1993 ARIZONA BALD EAGLE NEST SURVEY

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INTRODUCTION

The bald eagle (*Haliaeetus leucocephalus*) was first documented in Arizona by Coues (1866). The first breeding attempt was recorded at Stoneman Lake by Mearns (1890). In the 1930s, breeding adults were observed at Saguaro Lake, Bartlett Dam, and in the Salt River Canyon (Phillips et al. 1964). However, permanent records on bald eagle productivity were not kept until 1971, when two eaglets fledged from the Breeding Area (BA) at Saguaro Lake (Blue Point).

The bald eagle was classified by the U.S. Fish and Wildlife Service (USFWS) in 1978 as endangered in 43 states (including Arizona) and threatened in five others. It is not endangered or threatened in Alaska and does not occur in Hawaii. In addition to protection under the Endangered Species Act, the bald eagle is protected by the Migratory Bird Treaty Act and by the Bald and Golden Eagle Protection Act. A recovery plan (USFWS 1982) guides management of the southwestern population, which includes Arizona's breeding bald eagles. Arizona's breeding bald eagles represent almost the entire population in the southwest region (Arizona, New Mexico, West Texas, Eastern California along the Colorado River).

The first bald eagle nest survey in Arizona was conducted from 1972-1975 by Rubink and Podborny (1976). In 1978, Grubb (1986) performed aerial surveys. From 1979-1984 nests were discovered after state and federal biologists followed up on eagle sightings and during searches near Central Arizona Project (CAP) reservoirs. The discovery of an active breeding area near the proposed New Waddell Dam in 1984 resulted in formal consultation between the Bureau of Reclamation (USBR) and the USFWS under Section 7 of the Endangered Species Act. The subsequent Biological Opinion included a conservation measure to identify important bald eagle nesting habitat through a five year survey. A cooperative effort among USBR, Salt River Project (SRP), and Arizona Game and Fish Department (AGFD) ensued which was reevaluated and extended in 1989 and 1992. Annual reports summarizing survey results were written by the Department's Nongame Branch (Glinski 1985, 1986, Hildebrandt and Glinski 1987, Gooch et al. 1988, Tibbitts et al. 1989, 1990, Corman and Rayner 1991, Driscoll et al. 1992).

The goal of the annual bald eagle nest search is to refine our understanding of the distribution of breeding Arizona bald eagles. Our search has focused on areas where bald eagles have been observed and/or where habitat is adequate for nesting. In addition, BAs where current occupancy is unknown are searched for new or previously undetected alternate nests. We also inspect historical breeding areas for signs of occupancy. The discovery of new sites, alternate nests, and the status of known BAs

contributes to accurately describing the distribution, status, and annual productivity (Appendix A) of Arizona's breeding bald eagle population. The timely discovery of breeding areas also identifies sensitive areas which may require proactive protection from potentially adverse impacts.

Since initiation of this cooperative effort in 1985, 13 breeding areas have been discovered. Presently there are 31 known bald eagle BAs in Arizona including one newly reoccupied historical breeding area (Tower BA) discovered in 1993. In addition, many alternate nests in known BAs have been located from ground searches and through monthly Occupancy and Reproduction Assessment (ORA) helicopter flights. These valuable flights are provided by USBR and SRP, and coordinated by AGFD.

This year's survey was a cooperative effort funded by the USBR, SRP, and AGFD's Heritage Fund and Nongame Wildlife Tax Checkoff. It was administered and performed by the Department, in cooperation with the above agencies, the U.S. Forest Service, USFWS, Bureau of Land Management, San Carlos Apache Game and Fish Department, and the White Mountain Apache Game and Fish Department.

METHODS

The 1993 nest survey was conducted between January and June by a one to three person team. Survey efforts in January and February were hampered by flood conditions over most of the state. Survey area priorities were set from eagle observations from previous surveys, habitat quality, and proximity to known breeding areas. Initial surveys in breeding areas were performed during ORA flights piloted by USBR and SRP. Breeding areas were foot surveyed for alternate nests if the occupancy at all known nests could not be determined. Nest condition, number of adults, nest status and areas searched were recorded to minimize survey overlap. Eagle-sized nests discovered in 1992 (Driscoll et al. 1992) were revisited to determine occupancy and species. Suggestions by other biologists familiar with Arizona bald eagles were also considered.

Drainages were hiked (or driven when appropriate) and rivers floated, inspecting all trees and cliffs for nests. Observations were made with 8x35 and 10x50 binoculars and Bushnell and Questar spotting scopes. We plotted all suspected bald eagle nests and recorded sightings of bald eagles. The nests were categorized as either empty, or active (Postupalsky 1974). Since our observations were limited and made during migration and courtship for some species, a raptor sighting near a nest structure was not necessarily considered occupied by Postupalsky's (1974) criteria. The observation was simply noted and included in our text. Observations of other wildlife species, habitat quality and human activity were also noted. Cliff height and tree size were classified as either "large" or "tall." These adjectives described structures that in comparison to known bald eagle nest locations in Arizona appeared suitable for nesting bald eagles. Conversely, "short" or "small" cliffs and trees would not be considered large or tall enough to support a bald eagle nest. BioSystems Analysis Incorporated's (Hunt et al. 1992) nest and river map atlas assisted in relocating historical and known nest sites and describing river locations.

Helicopters from USBR and SRP were used for winter surveys, ORA flights, and nest searches. ORA flights were flown monthly from February to June to document productivity. The ORA flight schedule was timed to correspond with the observation of important breeding activities (i.e. incubation, nestlings, fledgling). During these flights we were able to inspect habitat between known breeding areas, historical breeding areas and locations where we had previously observed eagles. Separate from ORA flights, one flight was designed specifically for trying to locate new breeding areas. To examine habitat and search for new nests, we flew over drainages at approximately 200 feet above ground level at 45 knots (50 miles per hour). Speed and elevation were modified to accommodate safety concerns associated with wind speed, high tension wires and drainage topography.

RESULTS

Verde River

Sycamore Creek to Beasley Flat.--On 1-2 April 1993, the Verde River was surveyed by canoe from Peck's Lake above Cottonwood to Beasley Flat below Camp Verde (river kilometer 233.0-170.0). The Verde River from Sycamore Creek to the Tuzigoot bridge below Peck's Lake (river kilometer 250.0-232.0) was spot checked for nesting activity.

Below Peck's Lake, many cottonwood trees lined the banks of the Verde River. Within the city limits of Clarkdale, Cottonwood, and Bridgeport, large cottonwood trees were abundant as were riverside houses, roads and parks. Bulldozer activity was also apparent throughout this stretch of river. No nests or raptors were recorded within the city limits.

Downriver of the city limits, houses lined the banks for a few river kilometers. Abundant cottonwood trees were often associated with homes. Once past the houses, the distribution of cottonwood trees was sporadic. Cliffs were small and contained no ledges for large nests. Human activity along the river was minimal after passing the residential area, although a few people were observed fishing, canoeing and recreating. Wood ducks, mallard ducks and green-winged teal were flushed from the banks. American kestrels were observed, as were common black-hawks and red-tailed hawks near small tree nests.

Near the Hwy 17 bridge down through the Camp Verde city limits, there were many groves of young cottonwood trees bordered by larger cottonwoods. The banks were flat with no cliff structures. The nearby towns of Middle Verde and Camp Verde supplied this area with human activity. Small ranches and other homes were associated with a majority of the larger cottonwoods. Old cars, tires, rocks and steel walls have been

dumped into the river to stabilize hold the banks in front of the houses. Some of the debris had been washed into the main river bed by flood waters. An active sand and gravel operation existed along the river near the town of Middle Verde. Large carp were observed spawning in the shallow areas of the river. A pair of red-tailed hawks and common black-hawks were seen near two nest structures. Other species observed include: greater yellowlegs, spotted sandpipers, wood ducks, northern shovelers, and American kestrels.

From the Camp Verde BA above West Clear Creek downstream to Beasley Flat, mature cottonwood trees were limited to the river's edge. Little regeneration by young cottonwood trees was observed. Again, houses, small ranches and farms lined the river. Near West Clear Creek, houses were not as numerous and the groves of cottonwood trees were more dense. Human activity was restricted to areas near the houses and a small military/boy scout camp. An osprey foraged at the confluence of the West Clear Creek. Two golden eagles soared above the Camp Verde bald eagle nest area. Mallard and wood ducks, American kestrels, common black-hawks, zone-tailed hawks, red-tailed hawks were observed.

Near Beasley Flat, steep banks bordered the northeast side of the river leaving no room for large trees. Most of the cliff ledges were too small for an eagle nest, but could support smaller raptor nests. Few large cottonwoods trees were found on the southwest side although some tree snags did exist. An osprey was perched in a snag near the cliffs. An active common raven nest was found in a cottonwood tree.

Cold Water.--On 10 June 1993, during an ORA flight (Appendix A: Table 12), an adult male and a near-adult female bald eagle were observed in the Cold Water area. On 22 June 1993, the Cold Water nest area (Hunt et al. 1992) was ground surveyed. Five more nests were located near nest #1 (Appendix B: Figs. 1, 2). Two new cliff nests were found across from Brown's Ranch and were presumed to be red-tailed hawk nests. We discovered two new nests (#3 & #4) below nest #1, and a large nest (#5) on a pinnacle downstream from nest #1. Nest #5 was occupied by a family of golden eagles with three eaglets. Cold Water nest #2 (near the Childs powerplant) was still in good condition. A full adult bald eagle was observed on two occasions in the area. It is unknown if the two sightings were the same eagle.

Granite Creek.--On 26 and 27 April 1993, we ground surveyed the upper Verde River from Stewart's Ranch upstream to the steep canyon below Sullivan Lake Dam. The two cliff nests located near Stewart's Ranch (Driscoll et al. 1992) were climbed to identify the most recent occupant of the nest. Squirrel, rabbit and other mammalian bones indicated that golden eagles had most likely used the nest. No fresh mute or nest construction was evident. A recently molted near-adult bald eagle feather was found in the cottonwood grove near Stewart Ranch. No adult eagles or new nests were found.

Hell Point.--The historical Hell Point nest area (Hunt et al. 1992) was occupied by a pair of golden eagles in 1993. On 28 April 1993, we observed two adult golden eagles along with two eaglets (~4 weeks old) in cliff nest #2.

King's Spring.--An eagle-sized nest located in 1992 (Driscoll et al. 1992) just north of King's Spring (approximately 4 miles up Hell Canyon), was checked on 27 April 1993. The nest was unoccupied and no adult bald eagles or new nests were observed in the area. This nest and Orme nest #3 have the greatest diameter of any known cliff nest in Arizona.

Muldoon.--The historical Muldoon cliff nest (Hunt et al. 1992) was checked on 11 January 1993 and found to have been inundated by the early January flood. This nest structure normally sits only 30 feet above the bank during normal flows and was likely to have washed away entirely during the late February floods.

West Clear Creek

West Clear Creek was ground surveyed on 30 April 1993 from the narrow canyon upstream of the Wilderness boundary (above the HWY 260 bridge) down to its confluence with the Verde River.

In the canyon, cliff walls were steep and the creek's edge did not support riparian vegetation. Below the canyon, the creek's channel widened and small trees began to appear. Camping, fishing and hiking originated from the campground downriver of the canyon. This creek-side campground area is commonly stocked with rainbow trout by AGFD. One bird watcher at the campground reported seeing an adult bald eagle flying up the creek towards the canyon a week before our survey. One common black-hawk was observed.

Downriver of the HWY 260 bridge to West Clear Creek/Verde River confluence, large cottonwoods lined the banks. Many local residents have built diversion dams in the creek. In addition, the West Clear Creek/Verde River confluence was being channelized by a bulldozer. Nearby homes and trailer communities and their associated roads brought human activity to the creek. An osprey, three common black-hawks and a 12- inch sucker were observed.

Salt River

Alchesay Canyon.--The three large eagle-sized nests discovered in 1992 (Driscoll et al. 1992) near Alchesay Canyon at Roosevelt Dam were believed to be golden eagle nests after an adult golden eagle was observed on 25 February 1993 standing in one of them.

Gila River

Painted Rock Reservoir.--On 17 April 1993, Painted Rock Reservoir was surveyed. Due to the heavy January and February rainfall, the lake had expanded to the size of Roosevelt Lake. On the upstream end of the reservoir, few trees and small cliffs bordered the Gila River inlet. The north side of the lake was bordered by the Painted Rock Mountains. Below the dam, cliffs were too small for a large eagle-sized nest. Large cliffs with ledges existed at the west end of the reservoir south of the dam. Two small nests with observable whitewash were observed. The entire southern end of the reservoir was an inundated agricultural field. Drowned telephone poles near the farms provided perches. All activity was curtailed due to the park's closure and contaminants in the water. Many common egrets were perched on the vegetation in the river near the Gila River outflow. Other bird species observed include: black-necked stilts, redheads, coots, cormorants and two ospreys perched on telephone poles.

San Carlos River

Talkalai Lake.--On 18 April 1993, prior to our nest search flight, we ground searched Talkalai Lake and the San Carlos River down to the HWY 70 bridge. One adult bald eagle was observed soaring over the San Carlos River a few river kilometers south of Talkalai Lake. One nest was observed on the rock cliffs far east of the river but was later observed occupied with two golden eaglets.

On 10 June 1993 during an ORA flight, an adult bald eagle was observed perched in a cottonwood tree near the railroad trestle on the San Carlos River. We observed bald eagles perched in this same tree on our 7 May nest search helicopter flight. On 15 June 1993 we searched the railroad trestle on foot and found near-adult and adult bald eagle feathers but no nests or eagles. During our foot survey there was a fire in San Carlos and a helicopter was refilling its bucket just south of the trestle.

Blue River

The Blue River was ground surveyed on 27-28 May 1993 from its headwaters to Forest Service road 567 and around Forest Service Road 475.

From the Blue River's headwaters downstream to Forest Service road 567, the river channel was small with few cliffs. Large deciduous trees and pines bordered the river. Near Jackson Box, small cliffs were dispersed along a wider river, but the channel was still too small to support large fish or feed a breeding pair of bald eagles. Ranches were dispersed along the river.

Near Forest Service road 475, large cliffs and trees lined the banks of the Blue River. The river was larger in this section with many clear deep pools. Approximately ten, foot long trout along with many fry and minnows were observed. The noticeable

absence of cattle was apparent in the excellent health of the riparian forest. Only one angler was observed. A large unidentified eagle-sized raptor was observed approximately two miles upstream of the San Francisco/Blue River confluence. A large hawk-sized nest was found on a cliff wall near the 475 road. Other species observed include: zone-tailed hawks, common black-hawks, red-tailed hawks, yellow warblers and wild turkey.

White Mountain Lakes

Lee Valley/Crescent/Big Lake.--On 27 May 1993, Lee Valley Reservoir, Crescent Lake and Big Lake were searched from the ground. Surrounding these lakes were open meadows. Set back from the waters edge were stands of dense mixed conifer timber primarily consisting of tall fir trees. These lakes are often frozen during the winter and early spring. Human activity and vehicular traffic were high during our visit due to the opening of trout fishing season. No bald eagles or nests were found. Two cinnamon teal, four green-winged teal and a Canada goose were observed.

Gila River Drainage Nest Search Flight

Gila River.--On 7 May 1993, the USBR and AGFD surveyed the Gila River drainage from Winkelman to the Gila/San Francisco River confluence by helicopter. In addition, the San Carlos River was surveyed from San Carlos Reservoir to the Bear Creek/Blue River confluence upstream of Talkalai Lake. Bonita and Eagle creek were also surveyed to check the status of eagle-sized nests found in 1992 (Driscoll et al. 1992).

From the HWY 77 bridge upstream to the Coolidge bald eagle BA, the Gila River supported large cottonwoods and cliffs. HWY 77 and the associated vehicle traffic paralleled the river for a few miles. Once HWY 77 veered away from the riverside, large cottonwood trees and small cliff structures were plentiful. Approximately 10 river kilometers below the Coolidge BA the floodplain narrowed. Large cliffs with adjoining talus slopes restricted riparian trees to the washes and creeks entering the river. A near-adult female bald eagle was flushed from a perch in this area (near Granite Basin). We inspected the immediate cliffs, canyons and pinnacles for nests but nothing was observed. One active raven nest and an active common black-hawk nest were found. Other bird sightings included; zone-tailed hawks, mallard ducks and an unidentified kite species.

From the San Carlos Reservoir upriver along the Gila River approximately 15 miles west of Safford, there were no cliffs or cottonwood trees. Salt cedar covered the entire drainage for many miles.on both sides of the river. Farm fields and the loss of native streamside vegetation appeared to be encouraging erosion of the river's banks.

Near the town of Safford and upstream to the Gila River/Bonita Creek confluence,

small groves of trees and small cliffs existed along banks. The floodplain was lined with agricultural fields. One pair of common black-hawks was observed.

The nest structures discovered in Eagle and Bonita creeks in 1992 (Driscoll et al. 1992) were checked for occupancy during the flight. The historical Eagle Creek BA (Hunt et. al. 1992) along with all the other nests were unoccupied. No adult bald eagles or new nests were discovered.

From the Gila River upstream of Bonita Creek to the San Francisco River near Clifton, the river had many tall cliffs and groves of trees at the inflowing washes. Along this stretch, the river was noticeably turbid. Multilayered cliff walls offered many ledges and crevices to support a large nest. Most of the area was isolated and few human activities were observed. We located some large nests in this area which were occupied by golden eagles.

San Carlos River.--No large trees were present at the inflow of the San Carlos River into San Carlos Reservoir. A few short cliffs bordering the inlet were not large enough to support a bald eagle nest. Further upriver near the railroad trestle, a young cottonwood tree grove existed along the river. Larger cottonwood trees on the outskirts of the floodplain could support a large nest structure. Many houses bordering the river near HWY 70 provided human activity. A possibly paired adult male and near-adult female bald eagle and one sub-adult bald eagle were perched in a cottonwood tree. After leaving their perches the eagles circled the tree a few times and soared to the west over open country.

From HWY 70 up to Talkalai Lake, large riparian trees and small cliffs bordered the San Carlos River. Homes and farms populated this stretch of river.

Talkalai Lake was relatively small (approximately 0.5 square mile or 320 acres) compared to the Salt and Verde river lakes. Few large trees existed along its banks. The nearest cliffs were large, but are approximately 2 to 3 miles east of the lake. Due to its small size and relative isolation, the lake did not have facilities for large boats. During our search, human activity was limited to a few anglers fishing from the shoreline and on the lake in small jon boats. Two eagle-sized nests (nest #'s 1 & 2) were found just upriver of the lake on a north facing cliff (Appendix B: Fig. 3). Shallow pools holding fish and soft-shelled turtles were observed below these two nests. A small amount of mute near these two nests was also noticed.

Above Talkalai Lake, isolated cliff structures in the canyons of Bear Creek, Blue River and San Carlos River drainages are large, with many ledges. River pools were observed far past the confluence of the three drainages. Three more large nests (nest #'s 3, 4 & 5) were located near the confluence of Blue River and Bear Creek (Appendix B: Fig. 3).

Arizona Bald Eagle Breeding Areas

Alamo/Ive's Wash.--On 8 January 1993, the Army Corps of Engineers reported water levels rising at 16 inches per hour at Alamo Lake. Biologists from the USFWS and AGFD removed two eggs from the incubating eagles in nest #2. The eggs were rushed to an incubator at the Phoenix Zoo (Beatty and Driscoll in prep.). Alamo nest #2 was inundated two days later. The remaining two Alamo nest snags (#1 & #3) and the Ive's Wash nest snag in Woody's Cove (#2) were inundated soon afterwards. The Alamo pair, after having their nests inundated, built pinnacle nest #4 on a nearby cliff (Appendix B: Fig. 4). Nest #4 was the first recorded cliff nest this breeding pair has built.

A follow-up visit to the Alamo site in November 1993 found that all nests were gone from the snags. The Ive's Wash nest snag #2 in Woody's Cove and Alamo nest snags #2 and #3 were still standing. It appeared as though nest snag #1 had fallen. Many commonly used perch snags at the north end of Alamo Lake have also fallen.

Ash.--On 12 March and 25 May 1993 we examined the Ash BA. Both nest #1 and #2 were relocated, but no new nest construction was observed. No eagles, mute or prey remains were found in the immediate vicinity. The nearby stock tanks east of Highway 60 and Seneca Lake were checked due to previous sightings of adults in the area in 1986-1988 (Hunt et al. 1992). No eagles were found. Approximately 10 mallard ducks were observed. In addition, a red-tailed hawk and common raven nest were found.

Blue Point.--On a 25 February 1993 helicopter flight, the Blue Point eagles were discovered incubating in new cliff nest #7 (Appendix B: Fig. 5). Nest #7 was 300 meters northwest of nest #6 in the Goldfield Mountains.

Camp Verde.--The Camp Verde cottonwood tree nest #1 was one of the few trees left in its small grove after the January floods. An adult bald eagle was observed in the area on 27 January 1993 flying upstream of the nest. After the initial January rains, the telephone pole next to the nest tree had been replaced, the area bulldozed, and the bank in front of the nest tree reinforced to stop the telephone pole from being washed downstream. On 1 February 1993, the nest had been built upon with a small cup in the center of the nest. After heavy rainfall in northern Arizona on 21-22 February 1993, the nest tree was washed away.

Coolidge.--On 7 May 1993, Coolidge cliff nest #3 was found to have fallen from its ledge and the snag which held nest #1 had been toppled in the floods.

Fort McDowell.--Between the end of the 1992 breeding season and January 1993, Fort McDowell tree nest #11 fell along with the nest's supporting branch. The weight of the nest and the dying status of the tree is believed to have been the cause.

Horseshoe.--The Horseshoe BA was surveyed for the presence of adults and/or new nest structures on 16 and 20 March 1993. Trees and cliff structures between river kilometer 81.0-86.5 were searched, but no new nest structures were found. Both nest #1 and nest #8 did not show any recent signs of being used. An adult eagle was observed perched near nest #8 and flushed into a soar north of the nest cliff. One red-tailed hawk nest was observed in the young cottonwood grove northeast of Chalk Mountain.

Lake Pleasant.--Lake Pleasant cottonwood tree nest #1, located 5 river kilometers upstream of cliff nest #2 fell from the tree prior to the 1993 breeding season. On 1 February 1993, the nest tree was found to be intact, but the large branch that had supported the nest had broken off.

Perkinsville.--Perkinsville nest tree and nest #1 were washed downstream between 11 January and 1 February 1993. On 28 April 1993, we surveyed from the cottonwood grove at the Forest Service bridge on Verde River kilometer 272.5 to the large cliff wall at river kilometer 268.0 for the presence of adults and/or new nests. No adults or new nests were found. The nest tree and most of trees from the Forest Service bridge downstream to the railroad bridge at river kilometer 272.5 were toppled due to floodwaters. Due to the floods, the geomorphology of the Verde River channel changed from a slow moving system with mud banks to a fast moving river with rocky banks. One adult bald eagle was observed 20 river kilometers upstream of the nest on 11 January 1993, but its identity was not determined.

Sheep.--Sheep cottonwood tree nest #1 was checked on 16 December 1993. A large branch had fallen into the nest and laid across the side of the nest bowl. An attempt was made on 22 January 1993 to push the log out of the nest. However, the attempt was unsuccessful due to the size of the log and angle which it laid. After the breeding season, we successfully cut the log out of the nest with a chainsaw on 9 October 1993. Because the nest tree is decaying, the middle trunk and nest may soon fall.

Tonto.--During a preseason nest check at the Tonto BA, an adult eagle was observed building new nest #2 (Appendix B: Fig. 6) in a cottonwood tree upstream of nest #1. Nest #2 was on the east side of the creek approximately 1 kilometer upriver of nest #1 in a cottonwood laden with mistletoe.

Tower.--The historical Tower nests (Hunt et al. 1992), most recently relocated in 1992 (Driscoll et al. 1992), were visited on 1 April 1993. Breeding bald eagles were last observed in this area by Thompson in 1968 (L. Forbis, documentation of a telephone interview 1984). Some mute was noticed on nest #2 and below a juniper snag downstream of the known nests, but no bald eagles were observed. Two golden eagles were spotted soaring in the area and were presumed to occupy the area. On 26 April 1993, Kelly Kishpaugh, an employee of the Verde River Scenic Excursion Train,

reported a pair of adult bald eagles near a nest within the known gallery of Tower nests. On 29 April 1993, one adult bald eagle and a four-week old nestling were confirmed in new cliff nest #6 (Appendix B: Fig. 7).

ORA Helicopter Flights

A summary of information collected from ORA flights (breeding area and/or location visited, time, crew, status of nests, and observations) is presented in Appendix B (Appendix A: Tables 4-12). Sightings of eagles in previously unoccupied areas and new nests are described above under the appropriate sections.

DISCUSSION

River Flooding and Its Impacts

In 1993, Arizona encountered record rainfall and subsequent river flooding. However, 21 of the 31 known breeding areas laid eggs producing 22 successful young (Appendix A). The January/February 1993 storms inundated and/or toppled 8 bald eagle nests from 5 known breeding areas (Alamo, Camp Verde, Coolidge, Ive's Wash, and Perkinsville) and 1 historical site (Muldoon). Some breeding areas (Alamo, Ive's Wash, Chino, Horseshoe, and Orme) experienced altered river channels and the loss of regular perch trees. In other areas, entire groves of cottonwood trees were washed downriver (Camp Verde, Perkinsville). It is expected that there will be little immediate effect on nesting eagles from these floods.

The Camp Verde and Perkinsville bald eagles lost the only known nests (located in cottonwood trees) in their respective breeding areas. In addition, all cottonwood trees that surrounded the nest trees were toppled from the floods. These neighboring trees would have been the obvious location for alternate nests. Eagles and nest construction had been observed in the Camp Verde BA, but after the nest was lost, follow-up surveys and nest monitoring (Beatty and Driscoll in prep.) failed to locate any eagles or alternate nests. No eagles or alternate nests were discovered from aerial or ground surveys at the Perkinsville BA.

Because little known breeding activity has occurred at the Camp Verde and Perkinsville BAs, we are unsure of how the loss of these nests will affect future breeding attempts. Eggs were laid once at the Camp Verde BA in 1992 and no breeding attempts have been documented at Perkinsville. Both areas are located on private land with relatively consistent levels of human activity due to residential homes, nearby roads and recreation (Beatty 1992). Although the future success of both breeding areas appeared tenuous when there were nest structures, it appears that both sites have enough nearby structures to place a nest. Sufficient numbers of cottonwood trees remain in the Camp Verde BA and large cottonwoods and cliffs are available for the

Perkinsville birds.

All three Alamo Lake nest snags (#1, #2 & #3) and the Ive's Wash tree snag in Woody's Cove (#2) were inundated in early January and remained mostly underwater through at least June of 1993. Lake elevations rose from 1100 feet to 1175 feet. All hunting snags on the lake previously used by the two pairs of eagles were also inundated. In early November 1993, when the lake's elevation had been reduced to 1109 feet, Alamo nest snags #2 and #3 and Ive's Wash snag #2 still remained, but the nests were gone. It appeared that nest snag #1 had fallen.

The ramifications of the nest inundation at Alamo/Ive's Wash seem to be minimal for future nesting attempts, yet there are concerns over the availability of hunting perches. After the inundation, the Alamo eagles built cliff nest #4 and raised one young successfully from a second clutch of eggs. In addition to cliff nest #4, abundant cottonwood trees on the Big Sandy River are of sufficient size and in close enough proximity for utilization by the Alamo eagles. Ive's Wash eagles have been successful in fledging young in each of the five seasons they have used cliff nests #1 and #3 below Alamo Dam. However, many high use foraging perches on the lake have fallen. Due to the Ive's Wash/Alamo eagles history of using a small area to acquire food during normal lake operating levels (Hunt et al. 1992, Beatty 1992), the loss of hunting perches could be a significant problem. It may be too difficult for two pairs of eagles to partition the lake's resources and acquire the necessary amount of food without these perches.

Discovery of New and Potential Breeding Areas

Consistent with the discoveries from the 1992 nest survey (Driscoll et al. 1992), we documented Arizona bald eagles reoccupying a historical breeding area in 1993. The Tower BA was documented by USFWS agent Floyd Thompson producing young in 1965, 1966, and 1968 (L.Forbis, documentation of telephone interview, July 1984). The nests were relocated in 1986 (Hunt et al. 1992) and the area repeatedly visited during annual nest surveys (Glinski 1985, 1986, Hildebrandt and Glinski 1987, Gooch et al. 1988, Tibbitts et al. 1989, 1990, Driscoll et al. 1992) and winter counts (Beatty 1992, Beatty and Driscoll in prep.). Eagles assumed to be wintering or floating birds have been reported at nearby Peck's Lake (6.4 air kilometers away) since 1986 (Collie and Knoll 1990, Hunt et al. 1992, Driscoll et al. 1992). Since 1986, no breeding activity or new nests have been discovered in this area. A tip from Kelly Kishpaugh of the Verde River Scenic Excursion Train led to the discovery of new nest #6 and a 4 week old eaglet on 29 April, 1994.

Surveys in 1993 also produced large nests and sightings of bald eagles near Cold Water Creek on the upper Verde River. Sightings of adult and near-adult eagles in the Cold Water area occurred in 1986, 1987, 1988 (Hunt et al. 1992), 1992 (Driscoll et al. 1992) and

1993. Residents of Brown's Ranch have described the presence of bald eagles to both AGFD and USFS personnel. In 1992 (Driscoll et al. 1992) and 1993 (Appendix B), thorough aerial and ground surveys during the breeding season found no nesting activity. This year however, five nests and the consistent sightings of bald eagles were recorded. We anticipate that after further monitoring we will soon discover the use of these nests by bald eagles and confirm this site as an active breeding area.

Similar to the Cold Water area in 1993, bald eagles were sighted and large nests discovered in the San Carlos River/Talkalai Lake area. Twice during the breeding season, a pair of eagles was observed perched in the same cottonwood tree along the San Carlos River. Although no tree nests were found along the river, four large cliff nests at the upper end of Talkalai Lake were discovered. We hope that further investigation of these nests will lead to the discovery of an active bald eagle breeding area.

The Gila River inflow to San Carlos Reservoir should *not* be visited in the near future for eagle nests. Although reservoir inflows are common places for eagles to nest in Arizona (Hunt et al. 1992), the Gila River inflow presently has no nesting habitat (cliffs or trees). This area has been inspected thoroughly the past two seasons (Driscoll et al. 1992). Future surveys for potential nests in this area would be best spent examining more atypical places, such as cliffs further away from the lake (similar to the Blue Point BA).

The White Mountain lakes (Lee Valley, Crescent, Big Lake) appeared to be low priority locations to search for future bald eagle nests until the discovery of the Luna Lake nest in Alpine during the 1994 field season (Driscoll et. al in prep.). These three lakes are often frozen during the incubation period for known nesting Arizona bald eagles. Thus, a constant accessible food source would not be available to the eagles. Timber near these lakes is comprised primarily of dense stands of tall thin fir trees which do not provide the large snags or strong crowns that are required of conifer nesting bald eagles. In addition, these mountain lakes presently do not support the ecologically similar and more common nesting osprey (Beatty and Vahle in prep.). However, with discovery of a Luna Lake bald eagle nest in 1994, we should not completely disregard reports from this area. Eagles may choose to nest in one of the few sturdy conifers nearby or at a distant location from the water. Because eagles took over a previously used osprey nest at Luna Lake, it may be prudent to inspect areas currently used by osprey in the White Mountains and/or larger Mogollon Rim lakes (i.e. Chevelon Canyon Lake) that remain unfrozen year round.

A question may arise over whether the nearest neighboring pair of breeding eagles (Perkinsville or Camp Verde) *moved* to the Tower BA. This scenario appears unlikely due to the known identities (Appendix A: Table 1) of the eagles (Hunt et al. 1992, Beatty and Driscoll in prep.) occupying these territories and recorded distances between nests

and breeding areas in Arizona (Hunt et al. 1992). The Perkinsville BA is 21 river kilometers from the Tower BA and the Camp Verde BA is 69 river kilometers away. The farthest recorded distance between two Arizona bald eagle nests in the same breeding area is the Blue Point nests at 15.6 river kilometers (Hunt et al. 1992). In addition, eagles switching or moving to another breeding area has never been documented in Arizona (Hunt et al. 1992, Beatty and Driscoll in prep.) or other breeding populations (D. Driscoll pers obs.). Of course, historical information (L. Forbis, documentation of telephone interview, July 1984, Hunt et al. 1992) indicates that the upper Verde River from the Tower BA to Sullivan Lake may have been occupied by 5 pairs of bald eagles. As we have seen over the past two seasons (Driscoll et al. 1992), historical breeding areas are becoming reoccupied by bald eagles on the Verde River.

RECOMMENDATIONS

1.Continue annual bald eagle nest searches. With the addition of the Tonto and Camp Verde breeding areas in 1992, and the Tower Breeding Area in 1993, it is imperative that new breeding areas be located as soon as possible to accurately describe population trends, productivity and implement proactive management techniques.

2.Renew the cooperative agreement between USBR, SRP, and AGFD through 1997. These searches have been integral to documenting population trends in Arizona bald eagles at a minimum cost. In addition to the 3 confirmed breeding areas, information indicates that 2-4 more new sites (Talkalai, Cold Water, Granite Basin below Coolidge BA and Nankoweap Creek) may be discovered.

3.Continue to monitor "hot" areas on ORA, winter count and the nest search flights in concert with follow-up ground searches. Helicopters afford the luxury of inspecting large sections of river quickly for the presence of eagles and nests. Follow-up ground searches give us the opportunity to more thoroughly investigate the occupancy of a site which a pass on a helicopter may not discover.

4.Should funding for the nest search project be reduced in the future (1992 was the last reduction in funding), it would be prudent for the project to emphasize the status of known and remote BAs. Although this doesn't mean we should completely ignore exploring new areas, it does mean we should attempt to maintain the high quality of information that we have set for ourselves in Arizona.

4.Trap and telemeter breeding adults in nest areas which will be impacted by dam renovations (Tonto, Sheep, Pinto, Pinal, Pleasant) and eagles in areas in which

current nest locations are not known (Camp Verde, Cold Water, Perkinsville, Talkalai). Time and effort spent trapping will save time searching those breeding areas for new nests and allow for more time to be allocated towards other areas.

5.Historical (Hunt et al. 1992) and/or known nest areas which should be searched:
a.Verde River - Cold Water/Brown's Ranch, Stewart's Ranch.
b.East Verde River - LF Ranch.
c.Black and White rivers - Natanes and Bronco, George's Basin.
d.Gila River - Down river from the Coolidge BA.
e.San Carlos River - Talkalai Lake
f.Burro Creek - Devil's Post.
g.Colorado River - Havasu.

New areas which should be examined for breeding adults and/or nests:
a.Verde River - Horseshoe BA to Table Mountain BA.
b.Gila River drainage - Lower Blue River, San Francisco River, Bear Canyon/Blue River confluence, Dry Lake.
c.Salt River drainage - Black and White rivers, Gun Creek near Tonto Creek, Carrizo Creek, Cherry Creek, Redmond BA to Canyon BA.
d.Colorado River drainage - Nankoweap Creek, Topock marsh to Lake Havasu City, Lake Mead, Lake Powell.
e.Bill Williams River drainage - Ive's Wash BA to Lake Havasu City, Burro Creek near Six-Mile Crossing, Upper Trout Creek.
f.Agua Fria River drainage - Lake Pleasant and the Agua Fria river for a **second** Lake Pleasant BA.
g.Mogollon Rim Lakes - Chevelon Canyon Lake, Mormon Lake, Lake Mary, Parker Canyon Lake.

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APPENDIXES

Appendix A: Occupancy and Recruitment Survey Tables

Table 1. Identification of adult bald eagles at the Tower, Perkinsville, and Camp Verde Breeding Areas.

Breeding Area	Adult Male	Last Year Identified	Adult Female	Last Year Identified	River km to Tower BA
Tower	Near-adult USFWS. and purple VID. banded	1993	Full adult unbanded	1993	N/A
Perkinsville	Full adult unbanded	1990	Full adult USFWS banded	1992	~21.0
Camp Verde	Full adult unbanded	1992	Full adult unbanded	1992	~69.0

Table 2. 1993 Arizona bald eagle productivity.

Breeding Area	Status[1]	Nest #[2]	Incubation Date	Number of Eggs	Hatch Date	Number of Young	Number Fledged	Fledge Date
Alamo*	S	2	12/31-1/1	2	2/3-4	1	fostered - Ive's Wash	
Alamo* (2nd clutch)	S	4	2/14	1+	3/20-24	1	1	6/13
Ash	U							
Bartlett*	S	1	1/11-15	2+	~2/19	2	1	4/29
Blue Point	S	7	<2/25	3+	<3/12	3	2	<6/10
Camp Verde*	O							
Canyon	S	6	<4/2	1+	<4/2	1	1	<6/10
Cedar Basin	F	3	<4/2	1+			failed <5/3	
Chino	?							
Cibecue	F	1	<3/9	1+	failed prior to <4/2 - 3/9 status per USGS			
Cliff*	O	% seen with 3 year old & with a blue VID band & 4 year old &						
Coolidge	S	2	<2/12	2+	<3/12	2	2	<6/10
Devil's Post	U							
East Verde	S	6	<1/11 ?	2+	<3/12	2	1	<6/10
Ft. McDowell*	S	12	2/2-5	2+	3/9-12	2	2	6/1
Horse Mesa	S	2	<2/12	2+	<4/2	1	1	6/10-24
Horseshoe	O	New % hatched from Ladders nest - 1988, replaced bird shot in October 1992						
Ive's Wash*	S	3	12/30-1/11	1+[3]	<2/12	1+[3]	2	5/10
Ladders*	F	3	1/30-2/1	2+	3/7-8	2	chicken bugs, interaction with intruder eagle	
Lone Pine	F	1	<4/2	1+			failed <5/3	
Mule Hoof	U							
Orme*	S	3	2/1-7	2	<3/19	2	1	5/31-6/6
Perkinsville	U							
Pinal	S	3	<2/12	3+	<4/2	2	1	<6/10
Pinto*	S	3	1/21-2/8	1+	<3/18	1	1	<6/10
Pleasant*	S	2	1/11-19	1+[3]	2/20-24	1+[3]	1	5/30-6/5
Redmond	O							
76*	F	3	2/5-6	2	& abandoned incubation 2/27-28			
Sheep*	O				& from 76 nest - 1988, arrived at site -1992			
Table Mountain	S	4	<3/12	2+	<4/2	2	2	6/10-17
Tonto*	S	2	2/2-5	2+	~3/11	2	2	5/29&6/3
Tower*	S	6	<4/29	2	<4/29	1	1	<6/28

[1] Breeding area status codes (Postupalsky 1974) - U=unoccupied, O=occupied, A=active (eggs or young present), S=successful, F=failed,

?=unknown

[2] Nest numbers are from Ecology of Bald Eagle in Arizona (Hunt et al. 1992)

[3] Ive's Wash and Pleasant nestwatchers described birds feeding in two places when eaglets were not visible-possibly 2 young? *= Sites monitored by 1993 Arizona Bald Eagle Nestwatch Program

Table 3. 1993 Arizona bald eagle productivity summary.			
Number of Breeding Areas	31[1]	Number of Active Nests	21
Number of Occupied Breeding Areas	27[2]	Number of Failed Nests	5
Number of Eggs	38+	Number of Successful Nests	16
Nest Success = 16/27 = 0.59		Number of Young Hatched	29+[3]
Mean Brood Size = 22/16 = 1.375		Number of Young Fledged	22
		Productivity = 0.59 x 1.375 = 0.81	

[1] May be 2 more breeding areas, "Cold Water" on Upper Verde and "Talkalai Lake" on San Carlos Reservation.

[2] Chino site not checked in 1993, most likely unoccupied - nestwatchers did **not** observe extra pair of eagles at Alamo.

[3] Nestwatchers at Lake Pleasant and Ive's Wash described adults feeding in two places when eaglets were not visible - possibly more than one young hatched.

Table 4. Results of 11 January 1993 midwinter count/Occupancy and Reproductive Assessment flights. Crew: J. Driscoll, M. Ingraldi, J. Hanna, Pilot - K. Kloppel, USBR.

Breeding Area / Location	Time	Status	Comments
Lake Pleasant	1100	Unoccupied	
Muldoon	1243		Nest inundated
River kilometer 292.9	1250		One adult observed perched of cliff
Perkinsville	1300	Unoccupied	Camper parked below nest
Peck's Lake	1435		One adult perched in tree on inside of horseshoe
Camp Verde	1508	Unoccupied	
Ladders	1524	Unoccupied	
East Verde	1543	Active	One adult incubating in nest #6
Table Mountain	1606	Occupied	Two adults perched near nest #4
River kilometer 99.5	1614		One subadult flying
Horseshoe	1621	Occupied	One adult perched on Chalk Mountain
Cliff	1637	Occupied	Two adults perched on pinnacle nest
Bartlett	1648	Occupied	Two adults on cliff
Ft. McDowell	1656	Occupied	Two adults perched in snag
Orme	1706	Unoccupied	

Table 5. Results of 21 January 1993 midwinter count/Occupancy and Reproductive Assessment flights. Crew: J. Driscoll, G. Beatty, T. Nobel, Pilot D. Blakely, SRP.

Breeding Area / Location	Time	Status	Comments
Orme	1257	Occupied	Two adults perched near nest #1
Blue Point	1305	Occupied	One adult flying near nest #6
Horse Mesa	1332	Unoccupied	
River kilometer 71.3	1340		One subadult perched on cliff
Alchesay Canyon	1349	Unoccupied	
Tonto	1359	Occupied	Two adults at nest #2
Sheep	1408	Occupied	Two adults at nest #1
76	1416	Occupied	One adult at nest
Gisela	1418		One adult at Indian Ruins
Pinto	1456	Unoccupied	
Pinal	1509	Unoccupied	
Coolidge	1532	Occupied	One adult flying in area
San Carlos Reservoir Lake Loc 19.3	1545		One adult perched on log in water
San Carlos Reservoir Lake Loc 7.2	1555		One adult flying

Table 6. Results of 1 February 1993 Occupancy and Reproductive Assessment flights. Crew: J. Driscoll, G. Beatty, H. Messing, Pilot - M. Santee, USBR.

Breeding Area / Location	Time	Status	Comments
Orme	0845	Occupied	One adult perched near nest #1
Ft. McDowell	0854	Occupied	One adult at nest #12
Cliff	0905	Occupied	One subadult in area
Horseshoe	0912	Occupied	
Table Mountain	0918	Occupied	One adult perched near nest #4
East Verde	0927	Active	Incubating in nest #6
Cold Water #2	0930	Unoccupied	
Cold Water	0935	Unoccupied	
Ladders	0941	Active	Incubating in nest #3
Camp Verde	0949	Occupied	Nest built on with small cup in middle
Pecks Lake	1002		Nothing observed
Perkinsville	1011		Nest tree has been washed away
Granite Creek	1018	Unoccupied	
Pleasant	1141	Active	One adult incubating in nest #2, Nest #1 has fallen

Table 7. Results of 12 February 1993 Occupancy and Reproductive Assessment flights. Crew: J. Driscoll, G. Beatty, T. Nobel, Pilot - D. Blakely, SRP.

Breeding Area / Location	Time	Status	Comments
Blue Point	0830	Occupied	
Horse Mesa	0835	Active	One adult incubating
Alchesay Canyon	0847	Occupied	One golden standing on one of the nests
Cottonwoods below Sheep	0900		One subadult observed
Sheep	0903	Occupied	Two adults in area
Pinto	0910	Active	One adult incubating in nest #3
Pinal	0926	Active	One adult incubating in nest #3
Redmond	0932	Occupied	One adult standing in nest #6, one adult flying
Talkalai Lake	0957		One subadult in area
Coolidge	1244	Active	One adult incubating in nest #2

Table 8. Results of 25 February 1993 band reading/Occupancy and Reproductive Assessment flights. Crew: J. Driscoll, D. Driscoll, T. Nobel, D. Blakely, SRP.

Breeding Area / Location	Time	Status	Comments
Blue Point	0832	Active	Found new nest #7, One adult incubating
Horse Mesa	0837	Active	One adult incubating in nest #1, Reading bands
Pinto	1319	Active	One adult incubating in nest #3
Pinal	1324	Active	One adult incubating in nest #3
Redmond	1326	Occupied	Checked all cliffs and trees in area from kilometer 121.0 to 131.0 for new nests or adults

Table 9. Results of 12 March 1993 Occupancy and Reproductive Assessment flights. Crew: G. Beatty, T. Tibbitts, S. Sferra, Pilot - K. Kloppel, USBR.

Breeding Area / Location	Time	Status	Comments
Cliff	N/A	Occupied	
Horseshoe	N/A	Occupied	
Horseshoe BA to Table Mt. BA	N/A	-	No eagles or nests observed
Table Mountain	N/A	Active	Incubating in nest #4
East Verde	N/A	Active	Two adults brooding posture nest #6
East Verde River	N/A		One adult flying near LF ranch
Cold Water #2	N/A	Unoccupied	No adults or new nests observed
Cold Water	N/A	Unoccupied	No adults or new nests observed
Ladders	N/A	Active	Adult incubating in nest #3
Camp Verde	N/A	Occupied	Survey from Beasley Flat to I-17 bridge, Confluence West Clear Creek to Hwy bridge on West Clear Creek
Peck's Lake	N/A		No adults or nests observed
Pinto	N/A	Active	Adult incubating in nest #3
Pinal	N/A	Active	Adult incubating in nest #3, one adult flying near Klondyke Mountain
Redmond	N/A	Occupied	One adult perched at nest #5
Coolidge	N/A	Active	One plus eaglet approximately two weeks old
Horse Mesa	N/A	Active	Adult incubating in nest #2
Blue Point	N/A	Active	One plus eaglet approximately two weeks old, one adult feeding in nest

Table 10. Results of 2 April 1993 Occupancy and Reproductive Assessment flights. Crew: G. Beatty, S. Sferra, T. Nobel, D. Blakely, SRP.

Breeding Area / Location	Time	Status	Comments
Blue Point	~0800	Active	Three eaglets in nest approximately 4.5 weeks old
Horse Mesa	~0825	Active	Adult brooding one approximately 2.5 week old eaglet
Tonto	~1015	Active	Two eaglets in nest, one adult flushed from nest
Pinto	~1030	Active	One eaglet in nest
Pinal	~1040	Active	One eaglet and one adult in nest
Redmond	~1100	Occupied	Two adults perched on nest cliff #6
Canyon	~1120	Active	One eaglet and one adult at nest
Cibecue	~1135	Failed	Nest empty. No eagles in nest area
Mule Hoof	~1145	Unoccupied	Juniper nest falling out, Cliff nest empty
Cedar Basin	~1155	Active	Adult flushed from incubating posture in nest #3 and returned to nest vocalizing
Lone Pine	~1200	Active	Incubating in nest #3
Coolidge	~1400	Active	Two eaglets in nest #2
Cold Water	~1530		No adults,or new nests observed
Cold Water #2	~1540		No adults or new nests observed
East Verde	~1555	*Occupied	No nestlings observed, one adult in area
Table Mountain	~1610	Active	One adult sitting tight on nest
Horseshoe	~1630	Occupied	
Cliff	~1645	Occupied	Subadult observed flying between nest and Bartlett Reservoir
Fort McDowell	~1700	Active	Flew high over area, one adult in area of the Doka Ranch

* - Nest was later observed with one five week old eaglet.

Table 11. Results of 3 May 1993 Occupancy and Reproductive Assessment Flights. Crew: J. Driscoll, D. Driscoll, T. Nobel, D. Blakely, SRP.

Breeding Area / Location	Time	Status	Comments
North end of Bartlett Reservoir	0812		Two small nests on yellow and brown cliffs.
Cliff	0820	Occupied	One red-tailed hawk nest on pinnacles
Horseshoe	0827	Occupied	Subadult perched in bowl on Chalk Mountain
Horseshoe BA to Table Mt. BA	0835		No adults or nests observed.
Table Mountain	0842	Active	Two young in nest ~ 6 weeks old, two adults in area
East Verde	0849	Active	10 week old eaglet in nest
Cold Water #2	0851	Unoccupied	Nest in good condition
River kilometer 148.0	0856	Active	Nest found on pinnacle, three golden eaglets in nest
Cold Water	0859	Unoccupied	
River kilometer 158.0	0904	Unoccupied	Two nests found on cliff across from Brown's Ranch
Ladders	0908	Failed	
River kilometer 170.0	0910	Unoccupied	Small nest found on cliffs near Beasley flat
Tower	0934	Active	Five week old eaglet in nest, two adults present
Verde Valley Canyon	0936	Unoccupied	Checked nests located in 1992
Perkinsville	0940	Unoccupied	Nest tree gone
Gisela	1110		Surveyed Tonto Creek upstream of Gisela. One adult present
76	1145	Failed	Adult near Gisela most likely the 76 adult
Sheep	1152	Occupied	
Roosevelt Lake	1202		Two adults spotted flying near Salome Bay, most likely Pinto adults, radio transmitter observed on eagle
Pinto	1210	Active	One eaglet in nest
Pinal	1217	Active	One eaglet in nest
Redmond	1220	Occupied	
Canyon	1246	Active	One 7 week old eaglet in nest
Cibecue	1256	Failed	One adult near nest #3
Mule Hoof	1305	Unoccupied	
Cedar Basin	1310	Failed	
Lone Pine	1320	Failed	One adult flying near nest
George's Basin	1331		No eagles or nests observed
Nash Creek Tank	1336		No eagles or nests observed
Horse Mesa	1458	Active	Eaglet in nest with adult
Blue Point	1506	Active	Two eaglets and one adult in nest, one adult flying around

Table 12. Results of 10 June 1993 Occupancy and Reproductive Assessment flights. Crew: D. Driscoll, T. Nobel, Roger Clemens - Channel 3 , Pilot - D. Blakely, SRP.

Breeding Area / Location	Time	Status	Comments
Table Mountain	0852	Active	Two eaglets and both adults in area
East Verde	0959	Successful	One adult perched upstream of nest cliff
Cold Water #2	1005	Occupied	Adult perched on river across from the nest
Cold Water	1015	Occupied	Near adult observed flying in area, new nest below nest #1
Brown's Ranch	1020	Occupied	Mute located on cliff behind nest
Pinto	1105	Successful	Eaglet flew from nest and landed below salt cedar, landed helicopter and put eaglet in a safe place.
Pinal	1140	Successful	
Redmond	1146	Occupied	Subadult flying near pinnacle nests
Canyon	1158	Successful	Eaglet flying in area
Talkalai	1310	Occupied	
San Carlos River near Railroad Trestle	1313		Adult perched in same tree as in nest search flight
Coolidge	1323	Successful	Two eaglets perched in nest tree
Horse Mesa	1356	Active	Eaglet perched outside nest on pinnacle
Blue Point	1410	Active	One eaglet in nest. No sign of other eaglet