The breeding pair delivered 83 prey items to the nest (Appendix J. Table 51). The male delivered 54 percent (n=45), and the female 46 percent (n=38). Seventy-two percent (n=60) of the prey items were fish, seven percent (n=6) birds, six percent (n=5) mammals, and 15 percent (n=12) unknown.

Of the 41 prey items that could be identified to species, 38 percent (n=27) were suckers (Appendix J, Table 52). Other prey items include: carp (n=4), trout (n=4), ducks (n=2), small mouth bass (n=1), American coots (n=1), grebes (n=1), and western cottontail (n=1). The breeding adults were also successful in 50 percent (3 of 6) of their attempts to pirate prey from other species. Those species pirated from include: great blue herons (n=3), ravens (n=1), turkey vultures (n=1), and prairie falcons (n=1).

Sycamore Breeding Area: 2000

Observation Period.—Observation dates ..... February 4 to March 10
Total monitoring days/hours ..... 27 days/189 hours
Dawn-to-Dusk hours ..... 115 hours

Eagle Identification.—Male .....Blue VID band left leg, USFWS band right leg, adult plumage
Female .....Blue VID band left leg, USFWS band right leg, adult plumage

The breeding adults began abandoning the breeding attempt following a winter storm on March 3 to 6. The nestwatch contractors were moved on March 10 after two days of abandonment.

Management Activities.—1. The Fort McDowell Yavapai Nation continues to restrict non-tribal member use of the river area, 2. The Fort McDowell Police visited the ABENWP contractors on nearly a daily basis, 3. ABENWP contractors were introduced to the Fort McDowell police in an orientation session held their first day in the field.

Human Activity.— Nestwatchers recorded 116 human activities during their 27 days of monitoring (Appendix J, Table 53). Aircraft (planes and helicopters) represented 81 percent (n=94), terrestrial activities 20 percent (n=20) of 6 different types, and watercraft (canoes/kayaks) two percent (n=2).

Three activities elicited three significant responses from the breeding pair. The adults flushed in response to one small plane, one helicopter, and one gunshot.

Nestwatchers recorded the number and type of aircraft below the recommended 2000 foot advisory. Of the 94 aircraft observed, small planes comprised of 66 percent (n=62), Apache helicopters 19 percent (n=18), personal helicopters 12 percent (n=11), and sheriff's helicopters 3 percent (n=3).

Food Habits.—Due to the short duration of their stay, nestwatchers did not observe and forage attempts. One fish prey delivery was made by the male, and no prey items were identified to species.

The breeding pair delivered 83 prey items to the nest (Appendix J. Table 51). The male delivered 54 percent (n=45), and the female 46 percent (n=38). Seventy-two percent (n=60) of the prey items were fish, seven percent (n=6) birds, six percent (n=5) mammals, and 15 percent (n=12) unknown.

Of the 41 prey items that could be identified to species, 38 percent (n=27) were suckers (Appendix J, Table 52). Other prey items include: carp (n=4), trout (n=4), ducks (n=2), small mouth bass (n=1), American coots (n=1), grebes (n=1), and western cottontail (n=1). The breeding adults were also successful in 50 percent (3 of 6) of their attempts to pirate prey from other species. Those species pirated from include: great blue herons (n=3), ravens (n=1), turkey vultures (n=1), and prairie falcons (n=1).

Sycamore Breeding Area: 2000

Observation Period.—Observation dates ..... February 4 to March 10
Total monitoring days/hours ..... 27 days/189 hours
Dawn-to-Dusk hours ..... 115 hours

Eagle Identification.—Male .....Blue VID band left leg, USFWS band right leg, adult plumage
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Three activities elicited three significant responses from the breeding pair. The adults flushed in response to one small plane, one helicopter, and one gunshot.

Nestwatchers recorded the number and type of aircraft below the recommended 2000 foot advisory. Of the 94 aircraft observed, small planes comprised of 66 percent (n=62), Apache helicopters 19 percent (n=18), personal helicopters 12 percent (n=11), and sheriff's helicopters 3 percent (n=3).

Food Habits.—Due to the short duration of their stay, nestwatchers did not observe and forage attempts. One fish prey delivery was made by the male, and no prey items were identified to species.

Tonto Breeding Area: 1999

Observation Period.—Observation dates.....February 7 to May 9
Dawn-to-dusk hours.....375 hours
Total monitoring days/hours.....70 days/636 hours

Eagle Identification.—Male.....Blue VID band left leg, USFWS band right leg, adult plumage
Female.....Blue VID band left leg, USFWS band right leg, adult plumage

Management Activities.—1. The newly constructed Indian Point campground remained closed throughout the breeding season, 2. The Southwestern Willow Flycatcher Closure limited recreational activities in the area.

Human Activity.—Nestwatchers recorded 65 human activities (Appendix K, Table 54). Aircraft (small planes, helicopters, and jets) represented 80 percent (n=52), and terrestrial activities 20 percent (n=13) of seven types.

Three activities elicited three significant responses from the breeding pair. Horseback riders caused the adults to flush when they road their horses under the nest tree to observe the bald eagles. An OHV and AGFD biologists caused the adults to flush once each.

Food Habits.—Although no forage attempts were observed by the nestwatchers, they did observe the adults returning from the vicinity of Roosevelt Lake with prey items.

The breeding adults delivered 71 prey items to the nest (Appendix K, Table 55). The majority was unknown (49 percent, n=35), 42 percent (n=30) fish, seven percent (n=5) mammals, and two percent (n=1) birds. No prey items were identified to species.

Tonto Breeding Area: 2000

Observation Period.—Observation dates.....February 5 to April 3
Dawn-to-dusk hours.....256 hours
Total monitoring days/hours.....42 days/403 hours

Eagle Identification.—Male.....Blue VID band left leg, USFWS band right leg, adult plumage
Female.....Blue VID band left leg, USFWS band right leg, adult plumage

The Tonto breeding pair incubated two eggs for over 63 days. Upon collection, one egg appeared to be void of any embryonic matter though there were no apparent holes or cracks in the eggshell. We sent both eggs to the USFWS for contaminant studies.

Management Activities.— 1. The newly constructed Indian Point campground remained closed throughout the breeding season, 2. The Southwestern Willow Flycatcher Closure limited recreational activities in the area.

Human Activity.—Nestwatchers recorded 17 human activities (Appendix K, Table 56). Aircraft (small planes and helicopters) represented 47 percent (n=8), and terrestrial activities 53 percent (n=9) of four types.

Two activities elicited three significant responses from the breeding pair. AGFD biologists caused the birds to be restless while reading bands, and a left area response while collecting the addled eggs. A small plane caused the adults to be restless on one occasion.

Minimal flows in Tonto Creek allowed for substantial vehicle crossing at A-Cross road. However, due to low lake levels, Indian Point campground remained closed throughout the breeding season. The low lake levels, closed campground, and the failure of the breeding attempt all contributed to the low number of human activities recorded this year.

Food Habits.—Although they did not recorded any definitive forage attempts, all prey items were brought to the nest from the vicinity of the lake.

Nestwatchers only recorded six prey deliveries to the nest. Fish were identified as 83 percent (n=5), and 16 percent (n=1) unknown. No prey items were identified to species.

Tower Breeding Area: 1999

Observation Period.—Observation dates.....February 6 to May 22
Total monitoring days/hours.....68 days/686 hours

Eagle Identification.—Male.....Purple VID band left leg, USFWS band right leg, adult plumage
Female.....Unbanded, adult plumage

Management Activities.—1. The USFS reinstated a seasonal breeding area closure surrounding the nest area, 2. The USFS posted closure signs at the upstream and downstream access points to the Verde River, 3. The USFS hauled a trailer and restroom to the nestwatch camp.

Human Activity.— Nestwatchers recorded 559 human activities (Appendix L, Table 57). Aircraft (planes, jets, and helicopters) represented 47 percent (n=262), terrestrial activities 52 percent (n=292) of 11 different types, and watercraft (canoes/kayaks) less than one percent (0.9 percent, n=5).

Two activities elicited 13 significant responses from the breeding pair. Small planes caused the adults to be restless four times, flush twice, and a left area response once. Trains caused the adults to be restless once, flush three times, and a left area response twice.

Food Habits.—Nestwatchers observed 20 forage attempts in the BA (Appendix L, Table 58). The male was successful in 83 percent (10 of 12) of the attempts, and the female in 50 percent (4 of 8). Most common forage item was fish (70 percent, n=14), although the adults foraged for birds twice (10 percent), mammals and carrion once (five percent each), and an unknown twice (10 percent).

The breeding pair delivered 99 prey items to the nest (Appendix L, Table 59). The male delivered 62 percent (n=61), the female 34 percent (n=34), and an unknown adult four percent (n=4). Eighty-three percent (n=82) of the prey items were fish, two percent (n=2) birds and mammals each, three percent (n=3) carrion, and 10 percent (n=10) unknown.

Of the 44 prey items that could be identified to species, 55 percent (n=24) were suckers (Appendix L, Table 60). Other prey items include: brown trout (18 percent, n=8), channel catfish (16 percent, n=7), carp (nine percent, n=2), and bass species (two percent, n=1).

Tower Breeding Area: 2000

Observation Period.—Observation dates.....February 4 to May 16
Total monitoring days/hours.....74 days/753 hours

Eagle Identification.—Male.....Purple VID band left leg, USFWS band right leg, adult plumage
Female.....Unbanded, adult plumage

One Tower nestling left the nest on May 17 after its sibling fledged on May 16. However, this nestling was not observed leaving the nest, nor flying in the BA. On May 18, we retrieved the nestling below the nest pinnacle, hydrated, fed, and placed the nestling above the nest on a cliff.

On May 22, the nestling remained on the cliff and had not been fed. We found the nestling the next day below the cliff near the Verde River, and took it to Liberty Wildlife Rehabilitation. After a month of rehab for a broken keel and clavicle, the nestling was released on June 14.

Management Activities.— 1. The USFS reinstated a seasonal breeding area closure surrounding the nest area, 2. The USFS posted closure signs at the upstream and downstream access points to the Verde River, 3. The USFS hauled a trailer and restroom to the nestwatch camp.

Human Activity.— Nestwatchers recorded 301 human activities (Appendix L, Table 61). Aircraft (planes and helicopters) represented 19 percent (n=57), terrestrial activities 80 percent (n=241) of 15 different types, and canoes one percent (n=3).

Three activities elicited three significant responses from the breeding pair. A hiker caused the adults to be restless, a railroad maintenance vehicle caused the adults to flush, and the train caused a left area response.

Food Habits.—Nestwatchers observed 23 forage attempts in the BA (Appendix L, Table 62). The male was successful in 77 percent (10 of 13), the female in 75 percent (6 of 8), and both adults in 50 percent (1 of 2). Most common forage item was fish (78 percent, n=18), although the adults foraged for birds and mammals twice each (nine percent each), and carrion once (four percent).

The breeding pair delivered 82 prey items to the nest (Appendix L, Table 63). The male delivered 72 percent (n=59), and the female 28 percent (n=23). Fifty-nine percent (n=48) of the prey items were fish, 29 percent mammals (n=24), five percent (n=4) birds, and seven percent (n=6) unknown.

Of the 53 prey items that could be identified to species, 77 percent (n=34) were suckers (Appendix L, Table 64). Other prey items include: trout (n=3), channel catfish (n=3), flathead catfish (n=2), carp (n=1), American Coots (n=3), grebes (n=1), western cottontails (n=1), squirrels (n=2), and cotton rats (n=3).

MANAGEMENT RECOMMENDATIONS

Bartlett Breeding Area

1. More descriptive signs need to be placed around closure boundaries warning individuals that the roads are closed.

Box Bar Breeding Area

1. Enlarge the current closure to include a part of the Needle Rock Recreation Area and the campground at the end of USFS Road 160.
2. Close USFS Road 160.
3. Increase closure signs on the western side of the Verde River near the river crossings. New closure signs should be in English and Spanish.
4. In the future, one ABENWP member at this site should be fluent in the Spanish language.
5. The dirt road from Hwy 87 which passes under the nest tree should be closed and signed annually.

Fort McDowell Breeding Area

1. Create opportunities to educate tribal members on the purpose of the ABENWP.
2. Communicate with Boeing and the Maricopa County Sheriff's Department on the location of bald eagle nests and their sensitivity during the breeding season. Educate the local airports and pilots on flight advisories and sensitivity of the bald eagles during the breeding cycle.
3. Continue the Orientation Session with Fort McDowell tribal officials and the police.
4. Provide brochures in Spanish.

Horseshoe Breeding Area

1. Better communication devices have to be purchased in the case of emergencies.
2. Although no closure exists, and one is not recommended, signs need to be placed in order to help educate the public to avoid the nest area.

Luna Breeding Area

1. Add more signs, or extended the fence between the nest area and the campgrounds.
2. Add trashcans in the parking lot for monofilament.
3. Continue to post closure notices on parking lot bathroom doors and bulletin boards.

Orme Breeding Area

1. Do not create a closure around this nest (nest #6). A closure (with signs and postings) would only draw attention into the nest area.
2. Continue to designate Orme as a high priority site if they continue to use this nest (nest #6).
3. Continue to coordinate with Desert Voyagers Rafting Company about the sensitivity of bald eagle during the breeding season.
4. Nestwatchers stationed at this site should be very tolerant of recreationists.
5. Contact Sheriff's Department, News Channels, and Boeing about repeated low-flying helicopters in the area.
6. Notify the rancher in the area about the nest location and the bald eagles.

7. Maintain land closures for non-tribal members.
8. Develop a plan to restore the health of the riparian ecosystem.
9. Develop more opportunities to educate tribal members on the bald eagles and management programs in the area.
10. Seasonal closures should be in place to protect the bald eagles.
11. Contact the owners of the rodeo grounds near the nest and inform them of the sensitivity of the bald eagles during the breeding cycle.

Pleasant Breeding Area

1. Always include the additional 14th buoy on the west side of the southern closure boundary.
2. Contact boat, jet ski, and ultra-light rental companies and ask that they inform customers about the closure.
3. Continue to have a patrol boat visit the northern buoy line daily.
4. Continue strict enforcement of closure boundaries.
5. Contact the coordinators of "Big Bass Days" and ask they institute measures to eliminate contestants entering the closure boundaries.

Sheep Breeding Area

1. Continue to monitor the BA.
2. Encourage a survey of prey populations and habitat analysis within the area to determine suitability.
3. Have future ABENWP notify USFS of the presence of cattle after March 15.
4. Cattle need to be removed from the drainage indefinitely to restore riparian health.

Sycamore Breeding Area

1. Limit the amount of wood cutting within the BA.
2. Rafting guides and companies should be contacted with regards to the sensitivity of the bald eagles during the breeding cycle.
3. Signs notifying recreating public to the closed area need to be added along Sycamore Creek, after the Fort McDowell Adventures.
4. Increase coordination with the police on camp location and observation points for faster response times.
5. Continue to restrict use of the Verde River to tribal members.
6. A comprehensive plan to restore the riparian vegetation of the lower Verde River would benefit the bald eagles.
7. Promote the program and nestwatcher involvement in Tribal functions during the breeding season.
8. A temporary closure restricting access to the nest area could be erected to eliminate disturbance to the breeding cycle.

Tonto Breeding Area

1. A BA closure needs to be enacted around the nest tree when the lake levels rise.
2. Fencing around the Tonto Creek Riparian Unit to encourage the regeneration of riparian vegetation.

3. Encourage future ABENWP contractors to become more involved in local community outreach efforts,

Tower Breeding Area

1. Move the big breeding area closure sign behind the trailer to prevent people from walking down the access point.
2. Continue to place river closure signs and lock appropriate gates on December 1st. Add additional signs and informative postings to all access points.
3. Communicate the importance of not blowing the train horn and not sending people to photograph the nest to the Verde Valley Train owners.
4. Continue the process of removing cattle from the riparian area.
5. Allow flexible closure boundaries to accommodate new nest locations.
6. Continue to keep Nestwatch camp in a high profile location.
7. Provide local recreation areas with Arizona Bald Eagle Nestwatch Information.
8. Continue to provide radios and add cellular telephones.

LITERATURE CITED

Beatty, G.L., J.T. Driscoll, and J.G. Koloszar. 1995a. Arizona bald eagle nestwatch program: 1995 summary report. Nongame and Endangered Wildlife Program Technical Report Number 85. Arizona Game and Fish Department, Phoenix, Arizona.

Beatty, G.L., J.T. Driscoll, and J.G. Koloszar. 1997. Arizona bald eagle nestwatch program: 1996 summary report. Nongame and Endangered Wildlife Program Technical Report Number 117. Arizona Game and Fish Department, Phoenix, Arizona.

Beatty, G.L., J.T. Driscoll, and J.G. Koloszar. 1998. Arizona bald eagle nestwatch program: 1997 summary report. Nongame and Endangered Wildlife Program Technical Report Number 131. Arizona Game and Fish Department, Phoenix, Arizona.

Beatty, G.L., J.T. Driscoll, and J.G. Koloszar. 1999. Arizona bald eagle nestwatch program: 1998 summary report. Nongame and Endangered Wildlife Program Technical Report Number 139. Arizona Game and Fish Department, Phoenix, Arizona.

Beatty, G.L., J.T. Driscoll, and M.C. Siemens. 1995b. Arizona bald eagle nestwatch Program: 1994 Summary Report. Nongame and Endangered Wildlife Program Technical Report Number 72. Arizona Game and Fish Department, Phoenix, Arizona.

Brown D.E. (ed.). 1982. Biotic communities of the American Southwest - United States and Mexico. University of Arizona. Desert Plants 4:1-342.

Driscoll J.T. and G.L. Beatty. 1994. 1993 Arizona bald eagle nest survey. Nongame and Endangered Wildlife Program Technical Report 31. Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll J.T., G.L. Beatty, and J.D. Hanna. 1992. 1992 Arizona bald eagle nest survey final report and recommendations. Nongame and Endangered Wildlife Program Technical Report. Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll J.T., G.L. Beatty, and J.G. Koloszar. 1995b. Arizona bald eagle 1995 nest survey. Nongame and Endangered Wildlife Program Technical Report 87. Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll J.T., G.L. Beatty, and J.G. Koloszar. 1997. Arizona bald eagle 1996 nest survey. Nongame and Endangered Wildlife Program Technical Report 117. Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll J.T., G.L. Beatty, and J.G. Koloszar. 1998. Arizona bald eagle 1997 nest survey. Nongame and Endangered Wildlife Program Technical Report 127. Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll J.T., G.L. Beatty, and J.G. Koloszar. 1999. Arizona bald eagle 1998 nest survey. Nongame and Endangered Wildlife Program Technical Report 138. Arizona Game and Fish Department, Phoenix, Arizona.

Driscoll J.T., G.L. Beatty, and M.C. Siemens. 1995a. Arizona bald eagle 1994 nest survey. Nongame and Endangered Wildlife Program Technical Report 71. Arizona Game and Fish Department, Phoenix, Arizona.

Postupalsky, S. 1974. Raptor reproductive success: some problems with methods, criteria, and terminology. *In* F.N. Hammerstrom, B.E. Harrell and R.R. Olendorff, Eds. Management of raptors. Proceedings of the conference on raptor conservation techniques. Raptor Research Report 2:21-31.

U.S. Fish and Wildlife Service. 1982. Bald eagle recovery plan (southwestern population). U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

U.S. Fish and Wildlife Service. 1995. Endangered and threatened species: bald eagle reclassification; final rule. Federal Register. 60(133): 36000-10. Department of the Interior, Washington, D.C.

U.S. Fish and Wildlife Service. 1999. Endangered and threatened wildlife and plants; proposed rule to remove the bald eagle in the lower 48 states from the list of endangered and threatened wildlife; proposed rule. Federal Register. 64(128):36454-64. Department of the Interior, Washington, D.C.

APPENDIX A: 1999 – 2000 BALD EAGLE REPRODUCTION SUMMARIES

Table 1. Arizona bald eagle BA productivity summary, 1999.

Breeding Area	Status[1]	Nest[2]	Incubation Date	Eggs	Hatch Date	Young	Fledged	Fledge Date
Alamo	F	4	1/22-2/1	1+	Failed 2/1-3/25.			
Bartlett*	S	2	1/4-16	2+	2/15-18	2	1	4/26
	One nestling died on 2/26 at 8 days old.							
Becker	F	1	3/6-10	1+	Failed 4/10. Male disappeared.			
Blue Point	S	7	1/5-2/1	1+	2/1-3/17	1+	1	5/13-6/14
Box Bar*	F	3	2/5-8	1+	3/14-15	1+	Failed 3/28.	
Camp Verde	U							
Canyon	O							
Cedar Basin	O							
Cibecue	S	2	2/2-4/16	2+	4/16-5/13	2+	1	>5/22
	One nestling disappeared 5/13 – 22 at four weeks old.							
Cliff	O							
Coldwater	F	8	1/4-2/1	1+	Failed 2/10-3/20.			
Coldwater 2	F	8	3/20-4/15	1+	Failed 4/15-5/13.			
Coolidge	F	2	2/2-3/18	1+	Failed 3/18-4/29.			
Devil's Post	U							
Doka*	S	1	<1/4	2+	1/8-2/5	2	2	3/29-30
Dupont	O							
East Verde	S	6	1/4-2/1	2+	2/1-3/17	2	2	5/13-6/14
Fort McDowell*	S	17	1/4-2/1	2+	2/13	2	1	5/5
	One eaglet disappeared on 4/6 at six weeks old.							
Granite Basin	F	1	2/2-3/18	1+	Failed 3/18-4/29.			
Horse Mesa	S	4	1/5-2/1	2+	2/1-3/17	2+	1	5/13-6/14
	One nestling disappeared 4/16 –5/13 at four to eight weeks old.							
Horseshoe	S	11	1/4-2/1	2+	2/12-3/17	2	2	5/13-6/14
Ive's Wash	O							
Ladders	S	3	2/1-20	2+	2/20-3/15	2	2	5/13-6/14
Lone Pine	S	2	2/2-4/16	2+	2/2-4/16	2+	2	>5/13
Luna*	S	1	<3/12	2+	<3/12	2	1	5/20
	One eaglet taken to rehab on 5/7.							
Mule Hoof	U							
Orme	F	1	1/5-2/1	1+	Failed 2/1-3/17.			
Orme 2*	S	5	2/1-3/17	1+	3/17-23	1	1	6/12
Perkinsville	U							
Pinal	O							
Pinto	S	3	1/27-2/1	2+	2/9-3/18	2	2	5/13-6/14
Pleasant*	S	2	<1/14	2+	2/15-19	2	1	5/12
	One nestling died 3/5-15 at 2-3 weeks old.							
Redmond	F	5	2/21-3/18	1+	3/18-4/16	1	Failed 5/16-6/14	
San Carlos	O							
76	S	3	1/26-2/2	1+	2/2-3/18	1	1	5/13-6/14

[1] Breeding area status codes (Postupalsky 1974): U=unoccupied, O=occupied, S=successful, F=failed.
[2] Nest numbers are from Hunt et al. 1992; Driscoll et al. 1992, 1995a, 1995b, 1997, 1998, 1999; Driscoll and Beatty 1994.
* Nests monitored by the Arizona Bald Eagle Nestwatch Program.