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New Jersey Bald Eagle Management Project

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Abstract:

Endangered and Nongame Species Program (ENSP) biologists within the Division of Fish and Wildlife and volunteer observers located and monitored bald eagle nests and territories, and cooperators coordinated the annual midwinter bald eagle survey. A total of 31 eagle pairs, 27 active (with eggs) and 4 territorial pairs were monitored during the nesting season. Most nests (23) were located in southern NJ, while 6 were in central and 2 were in northern NJ. Twenty nests were successful in producing 34 young, for an “unmanaged” productivity rate of 1.26 (young/active nest). ENSP biologists gave a NJ nestling to the Raccoon Creek nest. ENSP staff banded and took blood samples from 18 eaglets at nine nests. Seven nests, Bear Swamp, Fort Dix, Mantua Creek, Nantuxent Creek, Rancocas Creek, Supawna Meadows and Wading River, failed to produce viable hatchlings. The reason for the failures of these nests is unknown. ENSP staff, regional coordinators, and volunteers reported a total of 140 bald eagles counted in January’s midwinter survey, 33 in the north and 107 in the south.

Introduction

Historically New Jersey hosted more than 20 pairs of nesting bald eagles. As a result of the use of the pesticide dichlorodiphenyltrichloroethane, commonly known as DDT, the number of nesting pairs of bald eagles in the state declined to only one by 1970 and remained at one into the early 1980’s. Use of DDT was banned in the United States in 1972. That ban combined with restoration efforts by biologists within the NJ Division of Fish and Wildlife’s Endangered and Nongame Species Program (ENSP) acted to increase the number of New Jersey bald eagles to 23 active pairs in 2000. ENSP recovery efforts - implemented in the early 1980’s – have resulted in an exceptional recovery as New Jersey’s eagle population has rebounded from the edge of extirpation.

In 1982, after Bear Swamp - New Jersey’s only active bald eagle nest since 1970 - had failed at least six consecutive years, ENSP biologists removed the egg for artificial incubation, and fostered the young back to the nest. The necessity of this fostering technique was due to eggshell thinning as a result of DDT contamination. The eggs, if left in the nest for the adult eagles to incubate, would crack under the birds’ weight. Fostering continued successfully until 1989, when the female of the pair was replaced and the pair was able to hatch their own eggs.

Increasing the production from a single nest, however, was not enough to boost the state's population in a reasonable amount of time. Mortality rates are high in young eagles (as high as 80%), and they do not reproduce until four or five years of age. ENSP instituted a hacking project in 1983 that resulted in the release of 60 young eagles in NJ over an eight-year period (Niles et al. 1991). These eagles have contributed to the increase in nesting pairs since 1990 (Figure 1).

Bald eagles nesting in NJ face many threats. Disturbance is the greatest threat to eagles, as people are naturally attracted to the sight of them (Niles et al. 1991). Habitat destruction is also a common problem. Further, in the long term, there is evidence that accumulation of contaminants may threaten the eagle population in NJ, especially in the Delaware Bay region.

ENSP biologists continually work to manage and reduce disturbance in eagle habitats, especially around nest sites. Education and established viewing areas are important in this effort, as are the efforts of eagle project volunteers. Biologists also work to protect habitat in a variety of ways, including working with landowners, land acquisition experts, and through the state's land use regulations. ENSP is continuing to investigate the possible impacts of organochlorines and heavy metals in eagles and other raptors nesting in the Delaware Bay region. Bald eagles, ospreys, and peregrine falcons nesting in the region exhibit some reproductive impairment relative to other areas (Steidl et al. 1991, Clark et al. 1998, 2001). ENSP monitors these species during the nesting season to evaluate nest success and assess any problems that occur.

The NJ ENSP, with the Division's Bureau of Law Enforcement and volunteer assistance, works intensively to protect bald eagle nest sites. However, with increasing competition for space in the most densely populated state in the nation, it is becoming clear that all of the eagles' critical habitat needs to be identified and, where possible, protected. Critical habitat for eagles includes areas used for foraging, roosting, perching and nesting.

The population of wintering bald eagles has grown along with the nesting population, especially in the last ten years (Figure2). This growth reflects increasing nesting populations in NJ and the northeast, as each state's recovery effort pays off. In recognition of this success, the federal government upgraded the status of the bald eagle from endangered to threatened in July of 1995, and in 2000 proposed federal de-listing of the species. The federal status remains threatened, but reflects the increasing eagle population nationwide; however, the eagle remains endangered in New Jersey, and regulatory protection remains the same.

Methods

Nest Survey

All known nest sites are monitored from January through July. Volunteer observers watch nests from a minimum distance of 400 m. using binoculars and spotting scopes, for periods of two or more hours each week. They record all data including number of birds observed, courtship or nesting behaviors, incubation and exchanges, feeding, and other parental care behaviors that provide valuable information on the nesting status. ENSP staff contact volunteers weekly to discuss their observations. Dates are recorded for incubation, hatching, banding, fledging, and, if

applicable, nest failure. Hatching dates are used to schedule eaglet banding, and observers' notes determine if closer nest investigation by ENSP biologists is warranted.

Observers statewide report bald eagle observations statewide to ENSP biologists, who analyze the information for potential nest locations. ENSP staff and volunteers investigate territorial bald eagles for possible nest sites through field observations. When enough evidence has been collected to suggest a probable location, ENSP biologists conduct aerial surveys of the region to locate a nest.

All nests are secured from disturbance with barriers and/or posted signs. ENSP staff works in partnership with landowners and land managers to cooperatively protect each nest. Volunteers notify ENSP staff immediately if any unusual or threatening activities are seen around the nest site. The Division's Bureau of Law Enforcement acts to enforce protection measures as needed. When nestlings are between five and eight weeks old, biologists enter the nest site to band the young. A biologist climbs the tree and places nestlings into a large duffel bag and lowers them, one at a time, to the ground. A team records measurements (bill depth and length, eighth primary length, tarsal width, and weight) and bands each eaglet with a federal and color band. A veterinarian examines each bird and takes a blood sample for contaminant analysis. Blood is collected and stored following techniques in Bowerman et al. (1994). Samples are stored frozen pending analysis by a technical lab. Nest trees are not climbed the first season to avoid associating disturbance with the new site.

Wintering Eagle Survey

The nationwide Midwinter Bald Eagle Survey is conducted every January to monitor population levels. The ENSP contracted Vince Elia of New Jersey Audubon Society's Cape May Bird Observatory and Allan Ambler of the Delaware Water Gap National Recreation Area to coordinate the survey in southern and northern NJ respectively. These researchers organized volunteers to cover all suitable and known wintering habitat, then tracked the number of individual eagles observed on both days of the survey using plumage characteristics and time observed. Their results, as well as those from additional volunteers at northern reservoirs, were compiled by ENSP biologists to reflect statewide totals. Final results were tabulated by ENSP staff according to standardized survey routes, and provided to the Raptor Research and Technical Assistance Center in the federal Bureau of Land Management. This year volunteers also mapped eagle activity during the two day survey; these data delineating critical eagle wintering habitat will be incorporated into the NJ Landscape Project (Map 2).

Results

Nest Survey

Thirty-one nests were monitored in 2001 (Table 1, Map 1). Twenty-seven of the nests were successful in producing 34 young, for an “unmanaged” productivity rate of 1.26 (young/active nest), slightly greater than that required for population maintenance (0.9-1.1 young/active nest) (Figure 2). The number of nests has increased markedly over the last ten years

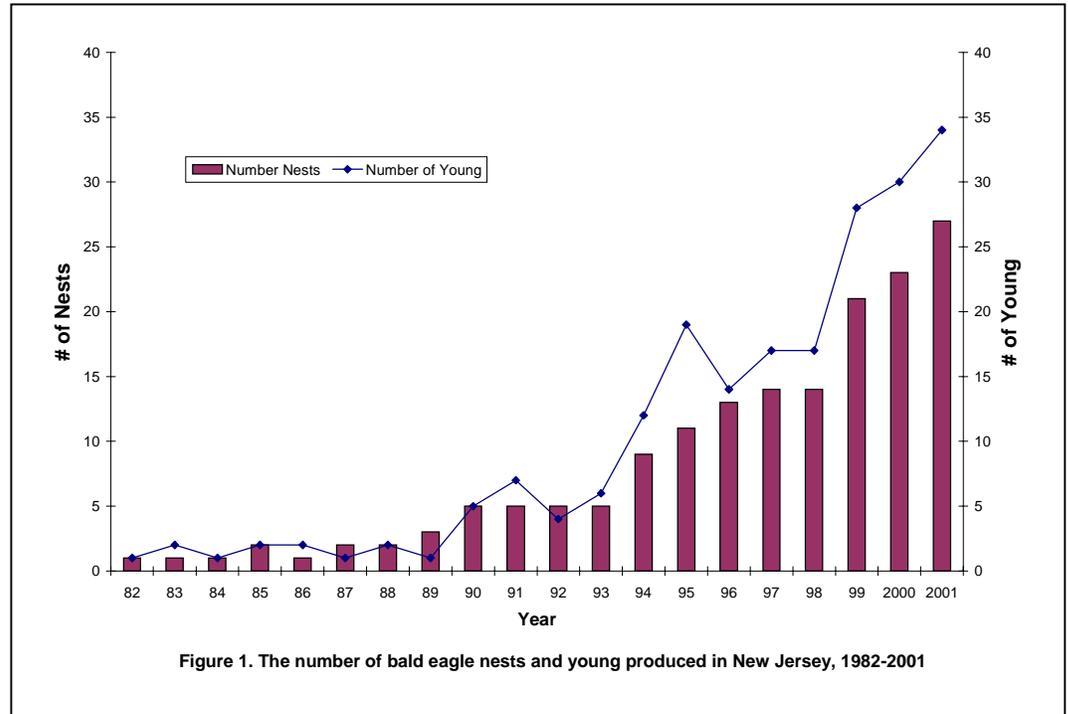


Figure 1. The number of bald eagle nests and young produced in New Jersey, 1982-2001

(Figure 1). All nests and potential sites are described individually below.

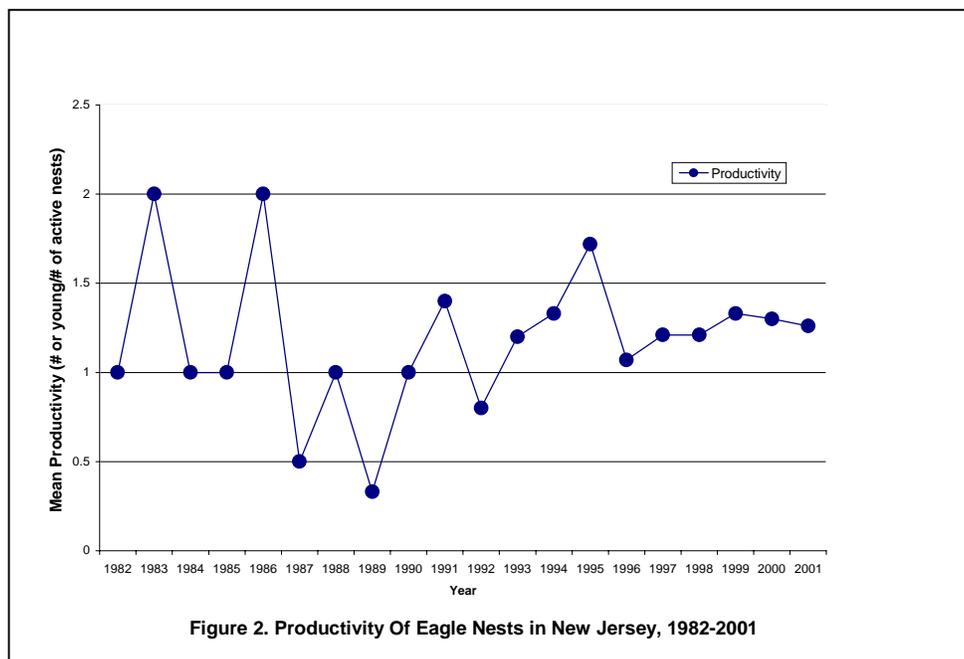
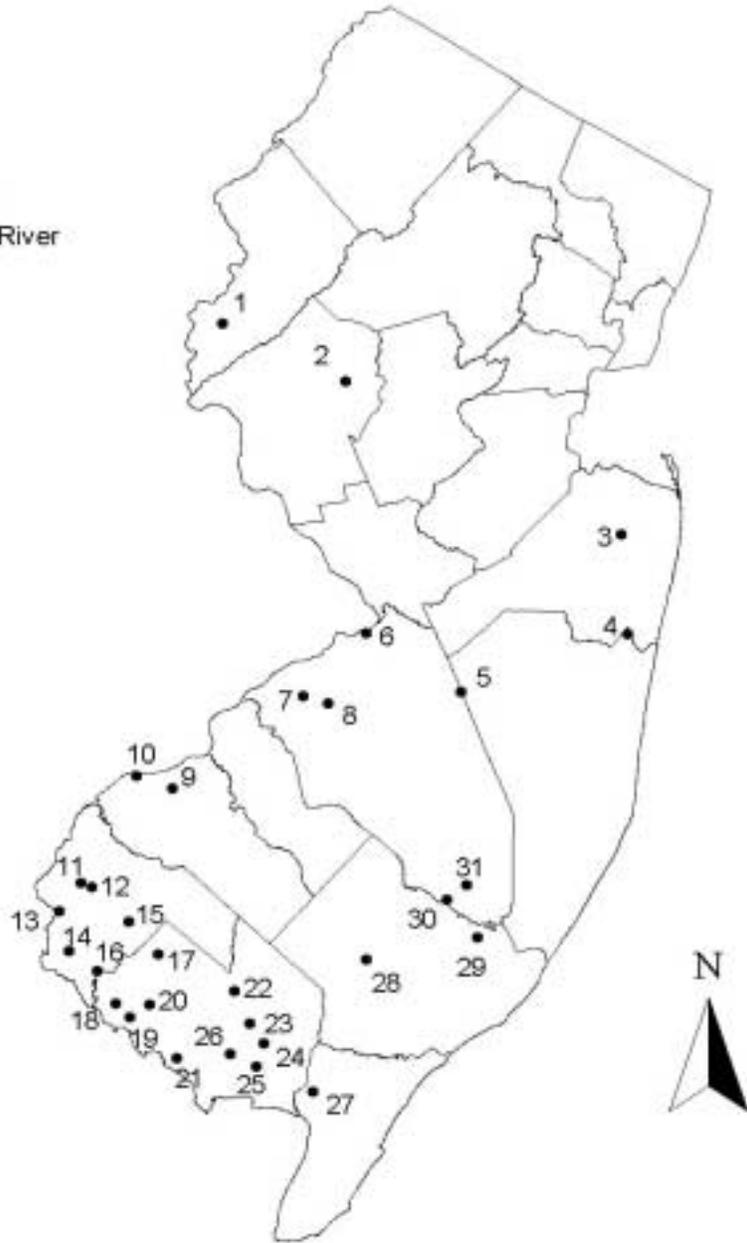


Figure 2. Productivity Of Eagle Nests in New Jersey, 1982-2001

Map 1. Bald Eagle Nest Sites, 2001

- 1 Merrill Creek Reservoir
- 2 Round Valley Reservoir
- 3 Navesink River
- 4 Manasquan River
- 5 Fort Dix Military Reservation
- 6 Burlington County/Delaware River
- 7 Rancocas Creek 1
- 8 Rancocas Creek 2
- 9 Mantua Creek
- 10 Raccoon Creek
- 11 Mannington Meadows 1
- 12 Mannington Meadows 2
- 13 Supawna
- 14 Alloways Creek 1
- 15 Alloways Creek 2
- 16 Stow Creek
- 17 Seely Lake
- 18 Cohansey River-Greewich
- 19 Cohansey River-Fairfield
- 20 Cohansey River- Hopewell
- 21 Nantuxent Creek
- 22 Union lake
- 23 Maurice River 2
- 24 Maurice River 3
- 25 Maurice River 1
- 26 Bear Swamp
- 27 Belleplain
- 28 Lake Lenape
- 29 Galloway
- 30 Mullica River
- 31 Wading River



Alloways Creek 1

The Alloways Creek 1 eagle nest blew down the end of November 2000. The pair rebuilt their nest for the 2001 nesting season in the same willow oak (*Quercus phellos*) as last year's nest. Incubation began on March 6, with hatching on April 10. Three eaglets were banded on May 18 and all three fledged around July 5.

Alloways Creek 2

For the third year the pair nested in an oak (*Quercus sp.*), on the upper Alloway Creek drainage in a large contiguous forest. ENSP staff posted the area around the nest as a "restricted area" to limit the amount of disturbance. The pair began incubation around February 17 and hatching occurred on March 25. The two eaglets were banded by biologists on May 18 and fledged June 20.

Bear Swamp

The pair returned to their 1999 biologist-built nest in a pond pine (*Pinus serotina*) site within the large contiguous forest. The pair began incubation as of February 11 and hatching occurred on March 20. Biologists visited the nest on April 26 and found no sign of adults or young; the reason for failure is unknown.

Belleplain (East Creek Pond)

The Belleplain State Forest eagles for the third year nested in a pitch pine (*Pinus rigida*) lying in a large contiguous forest. This nest is not viewable from the ground. On March 15 biologists flew over the nest and observed incubation. Biologists flew over the nest a second time on April 24 and observed one of the adults sitting in the nest presumably brooding. ENSP staff banded two eaglets on May 15. The two fledgling eagles were spotted at East Creek pond by one of the nest observers on June 23.

Burlington County/ Delaware River

For the third year the eagle pair nested atop a huge tulip poplar (*Liriodendron tulipifera*) in Burlington County near the Delaware River. The pair began incubation on February 21 and hatched on March 21. Two eagles fledged around mid-June.

Cohansey River (Fairfield)

The Fairfield eagle pair reoccupied the nest they used in the 2000 season. This is a very difficult nest for the observers to watch, especially after leaf-out. The pair was incubating as of February 22 and hatching occurred around March 20. One eaglet fledged from this nest.

Cohansey River (Greenwich)

The Greenwich pair occupied last year's nest built in a tulip poplar. The pair began incubation on February 10, and hatching occurred on March 19. Biologists banded the three eaglets on May 1 and they fledged around June 12.

Cohansey River (Hopewell)

This nest, lying in a large American beech (*Fagus grandifolia*) next to an agricultural area, was the last to be found on the Cohansey River, which has the highest density of nests in New Jersey. After failing for two consecutive years this pair had a successful season and fledged one young eagle. The pair was incubating as of February 14 and hatching occurred around March 29. Biologists banded the eaglet on May 9 and the bird fledged in early July.

Fort Dix

For the second year eagles nested in a pitch pine in a large contiguous forest on the Fort Dix Military Reservation. Incubation began around February 21. Nest failure was reported March 26, close to the expected hatch date. The reason for this failure is unknown.

Galloway Township

For the third year the Galloway pair nested atop a pitch pine on a tidal creek tree island within 50 m of their 1998 nest. The eagles began incubating around February 8 and hatching was reported in the end of March. Three eaglets were seen in the nest by the observer on April 14. On May 22, ENSP staff climbing the tree to band the eaglets found only two eaglets in the nest. No remains of the third eagle were found in the nest or on the ground. ENSP staff banded the two eaglets and these young birds fledged around June 17.

Lake Lenape

For the third year the Lake Lenape pair nested in the ENSP-built nest, atop a super-canopy pitch pine in a large contiguous pine forest. Incubation was first observed March 2, with hatching occurring around April 4. ENSP staff attempted to band the single eaglet, but the eaglet was older than expected and biologists were unable to band the bird. Fledging occurred around June 8.

Manasquan Reservoir

A pair of bald eagles had been reported for the past few years in the vicinity of the Manasquan Reservoir and the Manasquan Wildlife Management Area. ENSP biologists flew over the Wildlife Management Area on May 17 and spotted an unoccupied eagle nest in a pine tree. At this point it is unknown whether the nest was a housekeeping nest or inactive. ENSP staff along with the nest observers will closely monitor this nest and the Manasquan Reservoir area.

Mannington Meadows (Horne Run)

For the third year the pair nested atop a large black oak (*Quercus velutina*) lying between a farm field and tidal water spit. The pair began incubation around the 13th of February and hatching occurred on March 19. ENSP staff banded the eaglet May 9 and the young bird fledged June 17.

Mannington Meadows 2

A new nest was found this year approximately 2.5 km from the first Mannington Meadows nest. The pair built the nest in a large tree along the edge of an agricultural field. The pair was incubating as of February 25 and hatching occurred around March 31. Two eaglets fledged around the 16th of June.

Mantua Creek

This new nest was found by observers along the Mantua Creek. Incubation was reported as of March 6 and the expected hatch date was April 10. The birds abandoned the nest on April 15. The reason for failure was unknown, but not unusual for first-year nesting birds.

Maurice River 1

For the third year the eagle pair nested atop a partially dead red maple (*Acer rubrum*). The tree lies on a forested peninsula jutting out into the rich Maurice River estuary. This nest is quite difficult to observe. Incubation began as of February 18, and brooding was first observed on March 16. One eaglet fledged in early June.

Maurice River 2

For the second year this pair was observed exhibiting nesting behavior in January and February at an old osprey nest along the Maurice River. Incubation was never initiated and the pair left the area. Nest observers will continue to observe this pair and hopefully identify their nest.

Maurice River 3

This new nest was discovered in a pitch pine along the edge of the Maurice River. Incubation was reported around early March and hatching occurred around March 26. One eaglet fledged from this nest.

Merrill Creek Reservoir

For the third year this pair occupied a nest in a white pine (*Pinus strobus*) adjacent to the reservoir. This is only the second pair in northern New Jersey. We expect the number to grow as other reservoirs in northern New Jersey are colonized. ENSP staff worked closely with reservoir personnel to protect the nest site. The pair began incubating on February 19, and brooding behavior was observed on March 26. Two eaglets were banded on May 8, and they fledged on June 12.

Mullica River

In 2000 the Mullica River nest observer located a housekeeping pair that maintained a nest in a pitch pine. The pair returned to the nest in 2001 and incubation was reported as of February 11. Hatching was reported around March 23 and one eaglet fledged on June 19.

Nantuxent Creek

This pair occupied a nest in a large white oak (*Quercus alba*). Incubation began around February 20 and brooding behavior was observed on March 21. On March 27 nest observers reported that the birds had abandoned the nest; the reason for this failure is unknown.

Navesink River

For the second season the Navesink pair occupied their nest in a red oak. The birds were observed incubating as of February 24 and hatched around April 3. Two young eagles fledged June 27.

Raccoon Creek (Delaware River)

The pair occupied the Delaware River site they have used since 1997. Given its history of failing due to organochlorine contaminants, on April 1 ENSP biologists removed an approximately two-week-old eaglet from the Union Lake nest and placed it into the Raccoon Creek nest. The adult eagles adopted the young bird almost immediately. The adopted eaglet fledged on June 5.

Rancocas Creek 1

This pair reoccupied their 1998 nest built in a red oak, located near their 1996 nest. This nest site, surrounded by nearby houses, is unique in New Jersey, and faces great potential for disturbance. Nest observers reported incubation on February 16. Observers reported that on March 6 the pair abandoned the nest. The pair was seen later building a new nest at a nearby location and was occasionally observed at the old nest. The pair did not reneest, but may be expected to use their new nest in 2002.

Rancocas Creek 2

This housekeeping pair was first observed in the beginning of March at a nest built very close to a housing development. The pair also maintained a second nest built upon an old red-tailed hawk nest along a branch of the Rancocas Creek. Nest volunteers and staff will continue to monitor this pair closely during the 2002 nesting season.

Round Valley Reservoir

The bald eagles again reoccupied the red oak nest used since 1996 near Round Valley Reservoir. This nest is very difficult to observe and the nest observer reported on nesting activity throughout the nesting season. The exact date of fledging is unknown.

Seely Lake

A pair of eagles built a new nest in the vicinity of Seely Lake, Cumberland County. Observers and ENSP staff will monitor this nest closely during the 2002 nesting season.

Stow Creek

The bald eagle pair returned to their nest in the large sycamore tree (*Platanus occidentalis*) (used by ospreys in 1997 and 1998), in an active farm field. The nest is visible from the Stow Creek viewing platform, developed under New Jersey's Watchable Wildlife Program (Appendix A). Incubation began on March 1 and hatching occurred in early April. Three eaglets fledged around July 3. Between 1990 and 2001, the Stow Creek eagle pair successfully raised 25 eaglets, making them the most productive pair in the state.

Supawna Meadows

The Supawna eagles for a second year occupied a nest built on a PSE&G transmission tower in Supawna Meadows National Wildlife Refuge. The pair began incubating on February 11 and hatching occurred around March 22. Nest failure was reported around April 9; the reason for which was unknown.

Union Lake

The eagles, for the eighth consecutive season, reoccupied their nest atop a large pitch pine near Union Lake. ENSP staff marked a small cove near the nest as a "Restricted Area," which was enforced by the Bureau of Law Enforcement to minimize nest disturbance. The pair started incubating in February, and the young hatched on March 27. One of the three chicks was moved to the Raccoon Creek nest on April 1. ENSP biologists banded the two remaining eaglets on April 26, and they fledged in early June.

Wading River

The pair re-nested in the pitch pine adjacent to the tidal river. Incubation began on February 17, and for the third year in a row the nest was abandoned on February 27. The reason for this and previous failures was unknown.

Potential Nest Sites

ENSP biologists and observers actively searched for possible nesting bald eagles in several different locations. The searches were in response to the many reports of eagles engaging in breeding behaviors. Areas that remain promising are Big Timber Creek, Basto Lake, Oswego Lake and Great Egg Harbor River, which all have year-round eagle activity. In addition, several inland reservoirs in the north including the Delaware Water Gap area hold promise of eventual eagle nesting.

Table 1. Production and significant dates of Bald Eagle nesting in NJ, 2001.

| Nest Site | Incubation | Hatching | Banding | Fledging | No. Fledged | Notes |
|------------------------|------------|----------|---------|----------------|-------------|--|
| Alloways Creek 1 | 3/6/01 | 4/10/01 | 5/18/01 | 7/4/01 | 3 | Nest fell 10/01. Prev. falls:12/22-23/98 and 1/18/99 , 6/21/01 |
| Alloways Creek 2 | 2/17/01 | 3/25/01 | 5/18/01 | 6/20/01 | 2 | |
| Bear Swamp | 2/11/01 | 3/20/01 | N/A | N/A | 0 | Nest failed |
| Belleplain | 3/15/01 | unknown | 5/15/01 | unknown | 2 | |
| Burlington Co./Del. R. | 2/21/01 | 3/27/01 | N/A | 6/21/01* | 2 | Nest inaccessible |
| Cohansey (Fairfield) | 2/22/01* | 3/18/00 | N/A | 3/20/01* | 1 | |
| Cohansey (Greenwich) | 2/10/01 | 3/19/01 | 5/1/01 | 6/12/01 | 3 | |
| Cohansey (Hopewell) | 2/14/01 | 3/29/01 | 5/9/01 | 6/22/01 | 1 | |
| Fort Dix | 2/21/01 | N/A | N/A | N/A | 0 | Nest Failure 3/26/01 |
| Galloway | 2/8/01 | 3/29/01* | 5/22/01 | 6/17/01 | 2 | Three eaglets were observed on 4/19/01. No remains were found in or under the nest tree. |
| Lake Lenape | 3/2/01 | 4/4/01 | N/A | 6/8/01 | 1 | ENSP staff attempted to band the eaglet but the bird was too old to be captured safely. |
| Manasquan Reservoir | N/A | N/A | N/A | N/A | unknown | New nest. Found in Manasquan Wildlife Management Area, not active. |
| Mannington Meadows 1 | 2/13/01 | 3/19/01 | 5/9/01 | 6/17/01 | 1 | |
| Mannington Meadows 2 | 2/25/01 | 3/31/01 | N/A | 6/16/01 | 2 | New nest |
| Mantua | 3/6/01 | N/A | N/A | N/A | 0 | New Nest, abandoned 4/15 |
| Maurice River 1 | 2/18/01 | 3/16/01 | N/A | *6/9/00 | 1 | Nest inaccessible |
| Maurice River 2 | N/A | N/A | N/A | N/A | 0 | House Keeping Pair |
| Maurice River 3 | 3/7/01* | 3/26/01 | N/A | *7/2/01 | 1 | New nest |
| Merrill Creek | 2/19/01 | 3/26/01 | 5/8/01 | 6/12 & 6/14/01 | 2 | |
| Mullica River | 2/11/01 | 3/23/01 | N/A | 6/19/01 | 1 | |
| Nantuxent Creek | 2/20/01 | 3/21/01 | N/A | N/A | 0 | |
| Navesink River | 2/24/01 | 4/2/01 | N/A | 6/27/01 | 2 | |
| Raccoon Creek | N/A | N/A | N/A | 6/5/01 | 1 | Eaglet transplanted from Union Lake nest 4/1/01 |
| Rancocas Creek 1 | 2/16/01 | 2/16/01 | N/A | N/A | 0 | Nest failure 3/5/01 |
| Rancocas Creek 2 | N/A | N/A | N/A | N/A | 0 | Housekeeping pair |
| Round Valley | unknown | unknown | N/A | unknown | 1 | |
| Seely Lake | N/A | N/A | N/A | N/A | 0 | New nest, housekeeping pair |
| Stow Creek | 2/23/00 | 3/29/00 | N/A | 6/26/00 | 2 | |
| Supawna Meadows | 2/9/00 | 3/18/00 | 5/9/00 | 6/6/00 | 1 | |
| Union Lake | 2/25/00 | 3/28/00 | 5/17/00 | 6/30/00 | 2 | Nest failed March 1 |
| Wading River | 2/22/00 | N/A | N/A | N/A | 0 | |

* These dates are estimates based on events with known dates.

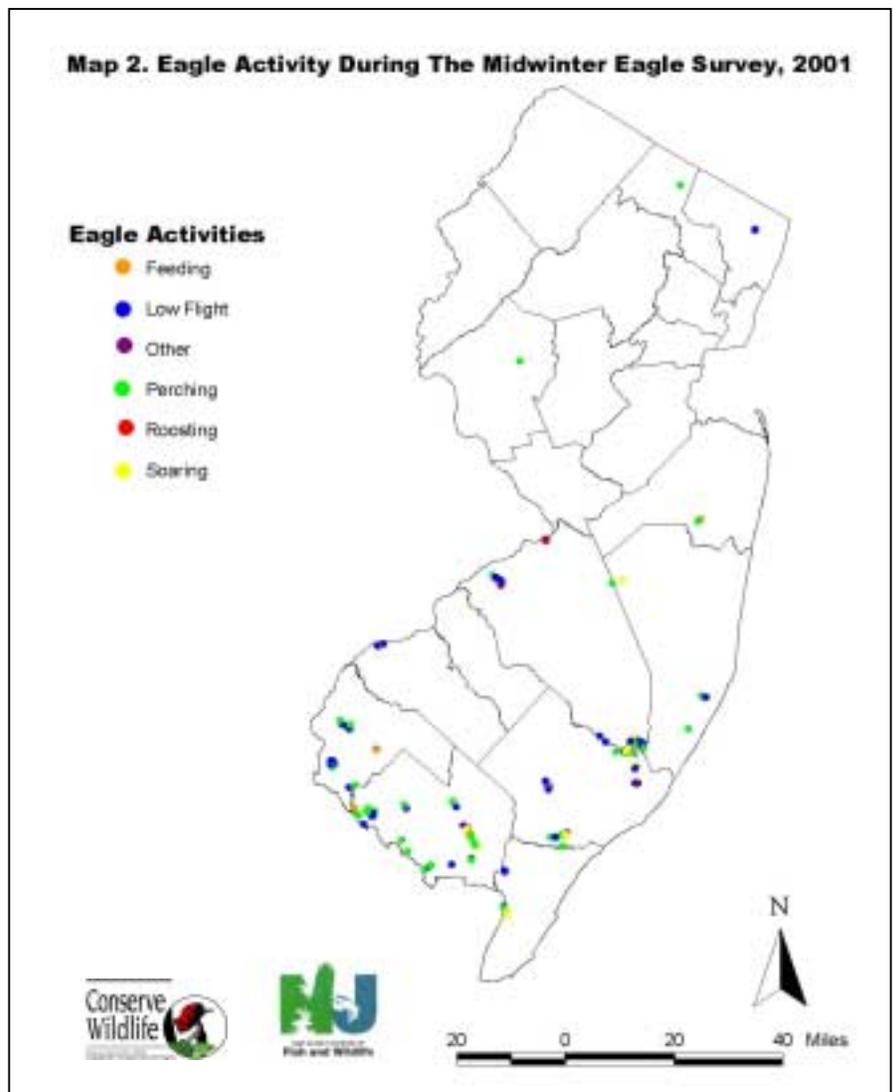
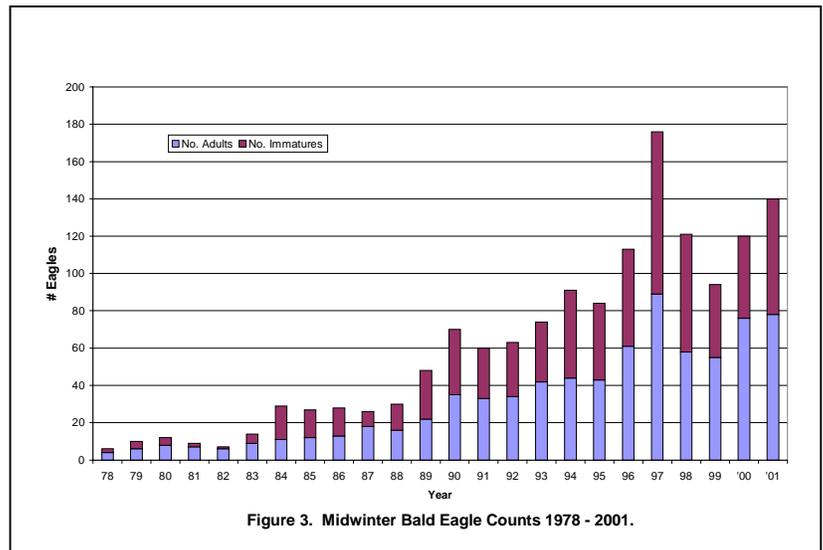
F This is the date of flyover, actual incubation & hatching dates are unknown

Wintering Eagle Survey

A total of 140 bald eagles were observed during the midwinter survey on January 13 and 14, 2001 (Table 2). This count is 20% below 1997's record of 176 (Figure 3). Southern New Jersey continued to host the majority of the state's wintering birds, due to cold weather forcing eagles further south to the open waters of the Delaware River and Bay.

One hundred-seven bald eagles were counted in southern New Jersey, of which 63 were adults (Elia 2001). Most eagles were observed in the Delaware Bay region (57%), followed by Atlantic Coast watersheds (37%) and the lower Delaware River (6%). The three transects with the highest numbers of sightings were Fortescue with 20, Maurice River with 15 and Salem County with 11 eagles counted.

As is usually the case, northern New Jersey with 33 bald eagles had less than the south (Ambler 2001). The main sites for northern New Jersey's wintering eagles were the Delaware Water Gap (73%) and northern reservoirs (27%). The count was higher than previous years along the Delaware River, which can be attributed to the northern inland reservoirs being ice covered.



**Table 2. Bald Eagles counted in the NJ Midwinter Bald Eagle Survey
January 13-14, 2001**

| Region | Survey Transect | Subregion | Total Bald Eagles | Adult Bald Eagles | Immature Bald Eagles | Unknown Bald Eagles | Golden Eagles |
|--------------|--|-----------------|----------------------|----------------------|-------------------------|------------------------|------------------|
| South | Brigantine NWR | A | 14 | 8 | 6 | 0 | 0 |
| | Cohansey River | B | 9 | 7 | 2 | 0 | 0 |
| | Delaware River - Riverton to Trenton | SD | 2 | 2 | 0 | 0 | 0 |
| | Fortescue to Stow Creek | B | 8 | 8 | 12 | 0 | 0 |
| | Fort Dix | A | 3 | 2 | 1 | 0 | 0 |
| | Great Egg Harbor & Tuckahoe Rivers | A | 7 | 4 | 3 | 0 | 1 |
| | Manahawkin to Lower Bass River | A | 3 | 2 | 1 | 0 | 0 |
| | Manasquan Reservoir | A | 1 | 0 | 1 | 0 | 0 |
| | Maurice River, Turkey Point, Bear swamp | B | 15 | 6 | 9 | 0 | 1 |
| | Mullica & Wading Rivers | A | 10 | 3 | 7 | 0 | 1 |
| | Oldman's Creek | SD | 0 | 0 | 0 | 0 | 0 |
| | Raccoon Creek | SD | 2 | 2 | 0 | 0 | 0 |
| | Rancocas Creek | SD | 2 | 2 | 0 | 0 | 0 |
| | Salem County | SD | 11 | 10 | 1 | 0 | 0 |
| | Stow Creek | B | 3 | 3 | 0 | 0 | 0 |
| | Swimming River Reservoir | A | 2 | 2 | 0 | 0 | 0 |
| | Thompson's to Reeds Beach | B | 3 | 2 | 1 | 0 | 0 |
| | Whitesbog | A | 0 | 0 | 0 | 0 | 0 |
| | South | Subtotal | | 107 | 63 | 44 | 0 |
| North | Delaware River - Columbia to Trenton | ND | 0 | 0 | 0 | 0 | 0 |
| | Delaware Water Gap | G | 24 | 10 | 13 | 1 | 0 |
| | Hudson River - Palisades | P | 0 | 0 | 0 | 0 | 0 |
| | Jersey City Reservoirs (Boonton & Split Rock) | IR | 0 | 0 | 0 | 0 | 0 |
| | Merrill Creek Reservoir | IR | 2 | 2 | 0 | 0 | 0 |
| | Newark Watershed (Clinton & Charlottesburg) | IR | 0 | 0 | 0 | 0 | 0 |
| | Oradell Reservoir | IR | 3 | 1 | 2 | 0 | 0 |
| | Round Valley Reservoir | IR | 2 | 2 | 0 | 0 | 0 |
| | Wanaque & Monksville Reservoir | IR | 2 | 0 | 2 | 0 | 0 |
| North | Subtotal | | 33 | 15 | 17 | 1 | 0 |
| State | Total | | 140 | 78 | 61 | 1 | 3 |

Subregion: AC=Atlantic Coast, DB=Delaware Bay, DWG=Delaware Water Gap, IR=Inland Reservoirs, ND=Northern Delaware River, P=Palisades-Hudson River, SD=Southern Delaware River

Contaminants Research

In 2001 we did not collect any unhatched eagle eggs as we had in previous years. Several nests failed near the time of hatching, which has been indicative of contamination at other nests. We were unable to intervene at those nests, but we did provide a nestling to the Raccoon Creek pair. Normally that provides the opportunity to retrieve an unhatched eggs, but we were unable to due to the condition of the tree. Biologists are working on a report of contaminant analyses of recent years' samples (eggs as well as prey), which will be complete in early 2002.

Recoveries

In 2001, we recovered one bald eagle that was found dead in a pond in Cumberland County, near Stow Creek. The bird was a subadult and was not banded. The cause of death was drowning, no other lesions were present to explain why it had drowned.

On October 7th, a Golden Eagle was found weak and unable to fly in the Tuckahoe Wildlife Management Area, Cape May County. The eagle was taken to rehabilitator Don Bonica where it was found to be malnourished. Thanks to the efforts of Don the eagle recovered and was released on December 1st in the vicinity of where it was found.

An immature Golden Eagle was found dead in Jenny Jump State Forest, Warren County on November 19. It was determined that starvation was the cause of death as the result of porcupine quills in and around the right eye which made predation by this bird impossible.

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