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, 2019

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NEW JERSEY DIVISION OF
Fish and Wildlife

CONSERVE WILDLIFE
FOUNDATION OF NEW JERSEY

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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. Two hundred eleven nest sites were monitored during the nesting season, of which 190 were documented to be active (with eggs) and 21 were territorial or housekeeping pairs. Twenty-seven new eagle pairs were found this season, 19 in the south, three in central and five in the north. One hundred forty-eight nests (80%) of the 184 known-outcome nests produced 249 young, for a productivity rate of 1.35 young per active/known-outcome nest. Thirty-five nests (18%) failed to produce. The Delaware Bay region remained the state's eagle stronghold, with roughly half of nests located in Cumberland and Salem counties and the bayside of Cape May County.

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

Introduction

Historic records are incomplete, but one study found New Jersey hosted more than 20 eagle nests in the 1950s in the Delaware Bay region (Holstrom 1985). There are no reliable data on the state's eagle population prior to declines caused by persecution and pesticide use that began in 1945. After widespread use of the pesticide DDT, the state's nesting eagle population 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 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, 82 pairs by 2010, and 150 pairs by 2015. ENSP recovery efforts – implemented since the early 1980s – 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 New Jersey's only remaining nest (located in Cumberland County's Bear Swamp) 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. Due to 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 eagles 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 observed after 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. It takes many forms, including mere presence of people in nesting or foraging areas. In general, people on foot evoke the strongest negative reaction (Buehler 2000). 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 volunteer observers, as well as public education and 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 has a history of monitoring 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 have shown some reproductive impairment relative to other areas (Clark et al. 1998), but 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, the Division's Bureau of Law Enforcement staff, and project volunteers, work year round to protect bald eagle nest sites. Essential to all our wildlife populations in this most densely populated state, is critical habitat that must be identified and protected. Critical habitat for eagles includes areas used for foraging, roosting and nesting, and those habitats are included in the program's Landscape Project mapping of critical wildlife habitats. Landscape Project mapping is identifies suitable habitat that is associated with nests, foraging areas, and documented communal roosts.

The population of wintering bald eagles has grown along with the nesting population, especially in the last ten years. The NJ Eagle Project discontinued Mid-winter eagle surveys, but has expanded surveys to document important roosting areas in winter and year-round.

The federal government removed the bald eagle from its list of Endangered Species in 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 any problems that could compromise the eagle recovery. In addition, 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 remained 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 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 evidence suggests a probable location, biologists may 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 protected 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 sites, ENSP 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.

Winter and Roost Surveys

In recent years, we in New Jersey did not participate in the National Mid-Winter Eagle survey held in January, but instead focused on identifying and surveying roosts. Biologists asked eagle project volunteers to search for locations where eagles roost and concentrate in the winter months of January and February. As roosts get surveyed for occupancy, they are entered into the state's Biotics database.

Results

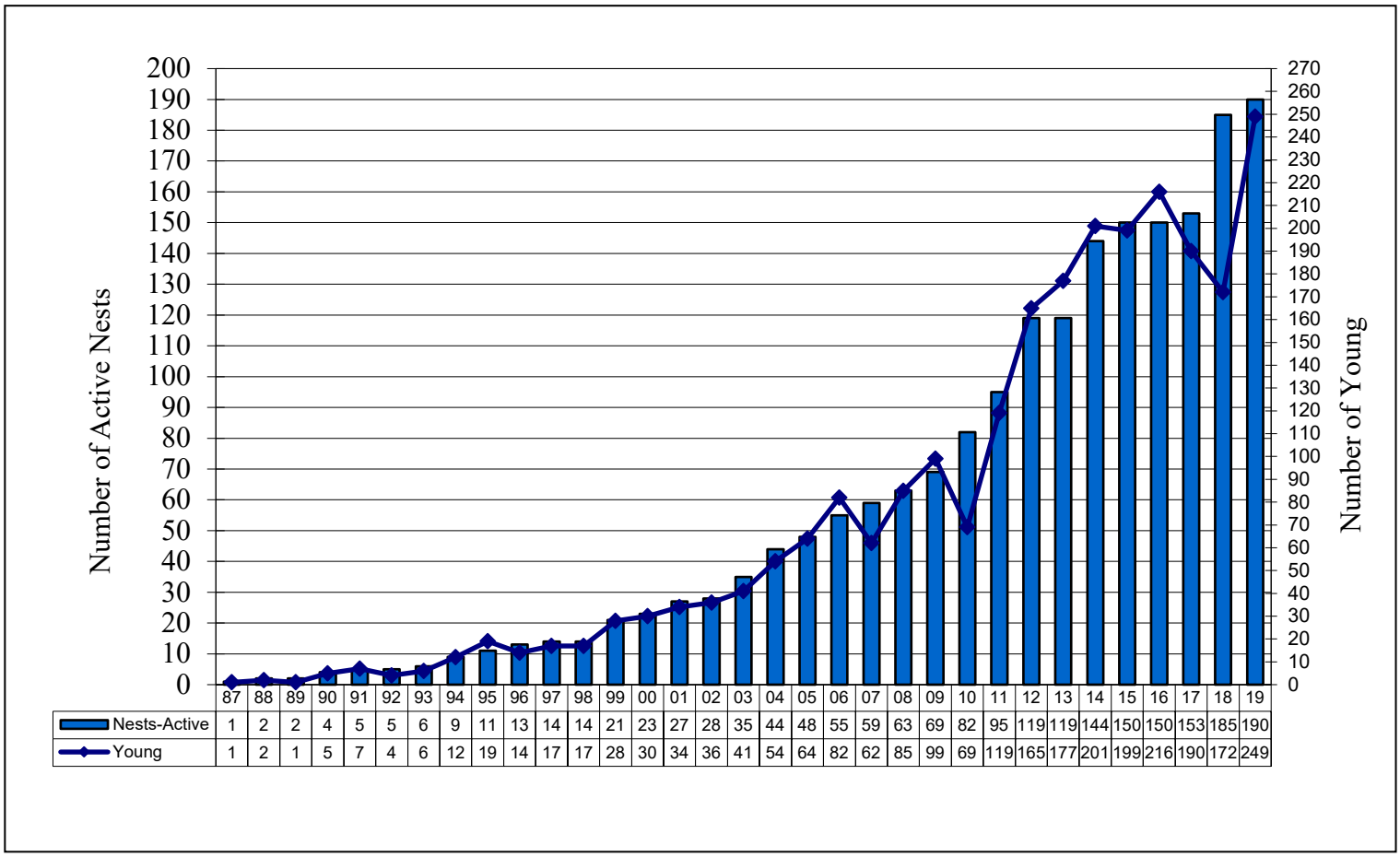
Nest Survey

The statewide population increased to 211 territorial pairs in 2019, a slight increase from 204 last year. One hundred ninety pairs were known active (meaning they laid eggs), five more than last year (Figure 1); 21 pairs maintained nest territories but did not lay eggs. One hundred forty-eight nests (80%) were known to be successful in producing 249 young; the overall productivity rate of 1.35 young per nest was derived from 249 young/184 known-outcome nests. Thirty-five nests (18%) failed to fledge young. This year's nest success and overall productivity, 1.35, was a return to the ten-year average range for NJ after below normal results in 2018.

Most nests were located in the southern portion of the state, particularly within 20 km of Delaware River and Bay (Figure 2). The majority of nests were located on private land, while the rest were on state, federal, county, and conservation-dedicated lands. Disturbance was a management issue at many nests, and posting and regular surveillance by staff and nest observers remained essential to increase the chance of success.

All documented nests and significant dates of the nesting season are listed in Table 1. Excluded from our nest table are 67 previously documented nest sites that were unoccupied and where no new nest could be found, or search effort was lacking (Table 2).

Figure 1. Number of bald eagle nests and young fledged in New Jersey, 1985–2019. Blue bars=number of nests, and blue lines =number of young produced each year. In 2019, 190 pairs were active and 249 young were produced.



	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19
Nests-Active	1	2	2	4	5	5	6	9	11	13	14	14	21	23	27	28	35	44	48	55	59	63	69	82	95	119	119	144	150	150	153	185	190
Young	1	2	1	5	7	4	6	12	19	14	17	17	28	30	34	36	41	54	64	82	62	85	99	69	119	165	177	201	199	216	190	172	249

Figure 2. Nests by map number, 2019.

001	Minisink Island	053	Trenton	106	Wading River B	159	Cohansey (MidMarshD)
002	Bassetts Br. Wallkill	054	Crosswicks Creek	107	Ballanger Creek W	160	Cohansey (Tindall Ldg)
003	Dingman's Ferry	055	Manasquan Reservoir	108	Supawna A	161	Tindalls Island
004	Culvers Gap	056	Shark River	109	Keasbeys Creek	162	Cohansey (Mid Marsh A)
005	Wawayanda	057	Sylvan Lake Twr	110	Salem (Chestnut)	163	Cohansey (Ragged Isl)
006	Little Swartswood	058	Prospertown	111	Quinton	164	Cohansey (Mid Marsh C)
007	Hyper Humus	059	Manasquan River	112	Alloway Lake	165	Husted's Landing
008	Poxono Island	060	Brielle	113	SFE Tower	166	Maurice River (Millville
009	Tocks Island	061	Burlington Island	114	Quinton-2	167	MR (Peek Preserve)
010	Stillwater	062	Jacobstown	115	Cedar Lake (Glouc)	168	Maurice River (Burcham)
011	Yards Creek	063	Edgewater Park	116	Makepeace Lk	169	Egg Harbor-A
012	Newton Reservoir	064	Delanco	117	Great Bay Blvd.	170	Patcong Creek B
013	Woodcliff Lake	065	Rancocas Creek A	118	Lake Lenape	171	Corbin City
014	Oradell Reservoir	066	Fairgrounds	119	Elsinboro	172	English Creek
015	Palisades B	067	Kettle Creek	120	Alloways Creek E	173	Tuckahoe-A
016	Picatinny/Lk Denmark	068	Pemberton	121	Mason Pt	174	Seabreeze A
017	Mount Hope Lake	069	Camden County	122	Alloways Creek C	175	Seabreeze B
018	Lake Hopatcong B	070	Camden-2	123	Alloways Creek F	176	Sayre's Neck A
019	Boonton	071	Medford	124	Grossup	177	Sayre's Neck B
020	Paterson	072	Eagle Point	125	Alloways Creek D	178	Bay Point Road A
021	Parsippany	073	Woodbury Creek	126	Mad Horse Creek	179	Bay Point Road B
022	Overpeck Creek	074	Mantua Creek A	127	Stow Creek A (North)	180	Nantuxent Creek A
023	Hackettstown	075	Mond's Island	128	Devil's Gut	181	Nantuxent Creek D
024	Merrill Creek	076	Bridgeport	129	Stow Creek D	182	Nantuxent Creek B
025	Merrill Creek-2	077	DuPont/Raccoon Cr	130	Stow Creek E	183	Money Island
026	Far Hills/Ravine Lake	078	Mantua Creek B	131	Stow Creek F	184	Turkey Point A
027	Great Swamp	079	Gibbstown	132	Stow Creek B	185	Warfle
028	Kearny	080	Timber Creek	133	Stow Creek G	186	School House
029	Linden	081	Swedesboro-Birch Cr	134	Shiloh Tower	187	Turkey Point B
030	Stanton Station	082	Mickleton	135	Sunset	188	Dividing Creek A
031	Milford Tower	083	Penns Grove	136	Carmel	189	Fortescue A
032	Duke (Raritan River)	084	Oldman's Creek	137	CC Co Imp Auth	190	Dividing Creek B
033	Manville	085	Turnersville	138	Oceanville	191	Hansey Creek
034	Three Bridges	086	Waretown	139	South River-Atlantic	192	Port Norris
035	Johnson Park	087	Chatsworth	140	Newport Meadows C	193	Maurice River (Mauricetn)
036	Reaville	088	Deepwater	141	Newport Meadows D	194	Matt's Landing
037	Edison Tower	089	Deepwater-2	142	Newport Meadows B	195	Heislerville
038	Cheesequake Creek	090	Upper Oldmans	143	Davis Mill	196	Belleplain
039	Keansburg	091	Pennsville	144	Newport Meadows E	197	TSG
040	Belford Cell Twr	092	Pilesgrove	145	Cedar Hill	198	Cedar Swamp Cr
041	Old Bridge	093	Marshalltown	146	Bridgeton	199	Tuck-B
042	Bull's Island	094	Salem River	147	Cohansey (Sheppard Mill)	200	Beasley Pt
043	Mt Airy	095	Silver Lake	148	Cohansey (Loatman)	201	Egg Island
044	Lambertville Tower	096	Mannington A	149	Cohansey CC A	202	Sadie Lane
045	Princeton	097	Penns Neck A	150	Cohansey (Hopewell E)	203	East Point
046	Pennington	098	Penns Neck B	151	Bayside B	204	Dennis Creek-2
047	Hartshorne Woods Park	099	Supawna B	152	Bacons Neck	205	Dennis Creek
048	McClees Creek	100	Harris (Salem)	153	Cohansey (Greenwich B)	206	South Dennis
049	Navesink River/Res.	101	Seabrook	154	Cohansey (Hopewell W)	207	Dias Creek East
050	Parker's Creek	102	Hackett	155	Cohansey (Hopewell Cent)	208	Fishing Creek
051	Mercer County GC	103	Daretown	156	Bayside A	209	Rio Grande
052	Upper Millstone	104	Cedar Run (Ocean)	157	Hancock A	210	Cold Spring
		105	Wading River	158	Middle Marsh-E	211	Higbee

Figure 2a. Eagle nests statewide.

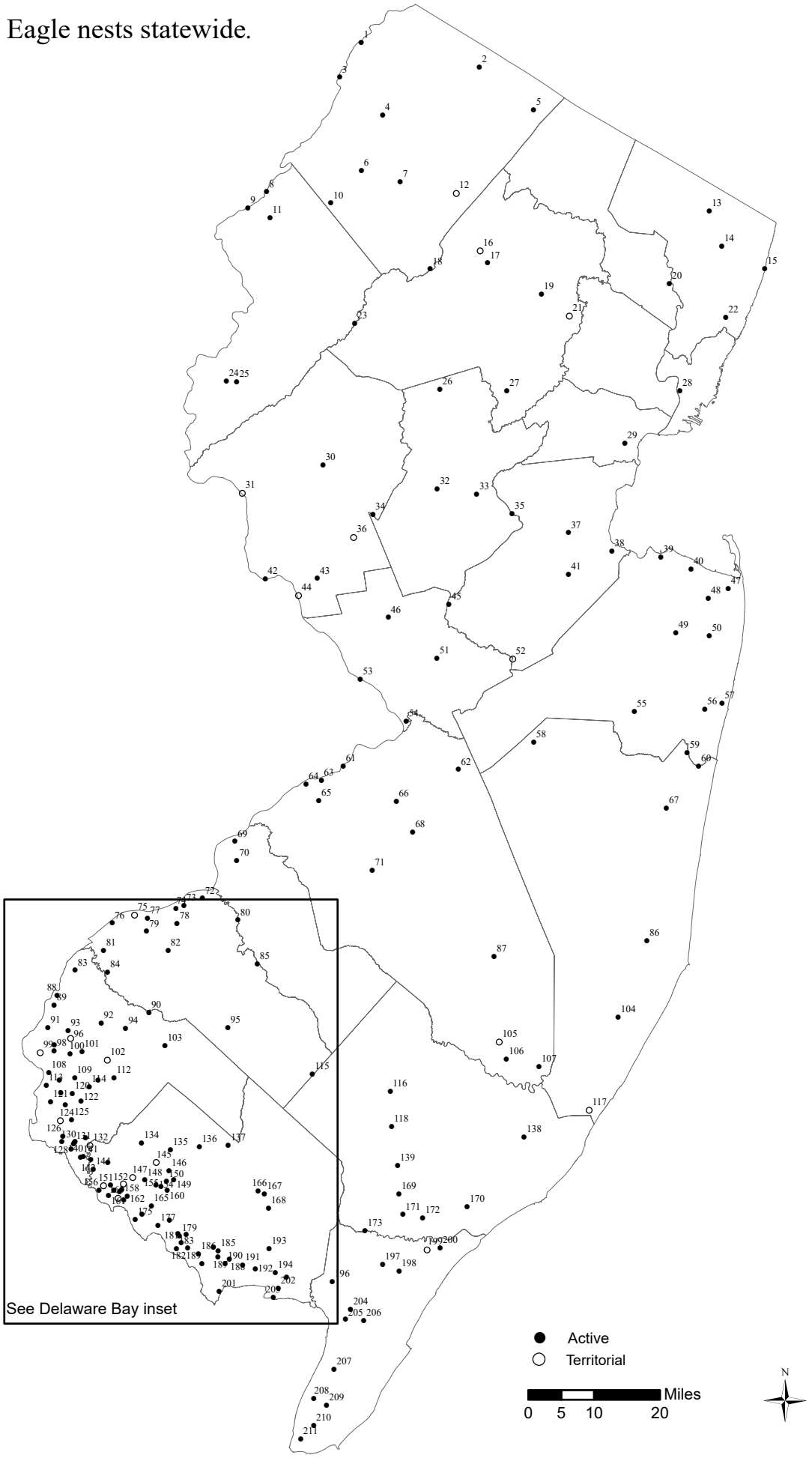


Figure 2b. Delaware Bay inset.

Table 1. Production and estimated dates for bald eagle nests in NJ, 2019. Some dates are unknown and left blank; others may be estimates or first-observed dates. T=Territorial.

NEST SITE	Incubation	Hatching	Banding	Fledging	No. Fledged	Failed date	Notes
Alloway Lake	<3/30	4/13		7/5	1		New pair
Alloways Creek C	2/3				0	4/27	
Alloways Creek D	2/24	3/28		5/17	2		New nest location
Alloways Creek E	1/30	3/11		5/17	1		New nest location
Alloways Creek F	1/27	3/5			0	4/15	Nest damaged in wind storm; chick dead
Bacons Neck	2/5	3/8		6/1	2		New pair
Ballanger Creek West	3/8	4/1		6/17	2		
Bassett's Bridge (Wallkill)	2/15	3/19		6/14	2		
Bay Point Road A	2/15	3/23		6/8	2		
Bay Point Road B	2/23	4/4		6/22	2		
Bayside A					2		
Bayside B	T						
Beesleys Pt	<3/6				0	?	New nest location
Belford	<3/6				0	4/11	New pair
Belleplain	1/27	3/3		5/26	2		
Boonton		3/20		6/29	1		New nest location
Bridgeport	4/2				0	5/31	New nest location
Bridgeton					?		New pair; outcome unknown
Brielle (Tr. Is.)					0	3/11	
Bulls Island	2/5	3/14		5/25	2		
Burlington Island	2/19	3/25		6/9	1		
Camden County		<3/19			0	5/6	New location; 1 chick failed to fledge
Camden 2A	3/13	4/30		7/15	2		New pair
Carmel	2/23	4/3		6/3	1		New pair
Cedar Hill (Cumberland)	T						New pair
Cedar Lake (Gloucester)	1/21	2/25		5/20	1		
Cedar Run (Ocean)	1/21	2/25		5/22	2		
Cedar Swamp Creek	2/20	3/28		6/18	2		
Chatsworth		4/6		7/5	1		
Cheesequake Creek	2/3				0	4/27	
Cohansey (Greenwich B)	T						
Cohansey (Hopewell Central)	1/22	2/26		6/2	2		
Cohansey (Hopewell East)	2/14	4/6		6/27	2		
Cohansey (Hopewell West)	2/22	3/31		6/30	2		
Cohansey (Loatman)	2/14	3/31		6/27	2		
Cohansey (Middle Marsh A)	2/10	3/19		6/9	1		
Cohansey (Middle Marsh C)	2/23	3/30		6/22	2		
Cohansey (Middle Marsh D)	2/23	3/29		6/22	3		
Cohansey (Middle Marsh E)	1/12	2/16		5/4	1		New pair

Cohansey (Ragged Island)	T						
Cohansey (Sheppards Mill)	T						
Cohansey (Tindells Landing)	3/2	4/7		6/29	1		
Cohansey CC A	2/2	3/14		6/2	2		
Cold Springs	2/7	3/28		6/10	2		
Corbin City	2/11	3/18		6/3	2		New pair
Crosswicks Creek	3/12	4/22		6/26	1		
Culvers Gap	3/6	4/17		7/6	1		2 hatched but 1 died young
Cumberland Co Imp Auth	2/16	4/1		6/21	1		
Daretown	1/30	3/8			0	3/19	
Davis Mill	2/3	3/20		6/29	2		
Deepwater	3/12				0	?	
Deepwater 03A	3/13	4/17		7/20	2		New pair
Delanco	2/28	4/7		6/28	1		
Dennis Creek	2/16				0	4/17	
Dennis Creek 02A	2/4				0	4/17	New pair
Devil's Gut	2/3	3/8	5/1	5/27	1		Nest down in storm 4/27; 2 chicks recov; 1 euth due to injury; 2nd renested
Dias Creek (East)		4/2		6/18	2		New pair
Dingman's Ferry	2/22	3/25		6/12	2		
Dividing Creek	3/12				0	4/11	
Dividing Creek B	2/15	3/14		6/8	2		
Duke (Raritan River)	2/20	3/30	5/25	6/15	2		
Dupont/Raccoon Creek	2/27	4/7		6/23	1		
Eagle Point	3/6				0	4/9	
East Point	2/16	3/24		6/18	1		New nest tree
Edgewater Park	2/28	3/27		6/14	2		
Edison Tower	2/11	3/24		6/7	2		
Egg Harbor	<3/25				?		Unknown outcome
Egg Island		3/24	5/6	6/17	2		
Elsinboro	1/31	3/8		5/17	2		
English Creek		3/19	5/2	6/21	2		New pair; osprey platform
Fairgrounds	2/3	3/13		6/4	1		
Far Hills/Ravine Lake	2/3	3/13		5/31	2		
Fishing Creek	2/6	3/13		6/5	2		
Fortescue	2/2	3/14		6/8	2		
Gibbstown	2/9	3/15		6/8	2		
Great Bay Blvd.	T						
Great Swamp	2/14	3/9		5/23	2		
Grossup	T						
Hackett (Salem)	T						
Hackettstown	2/24	4/7		6/23	1		New pair

Hancock A	?				2		
Hansey Creek		3/2		5/18	2		New pair
Harris (Salem)	3/24	4/28		7/19	1		
Hartshorne Woods Park	2/7	3/18		6/5	1		
Heislerville	2/8	3/24		6/15	3		
Higbee	3/6				0	4/18	
Husted's Landing	1/26	3/2		5/29	2		
Hyper Humus	3/28				0	5/24	
Jacobstown	1/19	2/23		5/7	2		
Johnson Park	2/26	<5/22		6/13	1		
Keansburg Cell	3/7	4/11			0	5/2	
Kearny	2/20	3/30		6/22	2		
Keasbeys Creek	2/3	3/19	4/18	6/1	1		Tree down in storm 4/27; 2 chicks recov; 1 euth due to injury; 2nd renested
Kettle Creek	2/5	3/15		6/9	2		
Lake Hopatcong B	3/10	4/14		7/7	1		
Lake Lenape	<3/25				1		
Lambertville Tower	T						
Linden	3/6	4/18		7/8	1		
Little Swartswood	2/16	4/9		6/25	1		
Mad Horse Creek	3/19				0	3/26	
Makepeace	2/10	4/29			1		New pair
Manasquan Reservoir	2/11	3/20			0	4/19	
Manasquan River	2/7	3/18	5/2	6/2	2		
Mannington Meadows A	T						
Mantua Creek A	3/12	4/11	5/21	6/25	2		
Mantua Creek B	2/3				0	5/7	
Manville	2/19	3/30		6/21	2		2 new adults
Marshalltown	1/30	3/8		5/11	2		
Mason Point	3/24	4/28			0	6/5	New pair
Matts Landing	3/2				0	3/24	New nest tree
Maurice River- Burcham	2/14	3/23		5/31	3		
Maurice River-Mauricetown		3/21		6/7	3		
Maurice River-Millville	<3/25				?		Unknown outcome
Maurice River- Peek Preserve	2/6	3/13		5/29	1		
McClees Creek	3/14	4/13			0	5/27	Nest fell 5/27
Medford	2/26	4/9	5/21	7/1	2		
Mercer County GC	3/8	4/16	6/25	6/28	2		6/12 1 chick on ground: renested 6/25
Merrill Creek A	3/12	4/18		7/8	2		
Merrill Creek B	3/12	5/20		7/9	1		New pair
Mickleton	?				?		New pair; unknown outcome
Milford Tower	T						

Minisink Island	?				?		Unknown outcome
Mond's Island	T						
Money Island	2/15	3/23		6/15	2		New pair
Mount Hope Lake				6/6	3		
Mt Airy	2/19	3/15		6/9	3		New pair
Nantuxent Creek A	2/23	3/28		6/22	2		
Nantuxent Creek B	2/15				0	3/24	
Nantuxent Creek D	2/15	3/23		6/22	2		
Navesink River	2/5	3/11		6/1	1		
Newport Meadows B	2/9	3/24		6/29	1		
Newport Meadows C	2/9	3/24		6/29	1		
Newport Meadows D	2/27	3/25		6/29	1		
Newport Meadows E	3/11	4/2		6/29	1		
Newton Reservoir	T						
Oceanville	3/5	4/9		7/2	1		New pair
Old Bridge	3/25	4/10		?			Unknown outcome
Oldmans Creek	2/14				0	3/19	
Oradell Reservoir	3/8				0	4/8	
Overpeck Creek	2/9	3/23		6/6	2		
Palisades B	2/13	3/22		6/19	1		
Parkers Creek				7/2	3		
Parsippany	T						
Patcong Creek B	2/18	3/20		6/8	1		
Paterson	3/14	4/11		7/18	3		
Pemberton	1/14	2/19		5/17	2		
Pennington	2/26	4/1		6/19	2		New nest location
Penns Grove	3/2				0	5/2	Nest down in storm; chick died
Penns Neck A		3/17		6/5	2		
Penns Neck B (Lower)	3/2	4/6		6/19	1		
Pennsville	2/28	4/4		7/1	1		
Picatinny/Lake Denmark	T						
Pilesgrove	3/3	4/3		6/16	2		New nest location
Port Norris	2/14	3/26		6/6	3		
Poxono Island	2/22	3/29		6/12	2		
Princeton	2/26	4/1	5/16	6/13	1		
Prospertown	2/10	3/10	4/17	5/30	2		
Quinton	3/3	4/6		7/10	1		
Quinton B	2/9	3/30		6/30	1		New pair
Rancocas Creek	1/17	3/19		6/24	1		
Reaville	T						New pair
Rio Grande	2/7	3/14			0	4/14	Nest fell in storm; 3 chicks dead
Sadie Lane	1/16	2/20		5/11	1		

Salem (Chestnut)	3/1	3/19		7/3	2		
Salem River	1/22	3/3		5/24	2		
Sayres Neck	2/2	3/14		6/10	2		
Sayres Neck B	1/26	3/14			0	3/29	
School House	2/3	3/14		6/8	2		
Seabrook	2/18				0	4/4	
Sea Breeze A	2/23	3/31		6/16	1		
Sea Breeze B	2/10	3/17			0	3/30	
SFE Tower	2/13	3/19		6/5	2		
Shark River	2/17	3/24		6/11	2		
Shiloh Tower	1/23				0	2/27	
Silver Lake	2/1	3/8		6/18	1		
South Dennis		<2/23		7/25	1		
South River-Atlantic	2/28	3/29			0	5/10	
Stanton Station	3/6	4/10		7/4	1		
Stillwater	2/28				0	4/28	
Stow Creek A (North)	2/9	3/29		5/10	2		
Stow Creek B	T						
Stow Creek D	2/24	3/22		6/29	1		
Stow Creek E	2/24	3/22		6/29	1		
Stow Creek F	2/27	3/22		6/29	1		
Stow Creek G	2/24	3/24		6/29	2		
Sunset	2/1	3/8		5/31	2		
Supawna Meadows A	2/27				1		New nest location
Supawna Meadows B	T						
Swedesboro-Birch Creek	1/25	3/6		6/8	3		
Sylvan	3/30	5/4			1		New pair
Three Bridges	2/21	3/31	5/16	6/22	2		
Timber Creek	2/13	3/20		6/15	2		
Tindall Island					1		New nest location
Tocks Island	2/22	3/29		6/21	1		
Trenton	2/25	4/1		6/27	3		
TSG	1/23	3/8			1		New pair
Tuckahoe A		3/26			2		
Tuckahoe B	T						
Turkey Point A	2/15	3/23		6/8	1		
Turkey Point B	2/2	3/14		6/8	1		
Turnersville	2/4	3/11		6/3	2		
Upper Millstone	T						
Upper Oldmans	2/16	3/27		6/7	2		
Wading River A	?				0	?	
Waretown	3/2	4/18		7/12	2		

Warfle	2/15	3/23		6/22	2		
Wawayanda				7/8	2		New pair
Woodbury Creek	3/9	4/20			1		
Woodcliff Lake	3/8	4/8		6/29	2		
Yards Creek	3/26	4/30		7/9	2		
Total Nests Monitored	**210**						
Total Nests Active & Known Outcome	**184**						
Successful Nests	148						
Failed Nests	35						
Young Fledged	**249**						
Active/Unknown Outcome	6						

Table 2. Previously documented eagle nests that were not used, or could not be documented, in 2019.

Alloways Creek-B CE	Fort Dix	Maurice River (Leesburg)	Silver Lake Tower
Ballanger Creek East	Fortescue B	Maurice River-Millville N	Stathems Neck
Bayside C	Forked River	Maurice River-Somes Drive	Stipson Island
Bear Swamp	Galloway	Miry Run	Stonemeeting House
Beaver Dam osp	Goshen	Mullica	Stow Creek B
Bidwell Creek	Hancock B	Nantuxent C	Stow Creek C
Birch Pond (Passaic)	Harvey Brook	National Park	Tindall Island B
Blue Anchor	Harrisonville	Newport Meadows A	Union Lake
Canton Sheep Farm/Canton	Humphreys (Salem)	Oceanport	Wanaque A
Cedar Pond (Passaic)	JB-Lakehurst	Oyster Creek	Westmont
Charlottesburg (Rockaway)	Lake Hopatcong A	Palisades A	Westons Mill Pond
Cohansey CC B	Lake Musconetcong	Palmyra Cove	Wheaton Island
Cohansey (Greenwich A)	Lewisburg-Wantage	Patcong Creek A	Wanaque B
Cohansey (Middle Marsh B)	Mad Horse WMA (tower)	Pequest	
Cohansey (Teaburner)	Mannington Meadow C	Point View Reservoir	
Dias Creek West	Mannington Meadows B	Pompton Lakes	
Fenwick	Maurice River (Bluffs)	Riggins Ditch	
Ferry Tower Road	Maurice River- Bowkers	Round Valley	

2019 Season Highlights

Telemetry

Endangered and Nongame Species Program biologists, with the Conserve Wildlife Foundation, have attached satellite transmitters on several eagle fledglings over the past four years. In 2019 a satellite tag was placed on a nestling from the Duke Farms, a nest on webcam. This nest webcam has been watched by thousands of people over the years, so it's exciting to have the chance to follow one of the offspring in real time.

"Duke," banded green E/88, was one of two nestlings in the 2019 nest. The nest was visited on 25 May by biologists who banded and measured the young, before attaching the satellite tag to the male, nicknamed Duke. He fledged on 15 June, and after spending a month near the nest, he began moving away from the nest area. On 24 August he headed south to the Chesapeake Bay region of Maryland. He spent September ranging around that area until 15 October, when he made another big move north to Lake Nockamixon in PA. He then moved southeast to the Peace Valley Reservoir in Bucks County, PA. On 19 October, he headed back to Maryland, where he remained as of December. "***EagleTrax***" mapping shows the movements of all NJ's tagged eagles, and is found on the Conserve Wildlife Foundation of NJ's website, http://www.conservewildlifenj.org/protecting/eagle-trax/

We continue to follow "Pedro," who was tagged in April 2018 as a sub-adult. He has ranged all over southern NJ with a brief jaunts to the central Delaware River. In October-December, 2019, Pedro roamed across Gloucester, Ocean and Atlantic counties. As he enters his sixth year, we would expect him to start settling into his own future nest territory.

During 2019, one eagle previously tagged in NJ stopped transmitting signals. Harmony 2, banded as a nestling in 2012 (green D/64) has spent most of the last seven years in a 100-mile swath of western Connecticut and Massachusetts, suggesting she would end up nesting there. But in January 2019 she headed south to NY along Long Island Sound. In early January, her signal was transmitting from one area in Rye, NY, leading us to believe she was nesting. The signal stopped, but restarted in the same location in March. After a search to locate a nest or an eagle, nothing was found. With the signal stationary, the tag most likely dropped off the bird when the harness broke. Another search was launched in October with no tag found. Due to data-transmission costs, the unit was turned off, but another search is still possible. The tag is nearly 8 years old, and while it still has value, newer satellite tags transmit data at much lower cost.

Tracking tagged eagles helps us to identify good eagle habitat and overnight roost areas with more precision. Depending on funding, we will continue to use satellite tags on NJ eagles to help us understand habitat use and eagle distribution.

Notable Efforts

Storms hit New Jersey around mid-April, when many eagle nests had nestlings ranging from two to seven weeks of age. Nest watchers alerted us to five nests that were damaged or fell completely. At Salem County's Keasbey's Creek nest, John Fox rescued two five-week-old nestlings after the nest tree was blown down. One nestling survived the fall, and staff and

volunteers built a new nest in a nearby tree and re-nested the chick three days later. That chick, banded E/73, fledged successfully. At Cumberland County's Devil's Gut nest, the nest's supporting branches gave way, and the two seven-week-old nestlings were retrieved. Again, only one survived the fall without injury, and she was re-nested after a heroic, remote, installation of an oversized osprey nest platform next to the nest tree. E/74 fledged successfully from that platform.

The power company, PSE&G, provided their bucket truck that allowed biologists to access a suburban nest outside of Princeton for the first time. The company's tower-climbing experts also climbed into the tower nest in Three Bridges to band the nestlings there; that was the fifth banding year for this nest.

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 Batsto Lake, Oswego Lake, Indian Mills Lake, Williamstown, Evesham, Flemington/Raritan River, Canoe Brook Reservoir, White Lake, Musconetcong River and middle Delaware River, all of which have year-round eagle activity. In addition, several inland reservoirs in the north hold promise for eagle nesting.

Resightings of Banded Eagles

Resightings of NJ green-banded eagles have increased over the years, as well as eagles banded in other states and observed here. In Table 3, we list the eagles resighted in recent years in our state and, in some cases, surrounding states. These resightings, accumulated with the help of many photographers and birders, provide insight into eagle movements during the years between fledging and settling into a territory, as well as adult birds at a nest site.

The list of resightings in Table 3 is ordered by the bird's identifier, mostly the color band code. For some individuals, we have multiple resightings that provide some history and a story of that bird's movements.

Table 3. Resightings of marked Bald Eagles in New Jersey and elsewhere, 2019 project year.
** Bands were also resighted in previous years, see 2018 report for more results.*

Band #	Color Band (green unless otherwise noted)	Date Resighted	Reported	Resight Location	Resight State	Band Origin	Band Date	Comments
0629-45887	B/82*	6/29/19	David Razzi	Peace Valley Park	PA	Walpack nest	6/3/2004	
0679-01761	D/25*	12/24/18	Richard Nicol	Ocean County	NJ	Manasquan River nest	4/20/11	
0709-01564	D/74	2/3/19	Linda Widdop	Delaware River, Salem	NJ	Nantuxent B nest	5/3/13	
0709-01589	D/99	1/13/19	Bob Cook	Mercer Co. Park	NJ	Duke Farms nest	5/12/14	
0709-01589	D/99	1/13/19	Yinang Jiang	Mercer Co. Park	NJ	Duke Farms nest	5/12/19	
0709-01589	D/99	2/3/19	Richard Brown	Losen Slote Park	NJ	Duke Farms nest	5/12/19	
0679-01715	C/81	9/15/14	Maya Shikhman	Staten Island	NY	Manasquan River nest	5/6/09	
0679-01717	C/83	9/6/19	Chris Takacs	State Line	NJ	Princeton nest	5/8/09	
0709-01617	E/27	2/19/19	Mercer eagle cam	Mercer Co. Park	NJ	Prospertown nest	4/18/16	
0709-01617	E/27	2/21/19	Gary Szabo	Mercer Co. Park	NJ	Prospertown nest	4/18/16	
0709-06505	E/64	3/9/19	Kevin Walsh	Long Island	NY	Galloway nest	5/1/18	
1098-02172	E/70	12/7/18	Elizabeth Henzel	Tinton Falls Landfill	NJ	Treated@Raptor Trust	10/18/18	Found Monmouth Beach; released
1098-02172	E/70	2/1/19	Brian Hasty	Mercer Co. Parks	NJ	Rehabbed	10/18/18	
1098-02172	E/70	2/2/19	Randy Lubischer	Mercer Co. Parks	NJ	Rehabbed	10/18/18	
1098-02172	E/70	2/17/19	Laura Ingham	Peace Valley Park	PA	Rehabbed	10/18/18	
1098-02172	E/70	2/28/19	Richard Angelillo	Carnegie Lake, Princeton	NJ	Rehabbed	10/18/18	
	R leg green	1/26/19	Daniel Obermeir	Lake Solitude	NJ			adult
	L leg green	3/6/19	Lorraine Jenkins	Davies Mill Pond Rd	NJ			Sub-adult
	R leg green	3/12/19	Andrea H. Villare	South Harrison Twp	NJ			Adult
	Green band	3/30/19	Lisa Capretto	Hockessin	DE			Adult
	L leg green	4/13/19	Bobby Phillips	Conowingo Dam	MD			Adult
	R leg green	9/5/19	Karen Beane	Millinocket	ME			HY
	R leg green	9/19/19	Melissa Kapper	Herrington Harbour Marina	MD			Adult
	R leg green	10/28/19	Scott Blewett	Horseshoe Lake, Morris	NJ			C/## unreadable code

Recoveries of Eagles in New Jersey

During this reporting period, 40 eagles were recovered, and of those, four were treated and released after injuries. The remaining birds were found dead, died while in care, or were euthanized for these reasons: electrocution (10), impacts with vehicles (7), head trauma (3), train (1); fell from nest (1); West Nile Virus (1); capture myopathy after fighting (1); acute lymphocytic myocarditis (1): eagle-eagle fighting (4): caught in fishing lure (1) and unknown circumstances (6) (Table 4). Electrocution is a significant risk for bald eagles everywhere, because power distribution relies on smaller poles where "hot" wires are strung close enough that an eagle's wingspan can cause the bird to make wire connections. ENSP works with the electric suppliers (Atlantic Electric, PSE&G, and JCP&L) to retrofit poles and mark lines where they are high risk, and we use data on eagle nests, roosts, and foraging areas to identify priority sites for those corrections.

Table 4. Bald eagles recovered injured or found dead in this project year.

Date Found	Location Found	Facility	Origin & Date	Age-Sex	Details
12/24/18	S. Harrison, Salem	Tri-State Bird Rescue		AD-M	Talon locked/fighting; died 12/27/18
12/24/18	S. Harrison, Salem	Tri-Sate Bird Rescue		AD-M	Talon locked/fighting; released 12/25/18
12/31/18	Millville, Cumberland	Tri-State Bird Rescue		Juv-U	Found in snare trap. Treated for lead poisoning and released 1/27/19
1/11/19	Fairfield, Cumberland	NJDFW SRO/Tuckahoe		AD-F	Hit by vehicle
1/20/19	Port Norris, Cumberland	Tri-State Bird Rescue		AD-M	Euthanized; wounds from fighting
2/10/19	Alloways, Salem	Tri-State Bird Rescue		3 yr M	Impact by vehicle
2/22/19	Dix WMA, Cumberland	None		Juv-U	Cause of death undetermined due to condition
3/16/19	Hammonton, Atlantic	NJDFW Nacote/CRO		Ad-F	Acute head trauma
3/17/19	Hammonton, Atlantic	NJDFW Tuckahoe/CRO		Juv-M	Acute head trauma; found 400' from another eagle
3/31/19	Mercer Co Park	Mercer Co. Wildlife		Juv-F	Euthanized due to untreatable wing fracture
3/24/19	Fair Lawn, Bergen	The Raptor Trust		AD	Found dead; was fighting with eagle
4/28/19	Petty's Island, Camden	Mercer Co. Wildlife		AD	Found injured; died.
4/16/19	Lower Alloways Cr, Salem	NJDFW SRO		6 wk M	Nest fell in storm; chick found dead
5/23/19	Swainton, CMC	Tri-State Bird Rescue		AD	Hit by vehicle; released in June 2019
5/25/19	Pilesgrove, Salem			AD	Electrocution
6/17/19	Logan Twp MUA, Gloucester	Tri-State Bird Rescue		HY-M	Electrocution
6/19/19	Cohansey WMA, Cumberland	Tri-State Bird Rescue		HY-F	Found injured, died; head impact injury
6/30/19	Cold Springs Cemetery, CMC	NJDFW Tuckahoe		HY-F	Impact with vehicle
6/28/19	Parkway mm30, Atlantic	NJDFW Tuckahoe		Juv	Hit by vehicle
7/4/19	Liberty Township, Warren	The Raptor Trust		HY-U	Found injured; died next day
7/21/19	Lower Alloways Cr, Salem	Tri-State Bird Rescue	Nantuxent-1998	AD-F	Euthanized 7/23; 21 years old
7/31/19	Bradley Beach, Monmouth	The Raptor Trust		HY	Surgery on femur; died 8/3/19; impact
8/19/19	Williamstown, Atlantic	Tri-State Bird Rescue		HY-M	Euthanized 8/21; West Nile Virus
8/29/19	Winslow, Atlantic	NJDFW-SRO	Cohansey-2006	13 yr M	Hit by train
9/10/19	Sea Isle City, CMC	NJDFW Tuckahoe		AD-M	Electrocution. Prior to death, this bird was treated for injury/Middle Twp in May, released from TSBR in June.
10/5/19	Money Island, Cumberland	NJDFW Tuckahoe		Juv	electrocution
10/6/19	Medford, Burlington	NJDFW CRO		AD	electrocution
10/15/19	Telegraph Rd, Cumberland			AD	electrocution
10/15/19	Greenwich, Cumberland	Tri-State		AD	Fighting with eagle; released 10/17

10/15/19	Greenwich, Cumberland	Tri-State		AD	Fighting with eagle; talon locked; released 10/19
10/26/19	Maurice River, Cumberland	Tri-State		AD	Found injured; died of Capture Myopathy; high levels of lead
10/31/19	Elmer, Cumberland	NJDFW SRO		Juv	electrocution
11/5/19	New Egypt, Burlington	National Repository		Juv	Impact with vehicle
11/20/19	New Egypt, Burlington	NJDFW CRO		?	Impact with vehicle
11/23/19	North Hanover Twp, Burlington	NJDFW CRO	Patuxent NAS, MD 2019	HY	electrocution
11/25/19	Elmer, Salem county	NJDFW Tuckahoe			Found on side of road
11/28/19	Colliers Mill Rd, Ocean	Mercer Co. Wildlife		AD	euthanized due to injures; unknown
12/6/19	Downe Twp, Cumberland	NJDFW Tuckahoe		AD	Eagle-eagle fighting
12/7/19	Winslow, Atlantic	NJDFW Tuckahoe	2010 Manning-B	AD	Found under powerline
12/9/19	Avalon, Cape May	NJDFW Tuckahoe		Juv	Found dead entangled in fishing lure

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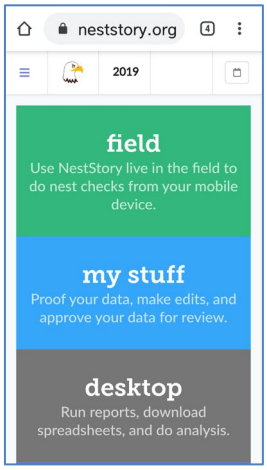

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