New Jersey Department of Environmental Protection
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Peregrine Falcon Research and Management Program In New Jersey, 2018

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Nestlings at the 2018 Seaview nest: two native-hatched and two fostered from a nest where an adult was lost. Photo courtesy of Northside Jim.

NEW JERSEY DIVISION OF
Fish and Wildlife

Program Objective: *To enhance the population of the peregrine falcon (*Falco peregrinus anatum*), restoring them to a self-sustaining level throughout their range in New Jersey.*

Summary of Results

The 2018 New Jersey peregrine falcon population increased slightly to 40 known pairs with 37 active (known to lay eggs). Twenty-eight pairs were successful in producing 75 young, for a productivity rate of 2.32 young per active nest and a success rate of 76% (Table 1). Accounting for known young lost around fledging, the productivity rate dropped to 2.05 young per active nest. A brief summary of data collected during the 2018 nesting season follows:

- Twenty pairs (up from 17 last year) nested on towers and buildings and continued to be the core of the nesting population, producing 45 young, for a productivity rate of 2.25 young per active nest (2.05 fledged young/nest). This is close to the long-term average. We used bird-lice spray at some nests pre-season, and treated <2-week old hatchlings at several sites to reduce infestations of parasitic flies (*Carnus hemapterus*). These flies were especially abundant in the Marmora nest where two hatchlings had stunted growth and retarded feather development at 7-21 days of age; we suspect two other young hatched and died prior to our nest visit at approx. 7 days. Flies were not particularly bad at other sites, although they were found in all but two coastal nests.
- Nine pairs, six of which were known active, occupied territories in natural cliff habitat in northeastern NJ. Four nests were successful in producing 12 young for a productivity rate of 2.00 young per active nest. This represents one of the most successful years for cliff-nesting falcons.
- Eleven pairs of falcons were known to nest on bridges this year. Seven of those bridges lie completely within the boundaries of NJ, while four span the Delaware River between NJ and PA and were monitored by NJ. All bridge pairs produced 26 young, but only 16 were confirmed fledged, for a productivity rate of 2.36 (1.45 fledged) young per active nest. Bridges can be difficult to monitor and confirm nest results, as the nest sites are often located out of sight or on inaccessible sections of the bridge. Two recently occupied bridges are low to the water (~20-25 ft) and fledging was probably unsuccessful. At one bridge on webcam (T-P) one young fledged very early and was not resighted on camera, and another was observed with symptoms of lead poisoning and died within ~1 day. Some previously occupied bridges were not tracked due to lack of volunteers; other bridges may have been occupied, but the project lacked monitors in urban locations to document all possible sites.

We were able to band 59 of the 82 young produced (though not necessarily fledged), with an aluminum federal band and a bicolor (black over green) band engraved with an alpha-numeric code. The 23 young we were unable to band fledged from sites that could not be accessed at the appropriate time.

Last year we documented a nestling death in Elizabeth that resulted from lead-poisoned prey. In 2018, the Tacony-Palmyra Bridge nest, also on webcam, had a similar death of a near-fledgling that exhibited signs of lead poisoning and died within about 24 hr. The carcass could not be retrieved for testing because the other young were close to fledging, but it highlighted the threat of lead-contaminated prey in urban nest situations. At the last four nests where we banded chicks, we also collected 0.3 ml blood from 12 chicks that Dr. Erica Miller tested for lead. The results ranged from <0.01 to 0.088 ppm, with the lowest levels at coastal nests, and the highest at an urban bridge site. The prevalence of lead in peregrine diets deserves more investigation to understand the risk and possible sources of Pb for urban peregrines.

The Conserve Wildlife Foundation of NJ operated the webcam at the Jersey City nest, where the six-year-old female 41/AX and her unbanded mate were successful for a second year. However, their single nestling was not entirely healthy, and was held in rehab at Tri-State Bird Rescue for one week before being renested in an Ocean County nest. In his place, we provided three nestlings that were rescued from Goethals Bridge construction and rehabbed at the Raptor Trust. The Jersey City pair successfully raised the three foster chicks, all of which were later resighted in Jersey City. The nest can be viewed online during the nesting season at: http://www.conservewildlifenj.org/education/falconcam/

One of the new nests in 2018 was on the roof of the Seaview Hotel in Galloway, about 2 miles away from the Forsythe Refuge nest removed in 2017. The pair that nested at Forsythe for many years was successful in finding the new nest, and produced two chicks; fortunately, that made this the perfect foster site for two more nestlings whose father had gone missing. The "Forsythe" pair successfully raised all four young. A new nest on the Atlantic City Hard Rock building went unused this year, but another nest was found on the abandoned Plaza building balcony and was unsuccessful. Another new pair was discovered late in the season when keen observers saw adult peregrines flying with two fledglings in the skies of downtown Newark; this is a site to watch in 2019. There were observations of new pairs on some cliffs and old quarry sites, which is heartening to see. On bridges, NJ DOT staff and their contractors helped identify nesting activity.

We are working to expand the use of the program NestStory to document nest activity, adult identities, and eventually connect the myriad databases that tell the stories of individuals throughout their lives.

Resightings and Recoveries

We continued to use remote, motion-activated cameras to photograph peregrines at nests. Using this method we read the leg bands on 19 breeding adults at 10 nest sites. An additional 11 adults were identified using optics. A minimum of 11 adults (27%) were unbanded. The oldest female identified was a 15-year old who nested successfully at Manahawkin; last year's oldest female (19) was not at her Atlantic City nest site in 2018, replaced by an unbanded female of unknown origin. The median age of males and females was 7.0 and 6.0, respectively. The information that these identifications provide is valuable for relating peregrine origin and age to nest success, site fidelity and turnover rate in the population.

In addition to the resightings we recorded at NJ nest sites, we received reports of peregrines sighted here and elsewhere:

- A/15 Dividing Creek 2009 female continued to nest on a marsh in VA, where she's been since 2013.
- 90/AN Marmora WMA 2015 female nested unsuccessfully at Drag Island after an initial attempt in 2017 on an OC osprey platform, also unsuccessful.
- BD/25 Logan 2016 female was seen on the PA DEC Rachel Carson building in January 2018.
- BD/48 Logan 2017 female was resighted in Bronx, NY in November 2017, January 2018, and November 2018.
- BD/62 Jersey City 2017 female was resighted DeKorte Park Sept 2017, and Newark Airport July 2018.
- BD/70 Tacony-Palmyra female 2018 was killed by vehicle strike in Queens, NY, Nov 2018.
- BD/71 Logan 2018 female was resighted in Southbury, CT November 2018.
- BD/74 and BD/76, Jersey City 2018 females, were resighted on buildings near Jersey City in July 2018.

- BD/85 Burlington-Bristol 2018 female was sighted at Palisades State Line lookout, Oct 2018.
- BD/87 Tuckahoe 2018 female was sighted at Deveaux beach, SC, in Nov 2018.
- BD/89 and BD/91, Seaview 2018 females, were sighted at Forsythe and Brigantine, respectively, in July and Sept 2018.
- BD/95 AC Water Tower/Rt. 72 2018 female was photographed at Jones Beach, NY, Nov 2018.
- BD/96 AC Water Tower 2018 female was photographed at G. Bay Blvd, Aug 2018, and at Forsythe on 12/3/18.
- 34/AN Walt Whitman Bridge 2012 female nested on a balcony in Queens, 2016-2018.
- 48/Y Ocean Gate 2007 male has been nesting at the Walt Whitman Bridge since 2015 (or earlier).
- X/97 Swan Bay 2009 male continued to nest at Manahawkin since 2012.
- 76/W Dividing Creek male continued to nest at Stone Harbor, since 2012.
- 08/AM Stone Harbor 2011 male nested at Marmora WMA in 2017-18, after nesting in Wildwood Crest in 2014.
- 10/AM Forsythe 2011 male has been nesting at Atlantic City since 2014.
- 15/AM Atlantic City 2012 male has been resighted multiple times at Stone Harbor; no nest site was known until 2018, when he was recorded at Dividing Creek with another male and one female.
- 38/AM Ocean Gate 2013 male was recorded at Dividing Creek nest with a female and male
- 46/AM Tuckahoe 2013 male nested unsuccessfully with 42/AX (a NY-origin female) in 2018 in AC.
- 72/AM Paulsboro 2015 male nested in downtown Phila, PA in 2018.
- 78/AM Swan Bay 2015 male nested at Tuckahoe in 2018.
- 99/AM Ocean Gate 2016 male nested at Sedge in 2018.
- BE/19 Sea Isle 2017 male was found injured in AC, and died, in March 2018.
- BE/39 Union Co. court house 2018 male was photographed at Liberty S.P. in Oct 2018.
- BE/45 Stone Harbor 2018 male was photographed in Stone Harbor, Aug 2018.
- BE/46 Stone Harbor 2018 male was sighted in Cape May and Stone Harbor, Oct 2018.
- BE/47 Burl-Bristol 2018 male was found dead in Port Mahon, DE, possibly predated.
- BE/50 Brig-Seaview 2018 male was photographed at Forsythe in Sept and Nov, 2018.

Conclusions

The peregrine population increased in 2018, with better nest success than 2017. Nest success improved notably at natural cliff nest sites, despite early spring bad weather. Across all sites – towers, buildings, bridges, and cliffs – nest success was 76% and 2.32 (2.05 fledged) young per active site, an improvement from last year. The tower and building nest sites are the consistent core of the population in NJ, without which the population would fluctuate widely year to year. Management of nest sites, mainly to provide safe, undisturbed nesting environments for the birds, continues to be the predominant factor for a stable and productive population.

Nest success at cliff and quarry sites improved, with four of six active nests successful in producing 12 young. We do not have data on post-fledging resightings to assess fledging success at most of these sites. Observations are always difficult in the more remote locations and where nest sites cannot be viewed after leaf-out. Highly variable nest success observed at cliff territories is a problem if we consider the re-occupancy of historic habitat important call this species recovered.

Management of nesting pairs and nest sites is essential to maintain peregrines in New Jersey. Bridge-nesting birds can be especially vulnerable to nest-site problems, and many other pairs occupy human-dominated sites. An example came this year with the deconstruction of the Goethals Bridge, which resulted in three orphaned nestlings that by chance survived long enough to be rescued. With proper attention to potential nest sites and the cooperation of bridge and building staff, man-made sites can contribute to population viability and

stability, but proper site management takes staff time and attention. Managers are key partners in improving some nest sites and expanding the peregrine population.

Thanks to our talented friend, Northside Jim, the Peregrine Falcon Project now has an online data management system called *NestStory*™. NestStory started as a way to track individual nests through each nesting season, and is expanding to help us manage the large amount of data generated when people report their resightings of individually-marked birds at nests and elsewhere. We also thank the many people who report banded birds to the USGS Bird Banding Lab at www.reportband.gov.

Our Thanks To: Volunteers who protect and watch over peregrine falcons in New Jersey, including Beth Balbierz, McDuffy Barrow, Dan Brill, Frank Budney, Bonnie Coe, Kelly Connolly, Dave Demsey, Greg Gard, Mike Girone, Ray Gilbert, Herb Houghton, Kevin Keith, Mary Kostus, Kristina Merola, Kristen Nicholas, Keith and Jackie Parker, Martin Rapp, Steve Sachs, Frank Sencher, Chris Takacs, Don Torino, Rick Weiman; Forsythe NWR volunteers; Delaware River Port Authority staff (Bill Stricker, Joe McAroy, Joe Riehs); Palisades Interstate Park Commission and the Palisades Interstate Parkway Police; Betty Ann Kelly, Thomas MacDermant and Steve Caruso at Union County; the Burlington County Bridge Commission and their engineers Mike Ott and Glen Miller; Palmyra Nature Center; Don DeRogatis; Diane Joraskie at the Atlantic Club; the Port Authority of NY/NJ; Barbara Deen and Mack-Cali engineers at 101 Hudson Street; Dave Demsey and staff at PBF Energy; Lois Knowlson at Sewaren Generating Station; Stan Kupsey and David Hinton & staff at Logan Generating Plant; Tina Shutz and Bruce Hawkinson of NJDOT; APM Terminal in Elizabeth; the new Hard Rock Café in Atlantic City; Karl Schurr and staff at the Seaview Resort in Galloway; Atlantic City Water Authority; NJ Natural Lands Trust. We thank Northside Jim for documenting many coastal falcons and telling some of their stories at www.exit63.wordpress.com.

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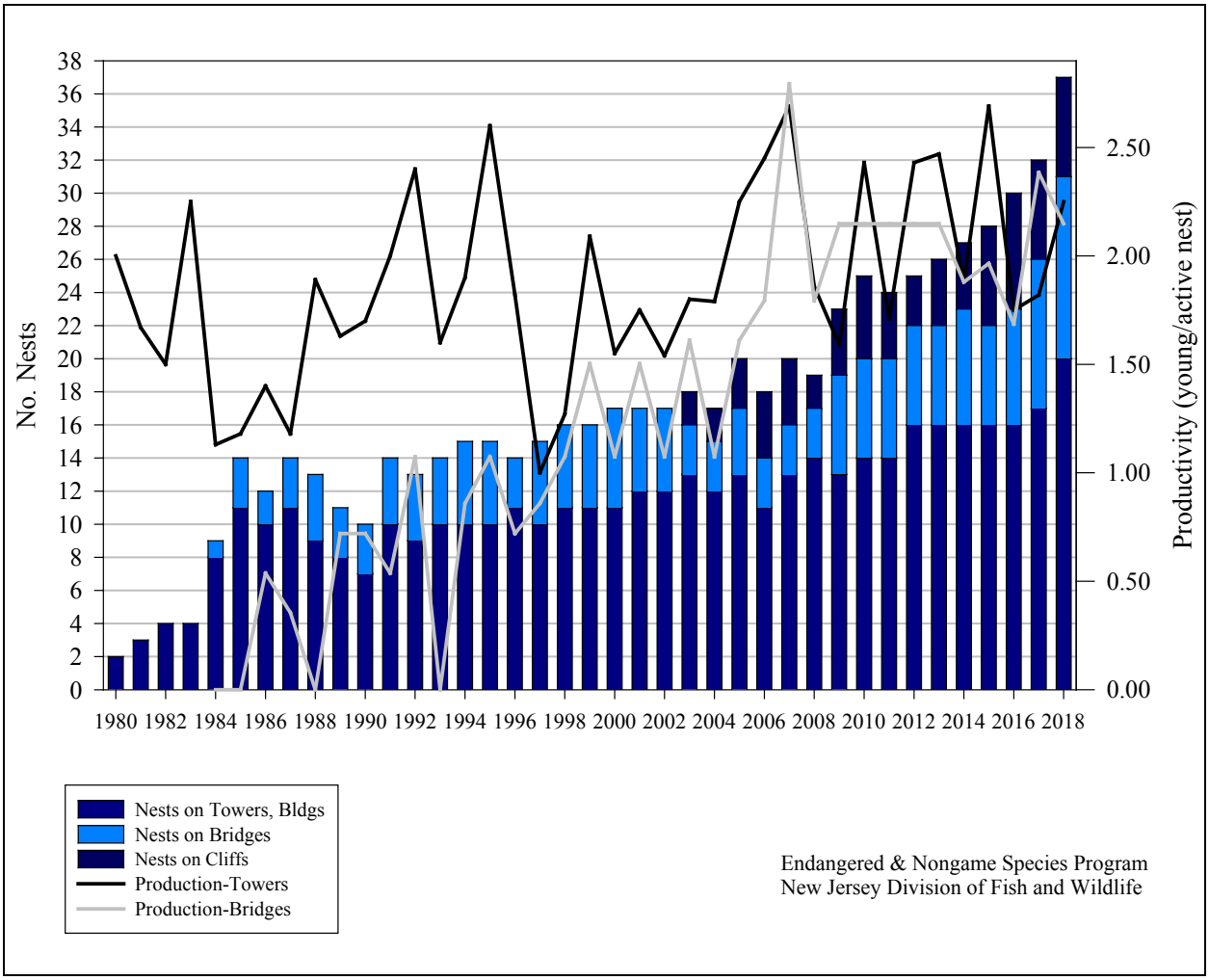
Fledgling BE/39, from Union County court house, observed at Liberty State Park on October 29, 2018. Resightings add to our knowledge of peregrine falcon survival and dispersal.
Photo courtesy of Shayna Marchese.

Table 1. Site-specific results of peregrine falcon nesting in New Jersey, 2018

Site Name	Occupied	Active	Young Hatched	Young @ Band Age	Young Fledged	2018 Comments
101 Hudson, Jersey City	Y	Y	1	3	3	3 fostered from Goethals; 1 native fostered @Sedge
Atlantic City – ACUA water tower	Y	Y	4	4	3	1 to TSBR that fledged at BOIS
Atlantic City –Hard Rock-new	Y	N				Nest box provided.
Atlantic City –old Plaza	Y	Y	0	0	0	Balcony nest found during incubation.
Bayside Prison Water Tower	Y	Y	3	3	2	1 fledgling electrocuted around fledging.
Drag Island	Y	Y	0	0	0	Adult male died and eggs were predated.
Egg Island WMA/Dividing Cr	Y	Y	2	2	2	
Elizabeth-Union County C.H.	Y	Y	4	4	4	
Forsythe NWR/Barnegat	Y	Y	3	3	3	
Forsythe NWR/Brig/Seaview Roof	Y	Y	2	4	4	Fostered 2 from Wildwood Crest
Great Bay WMA/Water Twr	N	N	-	-	-	
Hilton/Casino/Atl Club	Y	Y	2	2	2	1 of 2 fledglings died 2 wk >fledging.
Logan Generating Plant	Y	Y	3	3	3	
Ocean City marsh (osp nest)	N	N				
Marmora WMA	Y	Y	?	2	2	Extreme flies on 2 chicks.
Newark Downtown	Y	Y	?	2	2	Local observers saw 2 fledglings.
Ocean Gate	Y	Y	2	2	2	
Paulsboro Refinery	N	N				Pair still off-site at unk location.
Rt 72/Bonnet Island	Y	Y	1	1	2	Fledged 1+1 ACUA foster, plus 2 from Phila.
Sewaren Generating Station	N	N				No sign of nesting adults.
Sedge Island WMA	Y	Y	2	3	3	Fostered-in 1 JC chick.
Stone Harbor	Y	Y	3	3	3	
Swan Bay WMA	Y	Y	4	4	4	
Trenton-Roebling Bldg (box 2015)	N	N				
Tuckahoe WMA	Y	Y	3	3	3	
Wildwood Crest-Grand Condo	Y	Y	2	0	0	Male disappeared. Chicks fostered to Brig.
SUBTOTAL: TOWERS & BUILDINGS	***20***	***20***	***41+***	***48***	***47***	***Young/Active=2.25, Fledged/Active=2.05***
Delaware Water Gap	N	N				
Natural Site C-1	Y	Y		4	4	
Natural Site C-2	Y	Y		0	0	
Natural Site C-3	Y	Y		3	3	
Natural Site C-4	N	N				
Natural Site C-5	Y	Y		?	3	
Natural Site C-6	Y	Y		0	0	
Natural Site C-7	N	N				
Natural Site C-8	Y	Y		0	0	
Natural Site C-9	Y	N				
Natural Site C-10	Y	Y		2	2	
Natural Site C-11	Y	N				
SUBTOTAL: NATURAL SITES	***9***	***6***		***12***	***12***	***Young/Active=2.00 Fledged/Active=2.00***
Ben Franklin Br. (Del R)	PA					
Betsy Ross Bridge (Del R)	Y	Y	4	4	4	
Brigantine Bridge (A.C.)	U	U				
Burlington-Bristol (Del R)	Y	Y	3	3	3	
Commodore Barry (Del R)	PA					
G. Washington Br (Hudson R)	NY					
Newark Bay Br. (NJTP or Conrail)	U	U				
NJ-PA Turnpike Br. (Del R)	PA					
Ocean City-Longport Bridge	Y	Y	?	2	?	1 died in water at fledging; unknown others.
Pulaski Skyway Bridge	Y	Y	?	?	?	Falcons nesting, observed at distance.
Route 1/Raritan-New Brunswick	Y	Y	?	1	1	
Route 3/Hackensack NJDOT	Y	Y	4	4	4	1 p/u from water, rehabbed TRT, released back.
Route 35 Bridge-Belmar	Y	Y	?	0	0	Failed by mid-May.
Route 46 Br./Little Ferry-Ridgefield	N	N				
Scudders Falls Bridge	PA					
Secaucus-Kearny NJTP Bridge	U	U				
Tacony-Palmyra Br. (Del R)	Y	Y	4	4	3	1 died pre-fledging, lead poisoning 6/6/18
Trenton RR Br	U	U				
Vince Lombardi – NJTP Bridge	U	U				
Walt Whitman Bridge	Y	Y	2	2	2	On NJ tower.
NJTP Bridge/Rahway River	Y	Y	?	4	?	No birds obs around fledging time.
SUBTOTAL: NJ BRIDGES	***11***	***11***		***26***	***17+?***	***Young/Active=2.36 Fledged/Active=1.55***
TOTALS (NJ Only)	**40**	**37**		**86**	**76**	***Young/Active=2.32*, Fledged/Active=2.05**


No. Nests
Productivity (young/active nest)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
0.00
0.50
1.00
1.50
2.00
2.50
1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018
Nests on Towers, Bldgs
Nests on Bridges
Nests on Cliffs
Production-Towers
Production-Bridges
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