

New Jersey Department of Environmental Protection

Division of Fish and Wildlife

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New Jersey Bald Eagle Project, 2011

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Cover photo: Merrill Creek Reservoir chick with satellite transmitter, by ENSP Mick Valent

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Abstract

The Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP) biologists and volunteer observers located and monitored bald eagle nests and territories. A new record high of 113 eagle pairs was monitored during the nesting season; 95 of those were active (with eggs). New Jersey's Delaware Bay region remained the state's eagle stronghold, with 60% of all nests located in Cumberland and Salem counties. Twenty-two new eagle pairs were found this season, 16 in the south, two in central and four in northern NJ. Seventy-one (75%) nests were successful in producing 119 young, for a productivity rate of 1.25 young per active nest. Twenty-four (25%) nests failed to fledge young.

In January's Midwinter Eagle Survey, ENSP staff, regional coordinators and volunteers reported a total of 238 bald eagles, down by 27% from 2010's record count. Forty-one eagles were recorded in northern NJ and 197 in the south.

The state's eagle population would not be thriving without the efforts of the dedicated eagle volunteers who observe nests, report sightings, and help protect critical habitat.

Introduction

Historic records are incomplete, but one study indicated New Jersey hosted more than 20 pairs of nesting bald eagles in the Delaware Bay region of the state (Holstrom 1985). As a result of the use of the pesticide dichloro-diphenyl-trichloroethane, commonly known as DDT, the number of nesting pairs of bald eagles in the state declined to only one by 1970 and remained there into the early 1980s. Use of DDT was banned in the United States in 1972. That ban, combined with restoration and management efforts by biologists within the Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP), resulted in population increases to 23 pairs by 2000, 48 pairs by 2005, and to 82 pairs by 2010. ENSP recovery efforts – implemented since the early 1980's – have resulted in a steady recovery as New Jersey's eagle population has rebounded from the edge of extirpation.

Recovery efforts were multifaceted. In 1982, after the Bear Swamp nest – New Jersey's only remaining nest since 1970 – had failed at least six consecutive years, ENSP biologists removed the egg for artificial incubation, and fostered the young nestling back to the nest. As a result of residual DDT contamination, the Bear Swamp eggs were too thin to withstand normal incubation. Artificial incubation and fostering chicks continued with success 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 period of time; mortality rates are high in young eagles (as high as 80%), and they do not reproduce until about 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 contributed to the increase in nesting pairs since 1990.

Bald eagles nesting in NJ face many threats, with disturbance and habitat loss the greatest threats in our state. In addition, contaminants in the food web may negatively affect the eagles nesting in some areas of NJ.

Disturbance is defined as any human activity that causes eagles to change their behavior, and takes many forms, including mere presence of people in nesting or foraging areas. In general, people on foot evoke the strongest negative reaction (see Buehler 2000). The problem is that when eagles change their behavior in reaction to people, they cease doing what is best for their survival and the well being of their eggs and young; ultimately, that reduces the survival of individuals and the population. ENSP biologists work to manage and reduce disturbance in eagle habitats, especially around nest sites. A corps of experienced volunteers, as well as public education and established, safe viewing areas, are essential to this effort. Viewing eagles from safe distances, where eagles continue to act normally, is best for eagles and satisfies our natural desire to see them. Biologists also protect habitat in a variety of ways, including working with landowners, land acquisition and management, and applying the state's land use regulations. ENSP is continuing to investigate the 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 exhibited some reproductive impairment relative to other areas (Steidl et al. 1991, Clark et al. 1998), but recent research indicates problems may be limited to very local areas of contamination (Clark et al. 2001). ENSP biologists collect samples that allow monitoring of contaminants in eagles during the nesting season, and monitoring nest success is an integral part of this research.

ENSP biologists, with the Division's Bureau of Law Enforcement staff and project volunteers, work year round to protect bald eagle nest sites. However, with increasing competition for space in the most densely populated state in the nation, it is clear that critical habitat needs to be identified and, where possible, protected. Critical habitat for eagles includes areas used for foraging, roosting and nesting, and is included in the program's Landscape Project mapping of critical wildlife habitats.

The population of wintering bald eagles has grown along with the nesting population, especially in the last ten years. This growth reflects increasing nesting populations in NJ and the northeast, as each state's recovery efforts continue to pay off for eagles.

In 2007, a major milestone was reached for bald eagles in the U.S. In recognition of the national resurgence in the eagle population in the lower 48 states, the federal government removed the bald eagle from its list of Endangered Species in August 2007. The U.S. Fish and Wildlife Service will oversee a 20-year monitoring period (through 2027) to watch for and investigate any problems that could compromise the eagle recovery. The bald eagle's official New Jersey status remains state-endangered, and state regulatory protection will remain unchanged by the federal action.

Objectives of the New Jersey bald eagle program:

- 1) monitor the recovery of the bald eagle in the state by documenting the status, distribution, and productivity of breeding bald eagles in NJ;
- 2) enhance nest success by protecting bald eagles and their nest sites;
- 3) monitor wintering areas and other concentration areas and plan for their protection;
- 4) document locational data in the Biotics database and apply it to identify critical habitat using the Landscape Project mapping;
- 5) provide information and guidance to landowners and land managers with regard to bald eagles on their properties;
- 6) increase our understanding of bald eagle natural history in New Jersey.

Methods

Nest Survey

All known nest sites are monitored January through July. Volunteer observers watch most nests from a distance of 1,000 feet, using binoculars and spotting scopes, for periods of two or more hours each week. Observers record all data including number of birds, courtship or nesting behaviors, incubation, feeding, and other parental care behaviors that provide essential information on nesting status. ENSP staff contact volunteers weekly with an update and are available to discuss observer questions and data. Dates are recorded for incubation, hatching, banding, fledging, and, if applicable, nest failure. A nesting territory is considered “occupied” if a pair of eagles is observed in association with the nest and there is some evidence of recent nest maintenance. Nests are considered “active” if a bird is observed in an incubating position or if eggs or young are detected in the nest.

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

When necessary, nests are secured from disturbance with barriers 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 conservation officers act to enforce protection measures as needed, and provide routine assistance as well.

At select nests, biologists enter the nest site to band young when nestlings are between five and eight weeks old. 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 band and a green state 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 generally not climbed the first season to avoid associating disturbance with the new site.

Wintering Eagle Survey

The nationwide Midwinter Eagle Survey is conducted every January to monitor population numbers across the country. The ENSP contracts New Jersey Audubon Society's Cape May Bird Observatory to coordinate the survey across southern NJ, and relies on biologist Allan Ambler of the Delaware Water Gap National Recreation Area to survey in the upper Delaware River area. ENSP staff coordinates volunteers who survey northern NJ reservoirs. The volunteer effort is aimed at covering all suitable and known wintering habitats, and data are analyzed to track (to the extent possible) the number of individual eagles observed on both days of the survey using plumage characteristics and time/place observed. ENSP biologists compile all results to determine statewide totals and totals along standardized survey routes, which are provided to the Raptor Research and Technical Assistance Center in the U.S. Bureau of Land Management. For the sixth 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.

Results

Nest Survey

The statewide population increased to 113 pairs in 2011, up from 94 in 2010. Ninety-five pairs were known active (meaning they laid eggs). Seventy-one nests (75%) were known to be successful in producing 119 young, for a productivity rate of 1.25 young per active nest, which is above the required range of 0.9-1.1 young per nest for population maintenance (Figure 2). Seven pairs were considered probably active, but we were unable to confirm them as active. Of the eagle pairs that maintained territories but did not lay eggs, eleven had known locations.

Most nests were located in the southern region of the state, particularly within 20 km of Delaware River and Bay (Figure 3). All nests and significant dates are listed in Table 1. Most nests (56%) were located on private land, while the rest were on state, federal, county and conservation-organization lands. Disturbance was a management issue at many nests, and posting and regular surveillance by staff and nest observers were essential to increase the chance success.

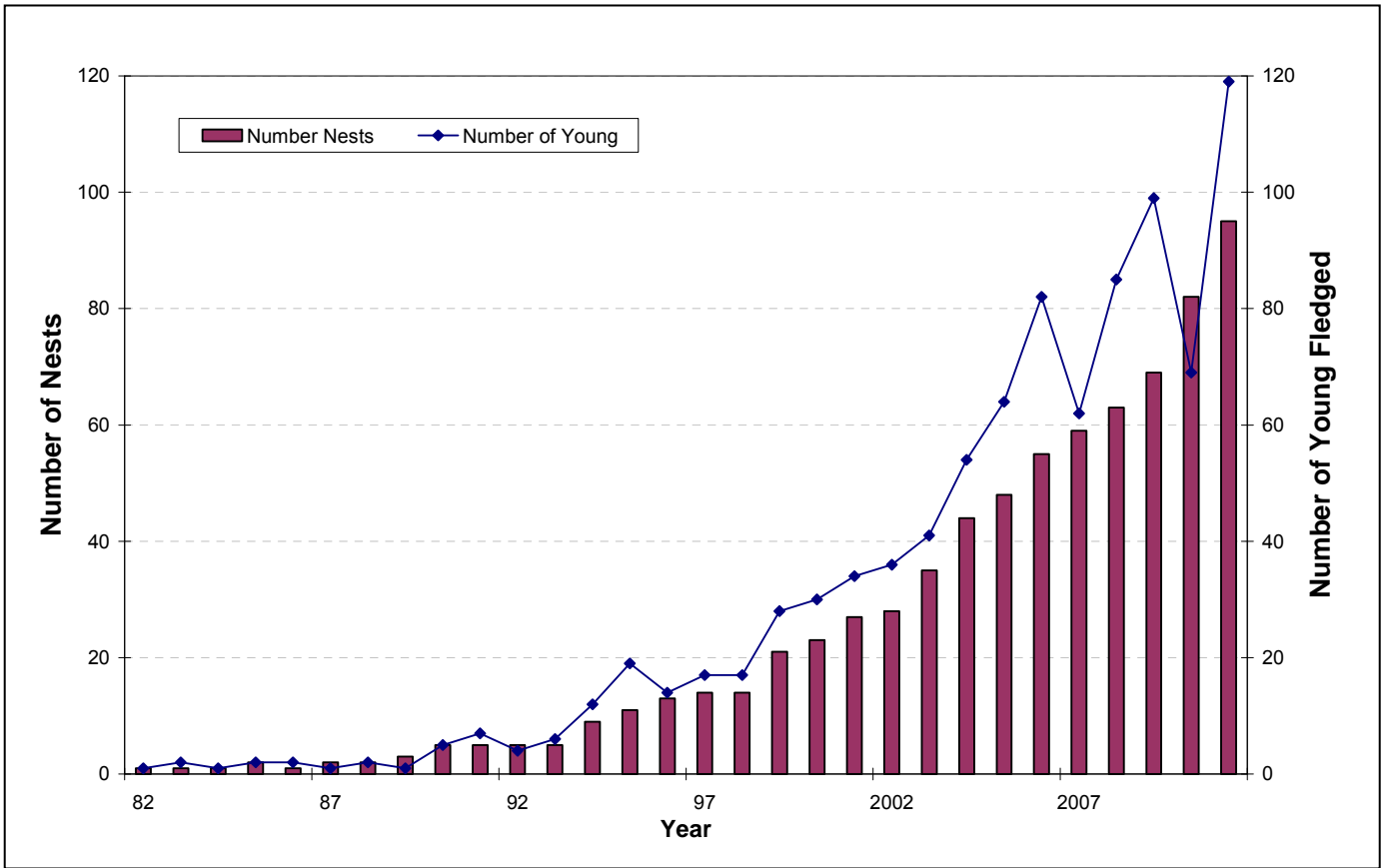


Figure 1. The number of active bald eagle nests (bars) and the young produced (lines) each year, 1978-2011.

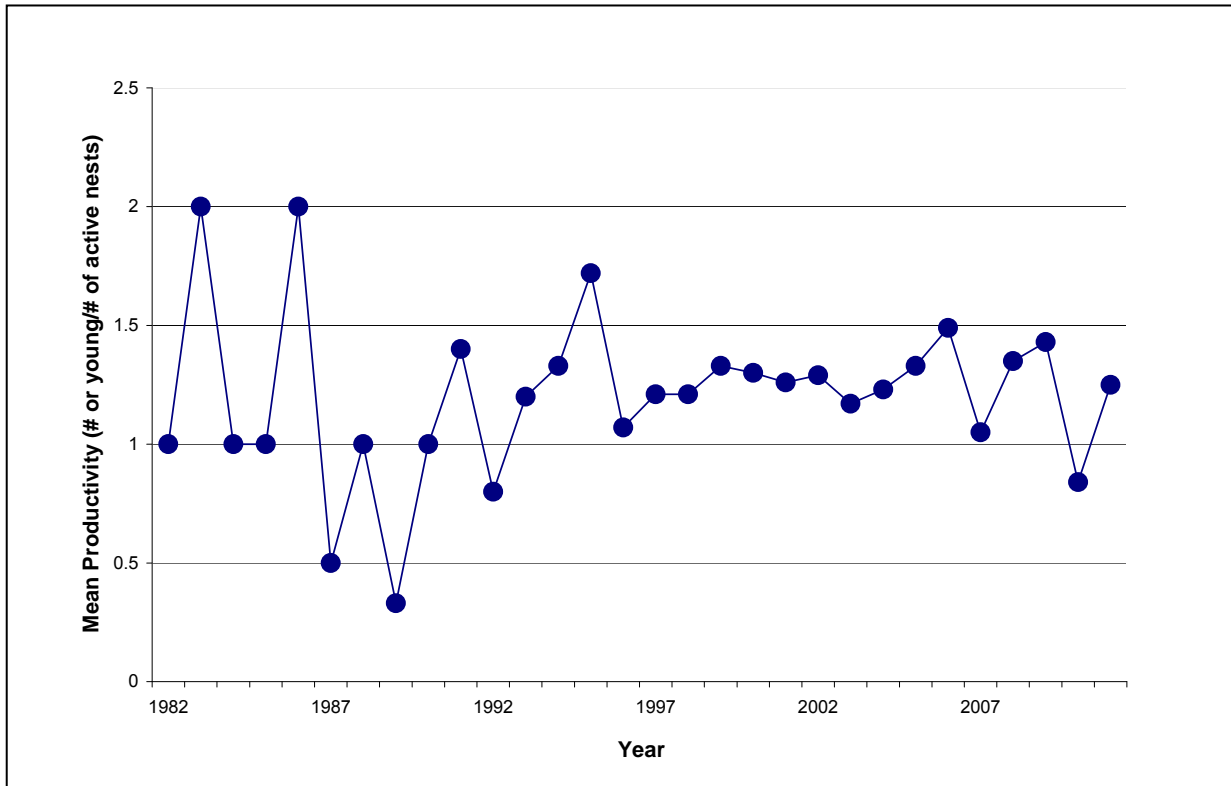


Figure 2. Productivity of bald eagles in New Jersey, 1982-2011

Figure 3. Bald eagle nest sites, 2011

| | |
|----------------------|------------------------|
| 1 Overpeck | 60 Mad Horse Creek |
| 2 Palisades | 61 Wheaton |
| 3 Oradell | 62 Bayside A |
| 4 Parsippany | 63 Bayside B |
| 5 Rockaway | 64 Tindall Island |
| 6 Wanaque | 65 Greenwich |
| 7 Bassetts Bridge | 66 Teaburner |
| 8 Newton | 67 Sheppards Mill |
| 9 Hyper Humus | 68 Sunset |
| 10 Culvers Gap | 69 Middle Marsh B |
| 11 Little Swartswood | 70 Green Swamp |
| 12 Musconetcong | 71 Hopewell West |
| 13 Yards' Creek | 72 Hopewell Central |
| 14 Merrill Creek | 73 Hopewell East |
| 15 Stanton Station | 74 Tindells Landing |
| 16 Round Valley | 75 Seabreeze B |
| 17 Raritan River | 76 Seabreeze A |
| 18 Old Bridge | 77 Sayres Neck |
| 19 Princeton | 78 Bay Point |
| 20 Navesink | 79 Nantuxent A |
| 21 Shark River | 80 Nantuxent B |
| 22 Manasquan Res. | 81 Turkey Point A |
| 23 Manasquan River | 82 Turkey Point B |
| 24 Kettle Creek | 83 Dividing Creek |
| 25 Prospertown | 84 Bear Swamp |
| 26 Fort Dix | 85 Union Lake |
| 27 Crosswicks Creek | 86 Union Lake Dam |
| 28 Burlington Co. | 87 Maurice (Millville) |
| 29 Pemberton | 88 Maurice (North) |
| 30 Rancocas | 89 Maurice (Burcham) |
| 31 Camden | 90 Mauricetown |
| 32 Eagle Point | 91 Maurice (Bowkers) |
| 33 Mantua | 92 Port Norris |
| 34 Raccoon Creek | 93 Heislerville |
| 35 Gibbstown | 94 Riggins Ditch |
| 36 Bridgeport | 95 Stipson Island |
| 37 Swedesboro | 96 Higbee |
| 38 Oldmans Creek | 97 Little Mill Creek |
| 39 Penns Grove | 98 Wildwood Bay |
| 40 Deep Water | 99 Fishing Creek |
| 41 Harrisonville | 100 South Dennis |
| 42 Silver Lake | 101 Cedar Creek |
| 43 Centerton | 102 Belleplain |
| 44 Daretown | 103 Tuckahoe A |
| 45 East Lake | 104 Tuckahoe B |
| 46 Pilesgrove | 105 Egg Harbor |
| 47 Mann. Meadows A | 106 South River |
| 48 Mann. Meadows B | 107 Lake Lenape |
| 49 Mann. Pointers | 108 Patcong Creek |
| 50 Penns Neck | 109 Galloway |
| 51 Penns Neck Lower | 110 Mullica |
| 52 Supawna | 111 Wading |
| 53 Elsinboro | 112 Chatsworth |
| 54 Alloways A | 113 Cedar Lake |
| 55 Alloways D | |
| 56 Alloways C | |
| 57 Alloways B | |
| 58 Stow Creek A | |
| 59 Stow Creek B | |

Figure 3, continued. Bald Eagle Nest Sites, 2011

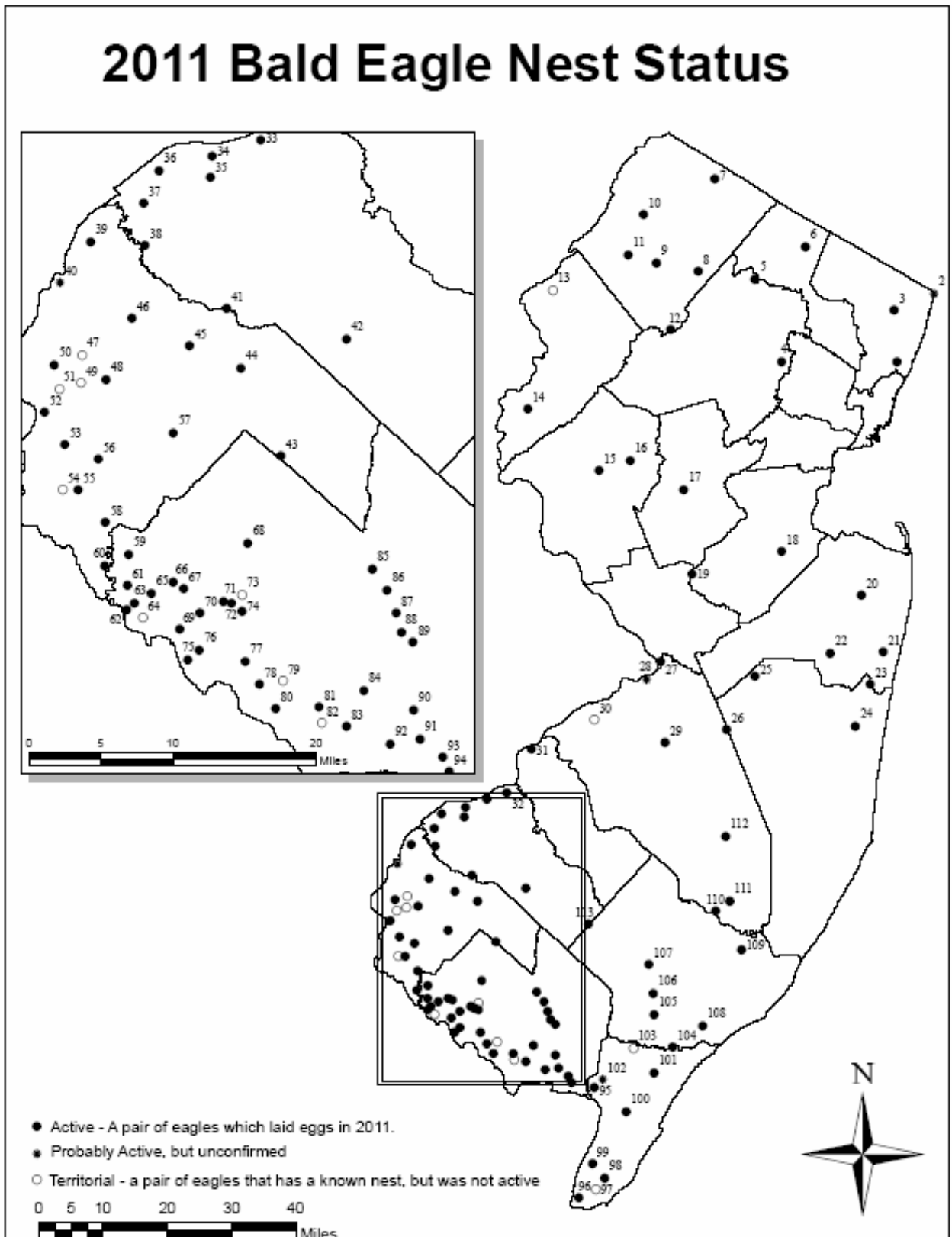


Table 1. Production and significant dates of bald eagle nests in NJ, 2011 (T=Territorial, A?=Probably active but unconfirmed).

| NEST SITE | Incubation | Hatching | Banding | Fledging | No. Fledged | Failed date/ Reason | Notes |
|----------------------------|-------------------------|----------|---------|----------|-------------|------------------------|---|
| Alloways Creek 1-Hancocks | T | | | | | | Seen in area |
| Alloways Creek 2-CE | 2/21 | | | | 0 | 4/3 | |
| Alloways Creek 3-Quinton | 2/11 | 3/18 | | 6/15 | 3 | | |
| Alloways Creek 4 | ~3/7 | | | 6/17 | 1 | | New pair |
| Bassetts Bridge | 4/20 (2 nd) | | | | 0 | unk | 1 st clutch failed 3/16; laid 2 nd clutch |
| Bay Point Road | 1/31 | ~3/14 | | ~6/6 | 1 | | New nest tree |
| Bayside A | 3/1 | 3/23 | | 5/26 | 1 | | |
| Bayside B | 3/23 | | | | | | Outcome unknown |
| Bear Swamp | 2/16 | 3/23 | | 6/15 | 1 | | |
| Belleplain | A? | | | | | | Aerial survey: nest not found |
| Bridgeport | 2/23 | 4/5 | | 6/28 | 1 | | |
| Burlington Co./Del. R. | A? | | | | | | Outcome unknown |
| Camden County | 4/17 (2 nd) | | | | 0 | 5/15 | 1 st clutch failed 3/27 |
| Cedar Lake (Gloucester) | <3/2 | | | | 0 | <4/14 | |
| Cedar Swamp Creek | <2/16 | ~3/22 | | ~6/14 | 2 | | Aerial survey 4/25; two chicks |
| Centerton (Elmer) | Unk | | | | 1 | | |
| Chatsworth | 2/26 | 4/5 | | | 0 | 4/8 | |
| Cohansey (Middle Marsh B) | 2/26 | 4/7 | | 7/9 | 2 | | New nest tree |
| Cohansey (Green Swamp) | A? | | | | | | New pair; outcome unknown |
| Cohansey (Greenwich) | 1/29 | 3/7 | 4/18 | 6/7 | 2 | | |
| Cohansey (Teaburner) | 2/4 | 3/10 | | 5/26 | 2 | | |
| Cohansey(Sheppards Mill) | 2/20 | 3/19 | | | 0 | 3/22 | New nest tree |
| Cohansey (Hopewell West) | 2/27 | ~4/3 | | ~6/26 | 1 | | |
| Cohansey (Hopewell East) | A? | | | | | | New nest tree; outcome unknown |
| Cohansey(HopewellCentral) | ~3/18 | | | | 0 | | New pair |
| Cohansey(Tindells Landing) | ~3/22 | | | | 2 | | New nest tree |
| Crosswicks Creek | 3/24 | | | | 0 | 5/1 | |
| Culvers Gap | <3/25 | 4/14 | | 7/9 | 1 | | New nest tree |
| Daretown | 3/2 | | | | 0 | 4/10 | New nest tree |
| Deepwater | A? | | | | | | Outcome unknown |
| Dividing Creek | 2/6 | 3/11 | | 6/4 | 2 | | |
| Eagle Point | 2/5 | 3/15 | | 6/10 | 1 | | |
| East Lake | 2/6 | 3/15 | | 7/8 | 2 | | |
| Egg Harbor River | ≤2/11 | 3/22 | | 6/7 | 1 | | |
| Elsinboro | 1/29 | 3/7 | | 6/6 | 2 | | |

| | | | | | | | |
|----------------------------|-------|-------|------|------|---|------|---|
| Fishing Creek | <4/25 | ~5/30 | | | 1 | | Aerial survey 4/25: 2 eggs. 6/30: 1 chick |
| Fort Dix | 2/18 | 3/25 | 5/6 | 6/17 | 2 | | |
| Galloway | 2/20 | 3/10 | 5/2 | 6/9 | 1 | | New nest tree |
| Gibbstown | 2/4 | 3/11 | | 6/10 | 2 | | New nest tree |
| Harrisonville | 2/2 | | | | 0 | 3/15 | |
| Heislerville | 2/15 | 3/21 | | 6/21 | 2 | | |
| Higbee Beach | 2/11 | 3/27 | | 6/19 | 2 | | 3 chicks, reduced to 2 |
| Hyper Humus | <3/25 | ~5/6 | | 7/23 | 2 | | New pair |
| Kettle Creek | 2/15 | 3/23 | | 6/11 | 2 | | New nest tree |
| Lake Lenape | <4/25 | | | | 0 | ? | New tree; aerial 4/25: 2 eggs |
| Little Mill Creek (Erma) | T | | | | | | New pair. Aerial survey 4/25:empty |
| Little Swartswood | 2/16 | 3/26 | 5/9 | 6/27 | 3 | | |
| Mad Horse Creek | 2/14 | 3/22 | | 7/6 | 1 | | New nest tree |
| Manasquan Reservoir | 1/5 | 2/11 | 3/25 | 5/10 | 2 | | |
| Manasquan River | 2/2 | 3/10 | 4/20 | 5/27 | 2 | | |
| Mannington Meadows A | T | | | | | | New nest tree |
| Mannington Meadows B | 2/13 | 3/25 | | | 0 | 4/7 | |
| Mannington (Pointers) | T | | | | | | New pair |
| Mantua Creek | 2/24 | | | | 0 | 5/19 | |
| Maurice River- Bluffs | 2/17 | 3/30 | | 6/22 | 2 | | |
| Maurice River- Bowkers | 3/1 | 4/4 | | 6/26 | 2 | | New pair; aerial survey 4/15 |
| Maurice River- Burcham | 2/23 | 4/4 | | 6/27 | 2 | | New pair |
| Maurice River(Mauricetown) | | ~3/28 | | 6/20 | 3 | | Aerial survey 4/25 |
| Maurice River-Millville | 2/13 | 3/12 | | 6/8 | 2 | | |
| Merrill Creek | 3/14 | 4/17 | 6/13 | 7/11 | 2 | | Transmitters placed on chicks |
| Mullica River | 3/7 | 4/11 | | 6/20 | 2 | | |
| Musconetcong | 3/3 | | | | 0 | 4/1 | |
| Nantuxent Creek A | T | | | | | | |
| Nantuxent Creek B | 2/9 | 3/19 | | 6/19 | 1 | | |
| Navesink River | 2/18 | 3/22 | 5/6 | 6/19 | 1 | | |
| Newton Reservoir | 3/1 | 4/10 | 5/23 | 7/7 | 1 | | |
| Old Bridge | 3/25 | 4/29 | | 7/13 | 1 | | New nest tree |
| Oldmans Creek | 2/3 | 3/13 | | 6/6 | 2 | | |
| Oradell Reservoir | 2/26 | 4/16 | 5/23 | 6/27 | 2 | | |
| Overpeck Creek | 3/2 | 4,8 | | 6/27 | 2 | | New pair |
| Palisades | A? | | | | | | New nest tree: outcome unknown |
| Parsippany | 3/2 | 4/8 | | 7/6 | 1 | | |
| Patcong | 2/12 | 3/23 | | 5/26 | 1 | | New pair |
| Pemberton | | | | 6/9 | 2 | | New pair |
| Penns Grove | 3/9 | 4/16 | | 7/1 | 2 | | |

| | | | | | | | |
|----------------------------|-------------------|----------|------|-------|---------------------|-------|---|
| Penns Neck | 2/26 | 4/4 | | 7/1 | 2 | | New nest tree |
| Penns Neck (lower) | T | | | | | | New pair |
| Pilesgrove | 2/8 | 3/23 | | 6/20 | 2 | | |
| Port Norris | 2/3 | | | | 0 | 2/26 | Nest blew out of tree |
| Princeton | 2/16 | 3/30 | | 6/25 | 2 | | New nest tree |
| Prosperatown | | 2/25-3/4 | 4/15 | 6/3 | 2 | | |
| Raccoon Creek | 3/3 | | | | 0 | 5/19 | |
| Rancocas Creek 1 | T | | | | | | Pair at nest |
| Raritan River (So. Branch) | 2/28 | 4/7 | 5/20 | 6/25 | 2 | | |
| Riggins Ditch | 2/19 | 3/16 | | 6/17 | 3 | | New pair |
| Rockaway | 3/12 | 3/13 | | 6/30 | 1 | | |
| Round Valley | 3/12 | 4/16 | | 7/9 | 2 | | |
| Sayres Neck | 1/23 | 3/5 | | 5/30 | 3 | | |
| Sea Breeze A | 2/20 | 3/27 | 5/13 | 6/26 | 2 | | |
| Sea Breeze B | 2/20 | 3/27 | 5/13 | 7/9 | 1 | | New nest tree; 1 chick died when nest collapsed |
| Shark River | 1/31 | | | | 0 | 3/4 | |
| Silver Lake | 2/26 | | | 7/9 | 1 | | New pair |
| South Dennis | | ~4/4 | | ~6/30 | 3 | | New nest found on aerial survey 4/25 |
| South River-Atlantic | <3/1 | Unk | | Unk | 1 | | New pair |
| Stanton Station | 4/4 | 5/8 | | | 2 | | New pair; found incubating 4/4 |
| Stipson Island | 2/15 | | | | 0 | 3/1 | |
| Stow Creek N. | 2/20 | | | | 1 | | |
| Stow Creek S. | 2/14 | 3/22 | | 7/6 | 1 | | |
| Sunset | 3/2 | | | | 0 | ~3/15 | |
| Supawna Meadows | 2/22 | 3/29 | | 6/15 | 1 | | |
| Swedesboro-Birch Creek | 1/25 | 3/12 | 4/18 | 6/2 | 1 | | |
| Tindall Island | T | | | | | | New nest tree |
| Tuckahoe A | T | | | | | | Nest found in August |
| Tuckahoe B | 3/5 | 4/7 | | | 1 | | New nest on osprey platform |
| Turkey Point A | 2/21 | 3/26 | | | 0 | 5/7 | Both young died when nest fell |
| Turkey Point B | T | | | | | | |
| Union Lake | A? | | | | | | New nest |
| Union Lake Dam | 4/1 | | | | 0 | | New pair |
| Wading River | 1/16 | 2/23 | | 5/19 | 1 | | |
| Wanaque | 2/27 | 4/3 | | 7/10 | 2 | | |
| Wheaton Island | 3/8 | | | | 0 | 4/13 | |
| Wildwood Bay | ≤2/6 | | | | 0 | 2/24 | New pair |
| Yards Creek | T | | | | | | |
| Total: 113 pairs | Active: 95 | | | | Fledged: 119 | | |

New Nesting Pairs/Territories

In 2011, twenty-two new pairs of eagles were located in New Jersey.

Alloways D- A transmission tower in Salem County was the nest site for this new pair (the second such structure in use by eagles). They were found incubating in early March and fledged one chick.

Hopewell Central- This new pair built a nest along the Cohansey River. Incubation was reported in March but the eggs failed to hatch.

Cohansey (Green Swamp)- This new pair was found nesting along the Cohansey River in Cumberland County. The nest is difficult to view and was most likely active but the outcome of the nest could not be confirmed.

Harrisonville- This new pair built a nest along a lake in Salem County in a state Wildlife Management Area. The pair began incubation in early February but failed in mid-March.

Hyper Humus- This new pair built a nest in the Hyper Humus Wildlife Management Area and successfully fledged two chicks.

Kettle Creek- This is the first pair of eagles to successfully nest on a cell tower in New Jersey. Located in Brick Township, it is suspected that this pair might be the same one that attempted to nest on an osprey platform in Point Pleasant in 2010. The pair fledged two chicks.

Little Mill Creek (Erma)- This new site was found with a nest in Cape May County, but to our knowledge no eggs were laid this season.

Mannington Pointers- This new pair built a nest along Mannington Meadows. They were a housekeeping pair and did not lay or incubate eggs this season.

Maurice River (Bowkers)- The nest of this new pair is located in a lone pine tree along the Maurice River. The pair started incubating in early March and fledged two chicks.

Maurice River (Burcham)- This new pair built a nest along the Maurice River and fledged two young.

Musconetcong- This new pair built a nest near Lake Musconetcong and began incubation but failed during early April.

Overpeck Creek- This new pair constructed a nest near the Overpeck Creek in Ridgefield Park and successfully fledged two chicks. This is probably one the most urban nests in New Jersey to date. One of the adults was reported to be wearing a satellite transmitter and may have originated in Maine.

Patcong Creek-A pair of eagles was reported in the Patcong Creek, Atlantic County, over the winter months, and in February a nest was found and the pair nested. One chick was raised and fledged from this nest. Eagle sightings had been reported for two years from this area prior to this nest getting established in 2011.

Pemberton -This new pair was discovered by the landowner late in the nesting season. The pair fledged two chicks.

Penns Neck (lower)-This new pair was found at a nest near Mannington Meadows in Salem County. The pair was housekeeping this season and did not lay eggs.

Riggins Ditch- Found nesting along the marshes of Delaware Bay in Cumberland County, this new pair began incubation in early February and fledged three chicks in mid-June.

Silver Lake- A dead tree in a residential neighborhood near Silver Lake was the location of this new pair's nest in Gloucester County. They began incubation the end of February and fledged one chick.

South River- This new pair was found incubating in the end of March. The nest is located on Atlantic County property along a branch of the Great Egg Harbor River. They raised and fledged one young.

Stanton Station -This new pair constructed a nest in the back yard of a residence along the Raritan River.

Sunset Lake- A pair of eagles had been reported for several years on Sunset Lake in Cumberland County. In February, a local resident reported a pair of eagles nesting on his property along the Cohansey River near Sunset Lake. The pair began incubating in early March but failed for unknown reason.

Union Lake Dam- This nest was first reported in 2010 along the Maurice River in Millville, Cumberland County. The pair incubated this season but failed due to unknown reasons.

Wildwood Bay- A new pair of nesting eagles was discovered along the marshes of the back bay in Cape May County. The pair started incubating but failed after about two weeks.

2011 Nesting Season Highlights

Merrill Creek Reservoir, the Endangered and Nongame Species Program and the Conserve Wildlife Foundation collaborated on a new project for the state's endangered bald eagles. On June 13, 2011, biologists visited the Merrill Creek Reservoir eagle nest for banding. The chicks, one male and one female, were each fitted with a transmitter attached by a harness made of Teflon ribbon. The solar-powered transmitters, monitored via satellites, allow the birds to be tracked for up to three years as they move away from the nest, migrate south, and move around the region before they begin to establish their own territories.

In a sad turn of events, on October 17, 2011, the female was found on the ground in a lethargic condition. She was taken to the Raptor Trust, but she died the following day. She tested positive for West Nile Virus, which probably led to her poor body condition.

A map of the eagles' tracked movements can be seen in Appendix 1.

Sea Breeze B- On Friday, May 13, the eagle banding team visited the Sea Breeze B nest located on an island in the salt marsh of Cumberland County to band the two chicks. As the team approached the island they could see that the nest looked somewhat small and it looked like some nesting material had fallen out of the tree. As the team approached the nest tree both adult eagles appeared and were making their alarm calls, which is normal when anyone approaches an active nest. One of the eagle project volunteers made a sad discovery, the remains of a 4-5 week old eagle chick under the tree. Mick Valent began to climb the nest tree and quickly saw the nest had lost its structure. The adults' defensive behavior indicated that there was still a live chick around, so the team started searching for a grounded chick. As Mick made his way up the tree, he discovered an eaglet clinging to the small nest remains. He lowered the eaglet to the ground where it got a health check and got banded. In the meantime, everyone pitched in to rebuild the nest, using driftwood and sticks raised up to Mick and our second climber, Jeremy Webber. The team built a nice starter nest that allowed the eaglet to successfully fledge about 6 weeks later.

We estimated the nest had fallen 8-14 days prior to our nest visit. The eaglet had done well to hold on in a tough situation.

Culver's Gap- The Culver's Gap eagle nest observer, Jim Zamos, reported that the female from the pair was banded with a blue band number S/92 on its left leg and a silver (federal) band on its right. The bird was banded in New York in 2007 at the Toronto Reservoir, about 30 miles north of Culver's Gap.

Manasquan Reservoir- While banding the Manasquan Reservoir nest, Kathy Clark, ENSP, was able to get a close up photo of the female eagle's banded legs, revealing a green band number A/25 and a silver federal band. This adult had been banded in 2001 at the Galloway nest in Atlantic County.

Potential Nest Sites

ENSP biologists and observers actively searched for possible nesting eagles in several locations. The searches were in response to the many reports of eagles engaging in breeding behaviors. Areas that remain promising are Big Timber Creek, Batsto Lake, Oswego Lake, Indian Mills Lake, Williamstown, Cheesequake Creek, Evesham, Flemington/Raritan River, Farrington Lake, Canoe Brook Reservoir, Pointview Reservoir, White Lake, Green Pond, Linden/Rahway River, Musconetcong River and middle Delaware River, which all have year-round eagle activity. In addition, several inland reservoirs in the north hold promise for eagle nesting.

Wintering Eagle Survey

A total of 238 bald eagles were observed during the Midwinter Survey on January 8-9, 2011 (Table 2). This was 28% lower than 2010's record high count of 333 bald eagles. The lower count can be attributed to less than optimal viewing conditions, with snow and high winds on the 2011 survey weekend. Southern New Jersey's Delaware Bay region continued to host the majority of the state's wintering birds.

One hundred and ninety-seven bald eagles were counted in southern NJ, of which 110 were adults (Table 2; Elia 2011). Most southern eagles were observed in the Delaware Bay region (53%), followed by the lower Delaware River (24%) and Atlantic Coast watersheds (23%). The transects with the highest counts were Maurice River/Turkey Point/Bear Swamp with 42 eagles, Salem County with 41 eagles, and the Cohansey River with 23.

In northern NJ, some of the best winter habitats are along the Delaware River, in Delaware Water Gap National Recreation Area, and the inland reservoirs. The Water Gap hosted 17 bald eagles while the inland reservoirs and lakes had 24. Fifteen were counted in the far northeast at Oradell Reservoir.

Most survey volunteers recorded details on individual eagles sighted, including point locations on maps. Point locations were digitized and will be used to design critical wintering habitat areas.

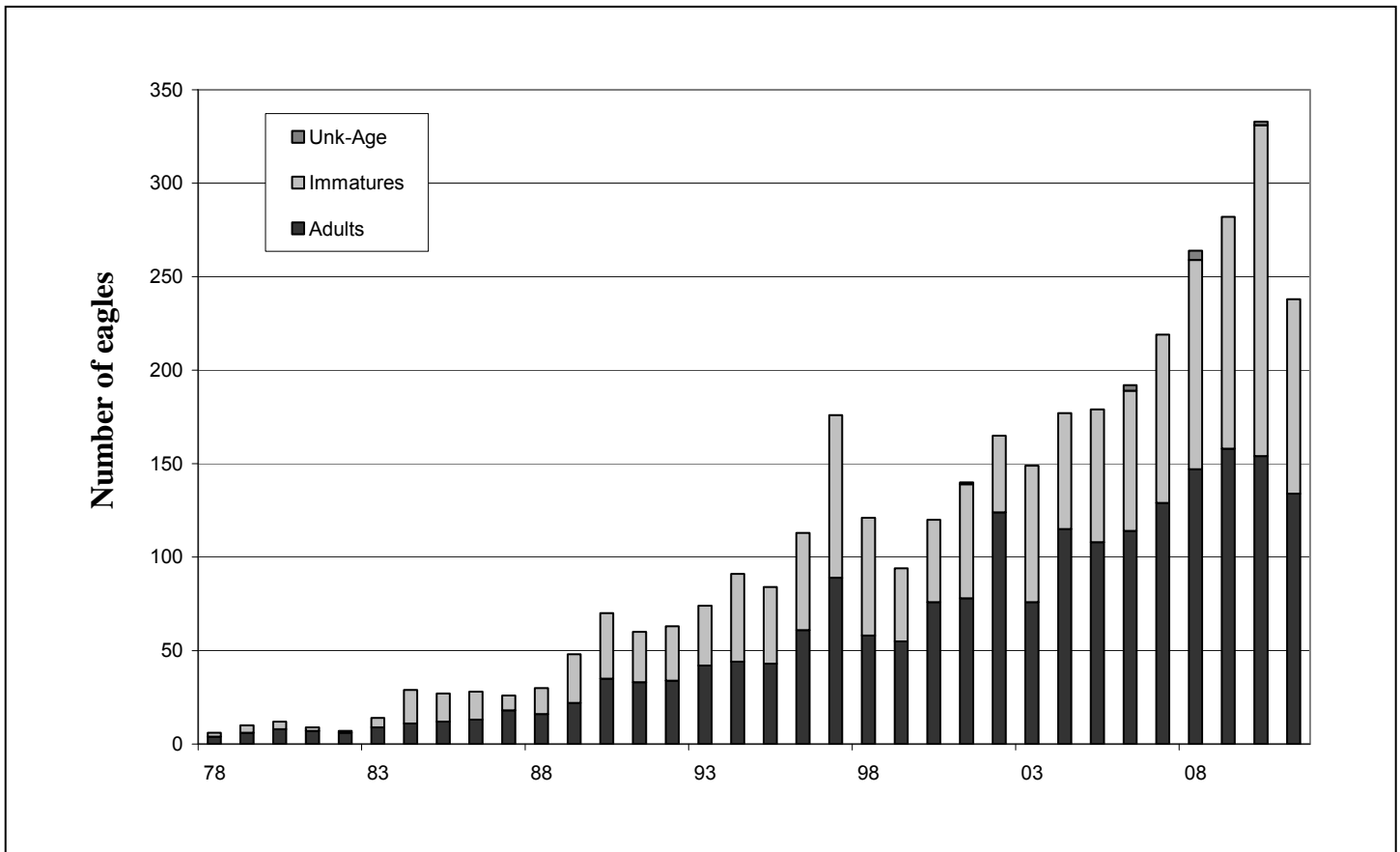


Figure 4. Bald eagles counted during Midwinter Eagle Surveys, 1978–2011.

Table 2. Eagles counted in the NJ Midwinter Eagle Survey, January 8-9, 2011.

| Region | Survey Transect | Subregion | BE | | | Unkn. BE | Golden |
|--------------|---|-----------------|------------|------------|------------|-------------|----------|
| | | | Total | Adult | Immature | | |
| South | Brigantine NWR | AC | 22 | 10 | 12 | 0 | 0 |
| | Cohansey River | DB | 23 | 11 | 12 | 0 | 0 |
| | Delaware River - Riverton to Trenton | SD | 2 | 2 | 0 | 0 | 0 |
| | Fortescue to Stow Creek | DB | 17 | 13 | 4 | 0 | 0 |
| | Fort Dix | AC | 0 | 0 | 0 | 0 | 0 |
| | Great Egg Harbor & Tuckahoe Rivers | AC | 6 | 5 | 1 | 0 | 0 |
| | Manahawkin to Lower Bass River | AC | 4 | 2 | 2 | 0 | 0 |
| | Manasquan Reservoir | AC | 4 | 4 | 0 | 0 | 0 |
| | Maurice River, Turkey Point, Bear Swamp | DB | 42 | 22 | 20 | 0 | 0 |
| | Mullica & Wading Rivers | AC | 8 | 2 | 6 | 0 | 0 |
| | Oldman's Creek | SD | 3 | 3 | 0 | 0 | 0 |
| | Princeton | SD | n/a | n/a | n/a | n/a | n/a |
| | Raccoon Creek | SD | 2 | 0 | 2 | 0 | 0 |
| | Rancocas Creek | SD | 0 | 0 | 0 | 0 | 0 |
| | Salem County | SD | 41 | 21 | 20 | 0 | 0 |
| | Stow Creek | DB | 7 | 6 | 1 | 0 | 0 |
| | Swimming River Reservoir | AC | n/a | n/a | n/a | n/a | n/a |
| | Thompson's to Reeds Beach | DB | 15 | 8 | 7 | 0 | 0 |
| | Whitesbog | AC | 1 | 1 | 0 | 0 | 0 |
| | South | Subtotal | | 197 | 110 | 87 | 0 |
| North | Delaware River - Columbia to Trenton | ND | na | na | na | na | na |
| | Delaware Water Gap | DWG | 17 | 10 | 7 | 0 | 0 |
| | Hudson River - Palisades | P | 2 | 2 | 0 | 0 | 0 |
| | Jersey City Reservoirs (Boonton & Split Rock) | IR | 1 | 1 | 0 | 0 | 0 |
| | Merrill Creek Reservoir | IR | 2 | 2 | 0 | 0 | 0 |
| | Newark Watershed (Clinton, Oakridge, & Charlottesville) | IR | 0 | 0 | 0 | 0 | 0 |
| | Oradell Reservoir | IR | 15 | 5 | 10 | 0 | 0 |
| | Round Valley Reservoir | IR | 0 | 0 | 0 | 0 | 0 |
| | Wanaque & Monksville Reservoir | IR | 4 | 4 | 0 | 0 | 0 |
| North | Subtotal | | 41 | 24 | 17 | 0 | 0 |
| State | Total | | 238 | 134 | 104 | 0 | 0 |

Subregions: 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

Recoveries of Eagles in NJ

On December 8, 2010, an adult eagle was reported to have been hit by a school bus and killed near Harrisonville Lake, Salem County. The bird was not banded so its origin is unknown.

Toms River Avian Care received an injured bald eagle on June 7, 2011, from the Seaside/Lavallette area.

Lower Township, Cape May County, animal control responded to a report of an injured eagle on August 24, 2011. The first year bird was not banded and was taken to a local veterinarian office and then transferred to Toms River Avian Care.

On October 2, 2011, a third year eagle was found injured in East Brunswick and taken to the Mercer County Wildlife Center, then transferred to Tri-State Bird Research and Rescue in Delaware. The female eagle recovered quickly and was released on October 11 in Titusville, Mercer County.

An adult eagle was recovered on October 14, 2011, in Belleville, Essex County. The cause of death was electrocution.

On October 17, the young female eagle that fledged from Merrill Creek Reservoir was found on the ground in a lethargic condition. She was taken to the Raptor Trust for treatment but died the following day. A necropsy performed by Dr. Erica Miller of Tri-State Bird Rescue and Research found the bird was extremely thin, and the test for West Nile Virus was positive. It is likely that the virus impaired this bird's ability to hunt successfully. She did, however, make a nearly-direct flight back to Merrill Creek from eastern Long Island in the weeks before her decline.

A dead adult bald eagle was reported on electric lines in Greenwich Township, Cumberland County, on October 17, 2011. The bird was not banded and it was confirmed that it had been electrocuted.

An unbanded two year old male eagle was recovered injured from Upper Deerfield Township in November, 2011. It was treated for a fractured wing at Tri-State Bird Rescue & Research. It's prognosis for release was unknown at report time.

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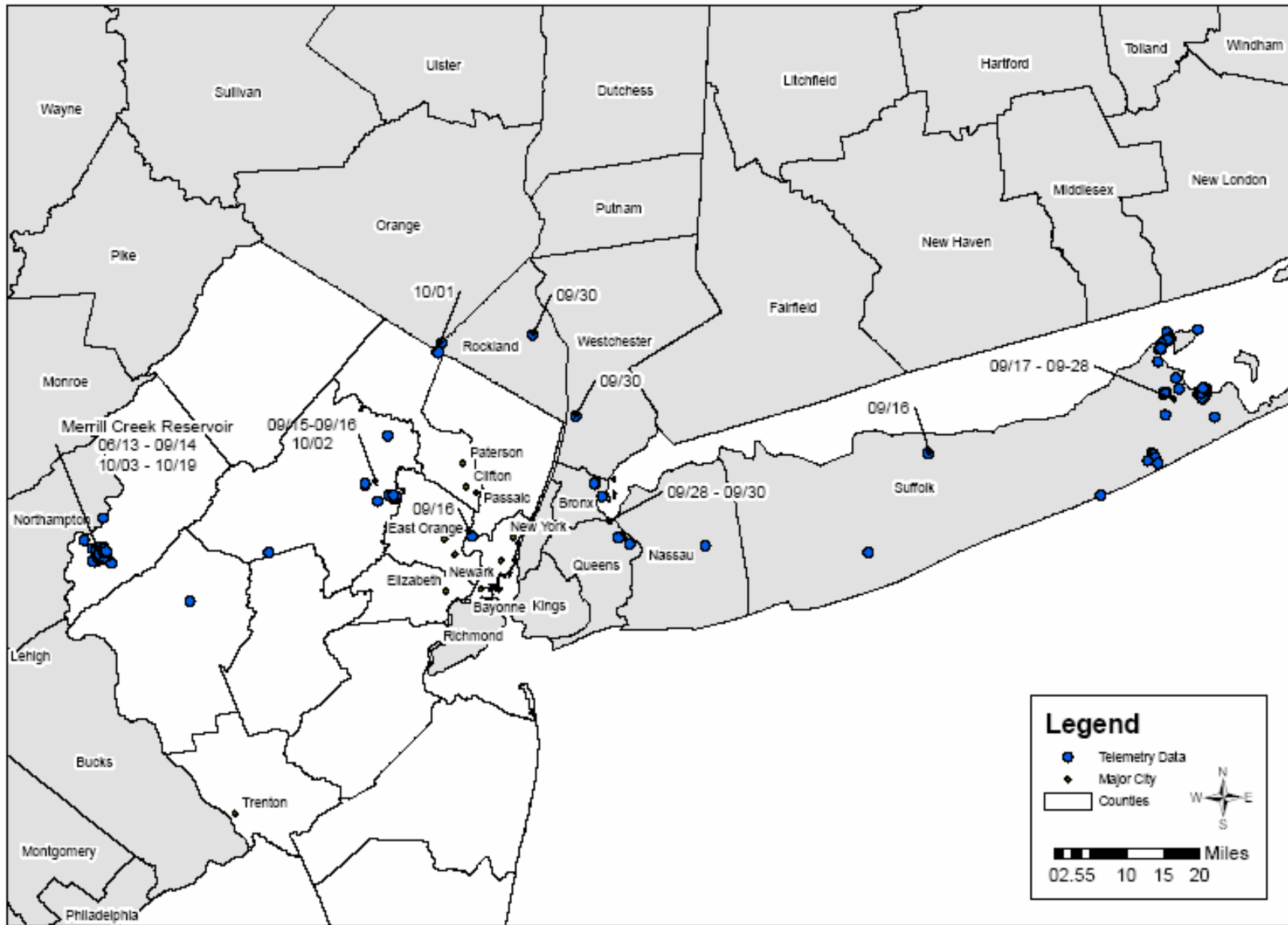
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Appendix 1.

Female Eagle's Movements (06/13/2011 - 10/19/2011)



Male Eagle's Movements (06/13/2011 - 10/25/2011)

