

New Jersey Department of Environmental Protection Division of Fish and Wildlife

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New Jersey Bald Eagle Project, 2020

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Cover photo: “Oran,” band E/17, at Port Mahon, DE, on 3/24/2020. This photo documented he was still alive after dropping his satellite transmitter in a field in Maryland in November 2016. Oran fledged from Cumberland County in 2015.
Photo courtesy of Dwayne Ragin.

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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 and forty-eight nest sites were monitored during the nesting season, of which 220 were documented to be active (with eggs) and 28 were territorial or housekeeping pairs. Thirty-six new eagle pairs were found this season, 22 in the south, seven in central and seven in the north. One hundred-seventy-nine nests (85%) of the 210 known-outcome nests produced 307 young, for a productivity rate of 1.46 young per active/known-outcome nest. Thirty-one nests (14%) failed to produce. The Delaware Bay region remained the state's eagle stronghold, with roughly half of all 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 efforts of the dedicated eagle volunteers who observe nests, report sightings, and help protect critical habitat.

Introduction

The records to document the abundance and distribution of eagle nests in New Jersey do not exist. In the 1930s-1950s, when local naturalists and birders began documenting bird activity, bald eagles had already been subject to persecution for decades because of their perceived predatory relationship to game and farm animals (US Fish & Wildlife Service at <https://www.fws.gov/midwest/eagle/history/>). One study supported by NJDFW in southern NJ indicated more than 20 pairs of nesting bald eagles in the Delaware Bay region of NJ in the 1950s (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 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 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 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 after hatching, 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 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 from Canada over an eight-year period (Niles et al. 1991). These eagles contributed to the increase in nesting pairs observed after 1990.

Bald eagles nesting 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 (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 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, identifying land for acquisition and management, and applying the state's land use regulations. ENSP has a history of investigating 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 exhibited some reproductive impairment relative to other areas (Steidl et al. 1991, Clark et al. 1998), but more 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. Landscape Project mapping 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 conducted 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 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, 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 ground or 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 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. As eagle numbers have increased in NJ we found that the standardized count no longer covered all important eagle areas, and that volunteer efforts could be put to better use. Biologists asked eagle project volunteers to search for locations where eagles roost and otherwise concentrate in the winter months of January and February.

Results

Nest Survey

The statewide population increased to 248 territorial pairs in 2020, an increase from 211 last year. Two hundred-twenty pairs were known active (meaning they laid eggs), 30 more than last year (Figure 1); 28 pairs maintained nest territories but did not lay eggs. One hundred seventy-nine nests (85%) were known to be successful in producing 307 young. The productivity rate for 210 known-outcome nests was 1.46 young per active nest, which is above the range of 0.9 to 1.1 young per nest for population maintenance. Thirty-one (14%) nests failed to fledge young. We documented nest failures and brood loss that occurred; 333 chicks were reported at nests, but only 307 made it to fledging. The number of young lost could be higher as monitors can't always see the number of chicks in the first weeks after hatching.

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 the nest table were 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, 1985–2020. Blue bars=number of nests, and blue lines=number of young produced each year. In 2020, 220 pairs were active and 307 young were produced.

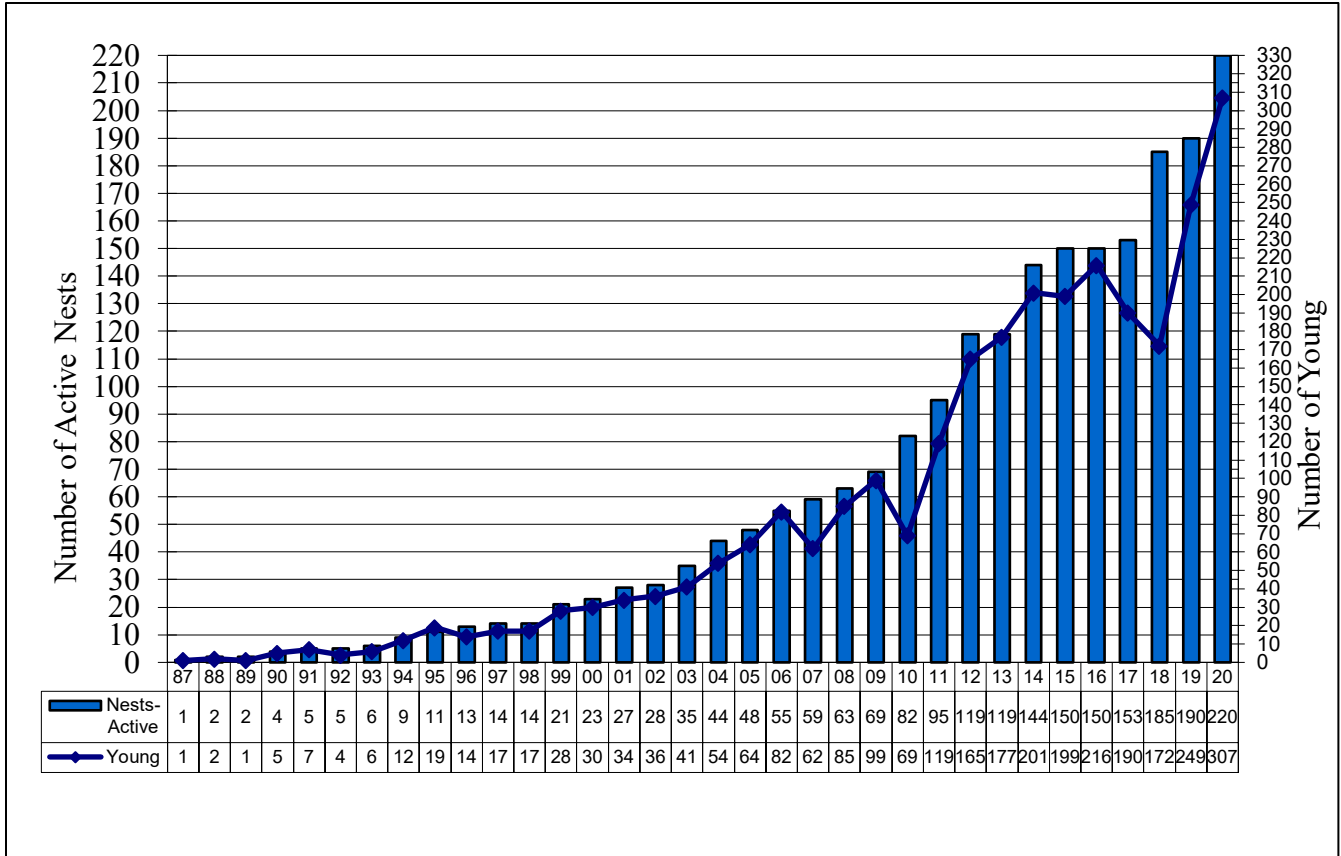


Figure 2. Nests by map number, 2020.

1	Montague Hollow	51	Pigeon Swamp	101	Penns Grove	151	Stow Creek A (No)	201	Husted's Landing
2	Minisink Island	52	Hartshorne Woods	102	Oldman's Creek	152	Devil's Gut	202	Patcong Creek B
3	Bassetts Br. Wallkill	53	Princeton	103	Duffield Run	153	Stow Creek E	203	MR-Somes
4	Dingman's Ferry	54	Pennington	104	Deepwater-1	154	Stow Creek F	204	English Creek
5	Mattison Reservoir	55	Navesink B	105	Deepwater-2	155	Stow Creek G	205	Lower Patcong
6	Wantage	56	Navesink Rvr/Res A	106	Upper Oldmans	156	Long Bridge	206	Tuckahoe A
7	Culvers Gap	57	Parker's Creek	107	Blue Anchor	157	Canton Drain	207	Seabreeze B
8	Little Swartswood	58	Cranbury Neck	108	Pilesgrove	158	Shiloh Tower	208	Sayre's Neck A
9	Hyper Humus	59	Five Mile Run	109	Marshalltown	159	Roadstown	209	Sayre's Neck B
10	Wanaque B	60	Mercer County GC	110	Salem River	160	Sunset Lake	210	Bay Point Road A
11	Poxono Island	61	Upper Millstone	111	Memorial Lake	161	Carmel	211	Bay Point Road B
12	Newton Reservoir	62	Trenton	112	Silver Lake	162	CC Co Imp Auth	212	Nantuxent Creek A
13	Stillwater	63	Crosswicks Creek	113	Cedar Run	163	Oceanville	213	Nantuxent Creek D
14	Lake Mohawk	64	Manasquan Reservoir	114	Oberlin	164	Newport Meadows A	214	Nantuxent Creek B
15	Woodcliff Lake	65	Sylvan Lake Twr	115	Fort Mott tower	165	Newport Meadows C	215	Money Island
16	Yards Creek	66	Shark River	116	Penns Neck A	166	Newport Meadows B	216	Beaver Dam osp
17	Oradell Reservoir	67	Lake Como Cell	117	Penns Neck B	167	Davis Mill	217	Turkey Point A
18	Lake Hopatcong A	68	Prospertown	118	Pointers-Auburn Rd	168	Maca Road	218	Warfle
19	Lake Hopatcong B	69	Manasquan River	119	Supawna B	169	Cedar Hill	219	Robbins Lane
20	Palisades B	70	Brielle	120	Seabrook	170	Union Lake	220	School House
21	Mount Hope Lake	71	Burlington Island	121	Harris (Salem)	171	South River-Atlantic	221	Turkey Point B
22	Paterson	72	Jacobstown	122	Daretown	172	Newport Meadows E	222	Fortescue C
23	Bogota	73	Edgewater Park	123	Toll Bridge	173	Wheaton Island	223	MR-Sandplant
24	Boonton	74	Delanco	124	Hackett	174	Cohansey-Greenwich A	224	Beesleys Point
25	Parsippany	75	Rancocas Creek A	125	Elmer	175	Cohansey-Shep Mill	225	Tuckahoe B
26	Overpeck Creek	76	Fairgrounds	126	Wading River B	176	Cohansey-Loatman	226	Dividing Creek A
27	Hackettstown	77	Kettle Creek	127	Mullica	177	Cohansey CC A	227	Fortescue A
28	River Barge Park	78	Horicon Lake	128	Ballanger Creek W	178	Cohansey-Hopewell E	228	Dividing Creek B
29	Canoe Brook	79	Pemberton	129	Supawna A	179	Bayside B	229	Hansey Creek
30	Merrill Creek	80	Pennsauken CC	130	Keasbeys Creek	180	Cohansey-Greenwich B	230	Port Norris
31	New Hampton	81	Camden-2	131	Salem (Chestnut)	181	Cohansey-HopewellW	231	TSG
32	Ravine Lake	82	Whiting	132	Quinton	182	Cohansey-HopewellCent	232	Matts Landing 1
33	Great Swamp	83	Medford	133	Alloway Lake	183	Bayside A	233	Matts Landing 2
34	Kearny	84	Eagle Point	134	SFE Tower	184	Hancock A	234	Heislerville
35	Linden	85	Woodbury Creek	135	Quinton-B	185	Middle Marsh-E	235	Cedar Swamp Cr
36	Stanton Station	86	Mantua Creek A	136	Quinton-C	186	Cohansey-MidMarshD	236	Belleplain
37	Milford Tower	87	Mond's Island	137	Elsinboro	187	Cohansey Tindall A	237	Stipson Island Area
38	Duke (Raritan River)	88	DuPont/Raccoon Cr	138	Alloways Creek E	188	Hancock B	238	Sadie Lane
39	Manville	89	Mantua Creek B	139	Cedar Lake (Glouc)	189	Tindalls Island A	239	Egg Island
40	Three Bridges	90	Gibbstown	140	Makepeace Lk	190	Cohansey-MidMarsh A	240	East Point
41	Johnson Park	91	Timber Creek	141	Great Bay Blvd.	191	Tindalls Island C	241	Dennis Creek-2
42	Reaville	92	Kirkwood Lake	142	Mason Pt	192	Cohansey-Ragged Isl	242	Dennis Creek-1
43	Edison Tower	93	Forked River	143	Alloways Creek C	193	Tindalls Island B	243	South Dennis
44	Cheesequake Creek	94	Birch Creek B	144	Alloways Creek F	194	Cohansey-MidMarsh C	244	Bidwell Creek
45	Keansburg	95	Swedes-Birch Creek	145	Centerton	195	Flat Top	245	Bayberry
46	Belford Cell Twr	96	Mickleton	146	Grossup	196	Egg Harbor-A	246	Dias Creek East
47	Old Bridge	97	Foampak	147	Alloways Creek D	197	MR-Peek Preserve	247	Fishing Creek
48	Bull's Island	98	Turnersville	148	Parsonage Run	198	MR C-Bluffs	248	Higbee
49	Mt Airy	99	Waretown	149	Rainbow Lake	199	MR E-Burcham		
50	Lambertville Tower	100	Chatsworth	150	Lake Lenape	200	Sheep Pen Creek		

Figure 2a. Bald Eagle nests statewide.

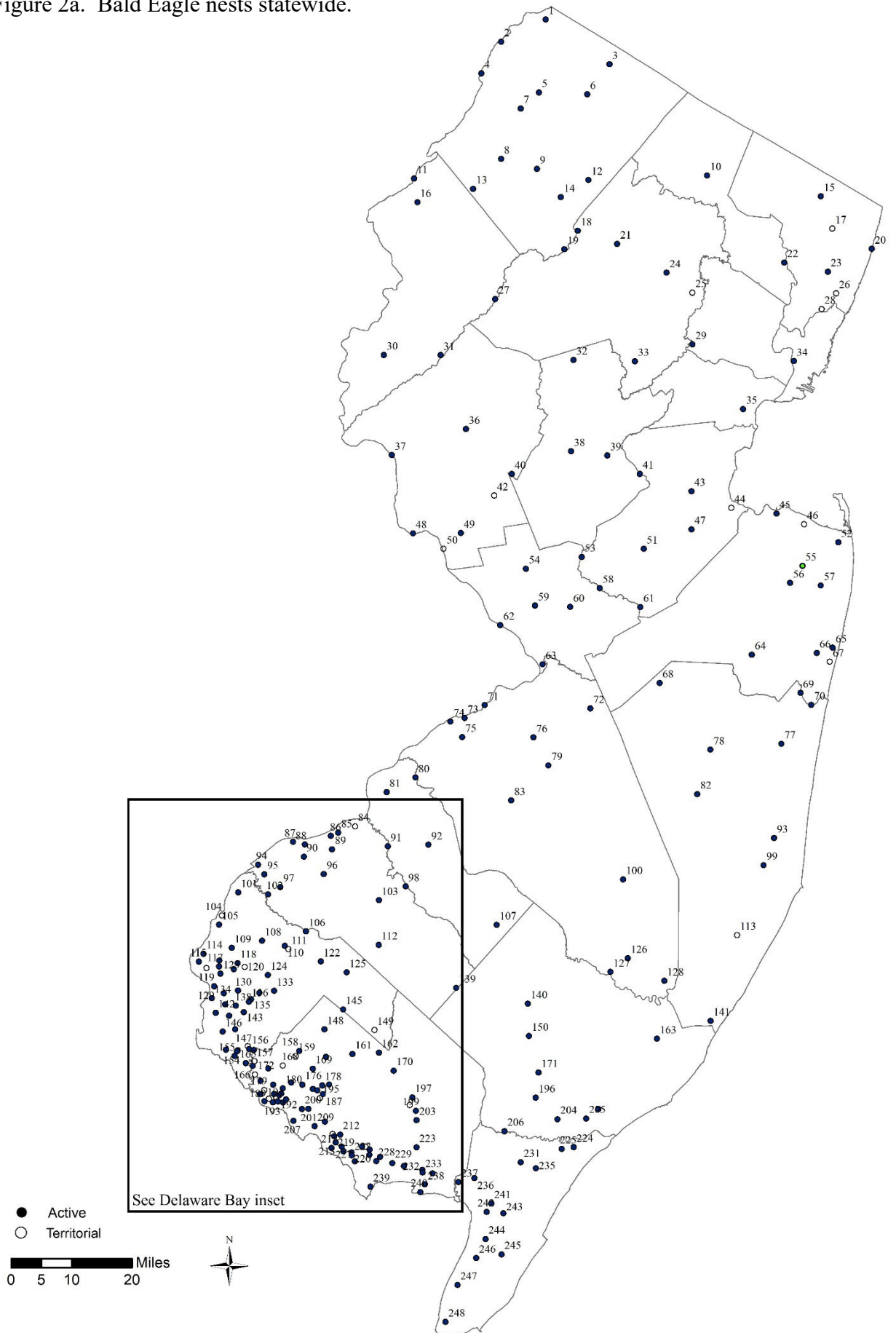


Figure 2b. Delaware Bay inset

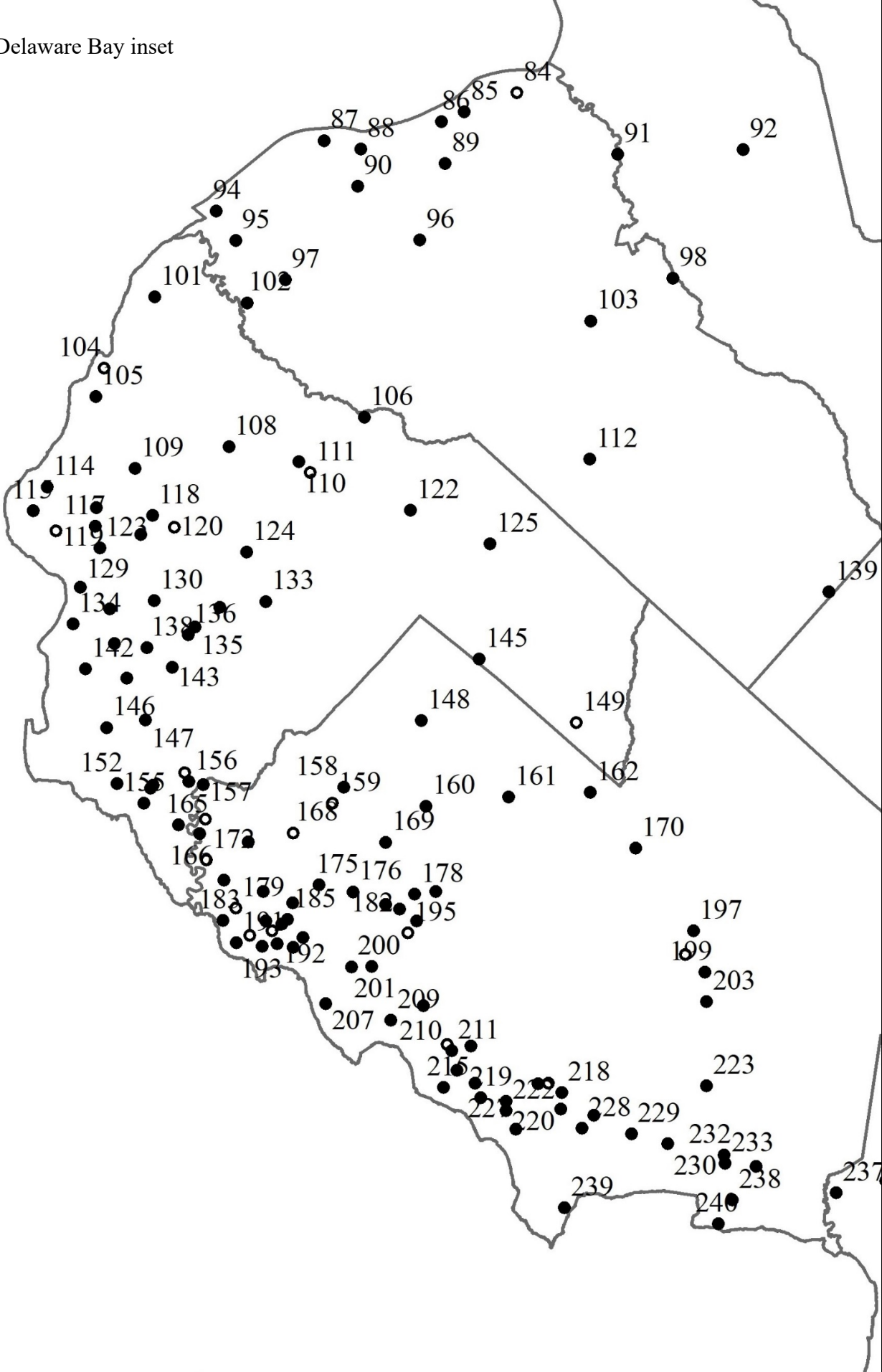


Table 1. Production and estimated dates for bald eagle nests in NJ, 2020. Some dates are unknown and left blank; others may be estimates or first-observed dates. T=Territorial.

NEST SITE	Incubation	Hatching	Banding	Fledging	No. Fledged	Failed date	Notes
Alloway Lake	2/29	3/22		6/26	1		
Alloways Creek C	3/1				0	4/25	
Alloways Creek D	1/31	3/20		5/29	2		
Alloways Creek E	2/8	3/27		6/7	1		
Alloways Creek F	1/24	3/2		5/24	2		
Ballanger Creek West	3/5	4/14		7/2	2		
Bassett's Bridge (Walkill)	2/11	3/20		6/19	1		
Bayberry- Kindle	2/26	4/3			0	4/13	New pair
Bay Point Road A	T						
Bay Point Road B	2/8	3/11		6/12	2		
Bayside A	2/17	3/23		6/15	2		
Bayside B	T						
Beaver Dam (osp)	2/20	3/26		6/18	1		
Beesleys PT	3/24				0	4/6	
Belford	T						
Belleplain East Creek	Assumed				?		Unknown outcome
Bidwell (East)	1/16	2/20		5?14	2		New nest tree
Birch Creek B	<3/26				?		Unknown outcome
Blue Anchor	<3/26			7/11	1		New nest tree
Bogota	3/1	4/5	6/25	6/17	1		New pair; grounded fledgling treated at Raptor Trust 6/21-released 6/25
Boonton	Unk				0	2/29	Partial nest collapse
Brielle (Tr. Is.)	1/27	3/2		5/25	2		
Bulls Island	2/8	3/14		6/4	2		
Burlington Island	Unk	Unk			?		Unknown outcome
Camden 2A	2/26	4/1	7/9	7/9	2		Nest fell 6/5; 2 nestlings found, rehabbed & released off-site
Canoe Brook Reservoir				6/26	1		New pair: nest discovered late in season
Canton Drain	2/18	3/25		6/18	2		New pair; nested in original Stow Creek nest tree
Carmel	1/12	2/20			0	5/17	
CCIA Cumberland	2/24				0	4/26	
Cedar Hill (Cumberland)	2/9	3/16		7/3	1		
Cedar Lake (Gloucester)	1/20	2/24		5/18	1		
Cedar Run (Ocean)	T						Nest collapsed 4/13
Cedar Swamp Creek	2/27	3/16		6/8	2		
Centerton	2/18	3/24		6/16	1		New pair
Chatsworth	2/11	4/5		7/11	1		

Cheesequake Creek	T						Nest fell 2/23
Cohansey (Greenwich A)	2/4	3/4		6/1	3		
Cohansey (Greenwich B)	2/24	3/30		6/13	2		Fledgling hit by vehicle 6/13; euthanized due to injuries
Cohansey (Hopewell Central)	2/16				0	2/20	Nest blown out of tree; two eggs on ground
Cohansey (Hopewell East)	2/16	4/2		6/5	2		
Cohansey (Hopewell West)	2/16				0	4/2	
Cohansey (Loatman)	2/16	3/22		6/2	1		
Cohansey (Middle Marsh A)	2/23	3/22		6/17	2		
Cohansey (Middle Marsh C)	3/15				0	4/19	
Cohansey (Middle Marsh D)	2/15	3/22		7/7	3		
Cohansey(Middle Marsh E)	2/23	3/29		6/18	3		
Cohansey (Ragged Island)	3/15	4/20		7/13	1		
Cohansey (Sheppards Mill)		<4/10			2		
Cohansey (Tindells Landing)	2/23	3/22		6/17	2		
Cohansey CC A	2/8	3/11		6/6	2		
Cranbury Neck	2/17	3/26		6/20	1		New pair
Crosswicks Creek	3/8	4/12		7/30	2		Nest fell in July
Culvers Gap	2/28				0	4/11	
Daretown	1/31	3/8			0	5/7	Poisoning event sickened both adults (treated & released), killed 2 nestlings in nest. Law Enforcement case.
Davis Mill	2/2	3/11		6/3	2		
Deepwater	T						
Deepwater 03A	2/14	4/3		6/15	2		
Delanco	2/28	4/11		6/15	3		
Dennis Creek		3/30		6/22	3		New nest tree
Dennis Creek 2	2/1	3/7		5/25	1		
Devil's Gut	2/24	3/30		5/29	1		New nest tree
Dias Creek (East)	<4/9				0	5/1	
Dingman's Ferry	2/28	4/6		6/21	2		
Dividing Creek	3/5				0	4/4	
Dividing Creek B	2/20	3/26			0	4/10	Nest fell 4/10; 3 chicks found dead
Duffield Run		4/17		7/10	1		New pair
Duke (Raritan River)	1/20	2/26		5/20	2		Camera offline after 4/20 storm; juveniles sighted in flight, 6/26
Dupont/Raccoon Creek	2/12	3/22		6/20	1		
Eagle Point	T						New nest location
East Point	2/16	3/22		6/17	1		
Edgewater Park	2/25	4/12		6/16	3		New nest tree: nest fell in windstorm on 2/7; pair rebuilt

Edison Tower	2/9	3/11		6/4	3		
Egg Harbor	1/24	2/28		5/22	2		
Egg Island	2/7	3/20	4/25	6/13	1		
Elmer	2/3	3/12		6/5	1		New pair
Elsinboro	2/9				0	4/14	
English Creek	2/22	3/17	5/2	6/7	1		New nest location
Fairgrounds	2/16	3/28		6/14	1		
Far Hills/Ravine Lake	2/12	3/17		6/7	1		
Fishing Creek	Unk				2		Survey by CMCMC
Five Mile Run				6/30	2		New pair
Flat Top	T						New pair using old nest
Foampak	2/12	3/27		6/10	2		New pair
Forked River	3/7				?		New nest tree; unknown outcome
Fortescue	2/20	3/16		6/18	1		
Fortescue C	1/24	3/5		5/22	1		New pair
Fort Mott	3/27	5/1		6/18	3		New pair
Gibbstown	1/16	3/1		5/17	2		
Great Bay Blvd.	2/3	3/13			0	4/13	Nest partially collapsed in 4/13 storm; 1 dead chick on ground
Great Swamp	1/20	2/27		5/21	1		
Grossup	2/15	3/20		6/4	3		New nest location; nest destroyed in 6/3 storm; 3 chicks confirmed fledged.
Hackett (Salem)	2/24	3/30		6/23	1		
Hackettstown	2/23	4/5		6/28	2		
Hancock A	2/17	3/23		6/13	2		
Hancock B	T						
Hansey Creek	2/20	3/26		6/4	2		
Harris (Salem)	3/15	4/20		7/3	1		
Hartshorne Woods Park	2/1	3/16		6/9	1		
Heislerville	1/15	3/1			0	4/14	Nest fell in 4/13 storm
Higbee	2/25	4/27		7/17	1		
Horicon Lake	2/11	3/17		6/9	1		New pair; nest found 5/9
Husted's Landing	1/19	2/23		5/17	2		
Hyper Humus	3/21	4/21		7/30	2		
Jacobstown	1/7	2/11		5/11	1		
Johnson Park	3/10				0	4/13	Nest collapsed in 4/13 storm
Keansburg Cell	3/5	4/12		7/9	1		
Kearny	2/19	3/29		6/14	2		Possible 3 rd fledgling
Keasbey Creek	2/29	4/5		6/14	2		New nest tree
Kettle Creek	2/14	3/19		6/14	3		
Kirkwood Lake				6/29	1		New pair

Lake Como	T						
Lake Hopatcong A				6/10	2		
Lake Hopatcong B	4/6			6/13	3		
Lake Lenape	Assumed				?		Unknown outcome
Lake Mohawk	2/19	3/15		6/13	2		New pair
Lambertville Tower	T						
Linden	2/12	3/25	7/23	6/13	2		Fledgling grounded/HBC on 6/15 on Rt. 1/9, rehabbed, released off-site
Little Swartswood	2/9	3/10		6/2	2		
Long Bridge	2/28	4/10		7/3	2		New pair
Lower Patcong	2/5	3/11			0	3/14	New nest tree
Maca Road	T						New pair
Makepeace	2/7	3/13			1		
Manasquan Reservoir	1/29	3/11		6/3	1		
Manasquan River	1/29	3/8		5/28	2		
Mantua Creek A	2/17	4/6			?		2 chicks sighted early but not confirmed fledged
Mantua Creek B	2/21	3/27			0	4/17	
Manville	2/15	3/24		6/15	2		
Marshalltown	1/31	3/15			0	4/4	
Mason Point	3/2	4/20			0	6/13	
Mattison Reservoir	2/18	3/24		6/23	1		New pair
Matts Landing 1	3/10	4/14			?		Unknown outcome
Matts Landing 2	2/16	3/27		6/17	1		New pair
Maurice River-Bluffs	T						
Maurice River- Burcham	2/15	3/22		6/17	3		
Maurice River-Mauricetown	2/14	3/20		6/12	2		
Maurice River- Peek Preserve	1/29	3/1		5/24	2		
Maurice River- Somes Drive	2/1	3/7		6/6	2		
Medford					1		
Mercer County GC	2/24	4/1	6/16	6/13	2		Nestling found on ground 6/6, rehabbed at MCWC; released on site 6/16
Memorial Lake	T						New pair
Merrill Creek B	3/13	4/14		7/22	2		New nest tree
Mickleton	2/15	3/30		6/16	1		
Milford Tower	2/27	3/31		7/4	2		
Minisink Island	2/28	4/6		6/4	3		
Mond's Island	1/30	3/10		5/25	3		
Money Island	2/20	4/4		6/22	2		
Montague Hollow	<4/5				2		New pair
Mount Hope Lake	2/18				?		Unknown outcome
Mt Airy	2/3	3/9		5/21	3		
Mullica		3/24			2		

Nantuxent Creek A	2/8	3/11		6/6	2		
Nantuxent Creek B	1/31	3/11		5/30	2		
Nantuxent Creek D	2/8				0	5/29	
Navesink River	2/13	3/25		6/11	2		
Navesink B	1/22				0	3/7	New pair
New Hampton	2/22	3/28		6/19	2		New pair
Newport Meadows A	T						
Newport Meadows B	2/21	4/1		6/27	2		
Newport Meadows C	3/11	4/15		7/3	1		
Newport Meadows E	T						
Newton Reservoir	2/27	4/2		6/25	1		
Oberlin	2/28				0	4/7	New pair
Oceanville	2/29	4/6		7/9	2		New nest tree
Old Bridge	3/20				0	4/14	
Oldmans Creek					1		
Oradell Reservoir	T						New nest location
Overpeck Creek	T						
Palisades B	2/12	3/15		6/19	2		
Parkers Creek	2/21	3/25		6/20	2		
Parsippany	T						
Parsonage Run	2/1	3/10		6/6	1		New pair
Patcong Creek B	2/5	3/9		6/7	2		
Paterson	3/10	4/25		7/20	1		
Pemberton	1/13	2/19		5/7	2		
Pennington	1/20	2/17		5/17	2		
Penns Grove	3/5	4/4		6/18	2		
Penns Neck A	1/31	3/12		5/24	2		
Penns Neck B (Lower)	3/8	4/14		7/3	2		
Pennsauken CC	2/19	4/3		6/17	2		New pair
Pigeon Swamp	2/7	3/13		6/5	1		New pair
Pilesgrove	2/15	3/27		6/18	2		
Pointers Auburn	<4/14	5/24		7/17	2		New pair
Port Norris	2/13	3/24		6/6	2		
Poxono Island	2/24	4/5		6/21	3		
Princeton	2/24	3/30		6/13	3		
Prospertown	2/2	3/11		5/17	2		
Quinton	2/24	3/15		6/20	2		
Quinton B	2/2	3/9		6/14	2		
Quinton C	3/22	4/19		6/26	2		
Rainbow Lake	T						New pair
Rancocas Creek	2/9	3/15			?		Unknown outcome
Reaville	T						

River Barge Park	T						New pair
Roadstown	T						New pair
Robbins Lane	2/8	3/11		6/12	2		New pair
Sadie Lane	1/24	2/28		5/10	1		
Salem (Chestnut)	2/15	3/30		6/22	1		
Salem River	1/21	2/28		5/24	1		
Sayres Neck	1/24	2/29			0	3/11	
Sayres Neck B	2/8	3/26		6/6	1		
School House	1/31	3/5		6/6	2		
Seabrook	T						
Sea Breeze B	2/8	3/14		7/7	2		
SFE Tower	2/15	3/20		6/13	3		
Shark River	2/9	3/14		6/1	2		
Sheep Pen Creek	2/23				0	3/22	New pair
Shiloh Tower	1/16	2/28		5/6	1		
Silver Lake	2/7	3/13		6/20	1		
South Dennis	1/28	3/26		7/4	2		
South River-Atlantic	2/18	3/24		6/1	2		New nest tree
Stanton Station	3/22	5/1			0	5/14	
Stillwater	3/15	4/26		7/12	1		
Stipson Island Area	Unk	Unk	6/1	5/25	1		Recent fledgling found on Rt. 47 on 5/28; Tri-State then returned to area 6/1
Stow Creek A (North)	T						
Stow Creek E	2/27	4/1		6/27	2		
Stow Creek F		<4/10		7/3	1		
Stow Creek G	2/28	4/10		7/3	2		
Sunset Lake	1/29	3/19	5/7	5/28	1		Nest fell 5/5; two nestlings found on ground; 1 died & 1 re-nested 5/7
Supawna Meadows A	2/18	4/7		7/2	1		
Supawna Meadows B	T						
Swedesboro-Birch Creek	1/28	3/12		6/3	2		
Sylvan Lake Tower	3/13	4/23		7/10	1		Fledgling grounded 7/10; rehabbed and released off-site 7/30.
Three Bridges	2/23	3/30		6/20	2		
Timber Creek	2/14	3/20		6/12	2		
Tindall Island	T						
Tindall Island B	2/17	3/23		6/15	1		
Tindall Island C					1		New nest tree
Toll Bridge	2/20	3/27		6/13	1		New pair
Trenton	2/24	3/31		6/24	1		New nest tree
TSG	2/4	3/1		6/13	2		
Tuckahoe A	3/17	4/6		6/13	1		Nest fell <6/13

Tuckahoe B	1/18	2/28		5/28	2		
Turkey Point A	T						
Turkey Point B	1/24				0	2/9	Nest fell
Turnersville	2/4	3/10		6/9	2		Nest fell6/9
Union Lake	1/12	2/16		5/10	1		
Upper Millstone	2/4	3/15			0	4/14	
Upper Oldmans	2/25	4/1		6/16	1		
Wading River A	3/2	4/6		6/29	1		
Wanaque B	Unk	Unk		unk	3		
Wantage	2/19	3/25		6/13	2		
Waretown	3/9	4/15		7/11	2		
Warfle	3/11	4/14		7/9	2		
Wheaton Island	2/19	3/15		6/17	1		
Whiting	3/17	4/21		7/14	1		New pair; found 5/14
Woodbury Creek	3/3	4/7		7/2	1		
Woodcliff Lake	2/14	3/24		6/5	2		
Yards Creek	<4/7				?		Unknown outcome
Total Nests Monitored	248						
Total Nests Active	220						
Total Nests Active & Known Outcome	210						
Successful Nests	179						
Failed Nests	31						
Young Fledged	307						
Nests Active but Unknown Outcome	10						

Table 2. Previously documented eagle nests that were not used, or could not be documented, in 2020.

Alloways Creek-B CE	Ferry Tower Road	Maurice River-Millville dam	Round Valley
Bacons Neck	Fort Dix	McClees Creek	Seabreeze A
Ballanger Creek East	Fortescue B	Merrill Creek	Silver Lake Tower
Bayside C	Galloway	Miry Run	Stathems Neck
Birch Pond (Passaic)	Goshen	Nantuxent C	Stonemeeting House
Bear Swamp	Harrisonville	National Park	Stow Creek B
Bridgeport	Harvey Brook	Newport Meadows D	Stow Creek C
Bridgeton	Humphreys (Salem)	Oceanport	Stow Creek D
Camden County	JB-Lakehurst	Patcong Creek A	Tocks Island
Canton Sheep Farm	Lake Musconetcong	Oyster Creek	Wanaque A
Cedar Pond (Passaic)	Lewisburg-Wantage	Palisades A	Westmont
Cold Springs	Mad Horse Creek	Palmyra Cove	Westons Mill Pond
Corbin City	Mad Horse WMA (tower)	Pennsville	Wawayanda
Charlottesburg Res	Mannington A	Pequest	
Cohansey CC B	Mannington Meadow C	Picatinny/Lake Denmark	
Cohansey -Middle Marsh B	Mannington Meadows B	Point View Reservoir	
Cohansey -Teaburner	Maurice River- Bowkers	Pompton Lakes	
Dias Creek West	Maurice River-Leesburg	Riggins Ditch	
Fenwick	Maurice River-Millville N	Rio Grande	

2020 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 five years. In 2020 we followed two eagles. These tagged eagles are helping to identify eagle habitat and overnight roost areas by their activity patterns. Depending on funding, we will continue to use satellite tags on NJ eagles to help us understand habitat use and eagle distribution.

Duke

We have been following “Duke” on NJ EagleTrax, since he fledged from the Duke Farms nest on June 15, 2019. He spent January in the Chesapeake Bay region, and in February-March he was ranging around northern MD and southern PA. On March 21 he made a big move up to NJ and was very close to his old nest. In April he ranged along the Susquehanna River in southern PA and the Chesapeake region in MD, but also made a quick trip north into PA and back to MD. Duke spent all of May along the Susquehanna River near the Conowingo Dam. On June 1, he made another trip up to Duke Farms and his old nest site. On June 9, he started heading back south and spent the rest of the month along the Susquehanna River; he remained on the lower Susquehanna for all of July through October.

Pedro

We continued to follow “Pedro,” who we had tagged in April 2018 as a sub-adult. He ranged from southern NJ to Monmouth County with a brief jaunt to PA. Pedro spent the fall of 2019 and early winter of 2020 in Gloucester and Atlantic counties. On Friday, February 28, 2020, ENSP biologist Kathy Clark noticed that Pedro's signal in Mantua Township, Gloucester County, hadn't moved since the previous day, which could mean something was wrong. NJ Eagle Project volunteers went out to search, and found Pedro in a culvert filled with brush, unable to fly. The volunteers secured Pedro in a carrier and he was taken to Tri-State Bird Rescue & Research in Delaware for evaluation. Unfortunately, he had to be euthanized due to severe injuries that included a dislocated shoulder and head trauma, of unknown cause.

EagleTrax mapping shows the movements of all these eagles, and can be found on the Conserve Wildlife Foundation of NJ's [website, http://www.conservewildlifenj.org/protecting/eagle-trax/](http://www.conservewildlifenj.org/protecting/eagle-trax/)

Notable Efforts

On May 5, an eagle nestling was found on the ground in Bridgeton near the Sunset Lake nest and was taken to Tri-State Bird Rescue & Research in Delaware. The very next day a second nestling – its sibling – was found at the same location. The first nestling was found to be in good health, but the second one did not survive its injuries from the fall. We determined that their nest had partially fallen out of the tree, and the adults remained nearby. ENSP and CWF staff installed a temporary platform nest in which we built a nest for the surviving chick. She was 8.5 weeks old, so she was still a few weeks away from taking her first flight. We banded her with green band E/92 and placed in her new nest. She remained in the nest until she fledged on May 28.

On June 5, we received notice that the Camden nest had fallen, with two approximately 9 week old chicks not yet flying. Despite an extensive search there were no signs of the two nestlings. On June 28, NJDFW Law Enforcement was alerted to eagles being held in a dog pen at a residence in Camden. A visit to the residence found the missing two eagles, and they were taken to Tri-State Bird Rescue & Research for evaluation and treatment. After a week they were deemed healthy enough for release, but at that point there was no eagle activity at their old nest site. Staff established a “soft release” area in Dividing Creek where we could provide supplemental food (fish and road-killed mammals) in a safe place, and where other juvenile and sub-adult eagles would provide the social learning they needed. On July 9 the two Camden eagles were released at the site. Food was left daily for the first four weeks, and a trail camera was installed to document eagle use.

The soft release site was necessary for two additional juvenile eagles: one from Linden, and one from Sylvan Lake. The Linden eagle sustained injuries on the Route 1+9 highway after fledging, but was successfully treated at The Raptor Trust. The fledgling at Sylvan Lake became grounded in a very residential area, and was treated at Toms River Avian Care where she gained some flight skills. With the later releases of these two eagles, provisional feeding was maintained, but dropped back to every two-three days and ending October 1. By that time, the trail camera documented that the juvenile eagles had become infrequent at the site. The site had attracted juvenile, sub-adult, and adult eagles on a regular basis, as well as black and turkey vultures on a daily basis.

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, 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 have eagles seen in NJ that were banded in other states. 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.

Band #	Color Band (green unless noted)	Date Resighted	Reported	Resight Location	Resight State	Band Origin	Band Date	Comments
0629-45810	A-95	3/4/20	Scott Kemper	John Heinz NWR	PA	Mannington 2	5/13/02	
0629-46819	C/11	1/19/20	Tom Gunia	Lake Solitude	NJ	Princeton	5/17/06	
0629-46820	C/12	10/27/19	Lori Banchi	Roxbury Twp	NJ	Princeton	5/17/06	
0629-46845	C/37	1/29/20	Barb McKee	Landsdown-Annandale	NJ	Princeton	5/9/07	
0629-46867	C/59	1/11/20	Gary Szabo	Allentown	NJ	Fort Dix	5/2/08	Female at Jacobstown
0629-46873	C/65	7/10/19	Dallas Hetherington	Ravine Lake	NJ	Little Swartswood	5/19/08	
0679-01747	D/12	12/8/19	Vincent Deblaze	Winslow Twp	NJ	Mannington 2	5/7/10	
0679-01761	D/25*	12/21/19	Richard Nicol	Ocean County	NJ	Manasquan River	4/20/11	
0679-01768	D/31	5/1/20	Linda Palmer-Hoffman	Brown's Pt. Park	NJ	Little Swartswood	5/9/11	
0709-01607	E/17	3/24/20	Dwayne Ragin	Port Mahon	DE	Egg Island	5/18/15	Transmitter
0709-01561	D/71*	3/5/20	Jim Joy	Manville	NJ	Navesink	5/1/13	Male in Manville pair
0709-01612	E/22	4/6/20	Ami Shecter	Paulinskill River	NJ	Newton Reservoir	6/10/15	Male seen with mate
0709-01641	E/51	1/11/20	Gary Szabo	Allentown	NJ	Galloway	4/21/17	
0709-01647	E/57	4/11/20	Thomas Ambler	Cromwell	CT	Three Bridges	5/12/17	
0709-06516	E/76	2/29/20	John Dane	Union Beach,	NJ	Manasquan River	5/2/19	
	R leg Green ?/37	11/7/19	Linda Rapacki	Raritan River, Hunterdon	NJ	Either C/37 or D/37		
	L leg Green	Fall 2019	Beth O'Neal	Stow Twp.	NJ			
	R leg Green	4/6/20	Diane Cook	Reaville	NJ			Sub-adult
	S/92 Blue	4/26/20	Ami Shecter	Peters Valley	NJ	Sullivan Co, NY	5/2007	

Selected resighted eagles:

C/11 by Tom Gunia



C/11 by Jim Crossin



E/22 by Paulinskill River Photography



C/59 by Gary Szabo



A-95 by Scott Kemper



C/37 by Barb McKee



Recoveries of Eagles in New Jersey

During this reporting period, 53 eagles were recovered, and of those, ten were treated and released after injuries due to poor fledging (4), poisoning (2), illegal possession (2), vehicle strike (1), and fall from nest (1). The remaining birds were found dead, died while in care, or were euthanized for these reasons: electrocution (10), various impact/trauma (8), poisoning (4), fell from nest (4), eagle-eagle fighting (3), vehicle impact (2), avian pox (1); and unknown circumstances (11) (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
1/26/20	Pittsgrove, Cumberland	NJDFW Tuckahoe		AD	Impact trauma
2/9/20	Fairfield Twp, Cumberland	NJDFW-SRO		AD	Electrocution
2/11/20	Upper Twp, Cape May	NJDFW Tuckahoe		AD-M	Found dead; eagle-eagle fighting
2/15/20	New Egypt, Burlington	USFWS	Monmouth-2016	4 yr-F	Band E/49. Electrocution
2/16/20	Belleplain, Cape May	NJDFW Tuckahoe		4 yr-F	Electrocution
2/27/20	Hammonton, Atlantic	NJDFW-SRO			Undetermined
2/27/20	Mantua, Gloucester	Tri-State Bird Rescue	Pedricktown-2017	AD-M	Impact with pole or wires? Band E/62, “Pedro”
3/2/20	Shamong, Burlington	NJDFW-SRO			Carcass decomposed; undetermined
3/2/20	Lower Alloways, Salem	NJDFW-Tuckahoe		1 yr-M	Electrocution
3/13/20	Carneys Point, Salem	Tri-State Bird Rescue		AD-M	Electrocution
3/23/20	Lakeville, Wayne, PA	PA Game Comm.	L Swartswood-2007	AD- F	Band C/30. Trauma
4/5/20	Tindell Island, Cumberland	NJDFW-Tuckahoe		AD-?	Carcass decomposed; undetermined.
4/10/20	Dividing Creek, Cumberland	NJDFW-Tuckahoe	Dividing Creek B	3-4 wk-F	Impact from fall; nest fell in storm
4/10/20	Dividing Creek, Cumberland	NJDFW-Tuckahoe	Dividing Creek B	3-4 wk F	Impact from fall, nest fell in storm
4/10/20	Dividing Creek, Cumberland	NJDFW-Tuckahoe	Dividing Creek B	3-4 wk-M	Impact from fall, nest fell in storm
4/13/20	Great Bay Blvd, Ocean	NJDFW-Tuckahoe	Great Bay Blvd	3 wk-M	Impact from fall; nest fell in storm
4/23/20	Hopewell Twp, Cumberland	NJDFW-Tuckahoe		4 yr-F	Impact trauma
5/3/20	W. Milford, Passaic	Mercer Co Wildlife		AD-F	Impact trauma
5/5/20	West Deptford, Gloucester	Tri-State Bird Rescue		AD-	Found injured; euthanized due to injuries
5/6/20	Bridgeton, Cumberland	Tri-State Bird Rescue		8 wk-M	Pre-fledgling fell from Sunset nest; died from impact/fall wounds
5/6/20	Bridgeton, Cumberland	Tri-State Bird Rescue		8 wk-F	Pre-fledgling fell from Sunset nest; re-nested 5/7/20
5/7/20	Daretown, Salem	Tri-State Bird Rescue	Greenwich 2004	AD-F	Band B/55. Grounded at nest; released 5/10; after treatment for poisoning
5/7/20	Daretown, Salem	Tri-State Bird Rescue		AD-M	Grounded at nest; released 5/9; after treatment for poisoning. Banded B-09.
5/7/20	Daretown, Salem	Tri-State Bird Rescue		Chick	Dead in nest; poisoning
5/7/20	Daretown, Salem	Tri-State Bird Rescue		Chick	Dead in nest; poisoning
5/17/20	Randolph, Morris	Tri-State Bird Rescue		AD-M	Undetermined

5/28/20	Delmont, Cumberland	Tri-State Bird Rescue	Stipson Island area	HY	Grounded fledgling; E/93, released 6/1 near nest area
5/20/20	Washington Twp, Warren	Raptor Trust		4 yr-M	Impact trauma; euthanized 6/7
6/1/20	Mansfield, Burlington	NJDFW-CRO		AD-M	Trauma
6/2/20	Pennsville, Salem	NJDFW-SRO		AD	Electrocution
6/6/20	Mercer GC, Mercer	Mercer Co. Wildlife	Mercer	HY	Grounded fledgling; E/94, released 6/16 near nest.
6/8/20	Fairfield Twp., Salem	NJDFW-SRO			Electrocution
6/13/20	Greenwich, Cumberland	Tri-State Bird Rescue	Greenwich B	HY	Vehicle impact; euthanized 8/4/20
6/15/20	Linden, Union	Raptor Trust	Linden	HY	Vehicle impact; treated and released at Dividing Creek 7/23/20. Band E/98.
6/20/20	Bogota	Raptor Trust	Bogota	HY	Grounded fledgling 6/20; E/95 released 6/25 near nest.
6/29/20	Camden, Camden	Tri-State Bird Rescue	Camden	HY	Held illegally; E/96 released 7/9 at DC
6/29/20	Camden, Camden	Tri-State Bird Rescue	Camden	HY	Held illegally; E/97 released 7/9 at DC
7/7/20	Lawrence Twp, Cumberland	NJDFW-Tuckahoe		AD-M	Vehicle impact
7/10/20	Bradley Beach, Monmouth	Toms River Avian	Sylvan	HY	Grounded fledgling; E/99, released 7/30 at DC
7/29/20	Salem, Salem	Tri-State Bird Rescue		HY	Died 7/30, undetermined
7/30/20	Fairfield, Cumberland	Tri-State Bird Rescue		AD-M	Eagle-eagle fight injuries; euth 8/2.
8/8/20	Merrill Creek, Warren	USFWS		Juv	Undetermined
8/20/20	Swedesboro, Gloucester	Tri-State Bird Rescue		Juv-M	Electrocution
8/26/20	Salem Co. Landfill	Toms River Avian		Juv	Poisoning
8/29/20	Frankford Twp, Sussex	Avian Wildlife Center			Euthanized due to injuries; unk cause
8/31/20	Vineland, Cumberland	NJDFW-Tuckahoe		4 yr	Undetermined
9/2/2020	Allenwood, Monmouth	USFWS	Navesink 2003	AD	Band B/50. Undetermined
9/5/20	Bivalve, Cumberland	Tri-State Bird Rescue		Juv	Euthanized due to avian pox
9/14/20	Monroeville, Salem	Tri-State Bird Rescue	Merrill Creek-2013	AD-F	Band D/87; electrocution
9/14/20	Salem Co Landfill	Tri-State Bird Rescue		Juv	Poisoning
9/29/20	Hammonton, Atlantic	NJDWF-Tuckahoe		4 yr-F	Electrocution
10/6/20	Lower Alloways Creek, Salem	Tri-State Bird Rescue		AD-M	Trauma; eagle-eagle fighting
11/13/20	Fairfield Twp, Cumberland	None	Delaware-1998	AD-U	Decomposed remains found. The USGS band origin=DE. 629-37086.

Our sincere thanks to everyone who pitched in to help rescue, transport, and treat eagles!

Those interested in helping, please look for the new Raptor Alliance group! Organization and training will be developed in 2021. Follow at www.NJRaptors.org.

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