by

Richard Antonette Refuge Manager Mason Neck National Wildlife Refuge

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1. Abbott, Jackson M. Personal communication. 11/74. (Nr. Abbott conducts the annual Bald Eagle Nest Survey, Chasapeake Bay Region for the Audubon Naturalist Society of the Central Atlantic states).

"In general, nesting bald eagles require peace and quiet in their nesting and fishing areas for best success.

"Human activity in the area of the nest tree has varying results on disturbance of incubating eagles:

a) quiet walking about under the nest tree for a short period of time will not normally cause an insubsting

eagle to flush from the nest.

b) Swiden noises (i.e., hand alapping, shooting a gum) and prolonged loud noises from the ground (i.e., brush elearing with power saws, minibile activity) most cartainly cause the eagle to flush and in the latter case, may cause nest abandonment.

c) Strengely, the noise of light sireraft and even helicopters over incubating eagles seems to have little, if any,

adverse effect.

"Eagles are very tenacious to long-established mest territories and will attempt nesting annually even with moderate disturbances

in the area. Cases in point:

a) A pair of eagles which has nested on the St. George property, upper end of the South River, Anne Arnndel Co. Maryland since at least the 1890's is still making annual nesting attempts even the private beating activity has increased to a point of real economy about the eagle's fishing area. Formally a regularly productive nest, this nest has not hatched young in the past 3 - 4 years.

b) Similar, but more concentrated boat activity due to a marina built there in 1963, finally caused a pair of eagles to abandon a long - established nest on Piscattaway Bay,

Prince Georges' County, Maryland."

- c) A marina and associated boat activity in the mid late 1960's caused 3 pairs of eagles to abandon the Aquia Creek area in Stafford Co., Va.
- d) There is no doubt that if boating is permitted in Kane Creek, Mason's Neck, Fairfax Co, Va., the pair of eagles which returned there in 1974 and built a new nest will abandon that area.

Some pairs of eagles have deliberately built nests near human noise producing activities with variable results:

- a) One pair of eagles which had a nest 100 feet off the end of a small plane runway which was used daily by small, fixed wing aircraft successfully raised young for several years in the 1940's at Bt. Belvoir, Fairfax Co., Va.
- b) A pair of eagles which built at least 4 different nests over a period of ten years within 200 yards of the RFCP railroad tracks near Aquia Station, Stafford Co., Va., successfully raised young in at least several of those years. Rail traffic is heavy and constant day and night along this line.
- c) I have 6 or more records of eagles building nests within 200 feet of well travelled roads with no apparant disturbance due to traffic noises. The last such case occured in 1974 near the Blackwater National Wildlife Refuge; one eaglet was successfully fledged.
- 2. Forbes, James E. Personal communication. 10/74. (New York State Supervisor, Division of Wildlife Services, USFWS.)
 Allow no disturbance at all around the nest. We don't know how much eagles can take. We make one flight when ready to fledge. nests are really critical.
- 3. Gramlich, Francis J. Personal communication. 10/74. (Maine State Supervisor, Division of Wildlife Services, USFWS.) Little has been published on effects of men on eagles. Walking on ground in remote areas will flush easier. You don't know what comprises a sametuary. No cutting or road-building during nesting meason. Someone is always proposing an insult to the environment and we keep compromising. Eventually we will compromise ourselves out of business (managing eagles). I would shy away from using belicopters. Any phlot who consuses eagles has had the experience of an eagle attaching the plane. I would certainly restrict disturbonce in rainy weather or cold weather. Helicopter would have more disturbance and they might leave the eggs chilling them. Feels downdraft would be disturbance. Helicopters are one more disturbance factor and might prevent nesting or establishment of new nesting. Minibikes, that's when get the insult on eagles. The disturbence is a factor, probably reducing success. Rabitat is continually being diminished. Eagles are different in various parts of the county, quite a variation in behavior. As an example of differing behavior, Ruffed Grouse farther north are called Fool's Grouse because

they sit on branch waiting to be shot, in my area they flush more readily and at a distance. Eagles in Maine where a lot of people may flush more readily or less than in other areas with less people.

- 4. Anonymous. 1960. Status of the Bald Eagle, Summer of 1959. U.S. Dept. Int., Fish & Wildlife Service. Wildlife Leaflet 418, March 1960.8p. Encroachment of civilization, loss of nesting trees, molesting of the nesting birds are some of the factors contributing to the mortality of bald eagles and their low rate of reproduction.
- 5. Kalmback, E.R., Ralph H. Imler, & Lee W. Arnold. 1964. The American eagles and their economic status 1964. U.S. Dept. Int., Fish & Wildlife Service. 35 p.

The steadily decreasing numbers of eagles largely because of the activities of man either against the birds themselves or through modification of their habitat and destruction of nesting sites.

 Scarupa, Henry. 1971. The Bay Area's bald eagles. The Baltimore Maryland Sun (issue - 4/25/71). Scarupa's article is a feature on Jackson M. Abbott's survey:

Observing eagles from a helicopter brought unexpected problems. The noise and powerful downdraft while hovering overhead probably caused some birds to abandon their nests during a critical incubating period. An eagle dive-bombed us in 1964 and the pilot was scared to death it was coming into the roter. We had just passed over a nest in which the mother was sitting with an eaglet. The mother took off, folded her wings and came straight down on us like a rock.

In Alaska, a fixed-wing aircraft passed over a nest and circled back. The old bird rose up and began diving. During one pass it went through the windshield. The pilot lost control and crashed. Two men were killed.

Lumbering has been another cause of the bald eagle's decline. You cut down the trees and it takes 50 years for new ones to grow tall enough for eagles to build their nests.

7. Howard Woon memo of 9/26/73 to Refuge Manager, Blackwater NWR, Md. (Boston Regional Refuges Supervisor, Division of Wildlife Refuges, U.S. Fish & Wildlife Service).

There are no cut and dried rules on how to keep eagles from leaving. The best activity for the eagle's sake would be to keep people out of the area. An eagle may remain until the use of an area is suddenly changed. The nesting eagle prefers a territory where the status que is maintained.

- 8. Willey, Guy w., Personal communication. 9/73 (Wildlife Biologist, Blackwater NWR Refuge. Cambridge, Maryland.)

 Since the 1950's on Blackwater, eagles have disappeared from areas in which they formarly nested, pushing to the center of the refuge where human activity is less.
- 9. Abbott, Jackson M. 1972. Bald Eagle Nest Survey, 1972. Atlantic Naturalist. 47 (4):175+7.

 On June 15 we flew over two nests in Dorehester County, Maryland, each containing one black eaglet; in both cases, as we flew over the nest, the eaglet flew off. One nest that produced young annually for the past five years was inactive, no doubt, because of construction in a housing development within 1/4 to 1/2 mile. Dorehester County, Maryland has the greatest concentration of nesting eagles there is hardly any sign of human activity in the entire area.
- 10. Jackson M. Abbott letter of May 31, 1974 to William H. Juliam.

 Once (in an Army helicopter) we did cause an adult in a nest with a month-old eaglet to leave the nest; this bird, instead of flying away from us, charged after and dive-bombed us at least four times, much to the considerable apprehension of the pilot (the eaglet later fledged). A person on the ground walking around and making noise will cause an incubating eagle to flush off the nest. Repeated human activity on the ground near a nest tree in the nesting season will cause abandonment of leggs.
- 11. Rossalius C. Hanson 9/10/74 memo to William R. Kensinger. (Flyway Biologist, USFWS, Twin Cities, Minn.)

I don't recommend that continued flights over nesting eagles is a wise procedure. The technique of using helicopters also should be banned completely. There is a real disturbance factor for "choppers" even though Mr. Jackson Abbott from the Audubon Society (sie) did not find that to be true on eagles. Our experience with "choppers" indicates a definite disturbance factor. We have never used "choppers" on eagle surveys and don't see any sense in doing it when there could very well be a risk involved. One period of time that serial surveys definitely should not be flown is when young eagles are nearing the flight stage or immediately thereafter. I don't have much personal experience in young birds' reaction to aircraft disturbance. However, ground observers tell me that, at this stage (referred to as the "hopper" or "jumper" period, the young do attempt to fly out of the nest prematurely if disturbed. In most eases, they only get over the nest edge and then flutter to the ground. Then they become a potential victim of predation. starvation, or other mortality factors.

- David Marchall. Personal communication. 9/73. (Office of Endangered Species, USPMS, Machington B.C.)
 We are plowing new ground, who knows. If disturb the status quo, will chase off. Engles don't like change.
- 13. Anonymous. Undated. Americe's eagle heritage. U.S. Dept. Int., Bur of Sport Fish. & Wildlife. Govt. Print. Office Leaflet No. @P0903-543 10 p.

During the early part of the nesting season the soults stay close to the nest broading the young to protect them from sum and rain. The syrie is their gymnasium and flying field. When about 3 months of age the young begin to try their wings in short flights from the nest.