New Jersey Department of Environmental Protection

Division of Fish and Wildlife

Martin McHugh, Director

Dave Chanda, Assistant Director

Lawrence J. Niles, Ph.D., Chief
Endangered and Nongame Species Program

New Jersey Bald Eagle Management Project

2002

Prepared by: Larissa Smith, Kathleen E. Clark, Lawrence J. Niles

NEW JERSEY DIVISION OF
Fish and Wildlife

Conserve Wildlife
Endangered & Nongame Species Program

CONTENTS

Abstract …… 1

Introduction …….. 1

Methods

Nest survey ……... 2

Wintering Eagle Survey ……... .3

Results

Nest Survey …… ..4

Wintering Eagle Survey ……..….. 13

Contaminants Research ……... . 15

Recoveries …… 15

Acknowledgments ……. ...16

Literature Cited ……... .17

Cover photo of the male at the Rancocas Creek 1 nest, by Elaine Giberson

New Jersey Bald Eagle Management Project, 2002

Prepared by Larissa Smith, Kathleen Clark, and Lawrence Niles

Project personnel: Lawrence Niles, Kathleen Clark, Michael Valent, Kris Schantz, Melissa Craddock and Larissa Smith

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 34 eagle pairs, 28 active (with eggs) and 6 territorial pairs were monitored during the nesting season. Most nests (26) were located in southern NJ, while 6 were in central and 2 were in northern NJ. Twenty-two nests were successful in producing 36 young, for an "unmanaged" productivity rate of 1.29 (young/active nest). ENSP staff banded and took blood samples from 20 eaglets at twelve nests. Eight nests, Alloways Creek 1 and 2, Hopewell East, Mannington Meadows 1, Maurice River 1, Raccoon Creek, Stow Creek South, and Union Lake 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 165 bald eagles counted in January's midwinter survey, 41 in the north and 124 in the south.

Introduction

Historically New Jersey hosted more than 20 pairs of nesting bald eagles, mostly in the southern half of the state. 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), resulted in a population increase to 23 active pairs in 2000. ENSP recovery efforts – implemented since 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 the Bear Swamp nest – 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. As a result of residual DDT contamination, the Bear Swamp eggs were too thin to withstand normal incubation. Artificial incubation and fostering chicks 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 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 have contributed to the increase in nesting pairs since 1990.

Bald eagles nesting in NJ face many threats. Disturbance is the greatest of these, 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. A corps of experienced volunteers, as well as public education and established viewing areas, are crucial to this effort. Biologists also work to 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 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 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 critical habitat needs to be identified and, where possible, protected. Critical habitat for eagles includes areas used for foraging, roosting and nesting.

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 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; 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 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 determine 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. For the second year volunteers also mapped eagle activity during the two day survey; this data delineating critical eagle wintering habitat will be incorporated into the NJ Landscape Project.

Results

Nest Survey

The statewide population increased to 34 pairs in 2002, up from 31 last year, and up from six pairs ten years ago, an increase of 500% (Figure 1). Twenty-eight nests were active, meaning the pair laid eggs. Twenty-two nests were successful in producing 36 young, for a productivity rate of 1.29 young per active nest, slightly greater than that required for population maintenance (0.9-1.1 young/active nest) (Figure 2). Most nests were located in the southern part of the state, particularly within 20 km of Delaware River and Bay (Map 1). All nests and potential sites are described individually below and in Table 1.

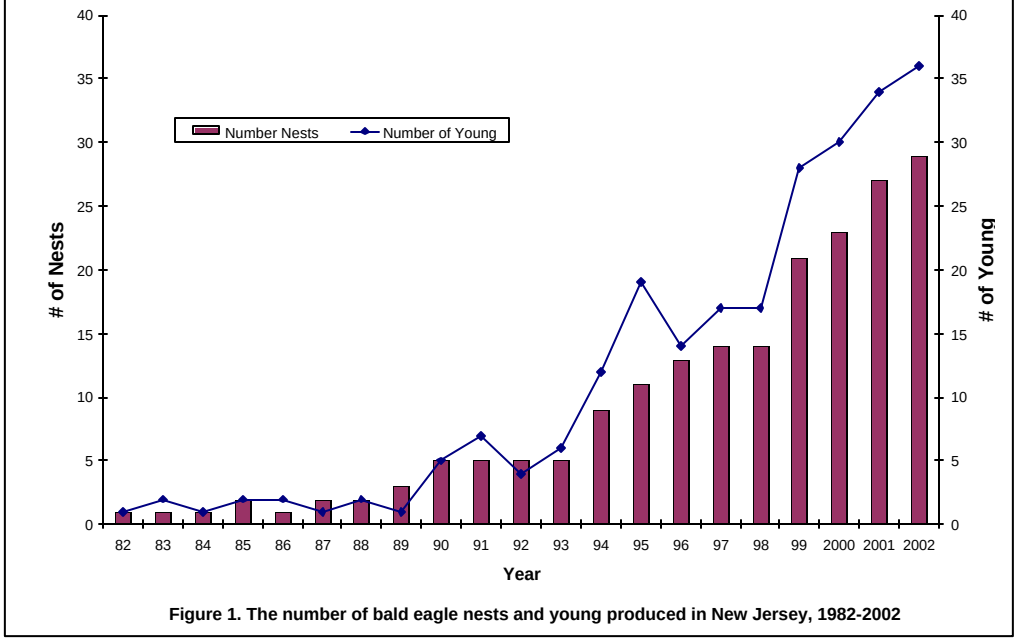


Figure 1. The number of bald eagle nests and young produced in New Jersey, 1982-2002

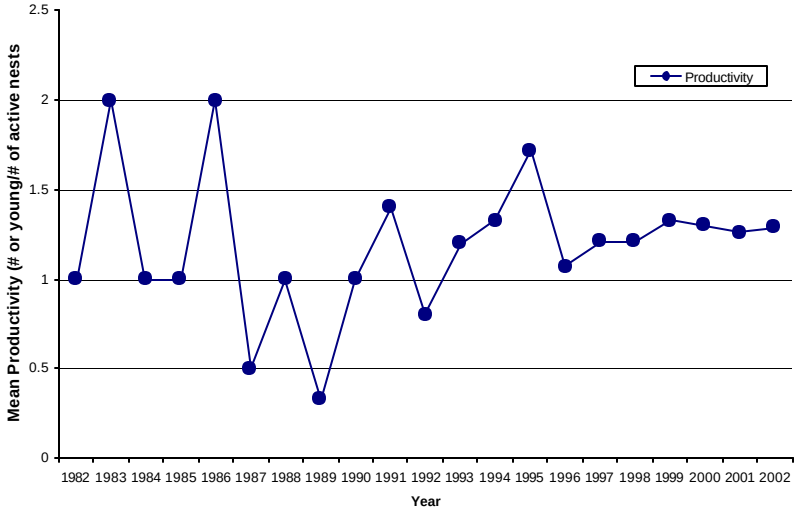
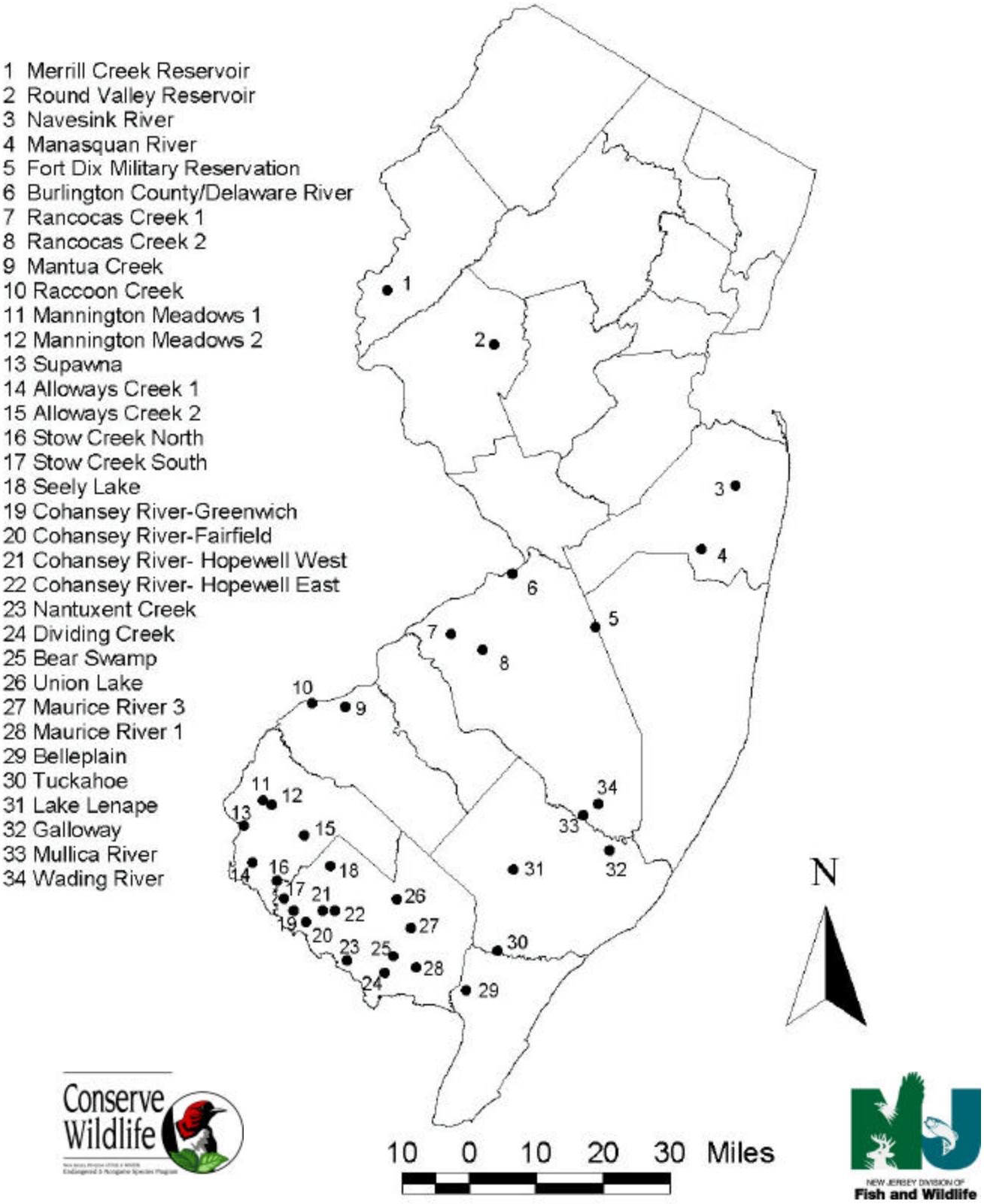


Figure 2. Productivity Of Eagle Nests in New Jersey, 1982-2002

Map 1. Bald Eagle Nest Sites, 2002



Alloways Creek 1

This is the sixth season that this pair nested in a willow oak (*Quercus phellos*) adjacent to an active farm field. Incubation began on March 18, the expected hatch date was April 22 but nest failure was reported on April 19. Though the reason for this failure is unknown, disturbance at the nest sight could be a factor.

Alloways Creek 2

The Alloways Creek 2 pair failed to incubate this season. The pair was seen working on the nest located in an oak (*Quercus sp.)* on the upper Alloway Creek drainage in a large contiguous forest. The reason for failure is believed to be disturbance near the nest site.

Bear Swamp

The pair nested in the 1999 biologist-built nest in a pond pine (*Pinus serotina)* site within the large contiguous forest. The pair was incubating on March 5 when biologists flew over to check the nest. The exact date of hatching is unknown due to the difficulty in viewing the nest. One young bird fledged around June 24.

Belleplain (East Creek Pond)

The Belleplain State Forest eagles for the fourth year nested in a pitch pine *(Pinus rigida)* lying in a large contiguous forest. This nest is not viewable from the ground. On March 5 a biologist flew over the nest and observed three eggs. ENSP staff banded three eaglets on May 22. A single fledgling was observed on June 23, and a week later all three fledglings were seen on the lake.

Burlington County/ Delaware River

For the fourth 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 20 and hatching was reported on March 27. One eaglet fledged around mid-June.

Cohansey River (Fairfield)

This is the third season that the pair nested in the Wildlife Management Area. This is a very difficult nest for the observers to watch, especially after leaf-out. The pair was incubating as of February 4 and hatching occurred on March 12. One eaglet fledged from the nest on June 15.

Cohansey River (Greenwich)

For the third season the Greenwich pair occupied their nest in a tulip poplar. The pair began incubation on February 11, and hatching occurred on March 22. Biologists banded one eaglet on May 10. On May 20, biologists fostered into the nest a nine week-old eaglet, orphaned when a

nest in Pennsylvania fell. This young bird had been treated and found healthy at Tri-State Bird Rescue and Research. Once placed in the nest, it seemed to have some difficulty and did not eat for several days. Biologists considered removing the bird after five days, but decided to leave it. The bird recovered and eventually fledged around June 15, when the natural eaglet fledged.

Cohansey River (Hopewell West)

This nest is located in a large American beech (*Fagus grandifolia*) next to an active agricultural area. This is the fourth season that this pair nested in this tree and had their most successful season, fledging two young. The pair was incubating as of February 23 and hatching occurred around March 30. Biologists banded the eaglets on May 17 and the birds fledged June 24.

Cohansey River (Hopewell East)

This is the latest pair found nesting along the Cohansey River at the edge of an active agricultural field. Incubation was reported as of February 4 and nest failure was reported March 12. The reason for failure is unknown, though it is not uncommon for new pair's first nesting attempt to end in failure.

Dividing Creek

This new nest was found during the midwinter eagle survey in January. It is located in the tidal marsh near Delaware Bay. The pair began incubating February 22 and hatching occurred around April 5. Two young birds fledged from the nest.

Fort Dix

For the third year eagles nested in a pitch pine in a large contiguous forest on the Fort Dix Military Reservation. Incubation began around February 14 and hatching occurred around March 21. Biologists banded one eaglet on May 6 and the bird fledged around June 17.

Galloway Township

For the fourth 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 3 and hatching was reported in the end of March. A biologist flew over the nest March 21 and observed three eggs. On May 11 two eaglets were banded, the remains of the third egg were not found. The two eaglets fledged around June 17.

Lake Lenape

For the fourth 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 February 14 with hatching occurring around March 22 (biologists flew over the nest and observed 3 eggs on March 21). Biologists banded one eaglet on May 6, it is unknown what happened to the other two eggs. Fledging was first observed on June 11.

Manasquan Reservoir

Eagles built a new nest at the reservoir managed by Monmouth County Park Commission. This nest was located in close proximity to the new Environmental Education Center. The area around the nest was posted as well as the reservoir near the nest. The pair began incubation on February 14 and hatching occurred on March 31. Biologists did not band the eaglets since it was a first year nest. Two birds fledged on June 15.

Mannington Meadows (Horne Run)

For the fourth 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 12th of February. Nest failure was reported on March 24, the reason for this failure is unknown.

Mannington Meadows 2

For the second year this pair nested in a large tulip poplar along the edge of an active agricultural field. The pair was incubating as of February 23 and hatching occurred around March 30. Biologists banded the three eaglets on May 13 and fledging occurred around June 22.

Mantua Creek

The Mantua pair relocated their nest this year from along the Mantua Creek to a nest located in an area that was highly visible from the road. The pair was observed working on the nest but failed to lay eggs. The reason for failure could be due to disturbance caused by the nest's high visibility.

Maurice River 1 (South)

For the fourth 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, and the nest is quite difficult to observe. Incubation was underway on or before February 12, and nest failure was reported on March 10. The reason for this failure is unknown, but could have occurred around the time of hatching.

Maurice River North

For the second year this pair nested in a pitch pine along the edge of the Maurice River. Incubation was reported around February 12 and hatching occurred around March 24. Biologists banded the two eaglets on May 10 and fledging occurred in early June.

Merrill Creek Reservoir

This year the pair moved to a new nest located on the edge of 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. Incubation was reported on February 14 and hatching occurred on March 21. Biologists banded the two eaglets on May 7 and fledging occurred on June 12 and 15.

Mullica River

For the second year this pair nested in a pitch pine along the Mullica River. Incubation began around February 24 and hatching was reported on April 2. Biologists banded the two eaglets on May 31 and both birds fledged on June 17.

Nantuxent Creek

For the fourth year the pair occupied a nest in a large white oak (*Quercus alba*) on a forested island in the marsh. Incubation began around February 22 and brooding behavior was observed on March 29. On May 17 biologists banded the eaglet and fledging occurred in June.

Navesink River

The Navesink pair relocated their nest to a new tree, a large white oak. Incubation was reported on February 24 and hatching was reported on March 28. Since this was a new nest location biologists did not band the eaglet to minimize disturbance. The eaglet fledged on June 27.

Raccoon Creek (Delaware River)

The pair occupied the Delaware River site they have used since 1997. The pair began incubation February 28. Because the pair has a history of failing due to organochlorine contaminants, biologists tried to obtain a suitable aged chick for fostering but were unsuccessful. On March 28 the female from the pair did not return to the nest and was never found or re-sighted. The male continued to incubate for a few days but the nest failed. Within days a new female was seen at the nest area but not in the nest.

Rancocas Creek 1

The pair relocated to a new nest in a sweetgum tree located on the edge of an active farm field. This pair had not produced young on their own since 1997 due to organochlorine contamination. This year the pair began incubating on February 14 and hatching was reported on March 23. The pair produced a young eaglet on their own and biologists banded the bird on May 15. The young bird fledged on June 9.

Rancocas Creek 2 (East)

This territorial pair continued to be sighted in the area of their housekeeping nests last season, but did not lay eggs and incubate. Nest volunteers and staff will continue to monitor this pair closely during the 2003 nesting season.

Round Valley Reservoir

The eagles again reoccupied the red oak nest used since 1996 near Round Valley Reservoir. This nest is very difficult to observe and the observer reported on nesting activity throughout the nesting season. Biologists flew over the nest on April 16 and two eaglets were seen in the nest. Fledging was reported on June 24.

Seely Lake

Last season this pair of eagles built a nest in the vicinity of Seely Lake, Cumberland County. The pair was observed in the area of the nest this year but did not incubate. It is not known whether the pair has another nest. Observers and ENSP staff will monitor this nest closely during the 2003 nesting season.

Stow Creek North

In October 2001 the nest fell out of the large sycamore tree (*Platanus occidentalis)* during a severe windstorm. The pair rebuilt the nest in the same tree, located in an active farm field. The nest is visible from the Stow Creek viewing platform, developed under New Jersey's Watchable Wildlife Program. Incubation began on February 23 and hatching occurred on April 4. Two eaglets fledged around June 24. Between 1990 and 2002, the Stow Creek eagle pair successfully raised 27 eaglets, making them the most productive pair in the state.

Stow Creek South

This new pair built a nest early in the season along the edge of a farm field, but the nest blew out of the tree. They then took over a red-tailed hawk nest in close proximity to the old nest. They began incubation on February 14. Nest failure occurred on March 16 for unknown reasons.

Supawna Meadows

The Supawna eagles for a third year occupied a nest built on a PSE&G transmission tower in Supawna Meadows National Wildlife Refuge. The pair began incubating on March 9 and hatching occurred around April 12. One young bird fledged on July 14.

Tuckahoe

A new nest was found along the Tuckahoe River at the end of the 2001 nesting season. The pair did not return to this nest during the 2002 season, but started work on a new nest also along the Tuckahoe River. Incubation did not occur at this nest, but there is the possibility of another nest in the vicinity. Volunteers and ENSP staff will continue to monitor this pair during the 2003 nesting season.

Union Lake

It was a disappointing nesting season for the Union Lake eagles. This was the ninth season that the eagle occupied the nest atop a pitch pine near Union Lake. The pair was seen working on the nest and copulating well into the nesting season, but failed to incubate. ENSP staff continued to mark a small lake cove near the nest as a "Restricted Area" to minimize any disturbance to the pair. Volunteers and staff will monitor the nest next season to see if the pair returns or has a new nest in the vicinity.

Wading River

The Wading River pair was last seen at the 2001 nest site on February 3. Volunteers and staff suspected that the pair had relocated to a new nest. On June 11 a new nest was reported with two fledges. This nest is close to the Wading River and in close proximity to the old nest.

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, Batsto 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 and Wanaque Reservoir hold promise of eventual eagle nesting.

Table 1. Production and significant dates of Bald Eagles nesting in NJ, 2002.

Nest Site	Incubation	Hatching	Banding	Fledging	No. Fledged	Notes
Alloways Creek 1	3/18/02	N/A	N/A	N/A	0	Nest failed 4/19
Alloways Creek 2	N/A	N/A	N/A	N/A	0	Pair at nest, failed to incubate
Bear Swamp	2/25/02*	4/1/02*	N/A	6/24/02*	1	
Belleplain	3/05/02F	3/21/02F	5/22/02	6/23/02*	3	3/5 flew over bird incubating 3/21 flew over 3 eggs
Burlington Co./Del. R.	2/20/02	3/27/02	N/A	6/10/02	1	Nest inaccessible
Cohansey (Fairfield)	2/4/02	3/12/02	N/A	6/15/02	1	
Cohansey (Greenwich)	2/11/02	3/22/02	5/10/02	6/15/02	1	Nine week old eaglet introduced to nest 5/20; Fledged 6/15
Cohansey (Hopewell West)	2/23/02	3/30/02	5/17/02	6/24/02	2	
Cohansey (Hopewell East)	2/4/02	N/A	N/A	N/A	0	New nest; failed 3/12
Dividing Creek	2/22/02	4/5/02	N/A	*6/28/02	2	New nest
Fort Dix	2/14/02	3/21/02	5/6/02	6/17/02	1	
Galloway	2/3/02	3/24/02	5/11/02	6/17/02	2	Flew over 3/21, 3 eggs in nest
Lake Lenape	2/14/02	3/21/02	5/6/02	6/11/02	1	
Manasquan Reservoir	2/14/02	3/31/02	N/A	6/15/02	2	New nest
Mannington Meadows 1	2/12/02	N/A	N/A	N/A	0	Failed 3/24/02
Mannington Meadows 2	2/23/02	3/30/02	5/13/02	6/22/02	3	
Mantua Creek	N/A	N/A	N/A	N/A	0	Did not incubate
Maurice River South	2/12/02	N/A	N/A	N/A	0	Failed 3/10/02
Maurice River North	2/12/02	3/24/02	5/10/02	6/7/02*	2	
Merrill Creek	2/14/02	3/21/02	5/7/02	6/12/02	2	New nest tree
Mullica River	2/24/02	4/2/02	5/31/02	6/17/02	2	
Nantuxent Creek	2/22/02	3/29/02	5/17/02	6/21/02*	1	
Navesink River	2/24/02	3/28/02	N/A	6/27/02	1	New nest tree
Raccoon Creek	2/28/02	N/A	N/A	N/A	0	Female lost 3/28; nest failed
Rancocas Creek 1	2/14/02	3/23/02	5/15/02	6/9/02	1	
Rancocas Creek 2	N/A	N/A	N/A	N/A	0	Territorial
Round Valley	N/A	4/16/02F	N/A	6/24/02	2	Flew over nest 4/16, 2 eaglets
Seely Lake	N/A	N/A	N/A	N/A	0	Territorial
Stow Creek North	2/23/02	4/4/02	N/A	6/24/02	2	
Stow Creek South	2/14/02	N/A	N/A	N/A	0	New nest; failed 3/16/02
Supawna Meadows	3/9/02	4/12/02	N/A	7/14/02	1	
Tuckahoe	N/A	N/A	N/A	N/A	0	Did not incubate, possible other nest
Union Lake	N/A	N/A	N/A	N/A	0	Pair seen at nest; did not incubate
Wading River	N/A	N/A	N/A	N/A	2	Pair found at new nest; found 6/11 with two fledges

* These dates are estimates based on events with known dates.
F This is the date of flyover, actual incubation dates are unknown

Wintering Eagle Survey

A total of 165 bald eagles were observed during the midwinter survey on January 12 and 13, 2002 (Table 2). This count is 6% below 1997's record of 176 (Figure 3). Southern New Jersey continued to host the majority of the state's wintering birds.

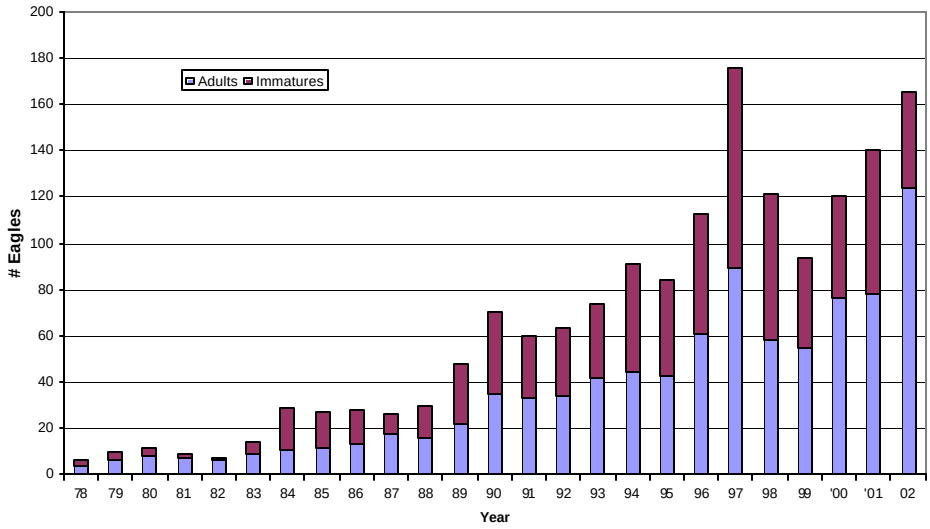


Figure 3. Midwinter Bald Eagle Counts 1978 - 2002

One hundred twenty-four bald eagles were counted in southern New Jersey, of which 81 were adults (Table 2, and Elia 2002). Most eagles were observed in the Delaware Bay region (43%), followed by Atlantic Coast watersheds (41%) and the lower Delaware River (16%). The two transects with the highest numbers of sightings were Maurice River with 24 eagles and Mullica and Wading Rivers with 18 eagles counted.

As is usually the case, northern New Jersey with 41 bald eagles had fewer than the south (Ambler 2002). The main sites for northern New Jersey's wintering eagles were the Delaware Water Gap (42%) and northern reservoirs (46%). Both the Delaware River and Inland Reserviors were not frozen which would account for the almost equal number of eagles counted.

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

Table 2. Bald Eagles counted in the NJ Midwinter Bald Eagle Survey January 12-13, 2002

Region	Survey Transect	Subregion	Total Bald Eagles	Adult Bald Eagles	Immature Bald Eagles	Unknown Bald Eagles	Golden Eagles
South	Brigantine NWR	A	8	7	1	0	0
	Cohansey River	B	9	8	1	0	0
	Delaware River - Riverton to Trenton	SD	3	1	2	0	0
	Fortescue to Stow Creek	B	10	8	2	0	0
	Fort Dix	A	0	0	0	0	0
	Great Egg Harbor & Tuckahoe Rivers	A	10	4	6	0	0
	Manahawkin to Lower Bass River	A	4	3	1	0	0
	Manasquan Reservoir	A	2	2	0	0	0
	Maurice River, Turkey Point, Bear swamp	B	24	13	11	0	1
	Mullica & Wading Rivers	A	18	7	11	0	1
	Oldman's Creek	SD	0	0	0	0	0
	Raccoon Creek	SD	2	2	0	0	0
	Rancocas Creek	SD	4	4	0	0	0
	Salem County	SD	11	9	2	0	0
	Stow Creek	B	4	4	0	0	0
	Swimming River Reservoir	A	2	2	0	0	0
	Thompson's to Reeds Beach	B	6	3	3	0	0
	Whitesbog	A	7	4	3	0	0
South	**Subtotal**		**124**	**81**	**43**	**0**	**2**
North	Delaware River - Columbia to Trenton	ND	0	0	0	0	0
	Delaware Water Gap	G	17	7	10	0	0
	Hudson River - Pallisades	P	5	2	3	0	0
	Jersey City Reservoirs (Boonton & Split Rock)	IR	5	3	2	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	2	1	0	0
	Round Valley Reservoir	IR	1	1	0	0	0
	Wanaque & Monksville Reservoir	IR	8	2	6	0	1
North	**Subtotal**		**41**	**19**	**22**	**0**	**1**
State	**Total**		**165**	**100**	**65**	**0**	**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

During nest visits, biologists collected blood samples from 21 nestlings at 12 nests. These samples were added to 60 archived samples that are available for contaminant analysis. No unhatched, addled eggs were available for collection this season, since staff did not climb any failed nests. Analysis of samples collected in recent years was completed with a grant from the NJ Division of Science and Research, and those results will be published in early 2003.

Recoveries

On January 7, 2002, near Ringwood, Passaic County, a downed immature eagle was found and died shortly after. The bird was taken to state pathologist Doug Roscoe for necropsy. The results are still pending at this time.

A three year-old injured female eagle was picked up on July 8, 2002 at Brigantine Golf Course in Atlantic County. The bird was taken to Toms River Avian Center where it was rehabilitated, although no specific injury could be identified. The bird was banded and released in Goshen, Cape May County on September 6, 2002.

One of the 2002 fledges from the Mullica River nest was found injured on October 22, 2002 in Lake City, Pennsylvania, in the vicinity of Erie. The bird was taken to a rehabilitator and seemed to be recovering until it went into respiratory failure on October 29 and died.
.3The bird had been banded on May 31, 2002.

Acknowledgments

The ENSP relies upon a team of dedicated observers and cooperators for the success of the Bald Eagle Project.

We thank the following people for providing invaluable field data and assistance with the general operations of the project: Bunny and Elmer Clegg, Mary Jane and Leroy Horner, Ed Hazard, George Palir, Ed Bruder, Katherine Spence, Carol and Dan LaFon, Mary Lou and Ed Nelson, Elaine Giberson, Linda Merkh, Debbie & Bob Holzinger, David George, Walt Ford, Todd Edwards, Bruce Beans, Bill McDermott, Linn Pierson, Barnie and Carol Monks, Jack Connor, Rusty Asdourian, John Healy, Joe and Sandy Fahrnbach, Joe Leoni, Helen Swanson, Ginny Diehm, Kim Hecker, Judy Welch, Loretta Dunne, Jonathan Stillwell, Andy and Loretta Campbell, Steve Gates, George and Mary Coulter, Tracy Smith, Victor Ganno, Jack and Patty Wettstein, Donn and Jennifer Ciancarelli, Rich Beck, Allan Ambler, Bill Gallagher, Paul Totten, Jane Burman,Vince Elia, Wendy Rhoads, Dave and Kellie Bodmer, Leslie and Tony Ficcaglia, Jody Carrara, Jane Morton Galetto, Bert Hixon, Chris Kunz, Barb Craig, Dan Palyca, Don Bishop, Ed Manners, Paul and Teresa Jackson, Don Krider, William McCurdy, Sherly Forte, John and Carol Knapp, William Brader, Matt Brader, Frank Budney, Teri Loy, Valerie Pullen, Stephanie Belvedere, Todd Pover, Jane Burman, Deb Nickols, Doris Mannix, William Stuempfig,and Augie Sexauer; Doug Roscoe; Judy Hansen and Lynn Hayward of Cape May County Mosquito Commission; Patty O'Rourke and Ken Thoman of the Monmouth County Park System; Ranger Cynthia Coritz of Round Valley Recreation Area; Tom Keck , Rangers Jennifer Curcio, Walt Pettigrew and Kathleen Myer of Belleplain State Forest; Matt Klewin; Margaret Atack, Clayton Ingersoll and the staff at Atlantic County Parks; Tom Walker, Patrick Didomizio and Linda Ziemba of Supawna Meadows NWR; Roger and Terry Smith at the Fort Dix Military Reservation; Kevin Keane of New Jersey-American Water Co.; Ray Sexton of the Sunrise Rod and Gun Club; Jane Bullis, Jim Mershon and the staff of the Merrill Creek Reservoir; Moe Pirestani, Staff and Tom Matlock at DuPont; Bill Caldwell and Jim Markel at Unimin.

We thank Dr. Erica Miller of Tri-State Bird Rescue and Research for her veterinary assistance, Don and Karen Bonica of Toms River Avian Care for their indefatigable availability, and New Jersey State Police for support in conducting aerial surveys. We also thank Pat and Clay Sutton for their intimate knowledge of New Jersey eagles, the New Jersey Forest Fire wardens for their keen eyesight; and John Streep, Mr. and Mrs. Richard Hinchman, Don Hinchman, Vincent and Christine Petka, Nanu and Lila Maisuria, Kenny and Harold Truellender, Mr. and Mrs. Sam Owens, Geoffrey Cramer, Anna Marie Sheppard, Raymond Sheppard, Roy Brooks, Francis Fitzgerald, Pat Haley, Paul Ludwig, Dean and Cindy Kershaw, William and Margaret Donaghy, Doug Vogal, Barbara Sommes, Paul Galleta, Ranch Hope personnel. Special thanks to Division Conservation Officers for their help protecting the state's eagles.

Literature Cited

Ambler, A. 2002. Midwinter bald eagle survey, northern NJ. Unpubl. rep. to Endangered and Nongame Species Program, NJ Div. of Fish and Wildlife.

Bowerman, W.,D.A. Best, J.P. Giesy, T.J. Kubiak, and J.G. Sikarskie. 1994. The influence of environmental contaminants on bald eagle (*Haliaeetus leucocephalus*) populations in the Laurentian Great Lakes, North America. P. 703-791 *in* B.U. Meyburg and R D. Chancellor, eds., Raptor Conservation Today. Pica Press, London.

Clark, K.E., W. Stansley, and L.J. Niles. 2001. Changes in contaminant levels in New Jersey osprey eggs and prey, 1989 to 1998. Archives of Environ. Contam. Toxicol. 40:277-284.

Clark, K.E., L.J. Niles, and W. Stansley. 1998. Environmental contaminants associated with reproductive failure in bald eagle (*Haliaeetus leucocephalus*) eggs in New Jersey. Bull. Environ. Contam. Toxicol. 61:247-254.

Niles, L.,K. Clark and D. Ely. 1991. Status of bald eagle nesting in New Jersey. Records of NJ Birds 17(1):2-5.

Elia, V. 2002. Midwinter bald eagle survey, southern NJ. Unpubl. rep. to Endangered and Nongame Species Prog., NJ Div. of Fish and Wildlife.

Steidl, R.J., C.R. Griffin, and L.J. Niles. 1991. Contaminant levels in osprey eggs and prey reflect regional differences in reproductive success. J. Wildl. Manage. 55(4):601-608.

U.S. Fish and Wildlife Service and NJ Div. of Fish and Wildlife. 1995. Evaluation of contaminant residues in Delaware Bay bald eagle nestlings. U. S. Fish and Wildlife Service, NJ Field Office, Pleasantville, NJ. 19p + appendices.

U.S. Fish and Wildlife Service and NJ Div. of Fish and Wildlife. 1999. Assessment of blood contaminant residues in Delaware Bay bald eagle nestlings. USFWS, Pleasantville, NJ and NJDFW, Woodbine, NJ. 20p+appendices