percent (n=14), and an unknown adult six percent (n=4). Fish comprised 68 percent (n=43), unknown items 30 percent (n=19), and birds two percent (n=1). No prey items were identified to species.

Luna Breeding Area: 1999

*Observation Period.*—Observation dates .....May 7 to June 20
Total monitoring days/hours.....37 days/ 380 hours
Dawn-to-Dusk Hours .....127 hours
*Eagle Identification.*—Male.....Black VID band right leg, USFWS band left leg, adult plumage
Female .....Black VID band right leg, USFWS band left leg, adult plumage

During banding on April 18, both young were observed with irregular growth patterns in their pin feathers, and one had a distended colon. Both nestlings were returned to the nest until after consultation with a veterinarian. We reentered the nest on April 23, removed the nestling with the distended colon, and transferred it to Liberty Wildlife Rehabilitation. The nestling was returned to the nest on April 29.

On May 7, the nestwatchers discovered the rehabilitated nestling on the ground. The nestling was recovered, and flown to Liberty Wildlife Rehabilitation. Upon examination, the nestling suffered from a hyperextended tarsal ligament and was fitted with a modified orthopedic brace. After four months of rehabilitation, the ligament was not healing, and the nestling was developing bumblefoot on the other leg. This nestling was euthanized on July 20.

*Management Activities.*— 1. The USFS reinstated the seasonal breeding area closure around the nest, 2. The USFS posted signs along the fence separating the campground from the nest area, 3. Due to the unusual circumstance surrounding post-fledging mortality at this BA, nestwatchers monitored the site past the fledging dates, 4. Nestwatchers were stationed at the boat ramp to talk to fisherman launching boats, 5. The USFS closed Group Site A until the fledged nestlings dispersed from the nest area, 6. Nestwatchers posted flyers about the Luna Lake bald eagles on the bathroom doors and the bulletin boards.

*Human Activity.*—Nestwatchers recorded 38 human activities during their 37 days of observation (Appendix F, Table 24). Aircraft (helicopters and jets) represented 32 percent (n=12), terrestrial activities 66 percent (n=25) of six different types, and watercraft (small boats) three percent (n=1).

Six activities elicited seven significant responses from the breeding pair. The adults became restless to one fisherman, flushed in response to one helicopter and twice to agency workers. The birds left the area in response to one hiker, one nestwatcher, and one driver.

*Food Habits.*—Nestwatchers observed 67 forage attempts (Appendix F, Table 25). The male was successful in 48 percent (16 of 33), the female 61 percent (11 of 18), and an unknown adult 81 percent (13 of 16). The two forage items were fish (n=47) and birds (n=20).

Nestwatcher observed 15 prey items delivered to the nest (Appendix F, Table 26). The male and female delivered 40 percent each (n=6), and an unknown adult 20 percent (n=3). Fish made up 67

percent (n=10), 13 percent (n=2) unknown birds, and 20 percent (n=3) unknowns. No prey items were identified to species.

Luna Breeding Area: 2000

*Observation Period.*—Observation dates .....May 13 to June 11
Total monitoring days/hours.....24 days/ 241 hours
Dawn-to-Dusk Hours .....126 hours

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

The Luna pair hatched three nestlings in 2000, although not all three fledged. On May 19, one nestling was discovered missing and presumed fledged. On May 20, nestwatchers observed the smallest nestling fall from the nest, and immediately attacked by coyotes. Upon investigation and retrieval of the smallest nestlings remains, nestwatchers and law enforcement officials found the remains of the first nestling (also presumed attacked by coyotes). The third nestling fledged successfully.

*Management Activities.*—1. The USFS reinstated the seasonal breeding area closure, 2. The USFS posted signs along the fence separating the campground from the nest area, 3. Due to the unusual circumstance surrounding post-fledging mortality at this BA, nestwatchers monitored the site past the fledging dates, 4. Nestwatchers were stationed at the boat ramp to talk to fisherman launching boats, 5. The USFS closed Group Site A until the fledged nestling dispersed from the nest area.

*Human Activity.*— Nestwatchers recorded 13 human activities during their 24 days of observation (Appendix F, Table 27). Military jets were 23 percent (n=3), and terrestrial activities were 77 percent (n=10) of three different types.

Two activities elicited three significant responses from the breeding pair. The adults flushed in response to a hiker, and twice to agency workers.

*Food Habits.*—Nestwatchers observed 15 forage attempts (Appendix F, Table 28). The male was successful in 20 percent (1 of 5), the female 67 percent (2 of 3), and an unknown adult 100 percent (7 of 7). The most common forage item was fish (n=13).

Nestwatchers observed 14 prey items delivered to the nest (Appendix F, Table 29). The male and female delivered 14 percent each (n=2), and an unknown adult 71 percent (n=10). Fish made up 71 percent (n=10), along with seven percent (n=1) unknown birds, and 21 percent (n=3) unknown. No prey items were identified to species.

Orme Breeding Area: 1999

*Observation Period.*—Observation dates ..... March 29 to May 31
Total monitoring days/hours ..... 51 days/513 hours

*Eagle Identification.*—Male ..... Unbanded, adult plumage
Female ..... Unbanded, adult plumage

*Management Activities.*—1. USFS personnel allowed the ABENWP contractors to camp and used the facilities and the Blue Point Ranger Station, 2. Salt River Pima Maricopa Indian Community has closed access downstream of the nest on the north side to non-tribal members.

*Human Activity.*—Nestwatchers recorded 837 human activities in 51 days of monitoring (Appendix G, Tables 30). Aircraft (small planes, helicopters, and jets) represented 66 percent (n=554), terrestrial activity five percent (n=38) of 10 different types, and watercraft (rafts/canoe/kayak, boaters, and tubers) 29 percent (n=242).

Six activities elicited 18 significant responses from the breeding pair. The bald eagles were restless to two helicopters, and flushed in response to two small planes, three helicopters, six rafts/canoes/kayaks, one fisherman, one hiker, and one researcher. One adult altered its flight path in response to an approaching helicopter, and a raft/canoe/kayak caused an adult to flush and interact with a great blue heron.

It is important to note, although nestwatchers recorded tubers in only 57 events, many of those events lasted hours with thousands of individuals in each event. In six weekends from April 29 to June 6, 18,245 people floated the lower Salt River (Appendix G, Table 31). On Memorial Day weekend alone (May 29 to 31), 14,751 tubers floated the lower Salt River near the nest.

The breeding pair appears habituated to high traffic from helicopters. In the 51 days of monitoring, nestwatchers recorded 194 helicopters with only six events eliciting a significant response (Appendix G, Table 32). Helicopters from Boeing, Sheriff's Department, and Television Stations comprised 46 percent (n=89).

*Food Habits.*—Nestwatchers observed seven forage attempts (Appendix G, Table 33). The male foraged for three items and the female four, all observed forage attempts were successful. The most common forage item was fish (86 percent, n=6).

The breeding pair delivered 61 prey items to the nest (Appendix G, Table 34). Eighty-two percent (n=50) were fish, 10 percent (n=6) unknown, three percent each (n=2) unknown birds and mammals, and two percent (n=1) unknown reptiles.

Only the 31 fish prey items identified to species. Fifty-eight percent (n=29) were suckers and four percent (n=2) channel catfish.

Orme Breeding Area: 2000

*Observation Period.*—Observation dates ..... March 11 to April 23
Total monitoring days/hours ..... 43 days/326 hours
Dawn-to-Dusk hours ..... 220 hours

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

The Orme pair was incubating in a new nest #6 on March 10. The nestlings hatched around March 31, and the nestlings died in the nest near April 20. On April 23 the adults abandoned the breeding attempt, and our efforts to determine the cause of failure were thwarted due to a large beehive below the nest.

*Management Activities.*—1. The Fort McDowell Yavapai Nation and the Salt River Pima Maricopa Indian Community have closed land access to non-tribal members. 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 456 human activities (Appendix G, Table 35). Aircraft (small planes, jets, and helicopters) represented 76 percent (n=346), and terrestrial activities 24 percent (n=110) of 13 different types.

Six activities elicited ten significant responses from the breeding pair. The adults flushed to five drivers, and once each to a plane, helicopter, hiker, construction, and a researcher. Although numerous activities occurred at the practice rodeo grounds (less than 20 feet from the active nest) on a daily basis, the breeding pair appeared habituated to most activities, and only those that caused a reaction were recorded. In addition, various activities were audible from the BA that did not cause a reaction including: the Out of Africa loud speakers, shooting range, and HWY 87.

Nestwatchers attempted to identify the type of aircraft below the recommended 2000 foot ceiling (Appendix G, Table 36). Of the 355 reported aircraft, six percent (n=20) were World War II planes, eight percent (n=29) Apache helicopters, five percent (n=16) sheriff's department helicopters, and the majority were unknown planes (66 percent, n=234) and unknown helicopters (16 percent, n=56).

*Food Habits.*—Although no forages were documented, the nestwatchers observed 13 prey deliveries (Appendix G, Table 37). Most prey items were fish (54 percent, n=7), although the adults delivered two birds (15 percent), one mammal (eight percent), and three unknown items (23 percent). No prey items were identified to species.

Pleasant Breeding Area: 1999

*Observation Period.*—Observation dates ..... February 7 to May 12
Total monitoring days/hours ..... 69 days/711 hours
Dawn-to-Dusk hours ..... 403 hours

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

*Management Activities.*—1. Maricopa County parks reinstated the seasonal closure around the active nest, 2. Maricopa County Parks and AGFD placed new closure signs at boat ramps, and roads entering the seasonal closure, 3. Maricopa County Parks marked closure boundaries with buoys, 4. Nestwatchers were stationed at the southern closure boundary on dawn-to-dusk days to educate recreationists on the closure and bald eagles, 4. Television crews broadcast the opening and closing dates of the closure.

*Human Activity.*—Nestwatchers recorded 479 human activities (Appendix H, Table 38). Aircraft (jets, helicopters, and ultra lights) represented 37 percent (n=178), fishermen 0.2 percent (n=1), and watercraft (boats and jet skis) 63 percent (n=300).

Seven activities elicited 75 significant responses by the breeding pair. The bald eagles were restless to 14 jets, 12 small planes, ten boats, six helicopters, five jet skis, two agency boats, and one ultra light. The breeding pair flushed in response to two jet skis, one boat, one agency boat, and one small plane. In addition, a small plane caused a left area response, and 19 responses were documented as "other" with no explanation offered.

Of the 8,513 watercraft that approached the southern buoy line, only 238 (3 percent) did not comply (agency boats omitted) (Appendix H, Table 39). Boats represented 88.2 percent (n=210), and 11.7 percent (n=28) jet skies. This is the best compliance since the closure was enacted in 1994 (Beatty et. al. 1995a, 1995b, 1997, 1998, 1999). Noncompliance has ranged as low as four percent in 1998 to 12 percent in 1997. Nestwatchers attribute this success to strict law enforcement, increased awareness, and recreationists regulating themselves.

*Food Habits.*—Nestwatchers observed 38 forage attempts (Appendix H, Table 40). The male was successful in 58 percent (18 of 31), the female 33 percent (2 of 6), and an unknown adult 100 percent (1 of 1). The most common forage item was fish (n=20), although birds (n=7) and unknown items (n=11) were captured.

The breeding pair delivered 72 prey items to the nest (Appendix H, Table 41). The male delivered 86 percent (n=62), the female 11 percent (n=8), and an unknown adult three percent (n=2). Sixty percent of those items (n=43) were fish, 22 percent (n=16) unknown, 13 percent (n=9) birds, four percent (n=3) mammals, and one percent (n=1) reptiles. No prey items were identified to species.

Pleasant Breeding Area: 2000

*Observation Period.*—Observation dates ..... February 5 to May 27
Total monitoring days/hours ..... 80 days/766 hours
Dawn-to-Dusk hours ..... 471 hours

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

*Management Activities.*—1. Maricopa County parks reinstated the seasonal closure around the active nest, 2. Maricopa County Parks and AGFD placed new closure signs at boat ramps, and roads entering the seasonal closure, 3. Maricopa County Parks marked closure boundaries with buoys, 4. Nestwatchers were stationed at the southern closure boundary on dawn-to-dusk days to educate recreationists on the closure and bald eagles, 4. Television crews, and newspapers announced the opening and closing dates of the closure.

*Human Activity.*—Nestwatchers recorded 720 human activities (Appendix H, Table 42). Aircraft (planes, helicopters, jets, and ultra lights) represented 40 percent (n=285), and watercraft (boats and jet skis) 60 percent (n=435).

Seven activities elicited 25 significant responses from the breeding pair. Thirteen boats, four planes. three agency boats, two helicopters, one jet, one ultra light, and one water skier all caused a restless response.

Of the 7,711 watercraft that approach the southern buoy line, only 379 (5 percent) entered the closure (agency boats omitted) (Appendix H, Table 43). Boats represented 81.3 percent (n=308), and 18.7 percent (n=71) jet skies. This is consistent with the noncompliance percentages of previous years (Beatty et. al. 1995a, 1995b, 1997, 1998, 1999).

*Food Habits.*—Nestwatchers observed 12 forage attempts (Appendix H, Table 44). The male was successful in 100 percent (5 of 5), the female 40 percent (2 of 5), and an unknown adult 100 percent (2 of 2). The most common forage item was fish (n=10).

The breeding pair delivered 72 prey items to the nest. Seventy-one percent (n=51) were fish, three percent (n=2) birds, and 26 percent (n=19) unknown. The identity of the adults was not broken down to prey items. No prey items were identified to species.

percent (n=14), and an unknown adult six percent (n=4). Fish comprised 68 percent (n=43), unknown items 30 percent (n=19), and birds two percent (n=1). No prey items were identified to species.

Luna Breeding Area: 1999

*Observation Period.*—Observation dates .....May 7 to June 20
Total monitoring days/hours.....37 days/ 380 hours
Dawn-to-Dusk Hours .....127 hours
*Eagle Identification.*—Male.....Black VID band right leg, USFWS band left leg, adult plumage
Female .....Black VID band right leg, USFWS band left leg, adult plumage

During banding on April 18, both young were observed with irregular growth patterns in their pin feathers, and one had a distended colon. Both nestlings were returned to the nest until after consultation with a veterinarian. We reentered the nest on April 23, removed the nestling with the distended colon, and transferred it to Liberty Wildlife Rehabilitation. The nestling was returned to the nest on April 29.

On May 7, the nestwatchers discovered the rehabilitated nestling on the ground. The nestling was recovered, and flown to Liberty Wildlife Rehabilitation. Upon examination, the nestling suffered from a hyperextended tarsal ligament and was fitted with a modified orthopedic brace. After four months of rehabilitation, the ligament was not healing, and the nestling was developing bumblefoot on the other leg. This nestling was euthanized on July 20.

*Management Activities.*— 1. The USFS reinstated the seasonal breeding area closure around the nest, 2. The USFS posted signs along the fence separating the campground from the nest area, 3. Due to the unusual circumstance surrounding post-fledging mortality at this BA, nestwatchers monitored the site past the fledging dates, 4. Nestwatchers were stationed at the boat ramp to talk to fisherman launching boats, 5. The USFS closed Group Site A until the fledged nestlings dispersed from the nest area, 6. Nestwatchers posted flyers about the Luna Lake bald eagles on the bathroom doors and the bulletin boards.

*Human Activity.*—Nestwatchers recorded 38 human activities during their 37 days of observation (Appendix F, Table 24). Aircraft (helicopters and jets) represented 32 percent (n=12), terrestrial activities 66 percent (n=25) of six different types, and watercraft (small boats) three percent (n=1).

Six activities elicited seven significant responses from the breeding pair. The adults became restless to one fisherman, flushed in response to one helicopter and twice to agency workers. The birds left the area in response to one hiker, one nestwatcher, and one driver.

*Food Habits.*—Nestwatchers observed 67 forage attempts (Appendix F, Table 25). The male was successful in 48 percent (16 of 33), the female 61 percent (11 of 18), and an unknown adult 81 percent (13 of 16). The two forage items were fish (n=47) and birds (n=20).

Nestwatcher observed 15 prey items delivered to the nest (Appendix F, Table 26). The male and female delivered 40 percent each (n=6), and an unknown adult 20 percent (n=3). Fish made up 67

percent (n=10), 13 percent (n=2) unknown birds, and 20 percent (n=3) unknowns. No prey items were identified to species.

Luna Breeding Area: 2000

*Observation Period.*—Observation dates .....May 13 to June 11
Total monitoring days/hours.....24 days/ 241 hours
Dawn-to-Dusk Hours .....126 hours

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

The Luna pair hatched three nestlings in 2000, although not all three fledged. On May 19, one nestling was discovered missing and presumed fledged. On May 20, nestwatchers observed the smallest nestling fall from the nest, and immediately attacked by coyotes. Upon investigation and retrieval of the smallest nestlings remains, nestwatchers and law enforcement officials found the remains of the first nestling (also presumed attacked by coyotes). The third nestling fledged successfully.

*Management Activities.*—1. The USFS reinstated the seasonal breeding area closure, 2. The USFS posted signs along the fence separating the campground from the nest area, 3. Due to the unusual circumstance surrounding post-fledging mortality at this BA, nestwatchers monitored the site past the fledging dates, 4. Nestwatchers were stationed at the boat ramp to talk to fisherman launching boats, 5. The USFS closed Group Site A until the fledged nestling dispersed from the nest area.

*Human Activity.*— Nestwatchers recorded 13 human activities during their 24 days of observation (Appendix F, Table 27). Military jets were 23 percent (n=3), and terrestrial activities were 77 percent (n=10) of three different types.

Two activities elicited three significant responses from the breeding pair. The adults flushed in response to a hiker, and twice to agency workers.

*Food Habits.*—Nestwatchers observed 15 forage attempts (Appendix F, Table 28). The male was successful in 20 percent (1 of 5), the female 67 percent (2 of 3), and an unknown adult 100 percent (7 of 7). The most common forage item was fish (n=13).

Nestwatchers observed 14 prey items delivered to the nest (Appendix F, Table 29). The male and female delivered 14 percent each (n=2), and an unknown adult 71 percent (n=10). Fish made up 71 percent (n=10), along with seven percent (n=1) unknown birds, and 21 percent (n=3) unknown. No prey items were identified to species.

Orme Breeding Area: 1999

*Observation Period.*—Observation dates ..... March 29 to May 31
Total monitoring days/hours ..... 51 days/513 hours

*Eagle Identification.*—Male ..... Unbanded, adult plumage
Female ..... Unbanded, adult plumage

*Management Activities.*—1. USFS personnel allowed the ABENWP contractors to camp and used the facilities and the Blue Point Ranger Station, 2. Salt River Pima Maricopa Indian Community has closed access downstream of the nest on the north side to non-tribal members.

*Human Activity.*—Nestwatchers recorded 837 human activities in 51 days of monitoring (Appendix G, Tables 30). Aircraft (small planes, helicopters, and jets) represented 66 percent (n=554), terrestrial activity five percent (n=38) of 10 different types, and watercraft (rafts/canoe/kayak, boaters, and tubers) 29 percent (n=242).

Six activities elicited 18 significant responses from the breeding pair. The bald eagles were restless to two helicopters, and flushed in response to two small planes, three helicopters, six rafts/canoes/kayaks, one fisherman, one hiker, and one researcher. One adult altered its flight path in response to an approaching helicopter, and a raft/canoe/kayak caused an adult to flush and interact with a great blue heron.

It is important to note, although nestwatchers recorded tubers in only 57 events, many of those events lasted hours with thousands of individuals in each event. In six weekends from April 29 to June 6, 18,245 people floated the lower Salt River (Appendix G, Table 31). On Memorial Day weekend alone (May 29 to 31), 14,751 tubers floated the lower Salt River near the nest.

The breeding pair appears habituated to high traffic from helicopters. In the 51 days of monitoring, nestwatchers recorded 194 helicopters with only six events eliciting a significant response (Appendix G, Table 32). Helicopters from Boeing, Sheriff's Department, and Television Stations comprised 46 percent (n=89).

*Food Habits.*—Nestwatchers observed seven forage attempts (Appendix G, Table 33). The male foraged for three items and the female four, all observed forage attempts were successful. The most common forage item was fish (86 percent, n=6).

The breeding pair delivered 61 prey items to the nest (Appendix G, Table 34). Eighty-two percent (n=50) were fish, 10 percent (n=6) unknown, three percent each (n=2) unknown birds and mammals, and two percent (n=1) unknown reptiles.

Only the 31 fish prey items identified to species. Fifty-eight percent (n=29) were suckers and four percent (n=2) channel catfish.

Orme Breeding Area: 2000

*Observation Period.*—Observation dates ..... March 11 to April 23
Total monitoring days/hours ..... 43 days/326 hours
Dawn-to-Dusk hours ..... 220 hours

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

The Orme pair was incubating in a new nest #6 on March 10. The nestlings hatched around March 31, and the nestlings died in the nest near April 20. On April 23 the adults abandoned the breeding attempt, and our efforts to determine the cause of failure were thwarted due to a large beehive below the nest.

*Management Activities.*—1. The Fort McDowell Yavapai Nation and the Salt River Pima Maricopa Indian Community have closed land access to non-tribal members. 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 456 human activities (Appendix G, Table 35). Aircraft (small planes, jets, and helicopters) represented 76 percent (n=346), and terrestrial activities 24 percent (n=110) of 13 different types.

Six activities elicited ten significant responses from the breeding pair. The adults flushed to five drivers, and once each to a plane, helicopter, hiker, construction, and a researcher. Although numerous activities occurred at the practice rodeo grounds (less than 20 feet from the active nest) on a daily basis, the breeding pair appeared habituated to most activities, and only those that caused a reaction were recorded. In addition, various activities were audible from the BA that did not cause a reaction including: the Out of Africa loud speakers, shooting range, and HWY 87.

Nestwatchers attempted to identify the type of aircraft below the recommended 2000 foot ceiling (Appendix G, Table 36). Of the 355 reported aircraft, six percent (n=20) were World War II planes, eight percent (n=29) Apache helicopters, five percent (n=16) sheriff's department helicopters, and the majority were unknown planes (66 percent, n=234) and unknown helicopters (16 percent, n=56).

*Food Habits.*—Although no forages were documented, the nestwatchers observed 13 prey deliveries (Appendix G, Table 37). Most prey items were fish (54 percent, n=7), although the adults delivered two birds (15 percent), one mammal (eight percent), and three unknown items (23 percent). No prey items were identified to species.