

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, 2014

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Cover photo: Palisades nest, by Dr. Kumar Patel
*2014 marked the first year of successful eagle nesting in the Palisades
in perhaps 100 years.*

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Summary

The Division of Fish and Wildlife's Endangered and Nongame Species Program (ENSP) biologists, Conserve Wildlife Foundation (CWF) staff, and volunteer observers located and monitored bald eagle nests and territories. One hundred fifty-six nest sites were monitored during the nesting season, of which 146 were documented to be active (with eggs) and ten were territorial or housekeeping pairs. Twenty-five new eagle pairs were found this season, eleven in the south, three in central and eleven in northern NJ. One hundred fifteen nests (79%) of the 145 known-outcome nests produced 201 young, for a productivity rate of 1.39 young per active and known-outcome nest. Twenty-nine (20%) nests failed to fledge young. The Delaware Bay region remained the state's eagle stronghold, with 43% of all nests located in Cumberland and Salem counties.

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 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.

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 oversees a 20-year monitoring period (through 2027) to watch for and investigate any problems that could compromise the eagle recovery. In addition, a revised version of the Bald and Golden Eagle Protection Act 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 remains 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. ENSP or 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 or CWF 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, 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. 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

In 2014 New Jersey did not participate in the National Mid-Winter Eagle survey in January. As the eagle numbers have increased in NJ we have found that the count is no longer covering all important eagle areas, and that volunteer efforts could be put to better use. Biologists asked eagle project volunteers to find and identify eagle roosts and winter concentrations during the months of January and February.

Results

Nest Survey

The statewide population increased to 156 territorial pairs in 2014, up from 128 last year. One hundred-forty six pairs were known active (meaning they laid eggs), up from 119 last year. One hundred fifteen nests (80%) were known to be successful in producing 201 young, for a productivity rate of 1.39 young per known-outcome active nest, which is above the required range of 0.9-1.1 young per nest for population maintenance (Figure 2). Ten pairs maintained territories but did not lay eggs. Excluded from these figures are 19 previous nest sites that were no longer occupied and where a new nest could not be found or the search effort was lacking.

Most nests were located in the southern portion of the state, particularly within 20 km of Delaware River and Bay (Figure 4). All nests and significant dates are listed in Table 1. The majority of nests 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.

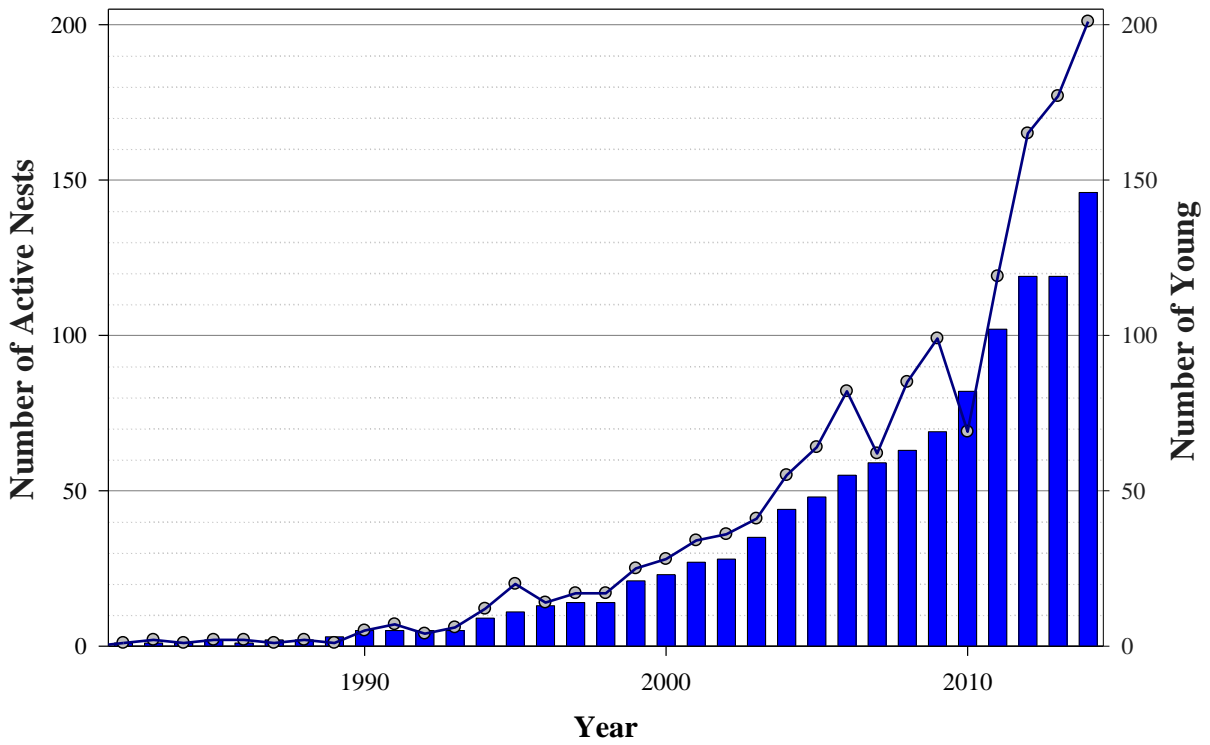


Figure 1. Number of bald eagle nests and young produced in NJ, 1982 to 2014.

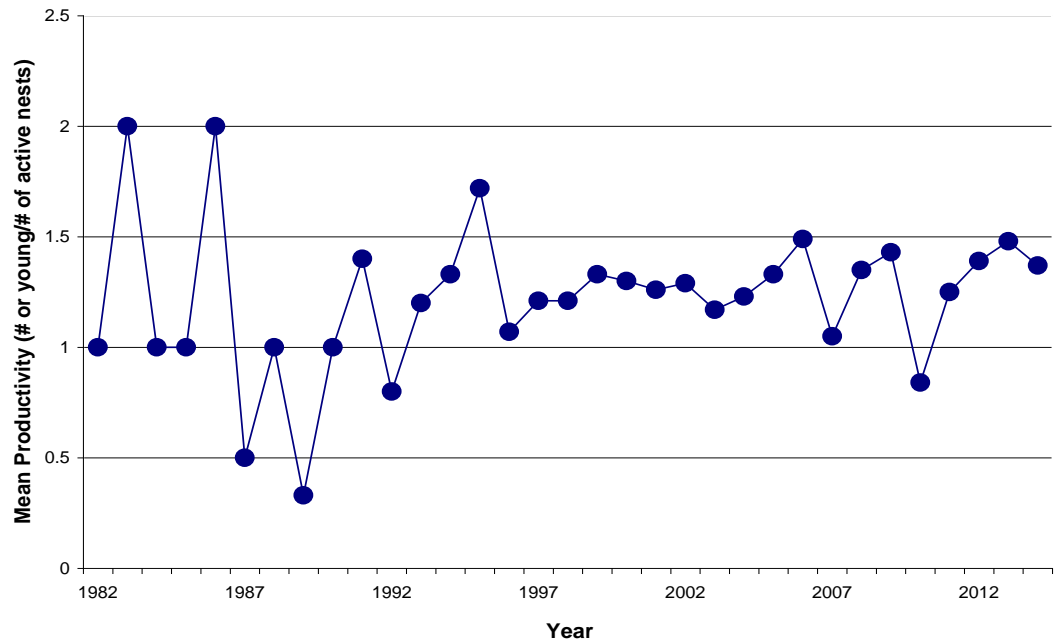


Figure 2. Productivity of bald eagles nesting in New Jersey, 1982-2014.

Figure 3. Bald Eagle nest sites, 2014.

01 Minisink Island	51 Manasquan River	101 Stow Creek C	151 Bidwell Creek
02 Liberty Loop	52 Kettle Creek	102 Arrowhead	152 Dias Creek West
03 Bassetts Bridge	53 Fort Dix	103 Sunset	153 Fishing Creek
04 Dingmans Ferry	54 Burlington Island	104 Newport Meadows	154 Higbee
05 Wantage	55 Delanco	105 Stow Creek B	155 Wildwood Bay
06 Culvers Gap	56 Rancocas Creek	106 Davis Mill	156 Cedar Creek
07 Lewisburg Swamp	57 Fairgrounds	107 Mad Horse Creek	157 Tuckahoe A
08 Cedar Pond	58 Pemberton	108 Wheaton	158 Tuckahoe B
09 Wanaque A	59 Camden	109 Bayside A	159 Patcong Creek A
10 Wanaque B	60 Medford	110 Bayside B	160 Patcong Creek B
11 Woodcliff Lake	61 Eagle Point	111 Greenwich A	161 Egg Harbor
12 Palisades A	62 Woodbury Creek	112 Greenwich B	162 South River
13 Oradell Reservoir	63 Mantua Creek A	113 Sheppards Mill	163 Absecon Creek
14 Palisades B	64 Mantua Creek B	114 Loatman	164 Lake Lenape
15 Overpeck Creek	65 Raccoon Creek	115 Hopewell West	165 Cedar Lake
16 Pompton Lakes	66 Gibbstown	116 Hopewell Central	166 Galloway
17 Rockaway	67 Monds Island	117 Hopewell East	167 Blue Anchor
18 Newton	68 Bridgeport	118 Tindells Landing	168 Mullica River
19 Hyper Humus	69 Birch Creek B	119 Tindall Island	169 Wading River
20 Little Swartswood	70 Swedesboro	120 Middle Marsh A	170 Ballenger Creek W
21 Poxono Island	71 Penns Grove	121 Green Swamp	171 Ballenger Creek E
22 Yards Creek	72 Oldmans Creek	122 Middle Marsh C	172 Chatsworth
23 Lake Hopatcong	73 Deepwater	123 Middle Marsh B	173 Forked River
24 Lake Denmark	74 Harrisonville	124 Husted's Landing	
25 Mount Hope Lake	75 Silver Lake	125 Sea Breeze A	The following nests
26 Musconetcong	76 Daretown	126 Sea Breeze B	are not shown be-
27 Parsippany	77 Salem River	127 Sayres Neck	cause their location
28 Pequest	78 Pilesgrove	128 Baypoint	is unknown: Green
29 Merrill Creek	79 Salem River Tower	129 Nantuxent A	Pond & Spruce Run.
30 Ravine Lake	80 Pennsville	130 Nantuxent C	
31 Great Swamp	81 Marshalltown	131 Nantuxent D	
32 Linden	82 Mannington A	132 Nantuxent B	
33 Stanton Station	83 Penns Neck	133 Turkey Point A	
34 Round Valley	84 Mannington C	134 Turkey Point B	
35 Raritan Valley	85 Supawna Meadows B	135 Egg Island	
36 Manville	86 Penns Neck (lower)	136 Dividing Creek	
37 Westons Mill Pond	87 Mannington B	137 Bear Swamp	
38 Cheesequake	88 Supawna Meadows A	138 Union Lake	
39 Old Bridge	89 Fenwick Creek	139 Maurice River (Millville North)	
40 Farrington Lake	90 Keasbeys Creek	140 Maurice River (Millville)	
41 Bulls Island	91 Alloways Creek B	141 Maurice River (Bluffs)	
42 Lambertville Tower	92 Centerton	142 Maurice Rivers (Burcham)	
43 Princeton	93 Elsinboro	143 Mauricetown	
44 Navesink	94 Alloways Creek E	144 Port Norris	
45 Trenton	95 Alloways Creek C	145 Maurice (Bowkers)	
46 Crosswicks Creek	96 Alloways Creek F	146 Matt's Landing	
47 Burlington County	97 Alloways Creek D	147 Heislerville	
48 Prospertown	98 Alloways-Hope Creek	148 Riggins Ditch	
49 Manasquan Reservoir	99 Silver Lake Tower	149 Stipson Island	
50 Shark River	100 Stow Creek A	150 Belleplain	

2014 Bald Eagle Nest Status

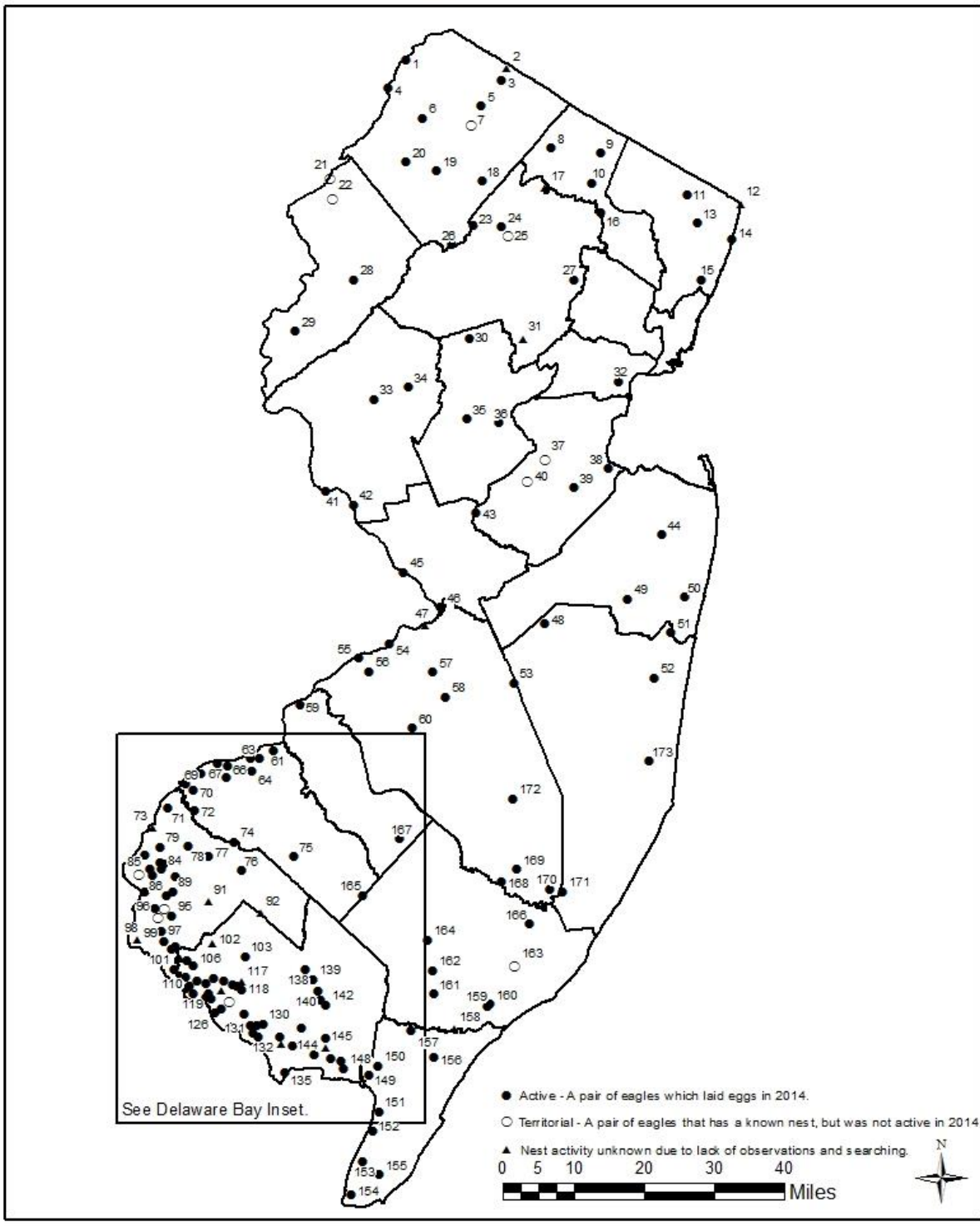


Figure 3, continued. Bald Eagle Nest Sites, 2014

2014 Bald Eagle Nest Status

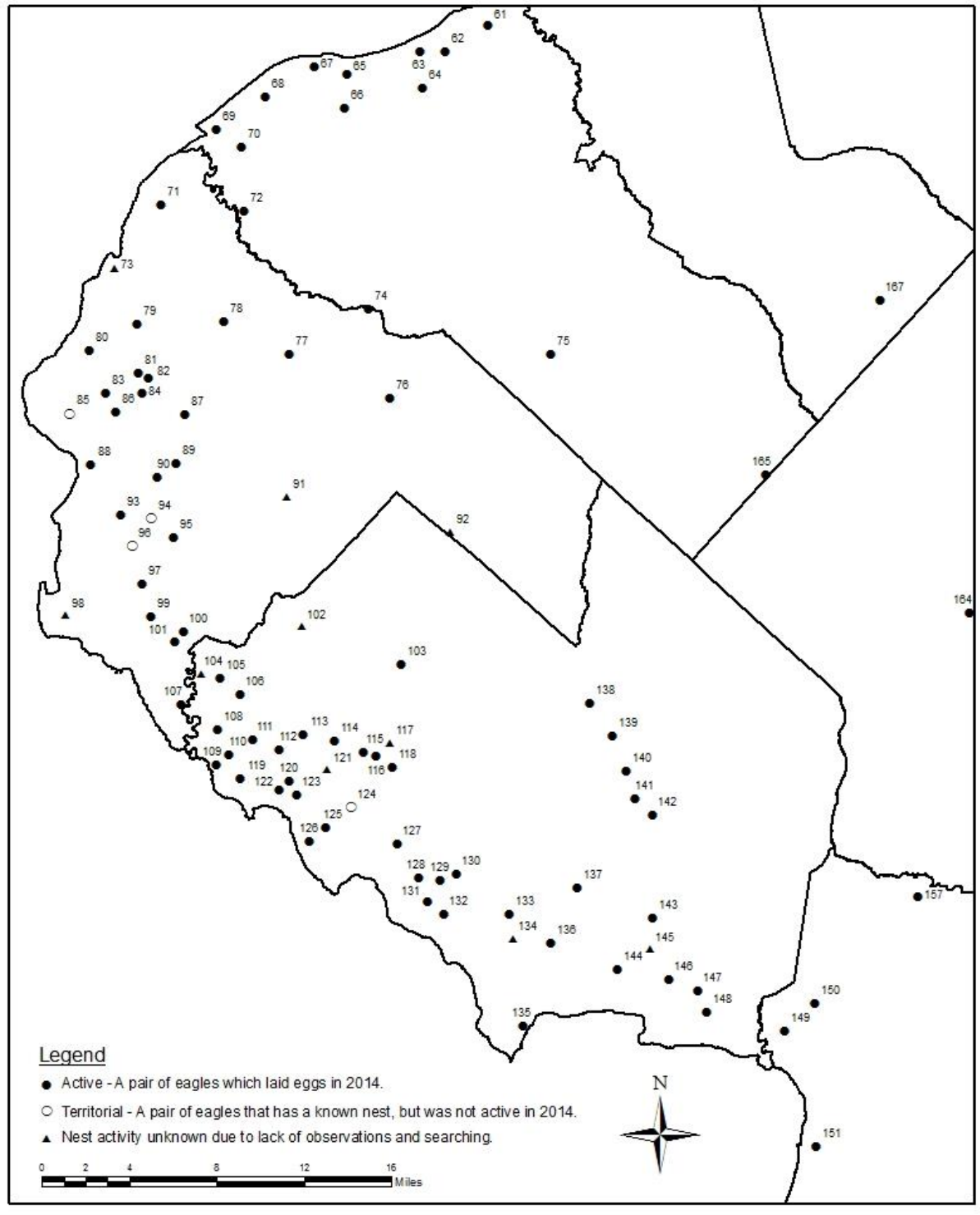


Figure 3, continued. Bald Eagle Nest Sites, Delaware Bay Region, 2014

Table 1. Production and significant dates of bald eagle nests in NJ, 2014.

T=Territorial, U=Unknown (nest activity unknown due to lack of observations and searches)

NEST SITE	Incubation	Hatching	Banding	Fledging	No. Fledged	Failed date/ Reason	Notes
Absecon	T						New pair
Alloways Creek B-CE	U						
Alloways Creek C-Quinton	2/22	3/15		6/6	2		New tree
Alloways Creek D	3/20				0	unknown	
Alloways Creek E	T						New pair
Alloways Creek F	T						New pair
Alloways-Hope Creek	U						
Arrowhead	U						
Ballanger Creek East	Unk			~6/4	1		
Ballanger Creek West	Unk				2		
Bassetts Bridge	~2/20				0	~4/1	
Bay Point	2/23	4/6		6/28	2		
Bayside A	2/16			6/16	2		
Bayside B	2/7			~6/16	2		
Bear Swamp	<4/11				≥1		Aerial on 4/11; adult on nest; assumed fledged
Belleplain	~2/14	~3/21			1		Aerial 5/9; 1 chick; assumed fledged
Bidwell Creek	~2/21	~3/28		~6/20	1		Aerial on 5/9; 6-7 wks; assumed fledged
Birch Creek B	2/12	3/18			0		New pair
Blue Anchor	3/1	~4/12		7/12	2		
Bridgeport	2/9				0	3/14	
Bulls Island	~2/28				0	4/4	
Burlington Co./Del. R.	U						
Burlington Island	1/27	3/3		6/2	1		
Camden	3/1	4/5			0	4/19	
Cedar Lake (Gloucester)	<1/25				0	unknown	
Cedar Pond					2		New pair
Cedar Swamp Creek	2/17	3/24		6/16	3		
Centerton (Elmer)	U						
Charlottesburg (Rockaway)	U						
Chatsworth	<2/25	~4/1		~6/26	1		
Cheesequake Creek	<3/17	4/13		~7/7	1		New pair; osprey platform

Cohansey (Middle Marsh A)	2/25	4/1		6/24	2		New tree
Cohansey (Middle Marsh B)	2/14	3/19		6/11	3		
Cohansey (Middle Marsh C)	2/16	3/23		6/15	1		New pair
Cohansey (Green Swamp)	U						
Cohansey (Greenwich A)	<2/27				1		
Cohansey (Greenwich B)	<2/27	<3/27			2		
Cohansey(Sheppards Mill)	<2/27			<6/19	1		
Cohansey (Hopewell East)	U						
Cohansey (Hopewell West)	<3/17			<6/19	1		
Cohansey(HopewellCentral)	<2/27				0	unknown	
Cohansey (Loatman)	<2/27	<3/27		<6/18	1		
Cohansey(Tindells Landing)	2/14				0	unknown	
Crosswicks Creek	2/23	3/30		6/21	3		
Culvers Gap	3/13	4/21		7/6	2		
Daretown	2/9	3/20		6/14	2		
Davis Mill	2/16	3/19			2		
Delanco	<3/10	4/5		7/1	2		New pair
Dias Creek West	<2/23	3/16		6/15	2		
Dingman's Ferry	~3/1	~4/1			2		
Deepwater	U						
Dividing Creek	2/1	3/9		5/30	2		
Duke (Raritan River)	2/17	3/29	5/12	~6/15	3		
Eagle Point	2/17	4/21		7/14	2		
Egg Harbor River	~2/21	~3/28			2		Aerial on 4/11; assumed fledged
Egg Island	2/14	3/21	5/9	~6/13	2		
Elsinboro	2/23	<4/2		6/15	2		
Fairgrounds	2/9	3/23		6/15	1		
Farrington Lake	T						New pair
Fenwick Creek	2/16	3/6		6/26	2		
Fishing Creek					0	unknown	New tree; aerial 4/11
Forked River	<3/27	~4/14		7/7	1		New pair
Fort Dix	2/12	3/21	5/2	6/23	3		
Galloway	2/22	~3/10	5/6	5/22	1		Attached transmitter #365
Gibbstown	2/4	3/10		6/8	2		
Great Swamp	U						
Green Pond	U						
Harrisonville	~3/24	~4/28		~7/21	1		
Heislerville	~2/26				0	3/20	
Higbee					2		
Husted's Landing	T						New pair
Hyper Humus	3/15	4/26		7/20	2		

Keasbeys Creek	2/9	3/15		5/31	2		
Kettle Creek	2/14	3/20		6/19	3		
Lake Denmark	4/5			7/24	1		
Lake Hopatcong	<3/27				unk		New pair
Lake Lenape	<4/11				≥1		Aerial on 4/11; assumed fledged
Lambertville Tower	3/17	4/23		7/13	1		New pair
Lewisburg Swamp	T						
Liberty Loop	U						
Linden	2/24	4/14		7/21	1		New tree
Little Swartswood	2/14	4/1	5/12	6/12	1		
Mad Horse Creek	~2/11	3/19		6/16	2		New tree
Manasquan Reservoir	1/21	2/25		5/25	2		
Manasquan River	2/8	3/22	5/2	6/2	2		
Mannington Meadows A	2/23	<4/5		6/15	1		
Mannington Meadows B	<3/1				1		
Mannington Meadows C	2/8	3/15		6/11	3		
Mannington Meadows D (Marshalltown)	3/22				0	Unknown	
Mantua Creek A	3/1	4/8	5/15	6/26	3		
Mantua Creek B	2/7	3/16			0	3/20	New pair
Manville	3/13	4/17			2		
Matt's Landing					0	Unknown	New pair
Maurice River- Bluffs				7/7	2		Aerial 4/11
Maurice River- Bowkers	U						
Maurice River- Burcham	2/12	3/31		7/7	3		
Maurice River(Mauricetown)	2/21	3/28		6/20	3		Aerial 4/11; assumed fledged
Maurice River-Millville	2/15	3/22	5/17	6/13	3		Attached transmitter #366
Maurice River-Millville North	2/22	3/29		6/16	1		
Medford	unk				2		New pair
Merrill Creek Res.	3/16	4/14	6/10	~7/8	2		
Minisink Island	unk	<5/15			0	5/30	New pair; 2 chicks, but failed by 5/30
Mond's Island	3/2	4/8			0	4/16	4/27 nest fallen
Mount Hope Lake	T						
Mullica River	2/23	3/29		6/21	2		
Musconetcong	~3/2				0	4/21	
Nantuxent Creek A	3/23				0	4/21	
Nantuxent Creek B	2/16	3/30		6/22	2		
Nantuxent Creek C	2/23	4/8		6/22	2		
Nantuxent Creek D	2/23	4/6		6/22	2		
Navesink River	U				0	Unknown	

Newport Meadows	U						
Newton Reservoir	3/8				0		
Old Bridge		<6/18			1		
Oldmans Creek	2/1	3/8			0	3/10	
Oradell Reservoir	2/23				0		
Overpeck Creek	2/25				0	~3/27	
Palisades A	U						
Palisades B	~3/16	4/4		6/25	3		New tree
Parsippany	2/26	4/5		6/25	1		
Patcong Creek A	1/26	3/5		6/2	2		
Patcong Creek B	2/4	3/10			0	unknown	
Pemberton	1/12	2/17		5/3	2		
Penns Grove	3/9	4/20		6/28	1		
Penns Neck	2/21	4/1		6/21	1		
Penns Neck (upper)	~2/22	~3/29		6/12	1		New tree
Pennsville	<2/27	~3/24		~6/16	2		
Pequest	~3/2				1		
Pilesgrove	2/6	3/18		6/8	2		
Pompton Lakes					0	5/1	New pair
Port Norris	2/18	3/22		5/31	2		
Poxono Island	U						Pair worked on nest but never incubated
Princeton	2/9				0		
Prospertown	~2/18	3/25		~6/10	1		New tree
Raccoon Creek/Dupont	2/16	3/23		6/19	1		
Rancocas Creek	2/14	3/21		6/13	1		
Ravine Lake	4/13				1		
Riggins Ditch	2/16	3/23		6/16	3		
Round Valley	3/11	4/5		7/1	1		
Salem River	1/26	3/3		5/26	2		
Salem River tower	~2/14	4/19			0		New pair
Sayres Neck	<2/23	~4/7		6/30	2		
Sea Breeze A	1/26	3/3		6/9	1		
Sea Breeze B	2/23	3/29			0	unknown	
Shark River	2/7	3/16		6/10	1		
Silver Lake	2/17	3/23		6/1	1		
Silver Lake Tower	2/7	3/14		6/16	1		New pair
Spruce Run	U						
South Dennis A	NA						Not nesting; may be adults car-hit April 2013
South River-Atlantic	<3/20	<4/24		~7/10	1		

Stanton Station	3/11	4/10		7/3	2		
Stipson Island	1/31	3/7		5/30	1		Aerial 5/9; assumed fledged
Stow Creek A	2/22				0	unknown	
Stow Creek B	2/22	4/6		-6/29	2		New tree
Stow Creek C	2/22	4/1		6/24	2		New pair
Sunset	1/20	2/24		5/27	2		
Supawna Meadows A	2/20	4/4		6/20	1		
Supawna Meadows B	T						New pair; transmission tower
Swedesboro-Birch Creek	1/23	3/1		5/24	3		
Tindall Island		<3/27		6/22	2		
Trenton	2/19	3/26		6/30	2		New tree
Tuckahoe A	3/3	4/13		7/6	2		
Tuckahoe B	U						
Turkey Point A	2/16	3/16		6/22	3		
Turkey Point B	U						
Union Lake	<4/11				1		Aerial 4/11; assumed fledged
Wading River	1/14				0	4/2	Nest fell from tree
Wanaque A	3/12	4/16			1		
Wanaque B	3/12	4/16			2		New pair
Wantage	unk				2		New pair
Westons Mill Pond	T						New pair
Wheaton Island	2/16	4/6		6/29	3		
Wildwood Bay					3		New tree; aerial 5/9; assumed fledged
Woodbury Creek	3/4	4/11		7/7	1		New tree
Woodcliff Lake	2/21				1		
Yards Creek	U/T						New tree
Total Nests Monitored	156						
Total Nests Active/Known Outcome	146/145						
Successful Nests	115	79%					
Failed Nests	29	20%					
Young Fledged	201	1.39 y/a					

New Nesting Pairs/Territories

In 2014, 23 new pairs of eagles were found in New Jersey.

Absecon Creek – This new pair was found in Atlantic County and was most likely housekeeping this year.

Alloways Creek E – This new pair was housekeeping in Salem County.

Alloways Creek F – A second new pair found housekeeping in Salem County.

Birch Creek B – Found along the Delaware River in Gloucester County, this new pair hatched chicks in March but failed for unknown reasons.

Cedar Pond – This new pair was found with two chicks near the end of the nesting season on Newark Watershed property.

Cheesequake Creek – This new pair nested on an osprey platform and fledged one chick.

Cohansey (Middle Marsh C) – One chick fledged from this nest near the Dix WMA in Cumberland County.

Delanco – This new pair was found nesting in Burlington County close to the Delaware River. They successfully raised two chicks.

Farrington Lake – This new pair was found at a housekeeping nest.

Forked River – The new pair fledged one young chick from their nest along Barnegat Bay in Ocean County.

Husted's Landing – This housekeeping pair worked on their nest on an island in the marsh along Back Creek, Cumberland County.

Lake Hopatcong – This new pair was reported to have been in the area for several years but a nest was never found. This year they constructed a nest on an island in the lake and incubated but failed during April.

Lambertville Tower – This new pair was found nesting on a power line tower and fledged one chick.

Matt's Landing – Located in Cumberland County on a WMA, this pair was housekeeping.

Medford – This new pair built a nest located along the edge of farm fields in Burlington County. They fledged two young.

Minisink Island – This new pair was found on the island and hatched two chicks but then failed for unknown reasons.

Salem River Tower – This pair nested in an old osprey nest on the top of a transmission tower in Salem County. Hatching did occur at the nest but failure was reported when the chick/s would have been a few weeks old.

Silver Lake Tower – This pair successfully fledged one young chick from their nest on a transmission tower in Salem County.

Stow Creek C – This is the third pair to nest along the Stow Creek in Salem County. They raised and fledged two chicks.

Supawna Meadows B – This is the second pair of eagles nesting on a transmission tower in Supawna Meadows. The housekeeping pair worked on their nest early in the season.

Wanaque B – This new pair built a nest along the southern end of the reservoir and fledged two chicks. This is the first time that there have been two successful nests on the same water body in northern NJ.

Wantage – This new pair was found with two chicks near Lewisburg, NJ

Westons Mill Pond – This housekeeping pair built a nest along Route 1 near Rutgers University in New Brunswick.

2014 Season Highlights

Of note this year was the successful nesting by eagles in the Palisades Interstate Park, the family that is on our report cover. Eagles have been nesting in the park for the last few years but were successful for the first time in 2014. Also of note was the publication of “Bald Eagles of the Meadowlands and Beyond,” an e-book by Jim Wright of the NJ Meadowlands Commission. The book is available online at <http://www.njmeadowlands.gov/njmc/nature/bald-eagles.html>

Telemetry

During the summer of 2014, two juvenile bald eagles were fitted with a GPS tracking device (a wearable backpack). ENSP biologists chose one eagle from Atlantic County (a male) and one from Cumberland County (a female) to be tagged in this telemetry study. Maps of the movements of these birds are updated daily at CWF’s bald eagle web page: <http://www.conservewildlifenj.org/protecting/projects/baldeagle/>.

The male, nicknamed "Nacote," hatched at a nest near Nacote Creek in Port Republic, and wears a green band with code D/95. He was 8.5 weeks of age when the transmitter was attached on May 6, 2014, and on May 22 he first moved away from the nest tree. He remained within about 1/4 mile for more than one week as he learned flying and landing skills. He made a bold northern movement in late July, moving directly north through NJ and NY, and eventually transmitted from Quebec, Canada. He didn’t begin moving south until mid-October when he crossed back into northern NY.

The female, nicknamed "Millville," is from a nest on the Maurice River; she wears color band E/05. She was about 8.3 weeks of age when outfitted with the transmitter. The banding date was May 19, and she remained close to the nest until late July, venturing out to Delaware Bay marshes and back in early August. In mid-September she crossed the Delaware and moved through DE and spent September to mid-October on Chesapeake Bay in MD.

In 2014 we continued to track the movements of the two eagles that fledged from the Merrill Creek Reservoir nest in prior years. Maps of their movements can be found at <http://www.merrillcreek.com/eagletracking.html>.

The female (D/64, nicknamed "Harmony") that fledged in July, 2012 spent the fall/winter of 2012 in Chesapeake Bay. She moved through south Jersey in the spring of 2013 and summered in the New England states before wintering along the Housatonic River in CT. She spent the summer months of 2014 in MA and headed to southern CT in late September.

The female (D/88, nicknamed "Haliae"), banded and fledged in 2013, spent the winter of 2013-14 ranging around northern Chesapeake Bay in MD. In April, 2014, she headed north into PA and by early May she travelled through NY and into Canada. By early June she was back in NJ's Warren County. She continued to wander and in early July was in northern Maine. She spent the remainder of the 2014 summer ranging around Canada. She headed south in September and by mid-October was in eastern PA.

Potential Nest Sites

Biologists and observers actively searched for possible nesting eagles in several locations. The searches were in response to reports of eagles engaging in breeding behaviors. Areas that remain promising are Big Timber Creek, Batsto Lake, Oswego Lake, Indian Mills Lake, Williamstown, 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.

Recoveries of Eagles in New Jersey

For 21 eagles recovered, five were treated and released after injuries and one case of lead poisoning. The remaining birds were found dead or were euthanized as follows: unknown circumstances (31%), electrocution (19%), impacts with vehicles (19%) or unknown objects (12%); and as a result of fighting, lead poisoning, or being shot (1 bird each). The details follow here.

On December 4, 2013, an immature bald eagle was found dead on railroad tracks near the South Branch WMA in Flemington. The bird had been hit by the train.

On December 27, 2013, a dead eagle was recovered in Elmer, NJ. The bird was a four year old male banded D/02, 679-01737, at Manasquan Reservoir on 31 March 2010. Cause of death was electrocution.

A ten year old male eagle was found injured in Warren, PA, on January 23, 2014, and taken by a PA Conservation Officer to the Tamarack Wildlife Rehabilitation and Education Center in Saegertown, PA. The bird had been banded (629-45867, B/61) on May 7, 2004, at Newbold Island, Burlington County, NJ. The bird had to be euthanized due to its severe injuries most likely caused by impact with a vehicle.

On March 3, 2014, a four year old unbanded male eagle was found dead in Hopewell, Cumberland County, NJ. A necropsy was performed and determined the bird was most likely struck by a vehicle.

On March 3, 2014, an eagle was found at the Cape May County Landfill in Woodbine, covered in ice following a recent snow storm. The bird was taken to Tri-State Bird Rescue & Research.

A dead bald eagle was found on the side of a road in Blairstown, NJ, on March 4, 2014. The bird had been banded (629-46804, B/98) at the Princeton nest on May 26, 2005.

Two eagles were reported to be on the ground fighting in West Cape May on March 5, 2014. They had locked talons and had remained like that for about 30 minutes. Staff captured one injured bird and the second flew away. The injured eagle was a male banded (629-46858, C/50) in Greenwich on April 21, 2008. The bird was taken to Tri-State where he recovered from his wounds and was released in Winslow Township, NJ on March 11, 2014.

On April 29, 2014, a 4th year male bird was brought to Tri-State Bird Rescue and Research after being found injured in Berlin, MD. The bird was banded (679-01763, D/26) on April 20, 2011, at the Manasquan River nest. The injuries were most likely due to a fight with another eagle and the bird made a full recovery and was released on May 28, 2014.

On May 19 an injured bald eagle was found in Bridgeton, NJ, and taken to Tri-State Bird Rescue and Research. The bird had been banded (629-46812, C/05) in 2006 at Lake Lenape, Atlantic County. Due to the extent of its injuries the bird had to be euthanized. A necropsy showed that he had been shot within the previous week. The US Fish and Wildlife Service offered a reward of \$7500 to anyone with information in the case.

An injured female eagle was found at Fort Mott, NJ, and taken to Tri-State Bird Rescue and Research on June 19, 2014. Due to its injuries the bird had to be euthanized.

A recent fledgling was found dead near a road in Greenwich, Cumberland County, NJ, on July 18, 2014. There are several nests in the area from which the bird could have fledged.

On July 27, a juvenile male (0709-01588, D/98) was found dead by residents of Little Sebago Lake, Maine. He was one of the three Duke Farms eaglets banded on May 14, 2014, and fledged in mid-June. Residents of the lake, which is NW of Portland, reported seeing him near an active eagle nest located on the lake. The nest had chicks that fledged in early July. On July 25th residents reported seeing a juvenile with a green band sitting in a tree near a boat house, attacked by an adult eagle. While we don't know for certain we can assume that the juvenile's death was in some part due to injuries that occurred when it was attacked by the adult. The mortality rate

for first year eagles is significant as they are still learning to hunt and fly. It is very unusual to receive this much information on the details surrounding an eagle's death.

On July 31, 2014, a dead eagle was found in Greenwich, Cumberland County. Cause of death was electrocution.

On August 20, a juvenile, unbanded eagle was found at the Cape May County Landfill, Cape May County, NJ. The bird was taken to Tri-State Bird Rescue and Research where it had to be euthanized due to a severe wing injury.

On September 7, 2014, a dead adult bald eagle was found in Newark, NJ. Cause of death was determined to be impact, possibly to wires in the area.

A four year old injured eagle was captured September 12 by a Conservation Officer S. Risher and taken to Cedar Run Wildlife Center where it died. A necropsy showed the cause of death to be severe lead poisoning.

On September 14, an immature eagle was found dead on Money Island Road in Cumberland County. A necropsy is pending.

On September 14, an injured first year eagle was found near Lower Alloways Creek, Salem County and taken to Tri-State Bird Rescue and Research. The bird was treated for lead exposure and released on October 3, 2014.

An adult female eagle was found injured on September 29 at the Unimin Sand Plant in Cumberland County. The bird was taken to Tri-State Bird Rescue and Research where it was euthanized due to severe wounds caused by electrocution. ENSP requested the power company identify and mitigate the electrocution threats at that site.

On October 9, an immature bald eagle was found dead in Aroostook County, Maine. The bird, a male, had been banded (0709-01558, D/68) on May 1, 2013 at the Manasquan River nest.

An adult bald eagle was found dead on November 10, 2014 along the Alloways Creek, in Quinton, Salem County. Cause of death is unknown.

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APPENDIX 1. Maps showing the movements of two eagles tracked by satellite tags attached in May, 2014.

D/95 - Male, 2014 (05/06/2014 - 10/21/2014)



E/05 - Female, 2014 (05/16/2014-10/21/2014)

