

New Jersey Department of Environmental Protection

Division of Fish and Wildlife

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Endangered and Nongame Species Program

New Jersey Bald Eagle Project, 2012

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CONTENTS

Abstract	3
Introduction	3
Methods	
Nest Survey	5
Wintering Eagle Survey	6
Results	
Nest Survey	6
New Nesting Pairs	14
Nesting Season Highlights	16
Potential Nest Sites	16
Wintering Eagle Survey	16
Recoveries of Eagles in NJ	19
Acknowledgments	20
Literature Cited	22
Appendix	23

Cover photo: Nestlings at Mantua Creek, by ENSP biologist Mick Valent

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Summary

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 135 eagle pairs was monitored during the nesting season; 119 of those were active (with eggs). New Jersey's Delaware Bay region remained the state's eagle stronghold, with 45% of all nests located in Cumberland and Salem counties. Twenty-seven new eagle pairs were found this season, 15 in the south, 2 in central and 10 in the north. One hundred nests (84%) were successful in producing 165 young, for a productivity rate of 1.39 young per active nest. The outcome of four active nests was unknown. Fifteen (13%) nests failed to fledge young.

In January's annual Midwinter Eagle Survey, ENSP staff, regional coordinators and volunteers reported a record total of 335 bald eagles. Forty-five eagles were recorded in northern NJ and 290 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 (DDT), from the late 1940s through the 1960s, 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 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 at Patuxent Wildlife Research Center in Maryland, 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 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. The federal government removed the bald eagle from its list of Endangered Species in August 2007, in recognition of the national resurgence in the eagle population in the lower 48 states. 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. In addition, the Bald and Golden Eagle Protection Act was recently revised, and remains in effect to protect nest and roost sites for bald

eagles nationwide. The bald eagle's official New Jersey status remains state-endangered for the breeding season and state-threatened for the non-breeding season, 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 or through fledging. 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. CWF 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. Following guidance from the US Fish and Wildlife Service's post-delisting monitoring plan (USFWS 2009), we maintain a list of occupied nests and territories for population monitoring.

When necessary, nests are secured from disturbance with barriers or posted signs. ENSP and CWF 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 with an alpha-numeric code. 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 has contracted 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 135 territorial pairs in 2012, up from 113 in 2011. One hundred-nineteen pairs were known active (meaning they laid eggs). One hundred nests (84%) were known to be successful in producing 165 young, for a productivity rate of 1.39 young per active nest, which is above the required range of 0.9-1.1 young per nest for population maintenance (Figure 2). Two pairs were considered probably active, but we were unable to confirm them as active. Ten eagle pairs maintained territories but did not lay eggs. The nest activity of four pairs was unknown due to lack of observations or searches.

Most nests were located in the southern portion of the state, particularly within 20 km of Delaware River and Bay (Figure 3). All nests and significant dates are listed in Table 1. The majority of nests (55%) 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 of success.

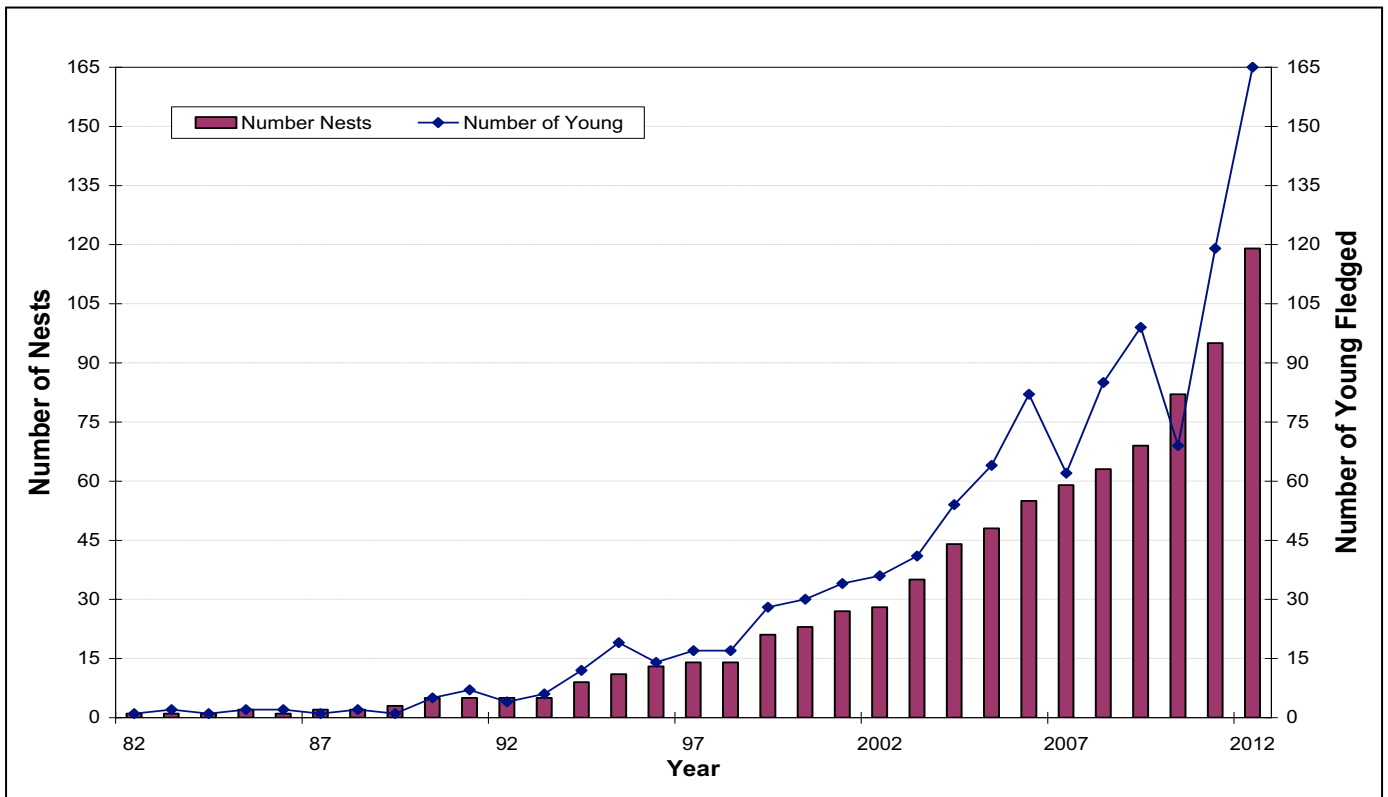


Figure 1. The number of active bald eagle nests (bars) and the young produced (lines) each year, 1978-2012

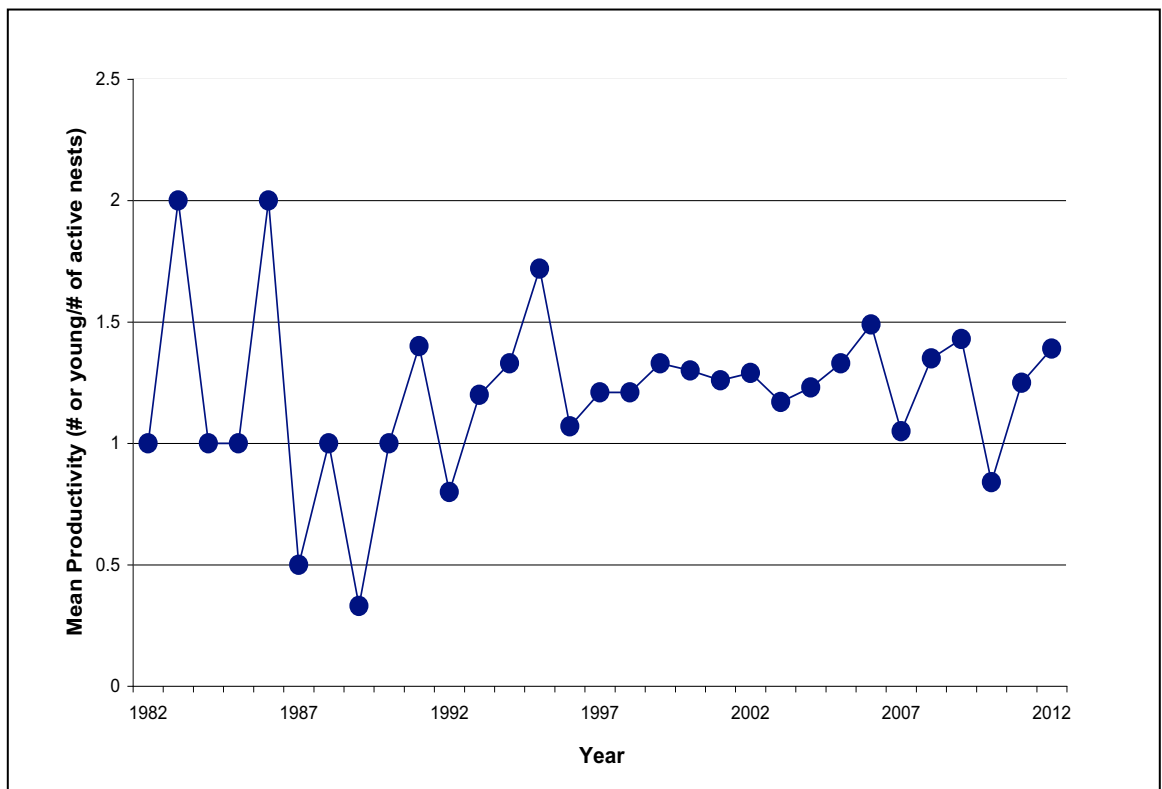


Figure 2. Productivity of bald eagles in New Jersey, 1982-2012

Figure 3. Bald eagle nest sites, 2012

1 Overpeck Creek	45 Raccoon Creek/Dupont	89 (Cohansey) Hopewell Central
2 Palisades B	46 Gibbstown	90 (Cohansey) Tindells Landing
3 Palisades A	47 Bridgeport	91 Sea Breeze B
4 Oradell Reservoir	48 Swedesboro-Birch Creek	92 Sea Breeze A
5 Woodcliff Lake	49 Oldman's Creek	93 Sayres Neck
6 Wanaque	50 Harrisonville	94 Baypoint
7 Bassetts Bridge	51 Silver Lake	95 Nantuxent Creek B
8 Newton Reservoir	52 Centerton (Elmer)	96 Nantuxent Creek D
9 Hyper Humus	53 Daretown	97 Nantuxent Creek A
10 Culvers Gap	54 East Lake	98 Nantuxent Creek C
11 Dingman's Ferry	55 Pilesgrove	99 Turkey Point A
12 Little Swartswood	56 Penns Grove	100 Turkey Point B
13 Musconetcong	57 Deepwater	101 Egg Island
14 Poxono Island	58 Pennsville	102 Dividing Creek
15 Yards Creek	59 Penns Neck	103 Bear Swamp
16 Merrill Creek	60 Mannington Meadows A	104 Port Norris
17 Stanton Station	61 Mannington Meadows B	105 Riggins Ditch
18 Round Valley	62 Supawna Meadows	106 Heislerville
19 Raritan River	63 Fenwick Creek	107 Maurice River (Bowkers)
20 Ravine Lake	64 Keasbeys Creek	108 Maurice River (Mauricetown)
21 Mount Hope Lake	65 Elsinboro	109 Maurice River (Burcham)
22 Lake Denmark	66 Alloways-Hope Creek	110 Maurice River (North)
23 Rockaway	67 Alloways D	111 Maurice River (Millville)
24 Parsippany	68 Alloways C	112 Maurice River (Millville North)
25 Great Swamp	69 Alloways B	113 Union Lake
26 Linden	70 Stow Creek A	114 Higbee
27 Princeton	71 Newport Meadows	115 Wildwood Bay
28 Old Bridge	72 Arrowhead	116 Fishing Creek
29 Navesink River	73 Sunset	117 Dias Creek West
30 Shark River	74 Newport Creek	118 Bidwell Creek
31 Manasquan River	75 Davis Mill	119 South Dennis
32 Kettle Creek	76 Mad Horse Creek	120 Stipson Island
33 Manasquan Reservoir	77 Wheaton Island	121 Cedar Swamp Creek
34 Prospertown	78 Bayside A	122 Tuckahoe A
35 Fort Dix	79 Bayside B	123 Tuckahoe B
36 Pemberton	80 Tindall Island	124 Scull Bay
37 Crosswicks Creek	81 (Cohansey) Greenwich A	125 Patcong Creek
38 Burlington Co./Del.R.	82 (Cohansey) Greenwich B	126 Egg Harbor
39 Fairgrounds	83 (Cohansey) Sheppards Mill	127 South River-Atlantic
40 Burlington Island	84 (Cohansey) Loatman	128 Lake Lenape
41 Rancocas Creek	85 Cohansey Middle Marsh B	129 Cedar Lake
42 Camden	86 (Cohansey) Green Swamp	130 Galloway
43 Eagle Point	87 (Cohansey) Hopewell West	131 Mullica River
44 Mantua Creek	88 (Cohansey) Hopewell East	132 Wading River
		133 Chatsworth

Figure 3, continued. Bald Eagle Nest Sites, 2012

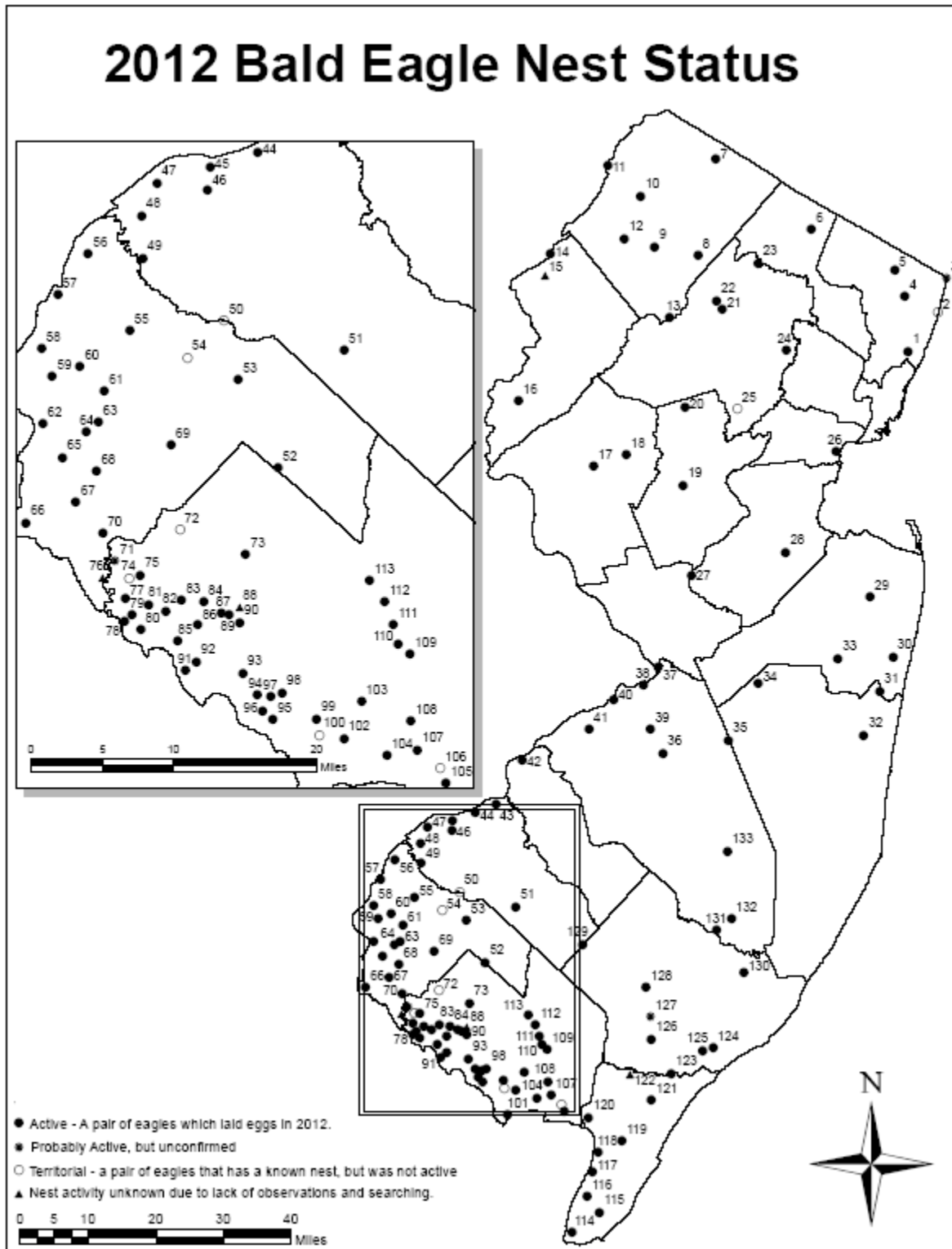


Table 1. Production and significant dates of bald eagle nests in NJ, 2012.

(T=Territorial, A?=Probably active but unconfirmed, U=Unknown, nest activity unknown due to lack of observations and searches.

NEST SITE	Incubation	Hatching	Banding	Fledging	No. Fledged	Failed date/ Reason	Notes
Alloways Creek B-CE	3/1	4/5		6/28	1		
Alloways Creek C-Quinton	2/13	3/18		6/15	1		
Alloways Creek D	2/9	3/15		6/7	1		
Alloways-Hope Creek	2/14	3/20		6/7	2		New nest tree; possibly Alloways A pair
Arrowhead	T						
Bassetts Bridge	2/17				0	unknown	Two nesting attempts, both failed
Bay Point	2/5	3/11		6/9	2		
Bayside A	3/4	4/4		6/27	2		
Bayside B	2/18	3/24		6/16	2		
Bear Swamp	<2/15	3/25		5/31	1		
Bidwell Creek	<2/22				0	4/14-osprey took over nest	New pair. Nested on osprey platform
Bridgeport	2/17	3/23		6/11	1		
Burlington Co./Del. R.	<3/22	<4/26					Outcome unknown
Burlington Island	<3/5				0	unk	New pair
Camden	3/7	4/9		6/24	1		
Cedar Lake (Gloucester)	<2/1				0	~3/2	
Cedar Swamp Creek	<2/15	3/28			0	unknown	Aerial survey, 4/17
Centerton (Elmer)	unk	unk		unk	2		
Chatsworth	2/7	3/24			0	4/11	
Cohansey (Middle Marsh B)	2/17	3/30		6/15	3		New nest tree
Cohansey (Green Swamp)	unk	unk		unk			Outcome unknown
Cohansey (Greenwich A)	1/25	3/2		6/2	2		
Cohansey (Greenwich B)	2/15	3/19		6/11	1		New pair
Cohansey(Sheppards Mill)	2/18	3/19		6/11	1		
Cohansey (Hopewell West)	2/26				1		
Cohansey (Hopewell East)	U						
Cohansey(HopewellCentral)	<2/26	<3/18			3		
Cohansey (Loatman)	3/14						New pair. Outcome unknown
Cohansey(Tindells Landing)	2/11	3/6		6/15	2		
Crosswicks Creek	2/24	3/31		6/16	1		
Culvers Gap	3/8	4/13		7/5	2		
Daretown	2/4	3/13		5/28	1		

Davis Mill	2/13	3/19		6/2	1		New pair
Dias Creek West	<3/12	4/16		6/27	2		New pair
Dingman's Ferry	3/5				2		
Deepwater	3/2	4/5		6/28	2		
Dividing Creek	3/4				0	4/7	
Eagle Point	2/8	4/3		6/13	3		
East Lake	T						Unknown where nesting
Egg Harbor River	1/26	3/1		5/24	2		
Egg Island	unk	unk		unk	2		New pair; on peregrine platform
Elsinboro	2/3	3/18		5/29	1		
Fairgrounds	3/6	4/8		7/7	1		New pair
Fenwick Creek	2/26	4/15		6/24	2		New pair
Fishing Creek	2/28	4/3		unk	1		Aerial survey, 4/17: 1 chick; assumed fledged
Fort Dix	2/27	4/5		6/11	1		
Galloway	2/27				0	4/4	
Gibbstown	2/3	3/9		5/28	2		
Great Swamp	T						New pair: Housekeeping
Green Pond	T						New pair: Housekeeping
Harrisonville	T						
Heislerville	T						Unknown where nesting
Higbee	2/14	5/20		6/27	2		
Hyper Humus	3/14	4/19		7/23	2		
Keasbeys Creek	2/17	3/17		6/2	1		New pair
Kettle Creek	2/11	3/13		6/4	3		
Lake Denmark	3/6	4/10		7/3	2		New pair, found 5/20
Lake Lenape	2/28	4/3		unk	1		Aerial survey, 4/17; assumed fledged
Linden	1/15	2/19		5/13	1		New pair
Little Swartswood	2/14	3/23		6/25	2		
Mad Horse Creek	U						
Manasquan Reservoir	1/11	2/16		5/8	3		
Manasquan River	1/31	3/7	4/20	5/30	2		
Mannington Meadows A	2/11	3/17		6/9	1		
Mannington Meadows B	2/18	3/24		6/24	2		
Mantua Creek	3/6	4/9	5/14	6/26	3		
Maurice River- North	2/7	3/14	4/27	6/11	2		
Maurice River- Bowkers	2/7	3/6		unk	1		Aerial survey, 4/17: 1 chick; assumed fledged
Maurice River- Burcham	2/10	3/16		6/11	3		
Maurice River(Mauricetown)	2/21	3/27		unk	2		Aerial survey, 4/17: 1 chick; assumed fledged

Maurice River-Millville	2/15	3/19	4/27	6/20	1		
Maurice River-Millville North	2/5	3/11		6/4	2		
Merrill Creek Res.	3/5	4/9	5/29	7/19	3		
Mount Hope Lake	3/4				0	6/1	New pair
Mullica River	unk	unk		unk	1		
Musconetcong	3/6	4/20		7/13	2		
Nantuxent Creek A	2/19	4/7		6/9	2		
Nantuxent Creek B	2/10	3/24		6/9	2		New nest tree
Nantuxent Creek C	2/26	4/7		7/8	1		New pair
Nantuxent Creek D	3/11	4/14		7/8	1		New pair
Navesink River	<2/18	3/24		6/30	1		
Newport Creek	T						New pair
Newport Meadows	A?						New pair
Newton Reservoir	2/21	3/28	5/11	6/25	2		
Old Bridge	2/28	4/3		6/26	1		
Oldmans Creek	2/9				0	2/26	
Oradell Reservoir	2/16	4/1		6/27	2		
Overpeck Creek	2/8	3/15		6/7	2		
Palisades A	2/17	3/25			0	4/24	3 chicks died in rainstorm.
Palisades B	T						New pair; housekeeping
Parsippany	2/27	4/4		6/29	2		
Patcong Creek	2/13	3/22		6/9	3		
Pemberton	2/3	4/11		6/30	2		
Penns Grove	3/4	4/11		6/30	2		
Penns Neck	2/12	3/17		6/9	2		
Pennsville	2/16	3/22		6/14	1		New pair
Pilesgrove	2/1	3/11		5/19	1		
Port Norris	2/7	3/14		6/11	1		
Poxono Island	3/5				1		New pair
Princeton	2/22	3/31		6/16	1		
Prospertown	1/26	3/1	4/13	6/20	3		
Raccoon Creek/Dupont	3/5				0	4/9	
Rancocas Creek	2/27				0	4/4	
Raritan River (Duke)	2/10	3/16		6/29	1		
Ravine Lake					1		New pair; found with 1 chick
Riggins Ditch	1/30	3/5		6/2	2		
Rockaway	<4/19				1		
Round Valley	2/24	3/29		6/14	1		
Sayres Neck	2/5	3/17		6/9	2		
Sea Breeze A	2/28	4/3			0	4/29	New nest; 2 chicks
Sea Breeze B	2/17	3/23	4/30	7/3	2		

Scull Bay	unk	unk		unk	1		New pair;
Shark River	1/30	3/5		6/3	1		
Silver Lake	<3/1	4/6		6/29	1		
Spruce Run	T						New pair; housekeeping
South Dennis A	12/31	2/4		5/4	1		New nest, found with chick
South River-Atlantic	A?						Unknown where nesting
Stanton Station	2/29	4/4		6/30	2		
Stipson Island	1/17	2/21		unk	3		Aerial survey, 4/17 found new nest; 3 chicks; assumed fledged
Stow Creek A	2/17	3/23			1		
Sunset	2/20	3/26		6/18	1		Assumed fledged
Supawna Meadows	2/21	3/25		6/3	2		
Swedesboro-Birch Creek	1/29	3/6	4/20	5/30	1		
Tindall Island	2/19	3/26		6/18	2		
Tuckahoe A	U						
Tuckahoe B	2/1	3/7	4/11	5/23	2		
Turkey Point A	2/19	3/24		6/23	1		
Turkey Point B	T						Unknown where nesting
Union Lake	unk	unk		unk	1		New nest; aerial survey on 4/17: 1 chick; assumed fledged
Wading River	1/14	3/1		5/19	2		
Wanaque	2/18	3/25		6/17	1		
Wheaton Island	2/10	3/19	4/30	6/11	2		
Wildwood Bay	3/2						Outcome unknown
Woodcliff Lake	<4/11				0	unknown	
Yards Creek	U						Unknown where nesting
ACTIVE (119) + PROB ACTIVE (2) NESTS		121					
TERRITORIAL PAIRS		10					
UNKNOWN		4					
YOUNG PRODUCED		165					
YOUNG PER 119 KNOWN-OUTCOME NESTS		1.36					

New Nesting Pairs/Territories

In 2012, 27 new pairs of eagles were found in New Jersey.

Alloways-Hope Creek - A transmission tower along the Delaware Bay was the where this pair built their nest. They fledged two young. It is possible that this pair could be the Alloways Creek A pair.

Bidwell Creek - This new pair was found incubating on an osprey platform along the Bidwell Creek in Cape May County. In April ospreys took over the nest and it is unknown whether the eagle pair had chicks. The pair started working on a new nest in an island of trees in the marsh.

Burlington Island - This pair was discovered incubating in March. This nest is assumed to have failed because no eaglets were observed in the vicinity although it was hard to view once the leaves came out.

Cohansey (Greenwich B) - This new pair was found nesting along the Cohansey River in Cumberland County. The pair fledged one chick.

Cohansey (Loatman) - Discovered incubating in March this pair nested along the edge of an orchard in Cumberland County. The outcome of this nest was unknown due to the difficulty in viewing after leaf-out.

Davis Mill - One chick fledged from this new pair found nesting along the Raccoon Ditch in Cumberland County.

Dias Creek West - Found incubating in March, this pair had built a nest in a large pine tree in Cape May County. The pair fledged two chicks.

Dingman's Ferry - This new pair was found during the summer of 2011 with two chicks by NPS staff.

Egg Island - This pair was discovered in late May using an old peregrine tower along the Delaware Bay. The pair had two chicks that are assumed to have fledged.

Fairgrounds - This new pair in Burlington County fledged one chick.

Fenwick Creek - This new pair built a nest along Fenwick Creek in Salem County. They fledged two chicks.

Great Swamp - This housekeeping pair built a nest in the Great Swamp NWR.

Green Pond - This is a new pair that potentially has a nest along Green Pond that hasn't been located yet due to rough terrain. They were observed numerous times carrying nesting materials and fish up to an unknown location on the ridge.

Keasbeys Creek - This pair began incubating in March along Keasbeys Creek in Salem County. They fledged one young.

Lake Denmark - This pair was found with two chicks on an island in Morris County next to a great blue heron rookery. (The rookery didn't have two chicks! - PT)

Linden - This nest was found during the winter and then observed to have one chick during the breeding season.

Mount Hope Lake - This nest was found during the winter and incubated for close to a month before failing.

Nantuxent C - One chick was fledged from this new pair that nested along Nantuxent Creek in Cumberland County.

Nantuxent D - A new pair nested along Nantuxent Creek in Cumberland County and raised one chick.

Newport Creek - This new pair was found nesting along a creek in Cumberland County. The outcome of the nest was unknown.

Newport Meadows - This pair was found nesting in the meadows along Stow Creek in Cumberland County. Outcome of the nest was unknown.

Palisades B - This territorial pair built a nest late in mid-season near the Green Brook Sanctuary in the Palisades Interstate Park.

Pennsville - This nest was found on private property in the fall of 2011 in Salem County. The pair raised at least one chick. The nest is difficult to observe after leaf-out so fledging was assumed.

Poxono Island - This pair was found with two chicks during the summer of 2011 by Delaware Water Gap NRA staff.

Ravine Lake - This new pair was observed during the winter and a nest with one chick were located during the spring.

Scull Bay - This pair built a nest in Atlantic County along the marshes and fledged one chick.

Spruce Run - This pair was observed carrying nesting materials on Spruce Run but a nest was not located.

2012 Nesting Season Highlights

Merrill Creek Reservoir: In June of 2011 two chicks (male [D/41] and female [D/42]) from the Merrill Creek Reservoir eagle nest in Warren County were fitted with solar-powered transmitters that are tracked using satellites. The male's movements have been tracked for over a year since he left the nest. In September 2011, he flew as far west as Harrisburg, PA, and in January 2012 spent a few days at the upper Chesapeake Bay in Maryland. He returned to the NJ-PA region and has spent the majority of his time in New Jersey and eastern Pennsylvania, along the Delaware River and creeks and rivers in mostly agricultural areas.

Unfortunately, the female (D/42) died in October after being grounded in a weak condition. She tested positive for West Nile Virus which probably contributed to her death. The transmitter was recovered and in May, 2012, we attached it to the largest of three eaglets in the Merrill Creek nest. This eaglet, D/64, fledged in July and remained in the nest area until September 10, when she took a quick flight south. She has been tracked ranging around the southern tip of Delmarva Peninsula in coastal Virginia.

See Appendix 1 for maps of the eagles' movements.

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, 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 335 bald eagles were observed during the Midwinter Survey on January 14-15, 2012 (Table 2). This represents a new high count, but close to 2010's count of 333 bald eagles. Southern New Jersey's Delaware Bay region continued to host the majority of the state's wintering birds.

Two hundred-ninety bald eagles were counted in southern NJ, of which 197 were adults (Table 2; Elia 2012). Most southern eagles were observed in the Delaware Bay region (47%), followed by the lower Delaware River (35%) and Atlantic Coast watersheds (18%). The transects with the highest counts were Salem County with 90 eagles, Maurice River/Turkey Point/Bear Swamp with 58 eagles, and Fortescue to Stow Creek with 26.

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, lakes and Hudson River had 28. Thirteen 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.

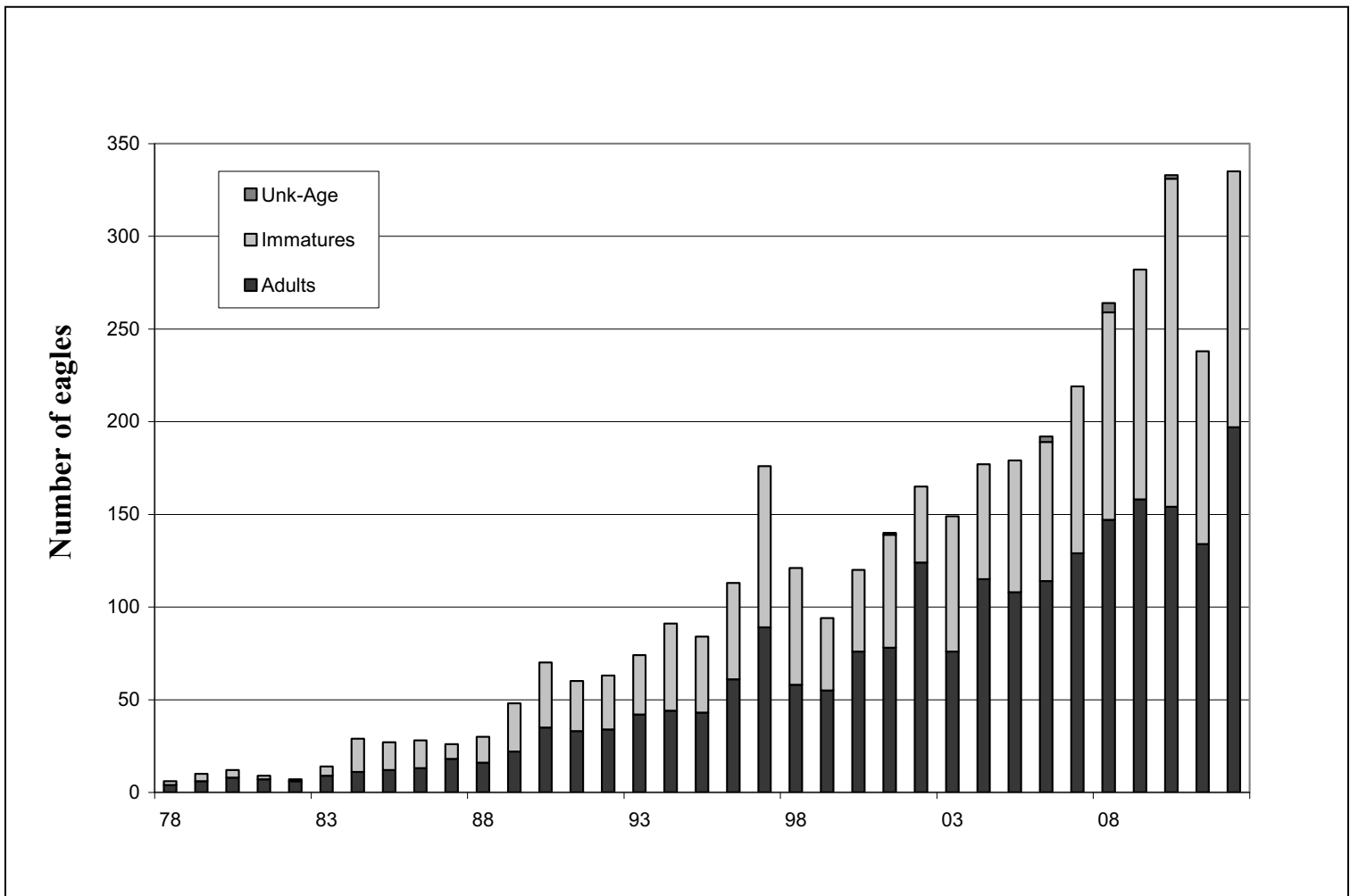


Figure 4. Bald eagles counted during NJ Midwinter Eagle Surveys, 1978-2012.

Table 2. Eagles counted in the NJ Midwinter Eagle Survey, January 14-15, 2012.

Region	Survey Transect	Subregion	BE			Unkn. BE	Golden
			Total	Adult	Immature		
South	Brigantine NWR	AC	0	0	0	0	0
	Cohansey River	DB	21	11	10	0	0
	Delaware River - Riverton to Trenton	SD	4	3	1	0	0
	Fortescue to Stow Creek	DB	26	13	13	0	0
	Fort Dix	AC	2	2	0	0	0
	Great Egg Harbor & Tuckahoe Rivers	AC	16	10	6	0	0
	Manahawkin to Lower Bass River	AC	10	2	8	0	0
	Manasquan Reservoir	AC	2	1	1	0	0
	Maurice River, Turkey Point, Bear Swamp	DB	58	30	28	0	0
	Mullica & Wading Rivers	AC	19	13	6	0	1
	Oldman's Creek	SD	5	2	3	0	0
	Princeton	SD	na	na	na	na	na
	Raccoon Creek	SD	3	2	1	0	0
	Rancocas Creek	SD	0	0	0	0	0
	Salem County	SD	90	65	25	0	0
	Stow Creek	DB	6	2	4	0	0
	Swimming River Reservoir	AC	na	na	na	na	na
	Thompson's to Reeds Beach	DB	25	15	10	0	0
	Whitesbog	AC	3	2	1	0	0
	South	Subtotal		290	173	117	0
North	Delaware River - Columbia to Trenton	ND	na	na	na	na	na
	Delaware Water Gap	DWG	17	9	8	0	1
	Hudson River - Palisades	P	4	2	2	0	0
	Jersey City Reservoirs (Boonton & Split Rock)	IR	6	4	2	0	0
	Merrill Creek Reservoir	IR	1	1	0	0	0
	Newark Watershed (Clinton, Oakridge, & Charlottesville)	IR	3	2	1	0	1
	Oradell Reservoir	IR	13	5	8	0	0
	Round Valley Reservoir	IR	1	1	0	0	0
Wanaque & Monksville Reservoir	IR	na	na	na	na	na	
North	Subtotal		45	24	21	0	2
State	Total		335	197	138	0	3

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 New Jersey

A thirteen year old eagle was recovered on November 14, 2011, in Centerville, DE. The bird was found dead and taken to Tri-State Bird Rescue and Research where the cause of death was determined to be lead poisoning. The bird had been banded (#629-39890, color A/44) on May 14, 1999, at the Cohansey-Fairfield nest. In 2003 the bird had been found with a leghold trap attached to its foot, and its foot had to be amputated; this bird lived successfully with just one foot until its death in 2011.

On January 28, 2012 a 4 year old female eagle was having difficulty flying and landed in Alloways Creek, Salem County, where it was retrieved by a Division conservation officer. The bird was stabilized at the Freedom Center for Wildlife in Cinnaminson and then transferred to Tri-State Bird Rescue and Research in Delaware. The bird was treated for lead poisoning and released on February 12.

On February 19, 2012, a dead adult eagle was recovered from Delmont, Cumberland County. This 10 year old female had been banded (#629-45807, color band A/92) at a Maurice River nest on May 10, 2002. The bird was necropsied at Tri-State Bird Rescue and Research and found to have had an acute death, most likely caused by either head trauma or ingestion of an unknown toxin.

An unbanded 2nd year eagle was found in a yard in Bridgeton, Cumberland County, on February 20, 2012. The bird was taken to Tri-State Bird Rescue and Research where it was determined to have flown into wires and was electrocuted. The bird recovered and was released on March 22.

On March 14, 2012 an adult bald eagle was found dead along a road in Newark, Essex County. It was taken to the Raptor Trust. Cause of death was unknown pending a necropsy.

On April 10, 2012 an adult eagle was found injured in New Gretna, Burlington County, and taken to Toms River Avian Care. The bird was found to have trauma to its foot. The bird recovered and was released on September 9.

An immature eagle was found dead on April 12, 2012 in Elsinboro Township, Salem County. A necropsy performed by Dr. Erica Miller of Tri-State Bird Rescue and Research found that the bird had died from electrocution.

A third-year eagle was reported and recovered in Greenwich Township, Gloucester County on April 15, 2012. The male was banded (#679-01720, color band C/86) on May 8, 2009 at Bridgeport, NJ. The cause of death was determined to electrocution.

On May 30, 2012 Monmouth County SPCA picked up an immature eagle at the landfill in Eatontown, NJ. The eagle was transferred to Toms River Avian Care where it recovered; it was released on August 21.

On June 23, 2012 a 2nd year male eagle was found grounded in Middle Township, Cape May County and died the next day. The bird was necropsied at Tri-State Bird Rescue and Research

and cause of death was found to be starvation caused by pox lesions that caused impaired vision.

On July 24, 2012 a juvenile male eagle was found dead near Deepwater, Salem County. The bird was necropsied at Tri-State Bird Rescue and Research and found to have had trauma of unknown origin leading to eventual death.

An unbanded juvenile eagle was found dead on August 8, 2012 at Fort Monmouth, Monmouth County. Cause of death was electrocution.

On Saturday August 11, 2012 a dead eagle was found at the Yards Creek Reservoir. Cause of death was electrocution.

On August 20, 2012, a juvenile that had fledged the previous month from the Mantua Creek nest was reported to be trapped in a sluice gate box on the Delaware River near Gibbstown. The bird had been banded on May 14, 2012. ENSP personnel and eagle project volunteers were able to rescue the bird and it was taken to Tri-State Bird Rescue and Research. The bird recovered and was released back near Mantua Creek on August 28, 2012.

An eagle was recovered from Stafford Township, Ocean County, on August 30, 2012 and transferred to Toms River Avian Care. The bird was euthanized on August 31 due to advanced stage of avian pox infection.

On September 14, 2012, an eagle was found dead after being hit by a vehicle in West Windsor, Mercer County. The bird had been banded (#679-01719; color band C/85) at the Princeton nest in May, 2009.

In summary, we recorded four instances of injured or impaired eagles that were treated and released. We documented 11 eagles that died of various causes or untreatable conditions: five electrocutions, three traumas (vehicle and unknown causes), two cases of avian pox, and one lead poisoning. We are very grateful for the caring professionals who work hard to diagnose and treat all the eagles that end up under direct human care.

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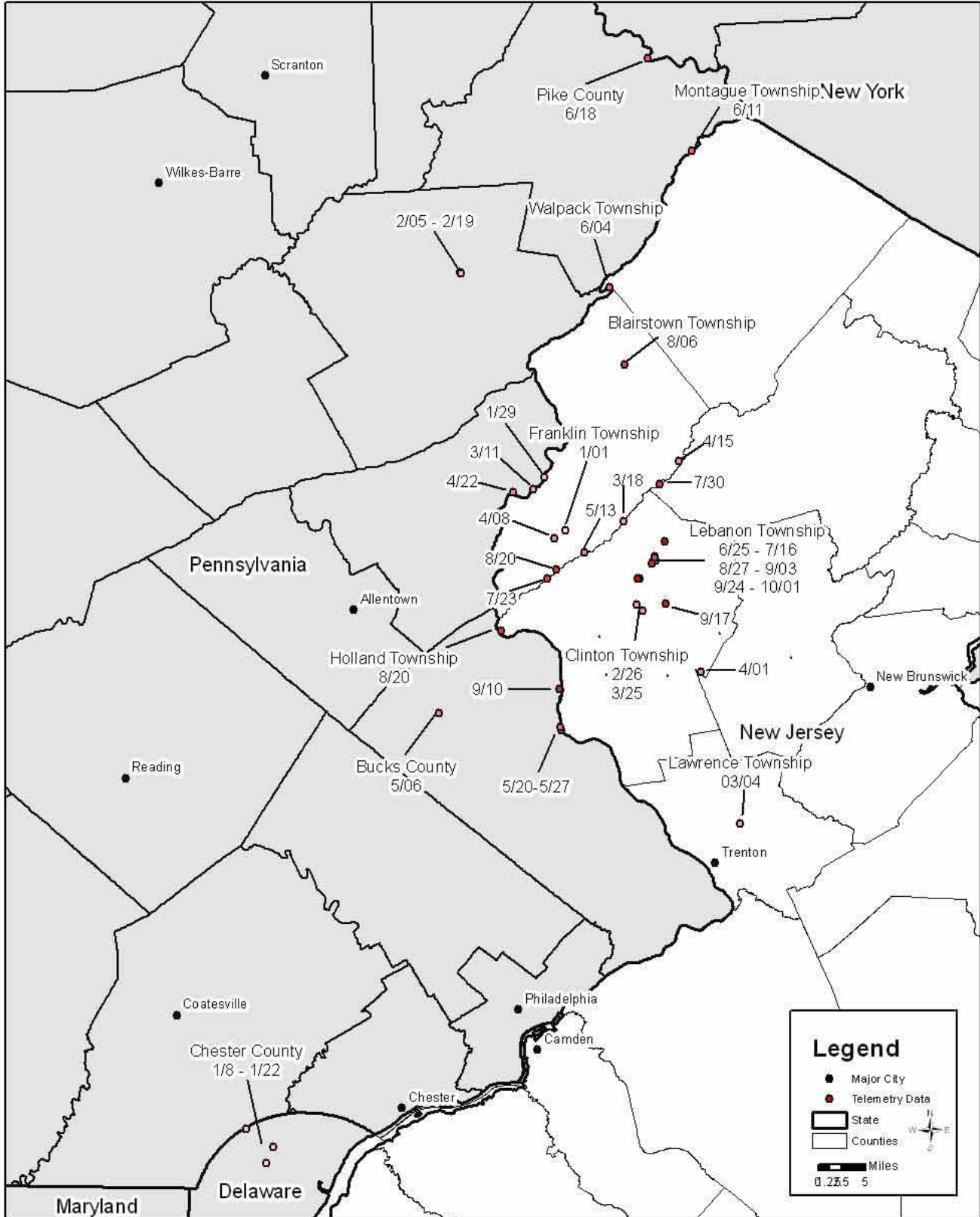
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Appendix

D/41 - Male, 2011 (01/01/2012 - 10/01/2012)



D/64 - Female, 2012 (05/29/2012 - 10/03/2012)

