vocalizing and flying into a possible eyrie were made.
Great Horned Owl (Bubo virginianus)	4/4							One was heard during peregrine survey of Apache Leap on 4/4.
Elf Owl (Micrathene whitneyi)	4/27							One individual observed in Cross Canyon below Apache Leap on 4/27.

<sup>1 -</sup> Empty cells indicate that no further sightings were made following the last date entered.

Table 3b. Queen Creek

Chaoiag				Sighting <sup>1</sup>		Comments		
Species	1	2	3	4	5	6	7	Comments
Turkey Vulture (Cathartes aura)	3/16	3/25	4/4	4/25	5/11	6/20	6/21	Numerous individuals were seen flying over the sites during all daytime visits.
Zone-tailed Hawk (Buteo albonotatus)	3/25	4/26						Birds were seen soaring along Queen Creek.
American Kestrel (Falco sparverius)	4/25							One individual was seen on 4/25.

<sup>1 -</sup> Empty cells indicate that no further sightings were made following the last date entered.

Table 3c. Mine Area

Cmarina				Sighting <sup>1</sup>		C		
Species	1	2	3	4	5	6	7	Comments
Turkey Vulture (Cathartes aura)	3/16	3/25	4/4	4/25	5/11	6/20	6/21	Numerous individuals were seen flying over the sites during all daytime visits.
Sharp-shinned Hawk (Accipiter striatus)	4/25							A single bird was seen flying over Mine Area on 4/25.
Cooper's Hawk (Accipiter cooperii)	3/16	3/25						Cooper's Hawks were seen on 3/16 and 3/25 in same drainage as historic Cooper's Hawk nest.
Common Black-hawk (Buteogallus anthracinus)	4/25	6/21						The bird seen on 6/21 was sitting on a post in the middle of a stock tank.
Zone-tailed Hawk (Buteo albonotatus)	3/25	4/4	4/25	6/20				Birds were seen soaring near Queen Creek.
Red-tailed Hawk (Buteo jamaicensis)	6/20							Juvenile observed at Mine Area on 6/20.
Great Horned Owl (Bubo virginianus)	3/15							Birds were heard from two stations on the March 15 survey night but no other birds called during April and June owl surveys.

<sup>1 -</sup> Empty cells indicate that no further sightings were made following the last date entered.

Table 3d. Devils Canyon

Cracias				Sighting <sup>1</sup>		Commonts			
Species	1	2	3	4	5	6	7	Comments	
Turkey Vulture (Cathartes aura)	4/5	4/6	5/24	6/20	6/21			Numerous individuals were seen flying over the canyon during all daytime visits.	
Common Black-hawk (Buteogallus anthracinus)	4/5	4/6	5/24	5/25	5/26	6/21		Heard vocalizations. We witnessed a territorial interaction with a pair of Zone-tailed Hawks.	
Zone-tailed Hawk (Buteo albonotatus)	5/25	6/20						Two birds found defending a nest in the northern reach. We witnessed a territorial interaction with a pair of Common Black-hawks.	
Red-tailed Hawk (Buteo jamaicensis)	4/5	4/6	5/26	6/21				Birds were seen soaring in the canyon on multiple daytime surveys.	
Golden Eagle (Aquila chrysaetos)	4/6							One bird was seen soaring over the south reach of the canyon on one occasion.	
Peregrine Falcon (Falco peregrinus)	4/6	5/24	6/13	6/20	7/26			A pair of birds was seen multiple times at the north end of the north each 1 and juveniles were heard calling on more than two occasions. We observed what we suspected was an eyrie on a cliff along the south reach. On another date in reach 2 we heard calling from a juvenile falcon, which could have been a Peregrine Falcon or a Prairie Falcon.	

<sup>1 -</sup> Empty cells indicate that no further sightings were made following the last date entered.

Table 3e. Mineral Creek

Charing				Sighting <sup>1</sup>		Comments		
Species	1	2	3	4	5	6	7	Comments
Turkey Vulture (Cathartes aura)	6/9	6/28	6/29	7/25				Numerous individuals were seen flying over the creek during all daytime visits.
Cooper's Hawk (Accipiter cooperii)	6/28	6/29	7/25					Nest located in the large spring halfway down the length of the creek. Adult birds were seen. Two juvenile birds were seen in grove of trees.
Common Black-hawk (Buteogallus anthracinus)	6/29							Birds were seen multiple times during visits.
Zone-tailed Hawk (Buteo albonotatus)	6/9	6/28	6/29	7/25				Birds were seen multiple times during visits. Nest at camp near Government Spring Ranch successfully fledged one young.
Red-tailed Hawk (Buteo jamaicensis)	6/28	6/29						Adults were seen on two occasions and a sick or injured bird was seen on 6/28 and 6/29. An adult was observed drinking from the creek and a juvenile bird was also were seen near the creek.
Golden Eagle (Aquila chrysaetos)	6/9							One Golden Eagle was observed soaring over the cliffs northwest of the creek.
Great Horned Owl (Bubo virginianus)	6/29							One bird flushed from a grove during a daytime survey.
Western Screech-owl (Megascops kennicottii)	6/28	6/29	7/25					Two owls calling around camp on one occasion.
Elf Owl (Micrathene whitneyi)	6/9	6/28	6/29	7/25				Two owls calling around camp on several occasions.

<sup>1 -</sup> Empty cells indicate that no further sightings were made following the last date entered.

Table 4. Summary of categories of raptor observations in the Study Area 2003 - 20111.

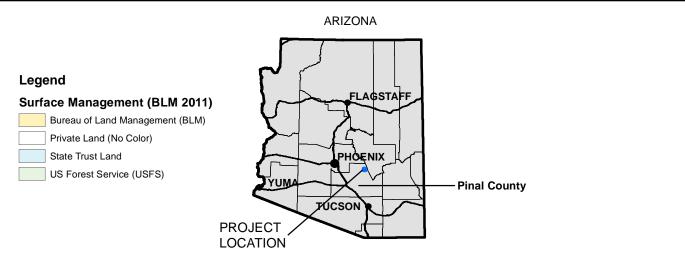
Table 4. Summary of categories of raptor observations in the Study Area 2003 – 2011 <sup>1</sup> .						
Raptor	WestLand 2011	WestLand 2008	WestLand 2004	WestLand 2003	Jacobs 2009	Jacobs and Flesch 2007
Turkey Vulture (Cathartes aura)	О	О	О	О	О	О
Sharp-shinned Hawk (Accipiter striatus)	О					
Cooper's Hawk (Accipiter cooperii)	Y	0		Y	0	
Northern Gray Hawk (Buteo nitidus maximus)		О				
Common Black- hawk ( <i>Buteogallus</i> anthracinus)	В	N		О	N	Y
Swainson's Hawk (Buteo swainsoni)		О				
Zone-tailed Hawk (Buteo albonotatus)	В	N	N	Y	N	Y
Red-tailed Hawk (Buteo jamaicensis)	О	О				О
Golden Eagle (Aquila chrysaetos)	О					
American Kestrel (Falco sparverius)	О					
Peregrine Falcon (Falco peregrinus)	Y	N	N	Y	В	О
Prairie Falcon (Falco mexicanus)		O*				
Western Screech- owl (Megascops kennicottii)	О	В			О	
Great Horned Owl (Bubo virginianus)	О	0		О		
Northern Pygmy- owl ( <i>Glaucidium</i> <i>gnoma</i> )		О				
Elf Owl (Micrathene whitneyi)	О				0	

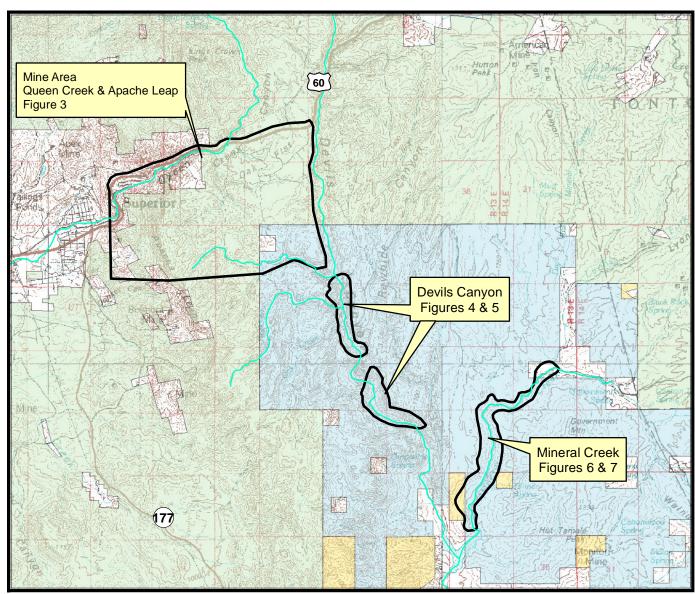
**Key:** O – observed in the Study Area; B – breeding in the Study Area based on behavioral indicators; N – nest or eyrie located in the Study Area; Y – young (nestlings or fledglings) located in the Study Area; Each category in this sequence implies all other categories above it, such that Y assumes O, B, and N, etc.

1- For comparison, data from two surveys of Devils Canyon commissioned by the Maricopa Audubon Society (Jacobs and Flesch 2007; Jacobs 2009) are provided alongside data collected by WestLand during the 2003 Baseline Biological Investigations, 2004 Raptor Survey, 2008 Raptor Survey and Bird Census, and 2011 Raptor Survey. Every species observed during these two surveys of Devils Canyon has also been observed by WestLand during one or more raptor survey of the area. Species that have been documented breeding in the area between 2003 and 2011 are shaded. The Mineral Creek site was added to the survey area in 2011.

<sup>\* -</sup> identification was not confirmed.

**FIGURES** 





Pinal County, Arizona, Superior, Pinal Ranch, Teapot Mntn., & Hot Tomale Peak USGS 7.5' Quadrangles

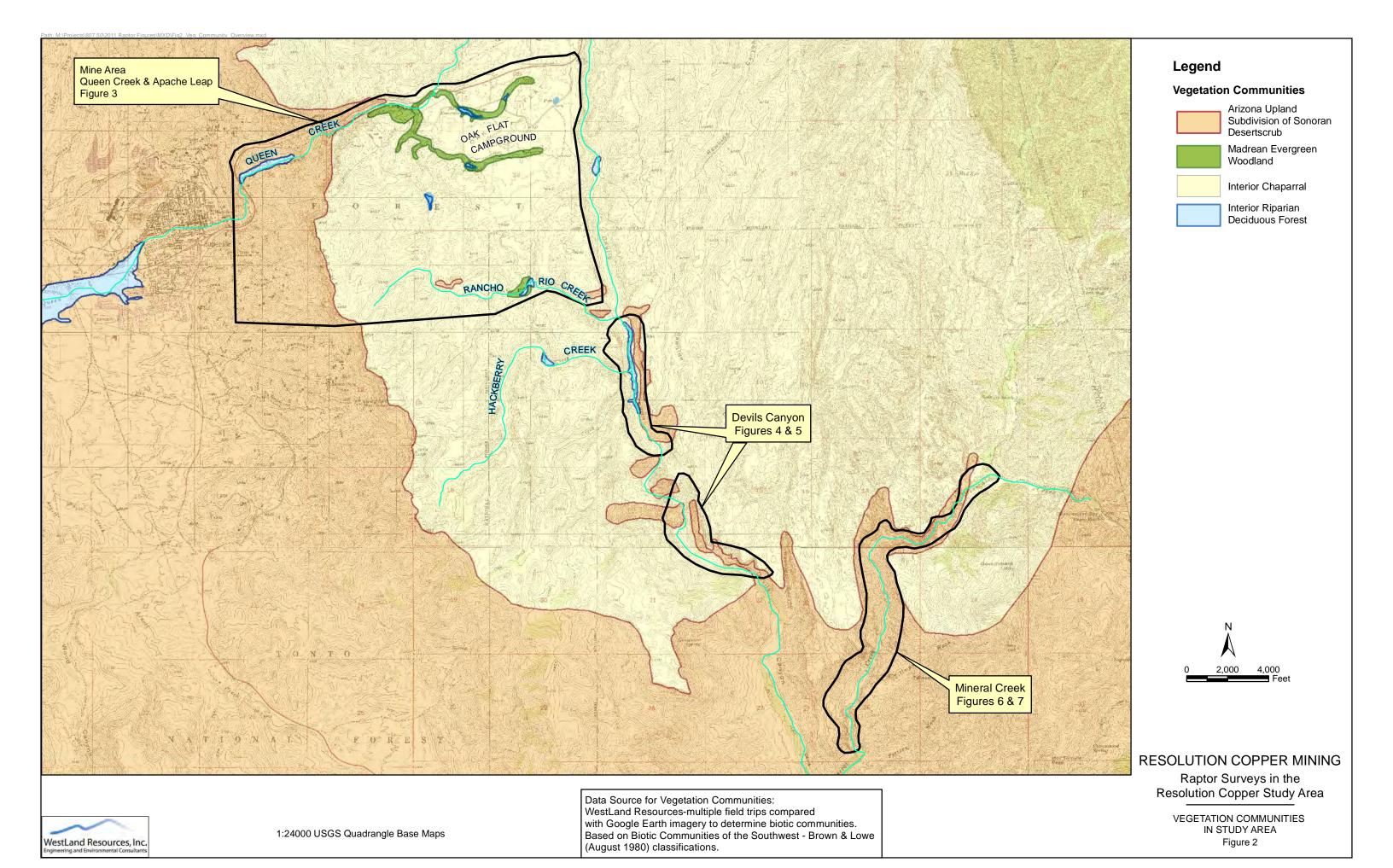


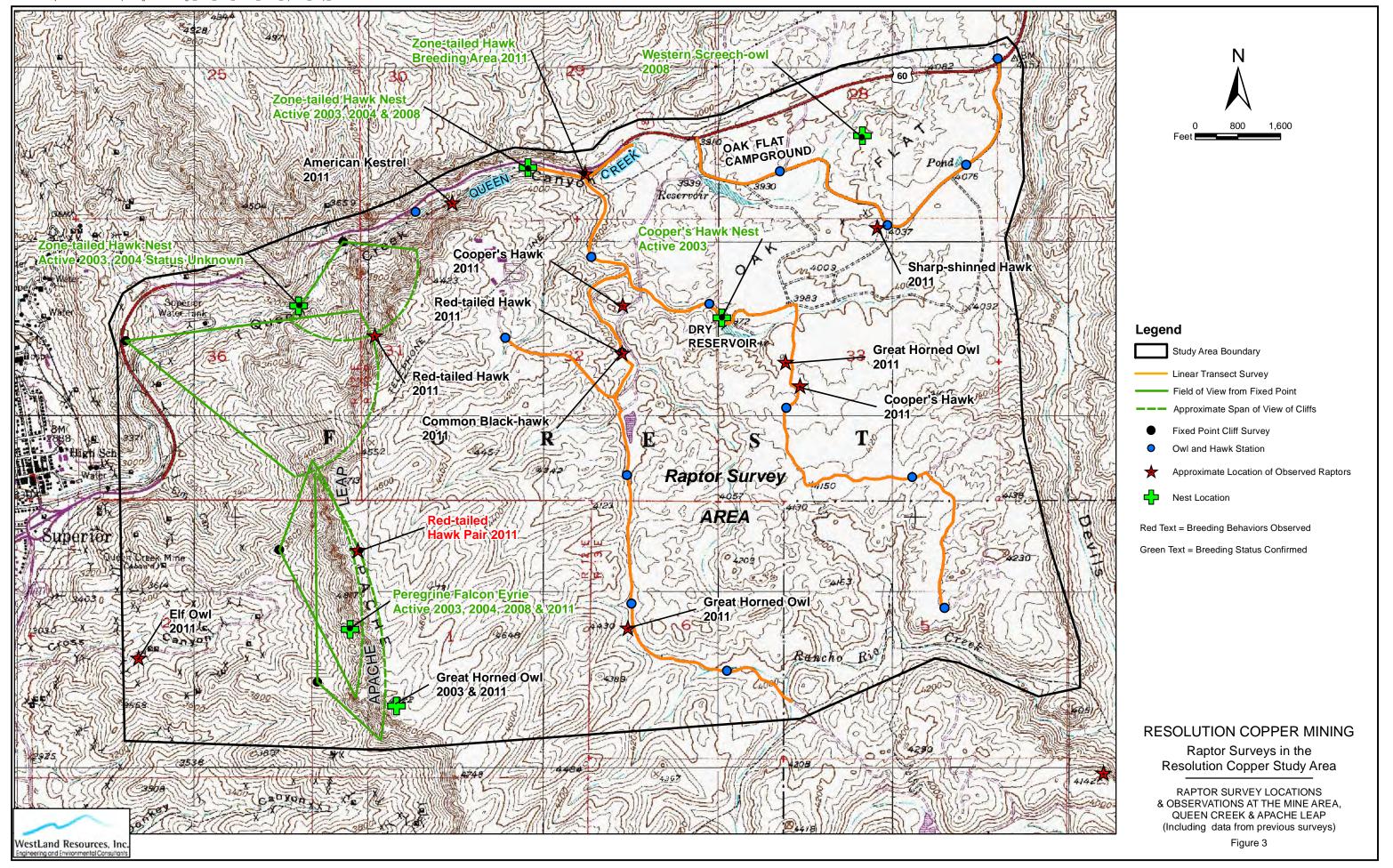
0 4,000 8,000 Feet

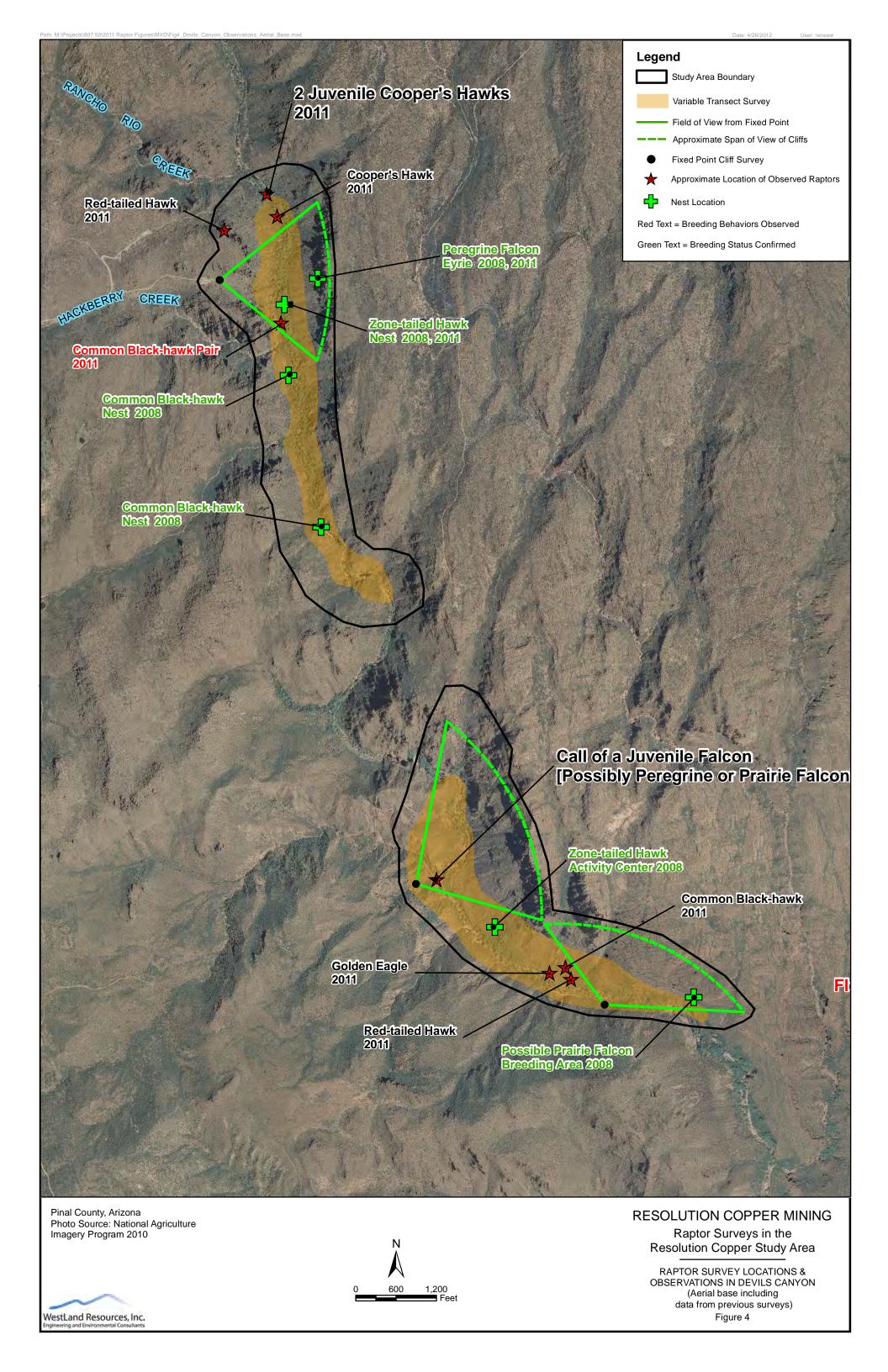


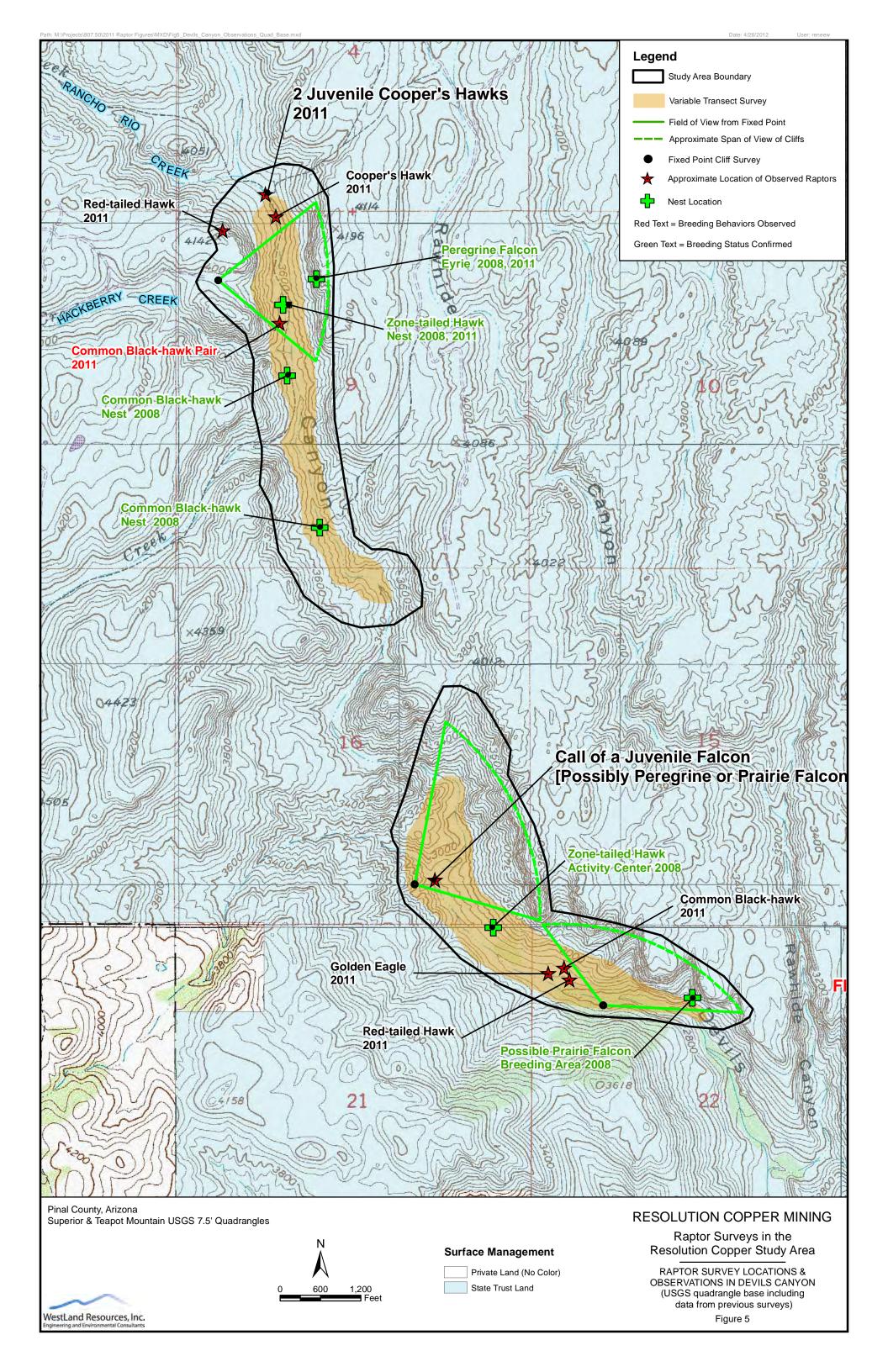
RESOLUTION COPPER MINING Raptor Surveys in the Resolution Copper Study Area

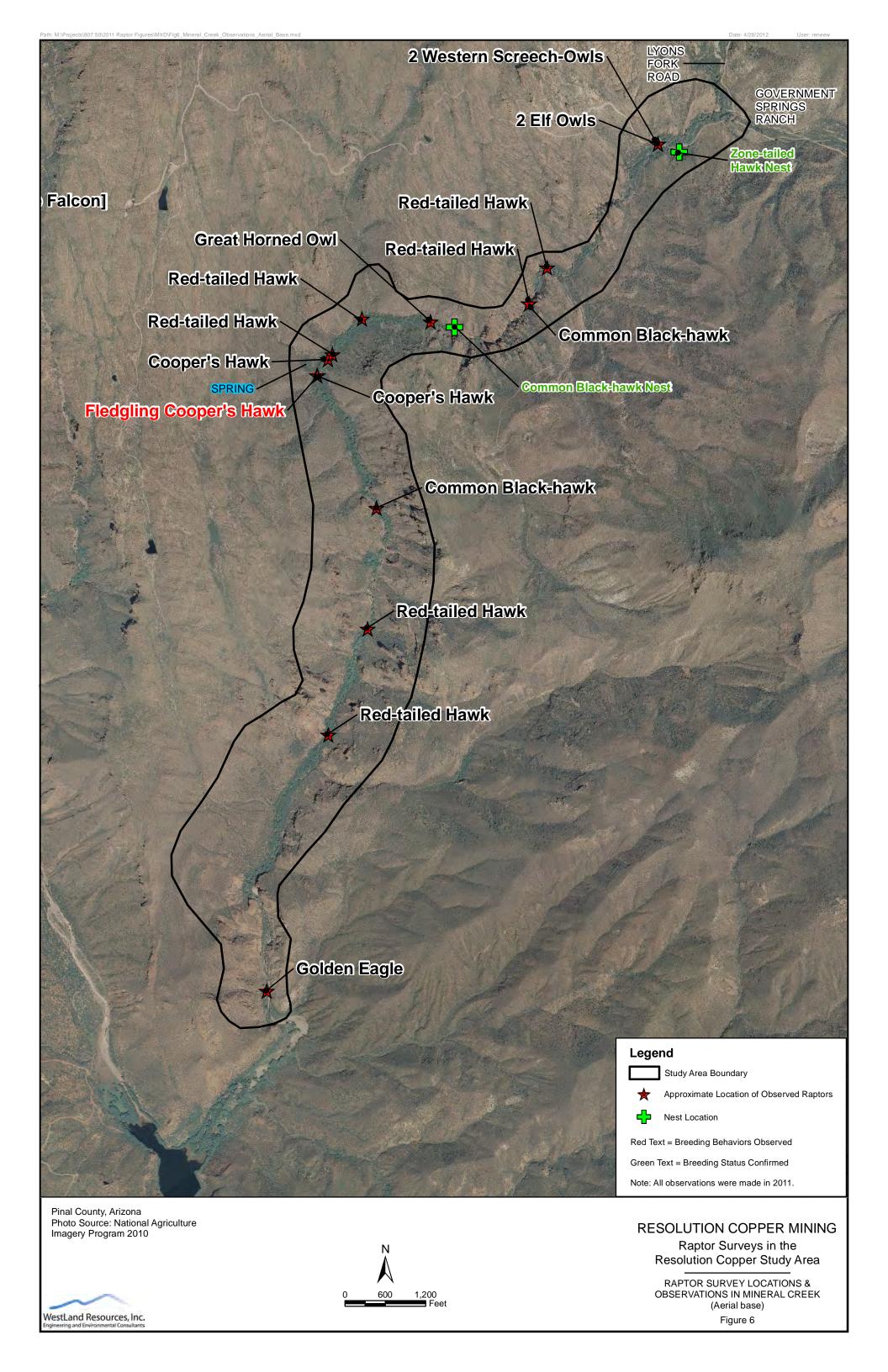
> VICINITY MAP Figure 1

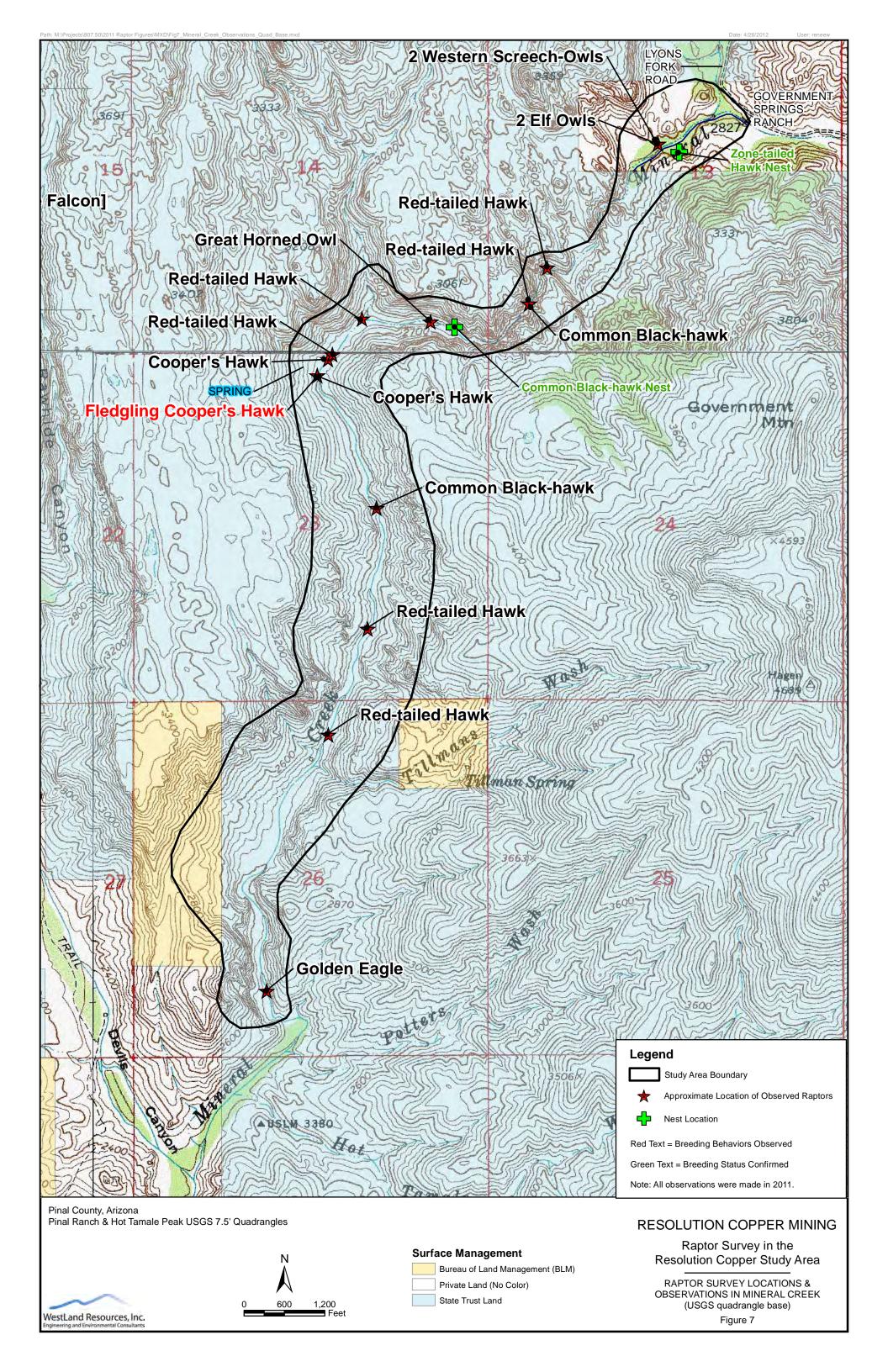












Α	PP	EN	DI	X	Α

# APPENDIX A. RAPTOR OBSERVATION RECORD CARDS (USFWS 1989)

TREE NEST-SPECIES: Zone-tailed Hawk	GROUND NEST – SITUATION:
1. LIVE TREE	1. LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
	CLIFF ROCK TYPE: 1. SED 2. IGN. 3. MET
	SPEC. FORMATION:
TREE HEIGHT (M): 50 (estimated)	CLIFF HEIGHT (M):
TREE DIAMTER (CM): 40 (estimated)	CLIFF LENGTH (KM):
HEIGHT OF NEST IN TREE (M): 40 (estimated)	HEIGHT OF NEST ON CLIFF (M):
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	unknown
1. CLIFF	ASPECT OF SLOPE: N/A
2. UNVEGETATED GROUND	ASPECT OF NEST: N/A
3. WET MEADOW	NEST CONDITION:
4. DWARF SHRUB MEADOW (tundra dominated by grasses or sedges)	1. GOOD
5. GRASS MEADOW	2. FAIR
6. DWARF SHRUB MAT (dwarf shrubs <0.4 m	3. POOR/REMNANT
high)	
7. LOW SHRUB THICKET (shrubs 0.5 – 1.1 m	NEST ACCESSIBILITY (to ground predators):
high)	1. EASY
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	2. MOD. DIFFICULT
high)	VERY DIFFICULT
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	DISTANCE TO HUMAN ACTIVITY (KM): 5
high)	(estimated)
10. DECIDUOUS FOREST	HUMAN ACTIVITY VISIBLE FROM NEST?
11. CONIFEROUS FOREST	1. YES
12. MIXED DECIDUOUS-CONIFER FOREST	2. NO
13. SCATTERED WOODLAND AND DWARF	TYPE(S) OF HUMAN ACTIVITY:
FOREST	1. TRAIL
14. ARTIFICIAL HABITAT	2. RQAD
15. OTHER	3. BOATING
16. MARINE	4. AIRCRAFT
17. RIPARIAN	5. BUILDING(S)
18. LACUSTRINE (LAKE)	6. AGRICULTURE
19. RIVER / STREAM	7. CONSTRUCTION
20. OTHER PERRENIAL WATER	8. RESEARCH
FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:	9. MINING
2. BELOW CLIFF:	10. OIL/GAS
2. BELOW CERT.	11. LOGGING
CIDCLE ANY THAT ADDLY	12. OTHER:
CIRCLE ANY THAT APPLY:	6. EGG SHELLS COLLECTED 7. WHITEWASH AT EYRIE
1. PHOTO OF CLIFF TAKEN 2. PHOTO OF EYRIE TAKEN	
2. PHOTO OF EYRIE TAKEN 3. EYRIE DESCRIP. ATTACHED	<ul><li>8. OTHER WHITEWASH ON CLIFF</li><li>9. OVERHANG AT EYRIE</li></ul>
4. PREY REMAINS COLL.	10. AFTERNOON SHADING?
5. EGG(S) COLLECTED	A. YES B. NO C. UNKNOWN
· ·	1: 497414 E 3681827 N
0 11415 (14110 03, 125)	. 12 / 12 1 21 00010M/ 11

TREE NEST-SPECIES: Cooper's Hawk	GROUND NEST – SITUATION:
1. LIVE TREE	1. LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
	CLIFF ROCK TYPE: 1. SED 2. IGN. 3. MET
	SPEC. FORMATION:
TREE HEIGHT (M): unknown	CLIFF HEIGHT (M):
TREE DIAMTER (CM): unknown	CLIFF LENGTH (KM):
HEIGHT OF NEST IN TREE (M): unknown	HEIGHT OF NEST ON CLIFF (M):
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	2500
1. CLIFF	ASPECT OF SLOPE: unknown
2. UNVEGETATED GROUND	ASPECT OF NEST: unknown
3. WET MEADOW	
4. DWARF SHRUB MEADOW (tundra	NEST CONDITION:
dominated by grasses or sedges)	1. GOOD
5. GRASS MEADOW	2. FAIR 3. POOR/REMNANT
6. DWARF SHRUB MAT (dwarf shrubs <0.4 m	
high)	unknown           NEST ACCESSIBILITY (to ground predators):
7. LOW SHRUB THICKET (shrubs 0.5 – 1.1 m	1. EASY
high)	2. MOD. DIFFICULT
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	VERY DIFFICULT
high)	
	unknown
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	UNKNOWN DISTANCE TO HUMAN ACTIVITY (KM): 5
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)	DISTANCE TO HUMAN ACTIVITY (KM): 5
<ul> <li>9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>10. DECIDUOUS FOREST</li> </ul>	
<ul> <li>9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>10. DECIDUOUS FOREST</li> <li>11. CONIFEROUS FOREST</li> </ul>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)
<ul> <li>9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>10. DECIDUOUS FOREST</li> <li>11. CONIFEROUS FOREST</li> <li>12. MIXED DECIDUOUS-CONIFER FOREST</li> </ul>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated) HUMAN ACTIVITY VISIBLE FROM NEST?
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated) HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated) HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated) HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated) HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. ROAD 3. BOATING
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. ROAD 3. BOATING 4. AIRCRAFT
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> <li>LACUSTRINE (LAKE)</li> <li>RIVER / STREAM</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. ROAD 3. BOATING
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> <li>LACUSTRINE (LAKE)</li> <li>RIVER / STREAM</li> <li>OTHER PERRENIAL WATER</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:  1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S)
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> <li>LACUSTRINE (LAKE)</li> <li>RIVER / STREAM</li> <li>OTHER PERRENIAL WATER</li> <li>FOR CLIFF NESTS (habitat types):</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> <li>LACUSTRINE (LAKE)</li> <li>RIVER / STREAM</li> <li>OTHER PERRENIAL WATER</li> <li>FOR CLIFF NESTS (habitat types):</li> <li>ABOVE CLIFF:</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:  1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> <li>LACUSTRINE (LAKE)</li> <li>RIVER / STREAM</li> <li>OTHER PERRENIAL WATER</li> <li>FOR CLIFF NESTS (habitat types):</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD 3. BOAKING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS
<ol> <li>TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)</li> <li>DECIDUOUS FOREST</li> <li>CONIFEROUS FOREST</li> <li>MIXED DECIDUOUS-CONIFER FOREST</li> <li>SCATTERED WOODLAND AND DWARF FOREST</li> <li>ARTIFICIAL HABITAT</li> <li>OTHER</li> <li>MARINE</li> <li>RIPARIAN</li> <li>LACUSTRINE (LAKE)</li> <li>RIVER / STREAM</li> <li>OTHER PERRENIAL WATER</li> <li>FOR CLIFF NESTS (habitat types):</li> <li>ABOVE CLIFF:</li> </ol>	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD 3. BOAKING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:  1. TRAIL 2. ROAD 3. BOAKING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER:
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:  1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER: 6. EGG SHELLS COLLECTED
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:  CIRCLE ANY THAT APPLY:  1. PHOTO OF CLIFF TAKEN	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:  1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER: 6. EGG SHELLS COLLECTED 7. WHITEWASH AT EYRIE
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:  CIRCLE ANY THAT APPLY:  1. PHOTO OF CLIFF TAKEN  2. PHOTO OF EYRIE TAKEN	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY:  1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER: 6. EGG SHELLS COLLECTED 7. WHITEWASH AT EYRIE 8. OTHER WHITEWASH ON CLIFF
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:  CIRCLE ANY THAT APPLY:  1. PHOTO OF CLIFF TAKEN  2. PHOTO OF EYRIE TAKEN  3. EYRIE DESCRIP. ATTACHED	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER: 6. EGG SHELLS COLLECTED 7. WHITEWASH AT EYRIE 8. OTHER WHITEWASH ON CLIFF 9. OVERHANG AT EYRIE
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:  CIRCLE ANY THAT APPLY:  1. PHOTO OF CLIFF TAKEN  2. PHOTO OF EYRIE TAKEN  3. EYRIE DESCRIP. ATTACHED  4. PREY REMAINS COLL.	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER: 6. EGG SHELLS COLLECTED 7. WHITEWASH AT EYRIE 8. OTHER WHITEWASH ON CLIFF 9. OVERHANG AT EYRIE 10. AFTERNOON SHADING?
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m high)  10. DECIDUOUS FOREST  11. CONIFEROUS FOREST  12. MIXED DECIDUOUS-CONIFER FOREST  13. SCATTERED WOODLAND AND DWARF FOREST  14. ARTIFICIAL HABITAT  15. OTHER  16. MARINE  17. RIPARIAN  18. LACUSTRINE (LAKE)  19. RIVER / STREAM  20. OTHER PERRENIAL WATER  FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:  2. BELOW CLIFF:  CIRCLE ANY THAT APPLY:  1. PHOTO OF CLIFF TAKEN  2. PHOTO OF EYRIE TAKEN  3. EYRIE DESCRIP. ATTACHED  4. PREY REMAINS COLL.  5. EGG(S) COLLECTED	DISTANCE TO HUMAN ACTIVITY (KM): 5 (estimated)  HUMAN ACTIVITY VISIBLE FROM NEST?  1. YES 2. NO  TYPE(S) OF HUMAN ACTIVITY: 1. TRAIL 2. RQAD 3. BOATING 4. AIRCRAFT 5. BUILDING(S) 6. AGRICULTURE 7. CONSTRUCTION 8. RESEARCH 9. MINING 10. OIL / GAS 11. LOGGING 12. OTHER: 6. EGG SHELLS COLLECTED 7. WHITEWASH AT EYRIE 8. OTHER WHITEWASH ON CLIFF 9. OVERHANG AT EYRIE

Notes: No nest observed, but occupancy of grove and breeding confirmed. One very young fledgling observed at coordinates; Adults observed in area throughout season.

TREE NEST-SPECIES: Great Horned Owl	GROUND NEST – SITUATION:
1. LIVE TREE	1. LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
o. OTHER	CLIFF ROCK TYPE: 1. SED 2. IGN. 3. MET
	SPEC. FORMATION:
TREE HEIGHT (M): 10 (estimated)	CLIFF HEIGHT (M):
TREE DIAMTER (CM): 50 (estimated)	CLIFF LENGTH (KM):
HEIGHT OF NEST IN TREE (M): 8 (estimated)	HEIGHT OF NEST ON CLIFF (M):
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	2000 (estimated)
1. CLIFF	ASPECT OF SLOPE: N/A
2. UNVEGETATED GROUND	ASPECT OF NEST: North
3. WET MEADOW	NEST CONDITION:
4. DWARF SHRUB MEADOW (tundra	1. GOOD
dominated by grasses or sedges)	2. FAIR
5. GRASS MEADOW	3. POOR/REMNANT
6. DWARF SHRUB MAT (dwarf shrubs <0.4 m	3. TOORNEAMAINT
high)	NEST ACCESSIBILITY (to ground predators):
7. LOW SHRUB THICKET (shrubs 0.5 – 1.1	1. EASY
m high)	2. MOD. DIFFICULT
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	VERY DIFFICULT
high) 9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	DISTANCE TO HUMAN ACTIVITY (KM): 0.5
high)	(estimated)
10. DECIDUOUS FOREST	HUMAN ACTIVITY VISIBLE FROM NEST?
11. CONIFEROUS FOREST	1. YES
12. MIXED DECIDUOUS-CONIFER FOREST	2. NO
13. SCATTERED WOODLAND AND DWARF	TYPE(S) OF HUMAN ACTIVITY:
FOREST	1. TRAIL
14. ARTIFICIAL HABITAT	2. ROAD
15. OTHER	3. BOATING
16. MARINE	4. AIRCRAFT
17. RIPARIAN	5. BUILDING(S)
18. LACUSTRINE (LAKE)	6. AGRICULTURE
19. RIVER / STREAM	7. CONSTRUCTION
20. OTHER PERRENIAL WATER	8. RESEARCH
FOR CLIFF NESTS (habitat types):	9. MINING
1. ABOVE CLIFF:	10. OIL / GAS
2. BELOW CLIFF:	11. LOGGING
	12. OTHER:
CIRCLE ANY THAT APPLY:	6. EGG SHELLS COLLECTED
1. PHOTO OF CLIFF TAKEN	7. WHITEWASH AT EYRIE
2. PHOTO OF EYRIE TAKEN	8. OTHER WHITEWASH ON CLIFF
3. EYRIE DESCRIP. ATTACHED	9. OVERHANG AT EYRIE
4. PREY REMAINS COLL.	10. AFTERNOON SHADING?
5. EGG(S) COLLECTED	A. YES B. NO C. UNKNOWN
UTMs (NAD 83, 12S)	: 473086 E 3677400 N

TREE NECT CRECIEC, Donomino Folore	GROUND NEST – SITUATION:
TREE NEST-SPECIES: <b>Peregrine Falcon</b> 1. LIVE TREE	1. LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
0. UTHER	
	CLIFF ROCK TYPE: 1. SED 2. IGN. 3. MET
TREE HEIGHT (A.C.	SPEC. FORMATION: Apache Leap Tuff
TREE HEIGHT (M):	CLIFF HEIGHT (M): 125 (estimated)
TREE DIAMTER (CM):	CLIFF LENGTH (KM): 4.8 (estimated)
HEIGHT OF NEST IN TREE (M):	HEIGHT OF NEST ON CLIFF (M): 100 (estimated)
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	4000 (estimated)
1. CLIFF	ASPECT OF SLOPE: West
2. UNVEGETATED GROUND 3. WET MEADOW	ASPECT OF NEST: West
4. DWARF SHRUB MEADOW (tundra	NEST CONDITION:
dominated by grasses or sedges)	1. GOOD
5. GRASS MEADOW	2. FAIR
6. DWARF SHRUB MAT (dwarf shrubs <0.4	3. POOR/REMNANT
m high)	NEGET A CONCOUNT THAT (
7. LOW SHRUB THICKET (shrubs 0.5 – 1.1	NEST ACCESSIBILITY (to ground predators):
m high)	1. EASY
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	2. MOD. DIFFICULT
high)	VERY DIFFICULT
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	DISTANCE TO HUMAN ACTIVITY (KM): 0.3
high)	(estimated)
10. DECIDUOUS FOREST	HUMAN ACTIVITY VISIBLE FROM NEST?
11. CONIFEROUS FOREST	1. YES
12. MIXED DECIDUOUS-CONIFER FOREST	2. NO
13. SCATTERED WOODLAND AND DWARF	TYPE(S) OF HUMAN ACTIVITY:
FOREST	1. TRAIL
14. ARTIFICIAL HABITAT	2. ROAD
15. OTHER	3. BOATING
16. MARINE	4. AIRCRAFT
17. RIPARIAN	5. BUILDING(S)
18. LACUSTRINE (LAKE)	6. AGRICULTURE
19. RIVER / STREAM	7. CONSTRUCTION
20. OTHER PERRENIAL WATER	8. RESEARCH
FOR CLIFF NESTS (habitat types):	9. MINING
1. ABOVE CLIFF: Interior Chaparral	10. OIL / GAS
2. BELOW CLIFF: Arizona Upland	11. LOGGING
Desertscrub	12. OTHER:
CIRCLE ANY THAT APPLY:	6. EGG SHELLS COLLECTED
1. PHOTO OF CLIFF TAKEN	7. WHITEWASH AT EYRIE
2. PHOTO OF EYRIE TAKEN	8. OTHER WHITEWASH ON CLIFF
3. EYRIE DESCRIP. ATTACHED	9. OVERHANG AT EYRIE
4. PREY REMAINS COLL.	10. AFTERNOON SHADING?
5. EGG(S) COLLECTED	A. YES <b>B. NO</b> C. UNKNOWN
UTMs (NAD 83, 12S): 492415 H	E 3683007 N (observation post)

TREE VICET OPECIES B	CD OVIND AVEGE CONTACTOR
TREE NEST-SPECIES: Peregrine Falcon	GROUND NEST – SITUATION:
1. LIVE TREE	LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
0. UTHER	
	unknown
	CLIFF ROCK TYPE: 1. SED <b>2. IGN</b> . 3. MET
	SPEC. FORMATION: Apache Leap Tuff
TREE HEIGHT (M):	CLIFF HEIGHT (M): 125 (estimated)
TREE DIAMTER (CM):	CLIFF LENGTH (KM): 1 (estimated)
HEIGHT OF NEST IN TREE (M):	HEIGHT OF NEST ON CLIFF (M): unknown
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	4000 (estimated)
1. CLIFF	ASPECT OF SLOPE: West
2. UNVEGETATED GROUND	
3. WET MEADOW	ASPECT OF NEST: unknown
4. DWARF SHRUB MEADOW (tundra	NEST CONDITION:
	1. GOOD
dominated by grasses or sedges)	2. FAIR
5. GRASS MEADOW	3. POOR/REMNANT
6. DWARF SHRUB MAT (dwarf shrubs <0.4 m	
high)	unknown
7. LOW SHRUB THICKET (shrubs 0.5 – 1.1 m	NEST ACCESSIBILITY (to ground predators):
high)	1. EASY
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	2. MOD. DIFFICULT
high)	VERY DIFFICULT
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	DICTANCE TO HUMAN ACTIVITY (VA) 0.1
· ·	DISTANCE TO HUMAN ACTIVITY (KM): 0.1
high)	(estimated)
10. DECIDUOUS FOREST	HUMAN ACTIVITY VISIBLE FROM NEST?
11. CONIFEROUS FOREST	1. YES
12. MIXED DECIDUOUS-CONIFER FOREST	2. NO
13. SCATTERED WOODLAND AND DWARF	TYPE (C) OF HIR LAND A CONTINUE
FOREST	TYPE(S) OF HUMAN ACTIVITY:
14. ARTIFICIAL HABITAT	1. TRAIL
15. OTHER	2. ROAD
16. MARINE	3. BOATING
17. RIPARIAN	4. AIRCRAFT
	5. BUILDING(S)
18. LACUSTRINE (LAKE)	6. AGRICULTURE
19. RIVER / STREAM	7. CONSTRUCTION
20. OTHER PERRENIAL WATER	
FOR CLIFF NESTS (habitat types):	8. RESEARCH
1. ABOVE CLIFF: Interior Chaparral	9. MINING
2. BELOW CLIFF: Interior Riparian Deciduous	10. OIL / GAS
Forest	11. LOGGING
	12. OTHER: Climbing
CIRCLE ANY THAT APPLY:	6. EGG SHELLS COLLECTED
1. PHOTO OF CLIFF TAKEN	7. WHITEWASH AT EYRIE
2. PHOTO OF EYRIE TAKEN	8. OTHER WHITEWASH ON CLIFF
3. EYRIE DESCRIP. ATTACHED	9. OVERHANG AT EYRIE
4. PREY REMAINS COLL.	10. AFTERNOON SHADING?
5. EGG(S) COLLECTED	A. YES B. NO C. UNKNOWN
UTMs (NAD 83, 12S): <b>497224</b> I	E 3681898 N (observation post)
	- · · · · · · · · · · · · · · · · · · ·

TREE NEST-SPECIES: Common Black-hawk	GROUND NEST – SITUATION:
1. LIVE TREE	1. LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
	CLIFF ROCK TYPE: 1. SED 2. IGN. 3. MET
	SPEC. FORMATION:
TREE HEIGHT (M): 25 (estimated)	CLIFF HEIGHT (M):
TREE DIAMTER (CM): 30 (estimated)	CLIFF LENGTH (KM):
HEIGHT OF NEST IN TREE (M): 20 (estimated)	HEIGHT OF NEST ON CLIFF (M):
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	3600 (estimated)
1. CLIFF	ASPECT OF SLOPE: N/A
2. UNVEGETATED GROUND	ASPECT OF NEST: N/A (in canopy)
3. WET MEADOW	NEST CONDITION:
4. DWARF SHRUB MEADOW (tundra dominated by grasses or sedges)	1. GOOD
5. GRASS MEADOW	2. FAIR
6. DWARF SHRUB MAT (dwarf shrubs <0.4 m	3. POOR/REMNANT
high)	
7. LOW SHRUB THICKET (shrubs 0.5 – 1.1 m	NEST ACCESSIBILITY (to ground predators):
high)	1. EASY
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	2. MOD. DIFFICULT
high)	VERY DIFFICULT
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	DISTANCE TO HUMAN ACTIVITY (KM): 1
high)	(estimated)
10. DECIDUOUS FOREST	HUMAN ACTIVITY VISIBLE FROM NEST?
11. CONIFEROUS FOREST	1. YES
12. MIXED DECIDUOUS-CONIFER FOREST	2. NO
13. SCATTERED WOODLAND AND DWARF	TYPE(S) OF HUMAN ACTIVITY:
FOREST	1. TRAIL
14. ARTIFICIAL HABITAT	2. RQAD
15. OTHER	3. BOATING
16. MARINE	4. AIRCRAFT
17. RIPARIAN	5. BUILDING(S)
18. LACUSTRINE (LAKE)	6. AGRICULTURE
19. RIVER / STREAM	7. CONSTRUCTION
20. OTHER PERRENIAL WATER	8. RESEARCH
FOR CLIFF NESTS (habitat types):  1. ABOVE CLIFF:	9. MINING
2. BELOW CLIFF:	10. OIL / GAS
2. BELOW CERT.	11. LOGGING
CIDCLE ANY THAT ADDLY	12. OTHER:
CIRCLE ANY THAT APPLY:	6. EGG SHELLS COLLECTED
1. PHOTO OF CLIFF TAKEN	7. WHITEWASH AT EYRIE
2. PHOTO OF EYRIE TAKEN 2. EYRIE DESCRIB ATTACHED	8. OTHER WHITEWASH ON CLIFF
3. EYRIE DESCRIP. ATTACHED 4. PREY REMAINS COLL.	9. OVERHANG AT EYRIE 10. AFTERNOON SHADING?
4. FRET REMAINS COLL.  5. EGG(S) COLLECTED	A. YES B. NO C. UNKNOWN
` '	A. 1ES B. NO C. UNKNOWN 1: 501578 E 3679119 N
Notes: Stick pest in large willow along stream Adult &	

Notes: Stick nest in large willow along stream. Adult & Juvenile Common Black-hawks observed in immediate area throughout 2011 field season.

TREE NEST-SPECIES: Zone-tailed Hawk	GROUND NEST – SITUATION:
1. LIVE TREE	1. LEDGE ON CLIFF
2. SNAG	2. STICKNEST ON CLIFF
3. NEST BOX/PLATFORM	3. CAVITY (POTHOLE) ON CLIFF
4. ARTIFICIAL	4. OPEN HILLSIDE
5. CAVITY IN TREE	5. LEVEL GROUND
6. OTHER	6. OTHER
	CLIFF ROCK TYPE: 1. SED 2. IGN. 3. MET
	SPEC. FORMATION:
TREE HEIGHT (M): 50 (estimated)	CLIFF HEIGHT (M):
TREE DIAMTER (CM): 60 (estimated)	CLIFF LENGTH (KM):
HEIGHT OF NEST IN TREE (M): <b>45</b> (estimated)	HEIGHT OF NEST ON CLIFF (M):
DOMINANT HABITAT TYPES	ELEVATION OF NEST ABOVE SEA LEVEL (FT):
(up to three within .5 km of nest)	2800 (estimated)
1. CLIFF	ASPECT OF SLOPE: N/A
2. UNVEGETATED GROUND	ASPECT OF NEST: N/A (in canopy)
3. WET MEADOW	NEST CONDITION:
4. DWARF SHRUB MEADOW (tundra	1. GOOD
dominated by grasses or sedges)	2. FAIR
5. GRASS MEADOW	3. POOR/REMNANT
6. DWARF SHRUB MAT (dwarf shrubs <0.4 m	
high) 7. LOW SHRUB THICKET (shrubs 0.5 – 1.1 m	NEST ACCESSIBILITY (to ground predators):
high)	1. EASY
8. MED. SHRUB THICKET (shrubs 1.2 – 2.4 m	2. MOD. DIFFICULT
high)	VERY DIFFICULT
9. TALL SHRUB THICKET (shrubs 2.5 – 5.0 m	DISTANCE TO HUMAN ACTIVITY (KM): 0.02
high)	(estimated)
10. DECIDUOUS FOREST	HUMAN ACTIVITY VISIBLE FROM NEST?
11. CONIFEROUS FOREST	1. YES
12. MIXED DECIDUOUS-CONIFER FOREST	2. NO
13. SCATTERED WOODLAND AND DWARF	TYPE(S) OF HUMAN ACTIVITY:
FOREST	1. TRAIL
14. ARTIFICIAL HABITAT	2. ROAD
15. OTHER	3. BOATING
16. MARINE	4. AIRCRAFT
17. RIPARIAN	5. BUILDING(S)
18. LACUSTRINE (LAKE)	6. AGRICULTURE
19. RIVER / STREAM	7. CONSTRUCTION
20. OTHER PERRENIAL WATER	8. RESEARCH
FOR CLIFF NESTS (habitat types):	9. MINING
1. ABOVE CLIFF:	10. OIL / GAS
2. BELOW CLIFF:	11. LOGGING
	12. OTHER:
CIRCLE ANY THAT APPLY:	1. EGG SHELLS COLLECTED
1. PHOTO OF CLIFF TAKEN	2. WHITEWASH AT EYRIE
2. PHOTO OF EYRIE TAKEN	3. OTHER WHITEWASH ON CLIFF
3. EYRIE DESCRIP. ATTACHED	4. OVERHANG AT EYRIE
4. PREY REMAINS COLL.	5. AFTERNOON SHADING?
5. EGG(S) COLLECTED	A. YES B. NO C. UNKNOWN
UTMs (NAD 83, 128) Notes: Nest active at camp. One young fledged. Birds of	: 502596 E 3679912 N
motes: mest active at camp. One young neaged. Birds of	onunuousty visible alia adalbie.

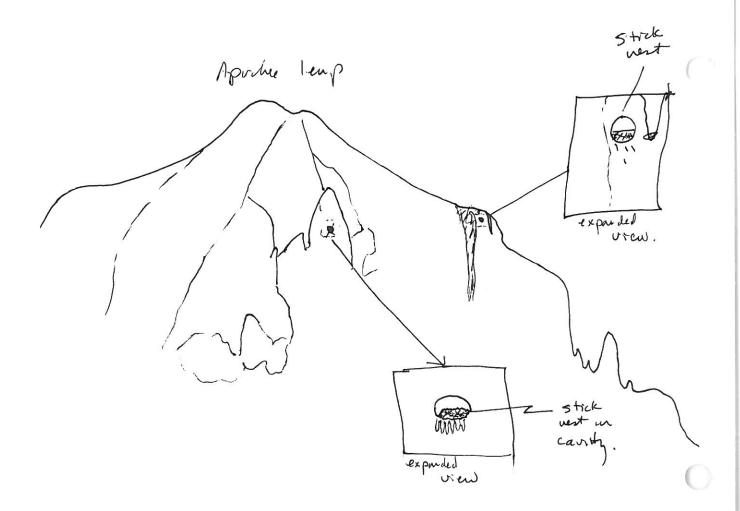
<b>ATT</b>	ACH	IME	NT	1

Personnel: Survey Location: Visit #: Date: Start Time:  General Site Comm TUNNEL, NE OF APACHE	APACHE LEAP  Jack Zittere  TUMM 1  3-16- 7011  1659 End Time: 18:59  ments: (049 2724 / 3685  DETIT OF CREEK OBSERV  LEAP, TO BOTTOM OF	CLIFF SURVEY  ZIZ) 300M EA  ING NORTHUM QUEEN CREEK	(Beaufort scale):	78° 45% 0(1)(2)3 4 5 1 CREIZK PORTION
OBSERVATIONS				
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
17:05,17:14,17:25	3 T.V. 'S CIRCLEING ON RIDGE WEST OF LEAP	T.V.	VISUAL	NONE

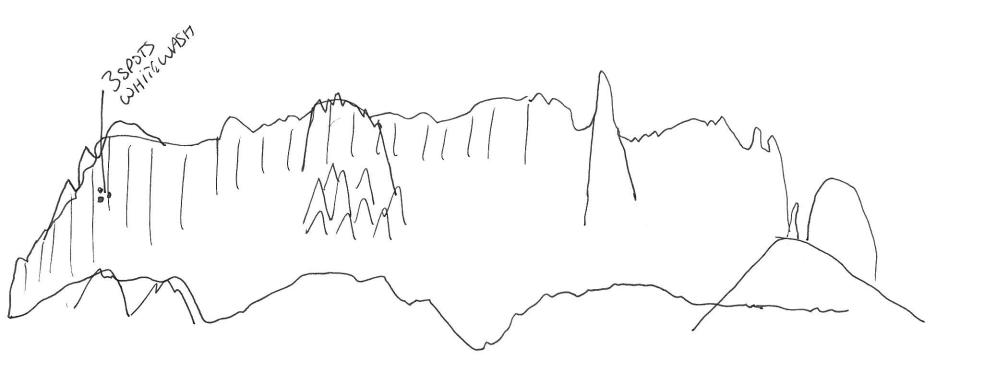
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
17:05,17:14,17:25 17:32,17:40	RIDGE WUST OF LIVE	T.V.	VISUAL	NONE
17:45,17:52	14, T.V.'S CIRCLING OVER APACHELEAP PEAKS	T.V,	VisuAL	NONE
17155,18122 18131,18143	21 T.V.'S CIRCLING OVER LEAP.	TiVi		

Chain of Custody Field Biologist Signature Data Entry Signature	Supervisor Signature Data Proofing Signature	
W/I :- 1.1 000   1007 42 11.		

	APACHE LEAP	CLIFF SURVEY		
Personnel:	Mike CROSS		Temperature:	280°F
Survey Location:	TunnelZ		Cloud Cover (%):	1.1.
/isit #:	Ţ		Wind Code	0) 1 2(3)4
Date:	3-16-2011		(Beaufort scale):	9 1 20 7
Start Time:	1704 End Time: 1904			
General Site Comm hale to towar (ved towar	nents: 0491835/3684943  2	of sist west of to we then from roo	hite to a	ld roud
OBSERVATIONS		7		
Time:	Observation Description:	Species	Evidence of Habitation	Evidence o Breeding
1710 -> 1904	TUVUS observed soarry in area and frying	TUVU	None	None
1750	Stick unt Iscorded in hole in Cliff Face.  Possible (see skelch of on	reverse)	Strokuest, white wash	No Gora
1827	large "Kettle" of Tyvis soarving over leap	TUVU	None	None
1829	2 nd stick west on cliff (see Gack)	undetermined	white wash.	No vir
nain of Custody eld Biologist Signat ata Entry Signature		ervisor Signaturea		



	APACHE LEAP O	LIFF SURVEY		
Personnel:	JACKZITTERE A-LEAPH NORTH, (491929-368	and the state of t	Temperature:	54°
Survey Location:	A-LEAP# NORTH, (491929-368	3825)	Cloud Cover (%):	15%, 20%, 35
Visit #:	/	, (	Wind Code	
Date:	3.17.2011		(Beaufort scale):	0-1)2345
Start Time:	07:24 End Time: 09:24			
General Site Con (NAO 83=E= BEST TO A SUN RISE (	nments: APACHELFAP-N.W. RI 0491929, W=3683825) ELE RRIVE BARLY SO SUN N OVER ROCKS	OGRTOPVIE =3234, FO OF INEYE	w 95%+! VII VIGW OF J08143 TODA	LRAP, TY FOR
OBSERVATIONS	5			
			Evidence of	Evidence of
Time:	Observation Description:	Species	Habitation	Breeding
08:43	SUN RISES OVER TOP OF APACHE LEAP, SUN IN EYES, HARDER TO SEE	N/A	N/A	N/A
07:45	WHITEWASH SPOTTED LOCATION MAPON BACK	NA	N/A	NA
hain of Custody Teld Biologist Signata Bata Entry Signatur	ature John R. Zittere Superv	isor Signature		



	CONTRACTOR OF THE CONTRACTOR O	CLIFF SURVEY		, 11
Personnel:	Thike CROSS	20,000.00	Temperature:	60°F
Survey Location:	Suth Leap		Cloud Cover (%):	10
Visit #:	1 12 12 11		Wind Code	0) 1 2 3 4 5
Date: Start Time:	3-17-2011		(Beaufort scale):	
Start Time.	<u>0350</u> End Time: <u>0950</u>			
General Site Comm	zents: Oliserutina Station	( La Lear Lear	well site ( ween)	Site has
history of	Persone Falcon occupancy	UTM 04924	15 / 368 3007	,
WP= 11 300	the Leap , Test well be	puo ntientem	ows right belo	w historia
egre, arilling	nents: Observation Station Person follow occupancy. The Leap's 18st well occupancy. Waching operators arow	d the clock. In	isms on athis	, w ,
<b>OBSERVATIONS</b>				
			Evidence of	Evidence of
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
Tillio.	Observation Description.	Оресіса	Tiabitation	Diecuing
				<del> </del>
	OUSETUAA	im		
100	00 361 071	0,7		+
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		1	~	
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		20,000 20 0 1,000		
Chain of Custody	20(1)			
Field Biologist Signat	ure Supe	rvisor Signature		
Data Entry Signature	Data	Proofing Signature		
		The second secon		_

Leap <del>DEVILS CANYO</del>N CLIFF SURVEY 8 of 9 Personnel: CR055 Temperature: Survey Location: Cloud Cover (%): Visit #: Z Wind Code 0 ① 2 3 4 5 Date: 4-4-2011 (Beaufort scale): Start Time: End Time:

General Site Comments: The base of Apache Leap on South side, Site is location of historic peressive fulcon eyne.

#### **OBSERVATIONS**

OBSERVATIONS				
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
1925	overhead.	TUVU	1	NA
1931	Two Turvey Unitaries Soarns off Face of heap	TUVU	1	NA
1835	Face of heap  Ned to 1 Hank  Fly 5 along top  y 1 eup; 5 to N.	RTHA	1	
1836	10 Turkey Witures flying along Leap	TVVV	1	
1840 - 1844	PETHA housering over lap for extended personal.	RTHA	l	
1852	period.  3 TVVV flying about crest of Leap	TUYU	1	
1900	Overt Horned OWI CALLING From South side of Leap	GRHO	/	
	U			

Chain of Custody	
Chain of Custody Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

DEVILS CANYON CLIFF SURVEY

Personnel: Survey Location:

Date: Start Time:

Visit #:

4-APRIL-2011

6:45 End Time: 18:50

Temperature: Cloud Cover (%):

Wind Code (Beaufort scale):

2 3 4 5

General Site Comments: NA0 83 (N=3683826 - E=0491928)	_
OBSERVATION POINT TOP OF RIOGE WEST OF NORTH END	
OF LEAP. GOOD ONERVIEW OF LEAP	

### **OBSERVATIONS**

OBSERVATIONS				
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
16:45 TO	TUVUZTO8 BIRDS VISIBLE MOST OF THE TIME	TUVU	OBSCEVED	NONE OBSOLVED
17:40	ZTHA VISABLE YZMI AWAY FROM OBSERVER NORTH OF LEAP NEAR GROUP OF TUVU	ZTHA	NONE 1 OBSERVED	NONR OBSNEVAD
18:10-18:17	NO OBSCRVATIONS	NONE	NONE	NONE
18:42-18:50	STATIONARY TUCKED HOVERING OVER SOUTH LEAP	RTIHA	1	NONE
	IMPROSSIVA SAILING			
		A company of the comp		

Chain	οf	Custody
Cilaiii	U	custouy

Field Biologist Signature Data Entry Signature

Supervisor Signature\_

Data Proofing Signature \_\_\_

Personnel: Survey Location: Visit #: Date: Start Time:	Aparus leap - Cross en 4-27-11 0526 End Time: 0602	-ham	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	54°F 0 1 2 (3) 4 5
General Site Comi	ments:	at 543,	Elf dw/ before sur bottom of (r	observed vey near uss langon Roc
OBSERVATIONS Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
$\sim$	O FALCONS	OBSE	RVED	
-				
ain of Custody				
d Biologist Signat a Entry Signature	ure Tolum Super	visor Signature Proofing Signature		

Personnel: Survey Location: Visit #: Date: Start Time:  General Site Comm	Mike Criss, Ben Rackh  Aprice leap - West of Que	xeh Creex Tlime!	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	58° k 0 0 1 2(3)4 5
OBSERVATIONS		Ţ		
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
$\sim$	O FALCON.	S OBS	ERVED	
Chain of Custody Field Biologist Signature Data Entry Signature	The state of the s	rvisor Signature Proofing Signature		

Personnel: Survey Location: Visit #: Date: Start Time:	APACHE LEAF  CROSS / Archer  Aprilu leap Sa  S-11-Zail  OG15 End Time:	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	82°F 0 0 (1)2 3 4 5	
	nents: Base of Apropriation	lu leop :	m Swith s	, rile
OBSERVATIONS				
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
0620	3 TUVUS Sourvy	ナリソリ	1	NA
0650	1 TUVU Sowing	n n	1	NA
0659	Z TUVU Soating	/× //	1	NA
0704	1 RTHA Stationery, Novering our leap for 10 minutes	RTHA	1	A
6710	2nd RTH Joins 1st.	RTHA	1	
0716	TUVU SOANYS	TUVU	1	
	,			
nain of Custody eld Biologist Signati nta Entry Signature				

	APACHE LEAP CLIFF SURVEY	,	0 -
Personnel: Survey Location:	M. CPOSS	Temperature:	<u>65</u> F
Visit #:	17 parlie hemp	Cloud Cover (%): Wind Code	0(1)2345
Date:	5-27-2011	(Beaufort scale):	0 (1) 2 3 4 5
Start Time:	0450 End Time:		

General Site Comments: Apriche Leup. Obsanistem post at and paid directly beneath a historic eyne (peregnine

### **OBSERVATIONS**

¥

Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
0454	PEFA VOCATIZATION ON CLIFFS OUVE Observers. Still clark	PEPA	1	7,1
0532	PEFA VocalizAAn	~	l	7,1
0537	1/	~	1	7,1
0542	W II	VV.	1	7,1
0550	i, i,	× C	l	7,1
0555	Comes out. Perhas	V.V.	l	7,1
0605 (OVER)	2nd PEFA Vovanizes. Flys across cliff top and out of view	11	1	7,1
0637	1ST PEAR Leaves perch and flys into eyric!		1	7,1
0632	2nd PEFA Returns, flying high own cliff goind West	l I	1	7,1
0633	1st PEFA lowers eyrie and fullows 1st		l	7,1

Chain of Custody		0.00	
Field Biologist Signature	Alter	Supervisor Signature	
Data Entry Signature		Data Proofing Signature	

Flew past perhed peregnue then south along beap out of View.

Personnel: Survey Location: Visit #: Date: Start Time:  General Site Com Where Elk of Ryaw	DEVILS CANYON  Mile (120.85) Jan  Dorth Pipe Spring Cr  1  4-6-2011  Ogiy End Time: 12  ments: Cliffs on Eas  Tank trail weets  habitation (40 white c	- วิเป	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):  ev. 15 (uny) ym, No e	800 100 0 1 2 3 4 5 M
OBSERVATIONS			<del></del>	
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
0914-1014	numerous Turken Unitaris sources over compan	TUVU	1	
hain of Custody ield Biologist Signato ata Entry Signature	ure Supe	rvisor Signature Proofing Signature		

	Personnel: Survey Location: Visit #: Date: Start Time:	1 -6-2011 1210 End Time: 1510	CLIFF SURVEY	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	80 100 0 1 234 5
	General Site Comm Cayon beto Evidence of PNW  OBSERVATIONS	ments: A series of Sheen wen Pipe Sprize and Ureedux raptus (Pravir yews-	Cliffs on E Rowhide Co Falon) observ	Eust siele if myon Conflu med here	Devils
	OBOLITORO			Evidence of	Evidence of
	Time:	Observation Description:	Species	Habitation	Breeding
	1215	I adult golden eagle Seen souring over CI.F. Dissupers up side d	GOEG	1	
	1216	I adult red tarled howk Seen sources over Cliff	RIHA	)	
	1215-1310	or chiff, whitewash	76	Z	]
હ	· · · two	Eyrie on ledge. Too small for GOEG, Suspect Falson			
Fie	ain of Custody Id Biologist Signature ta Entry Signature	ire Super	visor Signature		
Fie	ld Biologist Signatu	ıre Super Data	visor Signature Proofing Signature _		

Personnel: Survey Location: Visit #: Date: Start Time:  General Site Composition	APACHE LEAF  Mile (2045) Whe Wa  Devils (myn Cliff) (DC)  1  5-24-2011  1730 End Time: 1930  ments: Observer 497224	- - -	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	8 Z 0 0 1 2 3 4 5
OBSERVATIONS			T	T
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
1735	1 TUVU Soary	TUW		
1740	White wish whop ruck in the du CHUUSE on While of Co	3 m	Z	
1003	2 TUVU Flying dung canyon put	TUVV	1	
1807	6 TUVU flying	TUVU	1	
1810	Possible eyne on west facing cliff face. COVER). 90F	Falso spp.	2,1	/
1830	Ropher vocationation from canyon bottom	?	ndasilasou) 1	
1838	Blackhank flying in	CBHA	1	
1835	One unidentified (either CBHA or Z+HA) Flying in causer	?	1	
1402	Peregna vorthizes, then is visible flying our Cliff. (OUFIR)	<del>FAP</del> PEFA	1	F
	Tooks )			

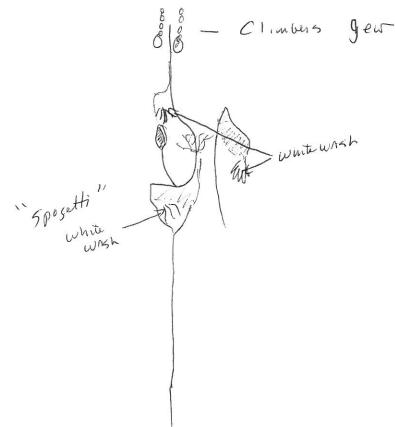
Chain of Custody

Field Biologist Signature

Data Entry Signature

Data Proofing Signature

XX



# 5th of probable persone sign/ potential eyere.

Classic "spashetti" white wash puttern indicative of
Falcons. This white wash is associated

with suitable potential eyeres/ledges.

Discorded climbers feat usible above possible

eyere; string of corbiners. Potential eyere is 90° E

from DCOP1.

\*\* Poregra Folion voithires of at 1902,

Trys back and forth across cliff

Face, territorial interaction with TVVV which

is grapped / tunded by Falcon and then released.

Desegra then true downstream out of site

then the returns and the possibly dissurpeurs

Into a crevusse N of original publical

eyrie at 1907.

**DEVILS CANYON CLIFF SURVEY** Personnel: Mila crass / Lon fures + Temperature: Survey Location: Cloud Cover (%): Visit #: Wind Code 0 1/2)3 4 5 6-20-2011 Date: (Beaufort scale): Ind Time: Start Time: Cliff West facing General Site Comments: Devolo in Cayon. **OBSERVATIONS** Evidence of Evidence of Time: Observation Description: Species Habitation Breeding 7 TUNS Sours TUV 1905 cuyon 3 TUVUS perhed un Cliff 100 m 5 1910 TW of Observers 7 TUVUS ROUSTUS TUW 1911 alop diff & lovin 5 of Obscriens (Roost!) 3 TUVS Roustry 1916 TUVV Atop Cliff on E side Z+ HA 1918 PEFA; Peregra voralizing PEFA X 1,2,3 1932-1940 form next diff 2nd PEFA 1936-1940 PEFC 1,2,3 Z flys back and Furth why chiff. 1st bird over

How Peregrus heard voration on 6-13-2011

Chain of Custody

Field Biologist Signature \_\_\_\_\_\_ Supervisor Signature\_\_\_\_\_\_

\_\_\_\_\_ Data Proofing Signature \_\_\_

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Data Entry Signature

KEY: Wind Code: 0 Calm. Smoke rises vertically. 1 Smoke drift indicates wind direction. 2 Wind felt on face; leaves rustle. 3 Leaves and small twigs moving. 4 Dust and loose paper raised. 5 Branches move; small trees sway. Evidence of 1 direct observation of a raptor Habitation 2 observation of whitewash 3 observation of a stick nest Evidence of 1 presence of a nest or eyrie Breeding 2 young in nest 3 adult in nest in incubation posture 4 mating behavior

5 prey deliveries6 nest maintenance7 adult near nest

Hours can be heard vocations. Eyre was be believed large spire, out of view. Of Cliff does contain an egre, exact lower of Eyrie is unknown

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

Biologists	nik	CROSS			Date 3-16-2011	
	Jack	Ziffere				
Sun	vev Start Time	10.7			Site Oak Flat	
Sur	vey Start Time	10.30 F4:53	- 165	7	Map	
Out	voy End Time	- [7]	165	<u></u>		
Point	Start Time	End Time	Species	Age	Notes	
OFI	10:30	10:40			Photos; 0651, 0652, 0653, 0654 (NESW)	
OFZ_	1047	1057				
0F3	1100	1110	<b>TH</b>		Photos: 0656, 0657, 0658, 0659 (NESW) Photos: 0660, 0661, 0662,0664 (NESW)	
			TUVU	A	1 TURU 400 INS	
046	1138	1148			Photos; 0665, 0666, 0667, 0668	
0F12	1211	1221			Photos: 0671,0672,0673, 0674	
			TUVU	A	ITWV Soaring am strang ITUV BODME	
			TUVU	A	1 TUVU 400mN; ITUVU 300mW	
OF 13	1230	1240			Photos; 0675,0676,0877, 0678	
OFIL	1247	1257	_		- Photos; 0679, 0680, 0682	
05						
BEY	1321	1331			- Photos; 0683,0684,0685,0686	
OF5	1334	1344			- Phytos; 0687,0688,0689, 16890, 0690	
			COHA	Α	1 CO40 300m SE (Same drawage on 2003)	us
057	1346	1356			Photos; 0691,0692,0693,0694	
OF8	1359	1409		<del> </del>	Photos: 0695, 0696, 0697,0698	
			TUVU	A	1 TUVU ZOOM NE	
OF9	1414	1424			· Photos; 0699, 0700, 0701,0702	
			TUVU	A	1 TUVU SUOMS	
OFID	1428	1438			Photos; 0703,0704,0705,0706	
OFIL	1443	1453	(3-		Photos, 0707, 0708, 0709, 0710	
0F15	1642	1652			- Plutos: 0712,0713,0714,0715	
			TUVU	A	1TUVU overhead;	
	200 200 200				,	
					ope, overall aspect, etc. within area of survey.	
Oak !	rlat, luter	me chapper	A, Owl	les Streen	trun and Plats	
with	sme la	ge their	IN CA	mys Ov	them and Plats	
3 <del>-34-54-5</del>				The Annal State of the State of		
			995×11			
	Custody	n1	10	6	-i Citu	
Data Ent	logist Signatur ry Signature_	re // V	~	Super Data	visor Signature Proofing Signature	
	,g				5 - 5	

### LINEAR TRANSECT RAPTOR SURVEY

Biologists	Mich	rel C	120 S	5
9	Sack	Zitten	2	-
Surv	ey Start Time _	3-17	-7	0900
Sur	vey End Time_	1300	)	<u></u>

Date_	3-17-2011
Site_	Quen Creek / Oak Hut
Man	

Transect	Start Time	Start UTM (	NAD 83)	Species	Age	End Time	End UTM	(NAD 83)	Notes
Transcot	Otan Time	Easting	Northing	Species	Age	Liiu iiiie	Easting	Northing	Notes
avencs.	0500	1				1030			no bobyers
QueenCr. 5toQC	0500					1030			No Raphrs No Raphrs No Ryptors
60 to 3	1100					1330			sugas ol
3 to 1	1100-	293			776	1330			les Rysturs
						100		10000	4
		12 × 8 × 8 × 9 × 9 × 9 × 9			7933	<u> </u>			
								· · · · · ·	

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

# LINEAR TRANSECT RAPTOR SURVEY

Biologists Ben Rackham		Date 3 /25/10
Mike Wendoll		Site Oak Flat
Survey Start Time		Map
Survey End Time 1430	•	

Transect	Start Time	Start UTM (	NAD 83)	Cassias	Species Age		Species Age End Time		End UTM (NAD 83)		Notes
Transect	Start Time	Easting	Northing	Species	Age	End Time	Easting	Northing	Notes		
Ì	0905	494827	3665765	5744	A	0956	996548	3686185			
2	1046	494362	3684692	2TUVU	Α	12/5	493850	3685612	GUEEN CLE		
		494212	368 550	BHA	A	nest n	of loca		-sorring overhead; one with resting material; co		
3	1309	494504	368508	s TUVU	A	4430	416244	3683099			
				COHA	A		495395	36847 17	Flying 200 m to then		
	19		¥								
			i e								

Chain of Custody	D. D.	
Field Biologist Signature	my / Caible	Supervisor Signature
Data Entry Signature		Data Proofing Signature

#### LINEAR TRANSECT RAPTOR SURVEY

General Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey. Transects are alona Creeks and roods . Interior Chaparrai SPECIES: Code Species Name Code Species Name Species Name Code NONE No Species Detected HAHA Harris's Hawk **BAOW** Barn Owl **BLVU** Black Vulture Gray Hawk **GRHA FLOW** Flammulated Owl **Turkey Vulture ZTHA** TUVU Zone-Tailed Hawk WSOW1 Western Screech-Owl **CBHA** Common Black-Hawk WSOW2 Whiskered Screech-Owl NOHA Northern Harrier **RTHA** Red-Tailed Hawk **GHOW** Great Horned Owl WTKI White-Tailed Kite Northern Pygmy-Owl **SWHA** Swainson's Hawk **NPOW** MIKI Mississippi Kite **FEHA** Ferruginous Hawk CFPO Cactus Ferruginous Pygmy Owl **ELOW** Elf Owl Cooper's Hawk COHA **OSPR BUOW Burrowing Owl** Osprey SSHA Sharp-Shinned Hawk **GOEG** Golden Eagle **MSOW** Mexican Spotted Owl NOGO Northern Goshawk Long-Eared Owl BAEL Bald Eagle LEOW **NSWO** Northern Saw-Whet Owl **AMKE** American Kestrel **PRFA** Prairie Falcon AGE: **PEFA** Peregrine Falcon Code Definition Α Adult Juvenile Nestling N **Chain of Custody** Field Biologist Signature \_\_\_\_\_ Supervisor Signature Data Proofing Signature \_\_\_\_\_ Data Entry Signature

C	va. Chaut Time	0 640			Site Oak Flat
Su	vey Start Time rvey End Time	1/14	(-		Map
Ju	Troy End Time		0		Visit #2
Point	Start Time	End Time	Species	Age	Notes
15	0840	0850	7000	A	3 TUV, WISW, CAMP, SCOR
	9851	0852	AMKE		493418 £ 3685467 N Coppert
4	0907	1917	TUVU	_ A	5 TUVU, 3 CORA
3	0920	0925		A	1 Sloop Showed Hewic
3	8422m	0933	TUV	A	4 TOW
1	0935	0947	TUVU	A	4 TUVU WEEL, BCFL
1	0950	1001	Tuvu	A	STUVU, BCSP, 494502 E 3685054 N (morrect place)
5	1009	1019	TUVU	A	494502 E 3685054 N (morrect place
7	1022	1033	ruvu	Α	37444
7	-		COBH	A	1 COBH
8	1036	1046	TUVU	A	2 TUVU
	1050	1050	ZTHA	A	incidental observation:
_			-		IZTHA near eastendor
		-	-	ر	Queen Creek Tunnel
				42.0	
		ļ			
		<u>L</u>			
neral	Description	Dioce desert	0.110 cr = t = 1°		
Ina	pescription:	riease describ			pe, overall aspect, etc. within area of survey.
		77			

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Biologists Mike Cross Ben lacknam					Date 4-26-11	
	Elevi Face Mayn				Site on the Flat	
Survey Start Time 0936 Survey End Time 140			o		Site Oak Flat	
Sur	vev End Time	1147	<del>-</del>		Мар	
	,	- 40				
Point	Start Time	End Time	Species	Age	Notes	
14	0936	0946	Tuvu	A	ITUVU	
13	0956	1008	-	1	nobirds	
12	1016	1027	TUVU	A	3 TUVU	
6	1633	1043	Name .	1	no birds; CoHA nest unoccupie d	
9	1057	1109	_	1	BCSP	
10	1110	1123	turn	A	LOTUVY, I CORA	
il	1127	1140	CORA	Α	1 CORA	
		11 (			-	
		110,7 110				
		1.00 (				
walked	3 segmen	nt of	Queen	Cree	k between confinence iring but nest not located	
and t	unnel; 1	TOHA	Observ	ed soo	iring but nest not located	
Ochera i	Jescription:	Please describ	e vegetative	cover, slop	pe, overall aspect, etc. within area of survey.	
Interior Chapparal						
				1000		
Chain of 0	Custody	<b>-</b> · · ·				
Field Biolo	gist Signature	pm	Reide	Supervi	isor Signature	
Data Entry	Signature			_ Data P	roofing Signature	

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Queen Creek

# .DEVILS CANYON RAPTOR SURVEY

Biologists	M-CP055			_		Date	5-24-2011
	ey Start Time			-		Site <sub>_</sub>	5-24-2011 Oven Creek
				_		<u>,                                    </u>	
Transect	Start Time		TM (NAD 83)	End Time		M (NAD 83)	Notes
		Easting	Northing		Easting	Northing	
THE WAY	1315	494167	3685585	1400	493173	3685363	No Observations of R
OBSERVAT	TIONS:						U
	Time	Locatio	n (NAD 83)	Species	Age Nu	Number	Notes
	111110	Easting	Northing	Ореско	7 igo	, vazo.	110.00
		)					
		, ,					
3							
				1)			
Į							
Chain of Cu Field Biologis Data Entry S	st Signature				re		

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Biologists Mile CROSS			55		Date 6-20-2011
Sur Su	vey Start Time	338  633	s (	Subtract	Site Ouk Flut Map  The for sympur)
Point	Start Time	End Time	Species	Age	Notes
1	1338	1348	TUVU	# A	2 TUVUS Sourmy,
2	1357	1407	8		NONE
14	1430	1440	TUVU	<b>O</b> A	7 TUVUS SOUS NY
13	1451	1501	0	/	No Raphic Observed
12	1508	1518	TUVU	A	6 TUNIS Souting
6	1578	1539	JUVV	A	6 TUVVS SOUTURE
3	1544	1554	TUVV	A	3TUVUS SOUVE
14	1557	1607	JUVA	A	3 TUVU'S SOUTING
15	1612	1622	TUVU	A	7
1	1625	1835	TUYU	LA_	6 TUVUS SOURCES
1 AV	V635	1630	RTHA	4	PATE Sociale
7	1630	1635	THAS	2	1 RT HA Jovende in avea.
8	1637	1647	7777	A	6 TUNIS SOUTING 3 TUVIS SOUTING 1 TUVIS SOUTING 2 TUVIS SOUTING
9	1757	1807	TUVV	A	3 TUVS SOUTING
10	(810	1820	TANA	ļ.	TUVU Souring
	1823	1833	TUVV	<u> </u>	2 TUVU SOMA
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			<u>L</u>		1 1 1 5 1 5 1 5 5
<del>//</del> 1	ZTHA See	n w) pri	ey off	trused	+ 8 Oak flut a AUS 60 @ 1750
					e, overall aspect, etc. within area of survey.
Total	w Ch	parm: B	elder -	strewn	- Flot ara Gethen
Ver		~ 4	Ap	nohe	Lego.
Ohain af	<b>.</b>	`	1		\
	Custody  Ogist Signature	(1)		Supervi	sor Signature
Data Entr	y Signature	0			roofing Signature

 $\label{thm:winds} W:\label{thm:winds} W:\lab$ 

### SPECIES:

Code	Species Name	Code	Species Name
NONE	No Species Detected	BAOW	Barn Owl
BLVU	Black Vulture	FLOW	Flammulated Owl
TUVU	Turkey Vulture	WSOW1	Western Screech-Owl
		WSOW2	Whiskered Screech-Owl
NOHA	Northern Harrier	GHOW	Great Horned Owl
WTKI	White-Tailed Kite	NPOW	Northern Pygmy-Owl
MIKI	Mississippi Kite	CFPO	Cactus Ferruginous Pygmy Owl
		<b>ELOW</b>	Elf Owl
COHA	Cooper's Hawk	BUOW	Burrowing Owl
SSHA	Sharp-Shinned Hawk	MSOW	Mexican Spotted Owl
NOGO	Northern Goshawk	LEOW	Long-Eared Owl
		NSWO	Northern Saw-Whet Owl
HAHA	Harris's Hawk		
GRHA	Gray Hawk		* *
ZTHA	Zone-Tailed Hawk		
CBHA	Common Black-Hawk		
RTHA	Red-Tailed Hawk		
SWHA	Swainson's Hawk		
FEHA	Ferruginous Hawk		
OSPR	Osprey		
GOEG	Golden Eagle		
BAEL	Bald Eagle		
AMKE	American Kestrel		
PRFA	Prairie Falcon		
PEFA	Peregrine Falcon		

### AGE:

Code	Definition	
Α	Adult	_
J	Juvenile	
N	Nestling	

# Chain of Custody

Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

Biologists	Mile Lori	CN065			Date 6-21-2011	-
		1011			Site	
Survey Start Time 1857					Site Map	-
Survey Start Time 1857 Survey End Time 1907						-
	,	-1701				
Point	Start Time	End Time	Species	Age	Notes	
15	1857	1507	TUUU	A	Z TUVUS SOUTY  Z mme TUVUS SOUTY  7 TUVUS ROOSTING on C  Z mre TUVUS come to po	
15	11	11	TUVU	À	Z man TUVU'S Svance	1
15		~ (	TUVU	A	3 man TIVUS SINT	1
15	1.	11	TUN	A	7 TUVES ROUSTING OF C	LAS
15	11	-1	TUVU	A	7 mm TUILLS come to Re	os+.
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General	Description:	Please describ	e vegetative	e cover, slo	pe, overall aspect, etc. within area of survey	2
NUM	rems 1	U 1 0'5	werrs	ush r	weset : Some Sours	ver
<u></u>	overs,	other	novsky	, , ,	what some sourse Cliffs South Skytime.	_
a)	Que	er CV	LEEK	new	Skytina,	_
V					,	
Chain of	Custody	(	$\supset$			
	Oustody Ogist Signatur	$\sim 10^{10}$	$\checkmark$	Superv	risor Signature	
	v Signature				Proofing Signature	

### SPECIES:

Code	Species Name	Code	Species Name
NONE	No Species Detected	BAOW	Barn Owl
BLVU	Black Vulture	FLOW	Flammulated Owl
TUVU	Turkey Vulture	WSOW1	Western Screech-Owl
		WSOW2	Whiskered Screech-Owl
NOHA	Northern Harrier	GHOW	Great Horned Owl
WTKI	White-Tailed Kite	NPOW	Northern Pygmy-Owl
MIKI	Mississippi Kite	CFPO	Cactus Ferruginous Pygmy Owl
		ELOW	Elf Owl
COHA	Cooper's Hawk	BUOW	Burrowing Owl
SSHA	Sharp-Shinned Hawk	MSOW	Mexican Spotted Owl
NOGO	Northern Goshawk	LEOW	Long-Eared Owl
		NSWO	Northern Saw-Whet Owl
HAHA	Harris's Hawk		
GRHA	Gray Hawk		
ZTHA	Zone-Tailed Hawk		
CBHA	Common Black-Hawk		
RTHA	Red-Tailed Hawk		
SWHA	Swainson's Hawk		
FEHA	Ferruginous Hawk		
OSPR	Osprey		
GOEG	Golden Eagle		
BAEL	Bald Eagle		
AMKE	American Kestrel		
PRFA	Prairie Falcon		
PEFA	Peregrine Falcon		
	. or ognine i alcon		

### AGE:

Code	Definition	
Α	Adult	
J	Juvenile	
N	Nestling	

# Chain of Custody

Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

	Biologists Nu CRoss			Date 3-15-2011						
		Jack	Zitkre							
					Site @ Pesolution - oak Flut					
		ey Start Time			Мар					
	Surv	ey End Time	2215							
		A2 1000								
	Point	Start Time	End Time	Species	Direction	Est. Distance	Notes			
		1916	1926	/			WP = OF1,0496549/3686142			
	2	1930	1940				WP- OFZ, 0496205 13685555			
	3	1943	1953				WP=UF3, 0495901/3685309			
	4	1959	2009	/			WP=054,0494898/3685567			
	5	2018	2038				WP- OF5, 0494499/3685089			
*	GO SU	even por	tu O tu	fourd,	~ DARK;	MAPS OU	duted &			
		Points 12	-15 defer	red who	daylight	scouting				
	7	2057	2107				WP-OF7,0494477/3684523			
	8	2114	2124			_	WP-058,0493786/3684593			
	9	2130	2140				WP-0F9, 0494434/ 3683909			
	10	2147	2157	GHOW	5	100 m	WP- OF10 0494458/3682961			
		2205	2215				WO- OF11,0495276/368264Z			
	7	$\sim$	<u></u>			~				
2-161	15	2012	2022				WP-0F15,049318/ 3685355			
3-161	6	2036	2046				WP-0F6,0495028/3684783			
July 1	12	2052	2107	GHOW	N	400m	WP-0F12, 049 5352/3684448			
	13	2111	2121				WP- OF 13 0496115/13683866			
	14	2127	2137				WP- of 14 049622 2/3583067			
		50 50		***	200		/ >30000			
				3.000	*************					
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,	en de Ambarea de Amb									
	General I	Description:	Please descri	ibe vegetative	cover, slope,	overall aspect, e	etc. within area of survey.			
	Ouk fla	t; inter	or clus	oud, brug	wholer 5t	reun, inci	sed campes, thick			
	CAUSK	with So	me large	- trees	in ca	you but	tens a fluts.			
					AND STREET, ST	J				
	Alexandra	10 A COLORES A COLO	$\wedge$							
	Chain of Cus Field Biologis		and	0,	upervisor S	ianature				
	Data Entry Si					g Signature				
,	W:\iobs\800's\80	7.43 Work Plans	s\Rantor Surveye							
	W:\jobs\800's\807.43 Work Plans\Raptor Surveys\									

Biologists Mife Cross	Date 4-25-11
Survey Start Time 1920 Survey End Time 2136	Site Oak Flat Map

Point	Start Time	End Time	Species	Direction	Est. Distance	Notes	
13	1920	1930	1		4.00	noise from deil	lin
14	1956	1807		_		0	
12	2025	7036			_		1
6	2042	2053	-	_	_		
i	2102	7117		_	1		
2	2115	2125		_	~		
3	2126	2136			_		
			ellon.				
3 No							
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Chain of Custody Field Biologist Signature Raktu Data Entry Signature	Supervisor Signature Data Proofing Signature
	-

Biologists Mike Cross	Date 4-26-11
Survey Start Time 07 1905 Survey End Time 2048	Site <u>Oak Flat</u> Map

Point	Start Time	End Time	Species	Direction	Est. Distance	Notes
11	1905	1916	-	-		110103
10	1920	1931	)	_		
10	1935	1945		_	)	
8	1949	1959	· market		-	
7	2003	2014	_			
_5	2018	2028			)	
[5	2037	2048	1	, parent		
			NO	OWL	S	
			2			
				/46/4 E-1		

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

Biologists	Mike	CRO. FURRE	55		Date	6-20	-2011	
			55		Site	6-20 Oak Fl	wt	
	ey Start Time			·				
Sur	vey End Time	2218	3					
Point	Start Time	End Time	Species	Direction	Est. Distance	Note	s	
_1\	2018	2028				No owls	observed	
10	2031	2041				IX.	'(	
9	2045	2055				1.	V.	
8	2059	2109				No owls	discrup &	
7	2125	2135				1	( )	
5	2137	2147				2	V C	
4	215)	2201				No aus	observed	
15	2708	2218				1(	13	
			2.400					
				0				
Chain of Cu	stody							
Field Biologis	st Signature	MW	gnature					
Data Entry Signature Data Proofing Signature								

General Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.							
CDECIEC.							
SPECIES: Code	Species Name						
NONE	Species Name						
BAOW	No Owl Species Detected  Barn Owl						
LEOW							
	Long-Eared Owl						
WSOW2	Whiskered Screech-Owl						
FLOW	Flammulated Owl						
WSOW1	Western Screech-Owl						
ELOW	Elf Owl						
GHOW	Great Horned Owl						
MSOW	Mexican Spotted Owl						
NPOW	Northern Pygmy-Owl						
CFPO	Cactus Ferruginous Pygmy Owl						
BUOW	Burrowing Owl						
NSWO	Northern Saw-Whet Owl						
DIDECTION							
DIRECTION							
compass b	earing for estimated direction of call (°)						
EST. DIST	ANCE:						
estimated distance to calling owl (m)							
	The state of the s						

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

		1710011	L 2.0 . 2. (.		CONVE		
Biologists	Mice CROSS				Date	6-21	- 2011
	Mike CROSS Lori Forrest					_	- Zoll Flat
0	0	707			Site	Oak	Hat
Survey Start Time 2070 Survey End Time 7718				•	Мар		
Sui	rvey Liid Tillie	_	8	•			
Point		End Time	Species	Direction	Est. Distance		Votes
14	2020	2030	_/			No 0	bsarvatur
13	2045	2055				10	L(
12	2103	2113				``	\ \ \
6	2121	2131				( \	u
1	2140	2150	_/_			1	
2	2154	22.04				1 <	L <sub>1</sub>
3	2208	2218	JAI /			I.C.	4
		-					
							<u> </u>
	<del> </del>			-	10-10-10-10-10-10-10-10-10-10-10-10-10-1		
			T-11		* * * * * * * * * * * * * * * * * * * *		
							<u> </u>
						-1	
						, , , , , , , , , , , , , , , , , , , ,	
Genera	I Description:	Please descri	be vegetative	cover slope	overall aspect, e	etc within are	ea of survey
	Jesi N	Chunaira	1 july	3perse	overall aspect, a	1.lu	ou or ourvey.
		Post					
				575-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-21-18-			
Chain of Cu	ustody	and					

Supervisor Signature\_\_\_\_\_

Data Proofing Signature \_\_\_\_\_

Field Biologist Signature
Data Entry Signature

Data Entry Signature\_

#### SPECIES:

Code	Species Name
NONE	No Owl Species Detected
BAOW	Barn Owl
LEOW	Long-Eared Owl
WSOW2	Whiskered Screech-Owl
FLOW	Flammulated Owl
WSOW1	Western Screech-Owl
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GHOW	Great Horned Owl
MSOW	Mexican Spotted Owl
NPOW	Northern Pygmy-Owl
CFPO	Cactus Ferruginous Pygmy Owl
BUOW	Burrowing Owl
NSWO	Northern Saw-Whet Owl

#### DIRECTION:

compass bearing for estimated direction of call (°)

### EST. DISTANCE:

estimated distance to calling owl (m)

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

Biologists Nike CROSS  Douc Z. Here	Date 3-15-2011
Survey Start Time //50 Survey End Time /809	Site persolution for west

Point	Start Time	End Time	Chasins		Nut
/ 01110			Species	Age	Notes
/	1150	1200	TVVI	A	One TUVU Over Domeday Peak to East.
					One TUVU over Domeday Peak to East.
2	1205	1215	7001	A	Photos 0555,0556,0557,0558 (NES
				7	3 TWV5 1000m East.
3.	1222	1232	HAHA	AT	Phytos 0589, 0560 0567 1562 0562 056
			TUVU	A	2 HAHA Soarry own trick = 200' hugh 056
					3 TUVU Soars over truck = 500' high
4	1238	1248	TUVU	Α	Photos: 0565, 0566, 0567, 0568
			RTHA	A	2 TUVU 1 Km to East
				,	IRTHA to SE 400 m
5	1257	1301			Photos; 0569, 0570, 0571, 0572
			HAHA	Α	2 HAHAS SOUN SSW; Flying Low & bocome
			TUVU	A	ITUVU IKM W
			RTHA	A	Soarz our com statu & 2 3001
6	1306	1316			Photos', 0573, 0574, 0575, 0576
			TUVU	A	2TUVUYOUMS, 3TUVU 800ME, ITUVU 400 MW
			RTHA	A	1 RTHA - 700 m SW
7	1319	1325			Photos; 0577, 0578, 0579, 0580 (NESW)
			TUN	A	al TUUN INOME; 3 TUNN 1.5 KM E
8	1333	1343			Photos; 0581, 0582, 0583,0584
			JUVU	A	ITWO 200 m NE
a	1347	1357			Durtos; 0585, 0586, 0587, 0588
			7000	A	1 TUUN BOOM SE; 1 TUNU SOUMW

General Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.	
Upper Sonorm Desert Scholi, Tromwood, Palo Verde, vesquite, Chain for	ላ
Challes trivale lent Crusage ctc. Alls in East side, flut	
on west Userted by washes strong EDW.	
,	
Chain of Custody Field Biologist Signature Supervisor Signature Supervisor Signature	

Data Entry Signature \_\_\_\_\_ Data Proofing Signature \_\_\_\_

2 1427 1437 — Photos 0597, 0598, 0599, 650 0600, 4 Kriller Bees in hive in wash!  3 1455 1505 — Photos; 0601, 0602, 0603, 0604  4 1516 1526 — Photos; 0605; 0606; 0607, 0608  TUVU A ITUN 300 m N;  Photos; 0609, 0610, 0611, 0612  HATHA A IHAH perchet who sogram 300 m N  TUVA A GTUNA 800 m N  TUVA A IRTHA 1200 m E  TUVU A 2TUVI 1500 m S  Photos; 0618, 0619, 0620, 0621  TUVU A DITUVU GOOM S  Photos; 0618, 0619, 0620, 0621  TUVU A DITUVU GOOM S  Photos; 0612, 0623, 0624, 0625  TUVU A DITUVU GOOM S  Photos; 0612, 0623, 0624, 0625  TUVU A DITUVU GOOM S  Photos; 0617, 0620, 0621  TUVU A DITUVU GOOM S  Photos; 0617, 0620, 0621  TUVU A DITUVU GOOM S  Photos; 0617, 0620, 0625  TUVU A DITUVU GOOM S  Photos; 0617, 0620, 0621  TUVU A DITUVU GOOM S  Photos; 0617, 0627, 0629, 0630  TUVU A DITUVU GOOM S  Photos; 0617, 0628, 0629, 0630						PD Z 2 = 3
Sile Resolution For West  Survey Start Time	iologist	s_ Mike	CROS	5		Date 3-/5-201/
Survey Start Time		Jos	1c Zitte.	re		
Survey End Time						Site Resolution for West
						Map
1400	Su	rvey End Time	1809			
1400	Point	Start Time	End Time	Species	٨٥٥	Notes
14/3				Species	Age	
1427	11					Dr 415 0592 0592 0595 0596 0 E50
15   1505   15						Oh 4 - 0597 0514 0545 0516
15   1505   15		1777	1127			PROTUSOS 17, 0548, 0544, 65000
1516	7	145	100-			Did : AGAL TO SEES IN WHE IN WASH!
1516	2	1753	/305	2010	1	Photos, 0601,0602,0603,0609
TUVU A 17W 300 M N:	u.l	1011	1021	\\ 1 <i>TIH</i>	77	Did a OV CLOCAL SCOTI NO
15   153   154	17	1516	1526	1,11/1		
HAHA A   1 HAHA percul who sogne 300 mN   TUVA A   GTLAA 800 mN   O616 0   O616 0   O616 0   O616 0   O616 0   O616 0   O617 0618   O619 0620 0620   O616 0   O616 0   O616 0   O616 0   O618 0619 0620 0620   O620 0620   O		lane.		7000	A	
TUVA A GTINA 800 m N Plutos; 0613, 0614, 555 0616, 0 TUVU A 1 Plutos; 0618, 0619, 0620, 062  TUVU A 1 TIVU GOOMS  Plutos; 0612, 0623, 0624, 0625  TUVU A 2 TUVU 300 m N  RTHA A 1 RTHA 200 m S  Plutos; 0612, 0623, 0624, 0625  Plutos; 0614, 0635, 0634, 0637, 0636  Plutos; 0631, 0632, 0633, 4006 34  Plutos; 0631, 0632, 0633, 4006 34  Plutos; 0635, 0636, 0637, 0638  **See Revuise for 1 info.**   15	1531	1541	-		thutos; 0609, 0610, 0611, 0612	
16				1	A	I HAHA perched whop Sogows 300 mN
TUVU   A   2TUUL   1500m S   Photos; 0618, 0619, 0620, 0621   Photos; 0612, 0623, 0624, 0625   TUVU   A   DTUVU   GOO m S   Photos; 0612, 0623, 0624, 0625   TUVU   A   2TUVU   300 m N;   TUVU   A   2TUVU   300 m N;   TUVU   A   187HA   A   187HA   200 m S   Photos; 0624, 0629, 0630   Photos; 0637, 0632, 0633, 0636, 0637, 0636   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0638   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0636   Photos; 0635   Photos; 0635   Photos; 0635   0636, 0637, 0636   Photos; 0635   Photos; 0635   Photos; 0635   0	. —	<del>                                     </del>	+	TUVA	A	COTUVA BOOMN
TUVU   A   2TUUL	16	1555	1605			Photos; 0613,0614,060000 0616,0
7   615   1625   Photos; 0618, 0619, 0620, 0621     8   629   1639   Photos; 0612, 0623, 0624, 0635     7   7   7   7   7   7   7   7   7				POTHA	A	IRTHA 1200 ENE
TUVU   A   DITUUU   GOO m S   GO24, 0623, 0624, 0625   TUVU   A   DITUUU   GOO m S   GO24, 0623, 0624, 0625   TUVU   A   DITUUU   GOO m S   GO24, 0623, 0624, 0624   0630   GOO m S   GOO m N   FUUTU   GOO m N   FU				TUVU	A	
TUVU   A   DITUUU   GOO m S   S   GO24   GO25   G	17	1615	1625			Photos; 0618,0619,0620,0621
				TUVU	Α	DITUUU GOOMS
	18	1629	1639			Photos: 0622, 0623, 0624, 0625
				TUVU	Α	2 TUNU 300mN; HOUN
# See Revelse for two.  Photos; 0635, 0636, 0637, 0638  # See Revelse for two.  Peneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See plof 3  Supervisor Signature  Supervisor Signature				RTHA	A	
# See Revelse for two.  Photos; 0635, 0636, 0637, 0638  # See Revelse for two.  Peneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See plof 3  Supervisor Signature  Supervisor Signature	19	1643	1653			Photos: (677, 6628, 0629, 0630
# See Revelse for two.  Photos; 0635, 0636, 0637, 0638  # See Revelse for two.  Peneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See plof 3  Supervisor Signature  Supervisor Signature	20	1657				Photos: 0631,0632,0633
* See Revelse for two.  Peneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See plof 3  Pain of Custody  Supervisor Signature  Supervisor Signature	21	1216	1226			Photos: 1635 1636, 0637 2638
eneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See μ1 5 3  Pain of Custody  Eld Biologist Signature  Supervisor Signature		1171	170			1 20 70 70 10 10 10 10 10 10 10 10 10 10 10 10 10
eneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See μ1 5 3  Pain of Custody  Eld Biologist Signature  Supervisor Signature						
eneral Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.  See μ1 5 3  Pain of Custody  Eld Biologist Signature  Supervisor Signature						¥ /
rain of Custody eld Biologist Signature  Supervisor Signature						n see Iceverse for Into.
rain of Custody eld Biologist Signature Supervisor Signature	enera	l Description:	Please describ	oe vegetativ	e cover, slo	ope, overall aspect, etc. within area of survey.
rain of Custody eld Biologist Signature Supervisor Signature	See	polar 3				
eld Biologist Signature Supervisor Signature		11				
eld Biologist Signature Supervisor Signature						
eld Biologist Signature Supervisor Signature						<del></del>
eld Biologist Signature Supervisor Signature	hain o	f Custody				
ta Entry Signature Data Proofing Signature	eld Bio	logist Signatui	re MW		Super	visor Signature
	ata Ent	try Signature_			Data I	Proofing Signature

1550 AMKE; American Kestrel incidentally observed perched atop Roodside Sagrano @ 0475345 E, 3676850N Restrel Flew off.

Sur	s Mike Daile vey Start Time rvey End Time	1150			Date 3-15-2011  Site Resolution Far West  Map	
Point	Start Time	End Time	Species	Age	Notes	
7.2	1732	1742			Photos, 0639,0640,0041,0642 (A	בו כ
					1,55,001,001.2	
23	1745	1755			Photos; 0643 0644, 0645, 0646	
24	1759	1809			Photos; 0647,0648,0649,0650	
	1			<u> </u>		
Genera	l Description:	Please describ	e vegetative	e cover, slo	pe, overall aspect, etc. within area of survey.	
					·	
		27 20 72 72 72 72 72 72 72 72 72 72 72 72 72				
		_				
Field Bio	f Custody blogist Signatur	e Mu		Super	visor Signature	
General See	Description:	Please describ		Super	Phytos ; 0647 p648, 0649, 0650	

Biologist	s Mike	Cross		-	Date 4-27-11 Site Fax West	_
	Ber	Rackuun		•	- 10/0 st	
Sur	vey Start Time	0834	ŧ			<b>-</b> 83
	rvey End Time				Мар	-
				•		
Point	Start Time	End Time	Species	Age	Notes	
19	0834	0844		_		
20	0848	0858	_ ^	~		
21	09.09	0920	-	-		
22	0925	0936	Turu	A	17474	
23	0942	0952	HAHA	A	1 HAHA perced on Sage 4 Tuvu soaring to the	earo
24	0955	1005	TUVU		4 TUVEL soaring to the	es+
/	1018	1028	TUVV	ı	17444	500 %
2	1033	1045	-		2 men snooting refles at to	
3	1050	1100	Tuvu	A		survey poi
45	1107	1117	·			
100	1119	1129				
6	//33	1143		<u> </u>		
7	1646	1156	Thru	A	17444	
15	1203	1213	/ ~	<i>U</i>	Hua and and to Pa	of in el
14	1217	1234	HAHA	A	4 HAHA percued and horler	9,0100
13	1237	1247		Α.		3. 7.1
9	1251	(30)	Tyvu	A	1 Tuvu	
10	1304	1314	Tuvn	A	1 TUVU	
11	1316	1326	*	_		
	1328	1338	TUVU	A	27444	
12	1341	1351	RTHK, TUBE		IRTHA, ITUVU	
16	1403	1413	^	-		
General	Description:	Please describe	e vegetative	cover, slo	pe, overall aspect, etc. within area of survey.	
Ariz	rona upla	and deser	tscrub			
1=						•
	•					
Chain of Field Biolo	Custody gist Signature	í.		Super	isor Signature	
Data Entry	/ Signature		an and	_ Superv _ Data P	isor Signature roofing Signature	<u> </u>
				The second secon		N 7000 1000 1000

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Biologist	ts M. CR	1055			Date 5-13-2011
	C . A	refu			Date 5-13-2011 Site FAR WES T
Sur	rvey Start Time	072	0		Map
Survey Start Time <u>6720</u> Survey End Time <u>6736</u> 074					
Point	Start Time	End Time	Species	Age	Notes
19	0720	0730			No Deledins
20	0733	0743	HAHA	A	Harn's Hawk nevered at Molino Touk
20		0744	HAHA	A	Zmore HAHA jour First.
		<del> </del>			
					4
		-			
		+			
		+		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
		<u></u>			
General	Description:	Please describ	e vegetative	e cover, slop	be, overall aspect, etc. within area of survey.
Creven	to domina	te yolush	Sugar	ius pre	evolety marsed wromen Cholla &  evolety Promovil Paloverde, messante in washe
			, ,,,,,		in washe
Field Biol	Custody logist Signatur	e////	)		isor Signature
	ry Signature_	V			roofing Signature
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	Biologists	Mile	CR055	<del> </del>		Date <u>6-22-70//</u>
		<u> </u>	Farrer	<u> </u>		
			200			Site FAR WEST
		vey Start Time				Мар
	Sur	vey End Time	1319	ν		
	Point	Start Time	End Time	Species	Age	Notes
	1	0713	6723	/	/	No Observation
	2	0200				
mient -	7	0726	0726	AMKE	A	OFF + raised 475721: 367848
man also	7	0725	0735	TUYU	A	20 TUVU Sowny 2K@ 170°
	3	0745	0755	TUVU	Δ	2 TUVU Sowny IKO 0°
	4	0803	0813	TUVU	Ā	HTUUU Sown
	<b>45</b>	180 MAN		TUVU	À	ITUVU SOUTING
/	6	0831	08-11	RTHA	A	750 m 0 300°
	3 6	11	1	TUVV	A	300m@ 180°
	6	~	16	TUVU	A	600m@ ZZ0°
	7	0845	0455	TUVU	A	750 m 8 300°
	8	0900	0510	TUVU	A	ZTUNU @ 600m 300°
	9	0516	0526	TUV	À	17000 0 1K 0 3200
	10	0929	0935	TUYV	Α	1700 B Z00° 600m
	12	0447	0957	HAHA	T .	1 HAHA SOWY I 1800, 300 m
	11	1004	1014	TUYV	A	ITUNU 8 500 m 2100
	13.	1022	1032	//	/	No Observation
	16	1035	1045	TUVU	A	ITAN IK @ 2600
	17 16	1048	1058	TUVU	A	TUN 500m @ 270°
	18 12	1100	1117	/	/	No Osecuston
4	19	1117	1172	/	/	No Choser Mr
3 5 S	1100	1124	1124	RTHA	A	Pended on Sayuro, off Transect
* (						100 m N of 47 2640 / 3675
	20	1131	1141	HAHA	A	Perched at Monwo Tank. Flushed
						by observer
						*
				•		pe, overall aspect, etc. within area of survey.
	_ +\w	- Turred	w wx	sus.	Upland	Sonoras Deset Sort.
				H 2001-01-17		
				$\overline{}$		
	tripe and		201			
		Custody	1/1		- 0	door Signature
	Data Entr	ogist Signatur y Signature	e			visor Signature Proofing Signature
					a - 200-300-300 (C)	

#### SPECIES:

		water Adda Green	Total control to the second control co
Code	Species Name	Code	Species Name
NONE	No Species Detected	BAOW	Barn Owl
BLVU	Black Vulture	FLOW	Flammulated Owl
TUVU	Turkey Vulture	WSOW1	Western Screech-Owl
		WSOW2	Whiskered Screech-Owl
NOHA	Northern Harrier	GHOW	Great Horned Owl
WTKI	White-Tailed Kite	NPOW	Northern Pygmy-Owl
MIKI	Mississippi Kite	CFPO	Cactus Ferruginous Pygmy Owl
		<b>ELOW</b>	Elf Owl
COHA	Cooper's Hawk	BUOW	Burrowing Owl
SSHA	Sharp-Shinned Hawk	MSOW	Mexican Spotted Owl
NOGO	Northern Goshawk	LEOW	Long-Eared Owl
		NSWO	Northern Saw-Whet Owl
HAHA	Harris's Hawk		
GRHA	Gray Hawk		
ZTHA	Zone-Tailed Hawk		
CBHA	Common Black-Hawk		
RTHA	Red-Tailed Hawk		
SWHA	Swainson's Hawk		
FEHA	Ferruginous Hawk		
OSPR	Osprey		
GOEG	Golden Eagle		
BAEL	Bald Eagle		
AMKE	American Kestrel		
PRFA	Prairie Falcon		
PEFA	Peregrine Falcon		
	- 1945 (PHI SERVICE)		

### AGE:

Code	Definition				
Α	Adult				
J	Juvenile				
N	Nestling				

# Chain of Custody

Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

iologis					
	ts Wie	Forres	5		Date 6-22-2011 Site FAR WEST
	- but	tories	T .		sita FAR NEST
Su	rvev Start Time	071-	7		Map
Sı	rvey Start Time urvey End Time	13/2	<del>,</del> —		
00	irvoy Ena Timo				
Point	Start Time	End Time	Species	Age	Notes
21	1149	1155	/		No Gosenstin
21	1205	2000			
		( army			
22	1205	1215			No Observation
23	1223	1233		/	No Observation
74	1237	1247		/	1-
14	1254	1304	/	/	11
15	1307	13/7		/	W W
<del></del>		1911			
				2000	
				1 499.00	
		10 3434			
	1				
	<del></del>				
			1		
3enera	l Description:	Please describ	e vegetative	e cover, slo	pe, overall aspect, etc. within area of survey.
	500	Pher	m		
		V V			

Supervisor Signature\_\_\_

Data Proofing Signature

Chain of Custody Field Biologist Signature

Data Entry Signature\_

# SPECIES:

J	· ·		
Code	Species Name	Code	Species Name
NONE	No Species Detected	BAOW	Barn Owl
BLVU	Black Vulture	FLOW	Flammulated Owl
TUVU	Turkey Vulture	WSOW1	Western Screech-Owl
		WSOW2	Whiskered Screech-Owl
NOHA	Northern Harrier	GHOW	Great Horned Owl
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MIKI	Mississippi Kite	CFPO	Cactus Ferruginous Pygmy Owl
		<b>ELOW</b>	Elf Owl
COHA	Cooper's Hawk	BUOW	Burrowing Owl
SSHA	Sharp-Shinned Hawk	MSOW	Mexican Spotted Owl
NOGO	Northern Goshawk	LEOW	Long-Eared Owl
		NSWO	Northern Saw-Whet Owl
HAHA	Harris's Hawk		
GRHA	Gray Hawk		
ZTHA	Zone-Tailed Hawk		
CBHA	Common Black-Hawk	,	
RTHA	Red-Tailed Hawk		
SWHA	Swainson's Hawk		
FEHA	Ferruginous Hawk		
OSPR	Osprey		
GOEG	Golden Eagle		
BAEL	Bald Eagle		
AMKE	American Kestrel		100
PRFA	Prairie Falcon		0 41
PEFA	Peregrine Falcon		109
			\

### AGE:

Code	Definition	
Α	Adult	_
J	Juvenile	
N	Nestling	

# Chain of Custody

Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

			E LISTENI		COICULI		
iologists	Mike				Date	1-Mar-21	011
	Ben	Rackhaw	`		0.11	A	
Surv	ev Start Time	194	7			Area D	
Sur	ey Start Time vey End Time	715	1	•	Мар	·	
	roy End Timo	- 60		-			
Point	Start Time	End Time	Species	Direction	Est. Distance	Notes	
(1)	1847	1900	NONE			3 Quads at 1851	5
2	1907	1917	wsow1	210°	200 m	Vocalizing mul	
3	1919	1930	GHOW	250	1000 m	0	
4	1939	1949	GHOW		800+ m		
5	1952	2003	NONE				
6	2007	2021	NONE				
7	2026	2087	NONG				
8	2041	2053	NONE				
	2057	2108	NONE				
10	2112	2122	NONE			Jackrabbit	
N	2125	2135	WSOW1	240°	400 m	Jackcabbit	
12	2139	2150	NONE				
÷							
					10 1330 b 1150		
General	Description:	Please descr	ibe vegetative	cover, slope,	, overall aspect, e	etc. within area of surv	ey.
onora	n uplo	nds;	Sagua	ro, p	ala ver	de large	2
1 chin	evas			. /		U	

Data Proofing Signature

Chain of Custody
Field Biologist Signature Supervisor Signature

Supervisor Signature

Data Entry Signature\_

Biologists	Mike	Cros	5		Date_	2-Mar-2011 Area D
	Mike Cross  Ben Packham  vey Start Time 1854  vey End Time 2133			Site Frem Map		
Point 15 14 13 16 17 18 19 20 21 22 23 24	Start Time 1864 1906 1918 1931 1944 1958 2012 2024 2045 2058 2111 2123	End Time 1604 1916 1928 1941 1955 7008 2011 1034 2055 7108 2121 7133	Species NONE NONE NONE NONE GHOW WSOWI NONE NOWE NOWE GHOW	340 9 1200	Est. Distance  (000 m 300 m	Notes  Notes
Chain of Cus	t Signature 🏅	Zijn Ro	Su	upervisor Si	gnature	
Data Entry Signature	gnature			ata Proofing	gnature g Signature	

	Biologists	Mike Choss Jack Zittere				Date	Rosolution West	-
		vey Start Time				Site Icodotin We		
	Point	Start Time	End Time	Species	Direction	Est. Distance	Notes	
		1948	2007					
	2	2010	2020					
	3	2027	2037	WESO	270,	150m	WESO Vocalization	*
	4	2050	2100					
	5	2104	2114					
	6	2122	2132					
	7	2141	2151					
	8	2156	2206	WESO	10	300 m	WESO	ļ.
	9	213	223				GHOW UDCALIZE GHOW UDCALIZE WOCALIZE UDCALIZE	
()2138	10	2125	2235	GHOW	316	1000 m	STIANOCHIZE	
0213	11	213/8	22 <b>9</b> 8	GHOW(2)		500 m	GHW UDCALIZE	(Pair)
	12	2252	2302	SHOW(Z)	315/350	3000	GHUN Pair Vocalizing	(Pair
								3
				707				
			-					, 54
	01-1-60				* Co	m puss	malfunction (Es	timate
	Chain of Cus Field Biologis	t Signature	me )	Sı	upervisor Si			)
	Data Entry Si	gnature				g Signature		

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Biologists	_ mike	cros	55	_	Date	4-5-2011
	Jack	- CROS	ere	_		
				3	Site	Resolution FAR WE
Surv	ey Start Time vey End Time	1847	`	_		
Sur	vey End Time	2137		-		
	<u></u>					
Point	Start Time	End Time	Species	Direction	Est. Distance	Notes
15	F 1-81	1857				
14	1904	1914				
13	1920	1930				
16	1933	1943				
17	1946	1956				
18	2000	2010				
19	2013	2023				
70	2027	2037				
21	2046	2056				
22	2102	2112				
23	2114	7.124				
24	2127	2137				
+ UV	usually	arret	this 6	Putning		
	)	V		)		
2000						

Chain of Custody	
Field biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

# Far West Archaeology Crew 4-27-11

G. H. Owl Fledglings X2

Mest high in mature saggaro

Sex 23 N 3677400 £ 473086 (NAD83)

(See Adam Marshall Photos)

	Biologists	Mile	CROSS E FAIR	+		Date	6-22-2011	, .
		ey Start Time	2037 0011	_		Site Map	6-22-2011 &	
	Point	Start Time	End Time	Species	Direction	Est. Distance	Notes	
		2032	2042				No OUSENATION	į
	7	20452	055	FLOW	45	100m	1 ELOW VOCALIZM	)
	3	2100	2110				No Obsanista.	
	4	2114	2124	_/_			11	
	5	2128	2134	ELØW	180	50 m	I ELOW VOCALIZIO	
forent - C	6	2142	2152	WSOWI	200	400 m	1 WSON UCEMO	ارح
Girds >		2157	2207	Word 1	150	40 m	11	,
	SELS	22400	2220	ELDON	3/00			
	8	2210	2220	ELOW	3410	300	I ELOW VOCALI	ZIVI
	8		11	ELOW	45	300	I ELOW VOCA	1.2
	9	2226	2236				NO WE	
	10	7740	7250	FLOW	0	500	I ELOW DOCAL	211
	11	2253	2303	/			MONE	
	12	2310	2320	/		//	AVOUE	
	13	2330	2340	A	1	1	NONE	
	14	2341	1357	/	1	"/	MINE	
	15	0001	0011	1	/	/	MINE	
	1.7			/	/		7001-1	
					1988			
			7					
			100					
						- William 2		
	Chain of Cus	stody	m		-	·		
	Field Biologis Data Entry Si	gnature			upervisor S ata Proofin	ignature a Signature		

Genera	General Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.				
SPECIES:					
Code	Species Name				
NONE	No Owl Species Detected				
BAOW	Barn Owl				
LEOW	Long-Eared Owl				
WSOW2	Whiskered Screech-Owl				
FLOW	Flammulated Owl				
WSOW1	Western Screech-Owl				
ELOW	Elf Owl				
<b>GHOW</b>	Great Horned Owl				
MSOW	Mexican Spotted Owl				
NPOW	Northern Pygmy-Owl				
CFPO	Cactus Ferruginous Pygmy Owl				
BUOW	Burrowing Owl				
NSWO	Northern Saw-Whet Owl				
DIRECTION: compass bearing for estimated direction of call (°)					
estimated of	ANCE: distance to calling owl (m)				

Biologists	Mike	CRO	55 - Dans F		Date	6-26-2011
				•	Site Map	6-26-2011 FAR WEST
Surv	ey Start Time vey End Time	722	Ð		Мар	121
Point 2 4	Start Time	End Time	Species	Direction	Est. Distance	Notes NONE
23	2023	2020	100			NONE
22	2037	2047	NONE	/		NONE
21	2051	2101	NONE	/	/	NONE
20	2111	2121	AVNE			NONE
10	2124	2139	NOWE	/	1	Nome
17	2/37	2197	None	/		NONE
17	7710	2270	love			vave
16	2205	2215	None	/		None
						W CVE
					T.	
				L		
General	Description:	Please descr	ibe vegetative	cover, slope	, overall aspect, o	etc. within area of survey.
-	-			334		
WAR 1975	30000					<del></del>
***						
Chain of Cus		AM.	)	20		
Field Biologis Data Entry Si		/ // die		upervisor S ata Proofin	ignature g Signature	

#### SPECIES:

Code	Species Name
NONE	No Owl Species Detected
BAOW	Barn Owl
LEOW	Long-Eared Owl
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GHOW	Great Horned Owl
MSOW	Mexican Spotted Owl
NPOW	Northern Pygmy-Owl
CFPO	Cactus Ferruginous Pygmy Owl
BUOW	Burrowing Owl
NSWO	Northern Saw-Whet Owl

#### DIRECTION:

compass bearing for estimated direction of call (°)

### EST. DISTANCE:

estimated distance to calling owl (m)

Chain of Custody	
Field Biologist Signature	Supervisor Signature
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Personnel: Survey Location: Visit #: Date: Start Time:  General Site Com Where Elk of Ryaw	DEVILS CANYON  Mile (120.85) Jan  Dorth Pipe Spring Cr  1  4-6-2011  Ogiy End Time: 12  ments: Cliffs on Eas  Tank trail weets  habitation (40 white c	- วิเป	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):  ev. 15 (uny) ym, No e	800 100 0 1 2 3 4 5 M
OBSERVATIONS			<del></del>	
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
0914-1014	numerous Turken Unitaris sources over compan	TUVU	1	
hain of Custody ield Biologist Signato ata Entry Signature	ure Supe	rvisor Signature Proofing Signature		

	Personnel: Survey Location: Visit #: Date: Start Time:	1 -6-2011 1210 End Time: 1510	CLIFF SURVEY	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	80 100 0 1 234 5
	General Site Comm Cayon beto Evidence of PNW  OBSERVATIONS	ments: A series of Sheen wen Pipe Sprize and Ureedux raptus (Pravir yews-	Cliffs on E Rowhide Co Falon) observ	Eust siele if myon Conflu med here	Devils
	OBOLITORO			Evidence of	Evidence of
	Time:	Observation Description:	Species	Habitation	Breeding
	1215	I adult golden eagle Seen souring over CI.F. Dissupers up side d	GOEG	1	
	1216	I adult red tarled howk Seen sources over Cliff	RIHA	)	
	1215-1310	or chiff, whitewash	76	Z	]
હ	· · · two	Eyrie on ledge. Too small for GOEG, Suspect Falson			
Fie	ain of Custody Id Biologist Signature ta Entry Signature	ire Super	visor Signature		
Fie	ld Biologist Signatu	ıre Super Data	visor Signature Proofing Signature _		

Personnel: Survey Location: Visit #: Date: Start Time:  General Site Composition	APACHE LEAF  Mile (2045) Whe Wa  Devils (myn Cliff) (DC)  1  5-24-2011  1730 End Time: 1930  ments: Observer 497224	- - -	Temperature: Cloud Cover (%): Wind Code (Beaufort scale):	8 Z 0 0 1 2 3 4 5
OBSERVATIONS			T	T
Time:	Observation Description:	Species	Evidence of Habitation	Evidence of Breeding
1735	1 TUVU Soary	TUW		
1740	White wash whop ruck in the du CHUUSE on While of Co	3 m	Z	
1003	2 TUVU Flying dung canyon put	TUVV	1	
1807	6 TUVU flying	TUVU	1	
1810	Possible eyne on west facing cliff face. COVER). 90F	Falso spp.	2,1	/
1830	Ropher vocationation from canyon bottom	?	ndasilasou) 1	
1838	Blackhank flying in	CBHA	1	
1835	One unidentified (either CBHA or Z+HA) Flying in causer	?	1	
1402	Peregna vorthizes, then is visible flying our Cliff. (OUFIR)	<del>FAP</del> PEFA	1	F
	Tooks )			

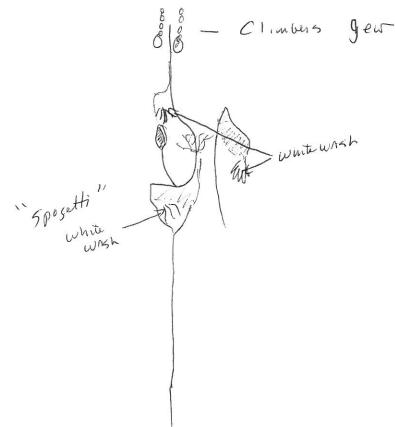
Chain of Custody

Field Biologist Signature

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# 5th of probable persone sign/ potential eyere.

Classic "spashetti" white wash puttern indicative of
Falcons. This white wash is associated

with suitable potential eyeres/ledges.

Discorded climbers feat usible above possible

eyere; string of corbiners. Potential eyere is 90° E

from DCOP1.

\*\* Poregra Folion voithires of at 1902,

Trys back and forth across cliff

Face, territorial interaction with TVVV which

is grapped / tunded by Falcon and then released.

Desegra then true downstream out of site

then the returns and the possibly dissurpeurs

Into a crevusse N of original publical

eyrie at 1907.

**DEVILS CANYON CLIFF SURVEY** Personnel: Mila crass / Lon fures + Temperature: Survey Location: Cloud Cover (%): Visit #: Wind Code 0 1/2)3 4 5 6-20-2011 Date: (Beaufort scale): Igon End Time: Start Time: Cliff West facing General Site Comments: Devolo in Cayon. **OBSERVATIONS** Evidence of Evidence of Time: Observation Description: Species Habitation Breeding 7 TUNS Sours TUV 1905 cuyon 3 TUVUS perhed un Cliff 100 m 5 1910 TW of Observers 7 TUVUS ROUSTUS TUW 1911 alop diff & lovin 5 of Obscriens (Roost!) 3 TUVS Roustry 1916 TUVV Atop Cliff on E side Z+ HA 1918 PEFA; Peregra voralizing PEFA X 1,2,3 1932-1940 form next diff 2nd PEFA 1936-1940 PEFC 1,2,3 Z flys back and Furth why chiff. 1st bird over

How Peregrus heard voration on 6-13-2011

Chain of Custody

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\_\_\_\_\_ Data Proofing Signature \_\_\_

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KEY: Wind Code: 0 Calm. Smoke rises vertically. 1 Smoke drift indicates wind direction. 2 Wind felt on face; leaves rustle. 3 Leaves and small twigs moving. 4 Dust and loose paper raised. 5 Branches move; small trees sway. Evidence of 1 direct observation of a raptor Habitation 2 observation of whitewash 3 observation of a stick nest Evidence of 1 presence of a nest or eyrie Breeding 2 young in nest 3 adult in nest in incubation posture 4 mating behavior

5 prey deliveries6 nest maintenance7 adult near nest

Hours can be heard vocations. Eyre was be believed large spire, out of view. Of Cliff does contain an egre, exact lower of Eyrie is unknown

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

Biologists	Mile	CP 55	Date_	4-5-2011	
	Jack	Zittere	Site	Des 15 Causin	
Surve	ey Start Time	0830	Map _		
Surve	ev End Time	1730			

Transect	Start Time	Start UTM (NAD 83)		End Time	End UTM (NAD 83)		Notes	
Hansect	Start Time	Easting	Northing	_ clid fillie	Easting	Northing	Notes	
	0830	496788	3682161	1230	497601	3680807	Conyon has cliff Barrier of survey tel minors.	

OBSERVATIONS:

Time	Location (NAD 83)		Species	Age	Number	Notes
Time	Easting	Northing	Openico	7.gc Tramber		
0844	497009	3682236	RTHA	A	1	1 RTHA Souring outs Rando R.o Canyon Ust upstramm of Devils Confluence.
0855	497083	3682249	TUVU (Z)	АА	Z	ZTUVV flushed off trail; Perched on cl. 77
1104	497493	3681474	CBHA (Z)	AA	Z	ZCBHA flyshod from Ash the. Or Wocalizes at Observes. Pair flys upstream Point Samel as HBBLACKHAWKS
						4-5-2011

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

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Biologists	Mike Sar	CROS X Zitter	5 ~ .	-		Date	4-6-2011
	ey Start Time ey End Time	0730				Site Map	Devils Cayin Sort
Transect	Start Time	Start UT	M (NAD 83)  Northing	End Time	End UT	M (NAD 83)	Notes
Denls	0730	496390	3678738	1236			
OBSERVAT	TONS:				(see 551	)	+
	Time	Locatio Easting	n (NAD 83) Northing	Species	Age	Number	Notes
e NA -	1215	498734	3678692	GOEG	Ą		1 golden eugle soaring over cliff
h on ledge	1216	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	n y	RTHA	A	- 1	1 RTHA Sourry over CLIPF
	1228	(See wp Bi	T) (See WP 13T1)	CBHA	А	1	Perched in large Cottonword (WP BTI)

Chain of Custody		
Field Biologist Signature	Supervisor Signature	
Data Entry Signature	Data Proofing Signature	

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	ey Start Time	14 000	45 alel\	-		Date Site Map	5-25-2011 Devils Cayon.
Transect	Start Time	Start UT Easting	M (NAD 83) Northing	End Time	End UT Easting	M (NAD 83)  Northing	Notes Custoda (Custoda Maria
	0830	see presid	7	1143	497606	3680815	Cuscades/Cliffs make further progress impossible
OBSERVA <sup>-</sup>	TIONS:			3,000			
	Time	Locatio Easting	n (NAD 83) Northing	Species	Age	Number	Notes
	1030		3681827	ZTHA	A+N	(Nestling present (not uncounted)	ETHA Pair Defending nestin large Alden tree at Sycamore Spring
	1340	10 10	14 11	CBHA ZTHA	A A+N	Z Z + N	at Sycamore spring  H Z+44 Mest. Part of  CBHA Interesting onth  Z+44 O Mest.
							3
Chain of Confield Biolog Data Entry S	ist Signature	7 m		or Signature o		· · · · · · · · · · · · · · · · · · ·	

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Biologists M. CRoff	Date 5 - 26
m. Wendell	Site Lower De
Survey Start Time / O O	Мар
Survey End Time /4 00	

Transect Start Time	Start UTM (NAD 83)		End Time	End UT	M (NAD 83)	Notes	
Transect	Start Time	Easting	Northing	Cha rime	Easting	Northing	Notes
	1000	498097	3679223	1339	498957	3678690	

#### OBSERVATIONS:

	to the second se					
Time	Locatio	on (NAD 83)	Species	Age	Number	Notes
Time	Easting	Northing	Opecies	Age	Number	27 - 1-22 (1000)(1000)
	48887	3629223		_	1	CBHA 1st spulped flushing
90115	790077	100, 400)	CBHA	l A	'	trom tree, Lands Greiby John
1240	498658	3678727	LIGHT	·		But, then Flys downier out of when
1243	498658	3678727	CBHA	A	7	CBHA 1st sported flushing from tree. Lands Creiby your Bunk, then Flys downman out of overland. CBHA SOUTHY high overhead. Possible same animal as previous. It was off by RTAA @ 1245
3	. 6					Drun OFF by RTAA @ 1245
1245	498658	3678727	RTHA	A	1	RTHA Soaring over curin.
						RTHA Soaring over Cuyon. Drives OFF CBHA
11127	498194	3679094	CBHA	Δ	7_	ZCBHA SOOTING OWN Cayon; 1
1432	110111	00/10/1				Stooping and horrassing the other.
		Ē.				ZCBHA Souring our Cuym; I steeping and harrissing the other. Test thrial clispite?
						,
						•
	*					~

Chain of Custody	
Field Biologist Signature	Supervisor Signature
Data Entry Signature	Data Proofing Signature

			DEVIL	S CANTU	N KAPIUK SU		
Biologists	Wile	CR045		_		Date	Devils Cayon.
	Last 5	; trong	Bur Fortz	_			
		/					
Surve	ey Start Time	0730		-		Мар	
Surv	ey End Time	1300		<b>-</b> 8			
	0, 4474444		514 (114 D. 00)	_	E-41IT	E LUTM (MAD 00)	
Transect	Start Time	Start UTM (NAD 83)		End Time	End UTM (NAD 83)		Notes
		Easting	Northing		Easting 497 Go	Northing	
	6730	496788	3682161	1300	1300	3680807	
OBSERVA <sup>*</sup>	TIONS:	1 #:-	- (NIAD 02)			T	
	Time	Easting	on (NAD 83)  Northing	Species	Age	Number	Notes
				C = 211	A	1	1 Black truck overstrang
	08:17	493167	3685358	COBH	-	,	in eventy of probable ust. Vocative at doserve
	00.11	(13.01	3 3 7 7				unt Vocative at doserve
	6.0	493174	3685371	COBH	A	ι	1 Black hawk
	0:30		7605711				voutizes.
				RTHA	۸		1 RTHA Sourry, lands
	11:15	497112	3682258	( 17 (77)	A	1	or houses out at.
				2000			SXW.
	11:15	467117	3682258	TINI	A	3	3 TUV Source
	' '	17/11/2	100000				,
					9		
			X Parched	/ Foragino	COBH S	seen at	Pond new point 7
Chain of C	[전에: 18 H. 이 이 일반] 11 프라	m		or Signature _			( )
Peta Entry	ist Signature			ofing Signature _			

General Description: Please describe vegetative cover, slope, overall aspect, etc. within area of survey.

SPECIES	S:				
Code	Species Name	Code	Species Name	Code	Species Name
NONE	No Species Detected	НАНА	Harris's Hawk	BAOW	Barn Owl
BLVU	Black Vulture	GRHA	Gray Hawk	FLOW	Flammulated Owl
TUVU	Turkey Vulture	ZTHA	Zone-Tailed Hawk	WSOW1	Western Screech-Owl
		СВНА	Common Black-Hawk	WSOW2	Whiskered Screech-Owl
NOHA	Northern Harrier	RTHA	Red-Tailed Hawk	GHOW	Great Horned Owl
NTKI	White-Tailed Kite	SWHA	Swainson's Hawk	NPOW	Northern Pygmy-Owl
ИIKI	Mississippi Kite	FEHA	Ferruginous Hawk	CFPO	Cactus Ferruginous Pygmy Owl
				ELOW	Elf Owl
СОНА	Cooper's Hawk	OSPR	Osprey	BUOW	Burrowing Owl
SSHA	Sharp-Shinned Hawk	GOEG	Golden Eagle	MSOW	Mexican Spotted Owl
<b>NOGO</b>	Northern Goshawk	BAEL	Bald Eagle	LEOW	Long-Eared Owl
				NSWO	Northern Saw-Whet Owl
		AMKE	American Kestrel		
		PRFA	Prairie Falcon	AGE:	
		PEFA	Peregrine Falcon	Code	Definition
				Α	Adult
				J	Juvenile
				N	Nestling