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Peregrine Falcon Research and Management Program in New Jersey, 2008

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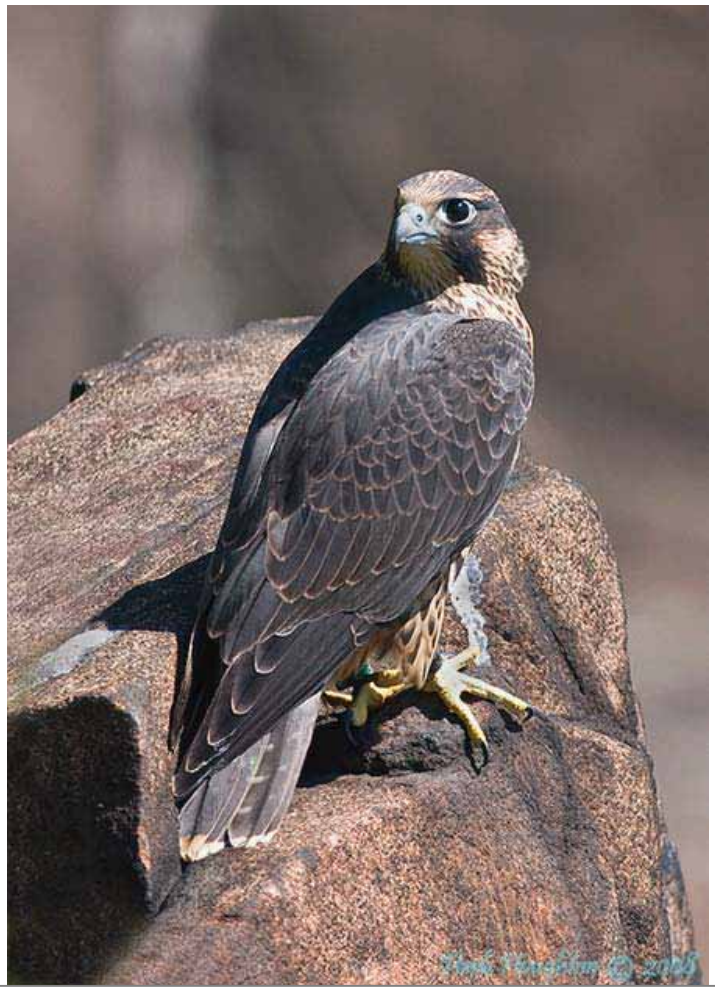

Photo by Herb Houghton, 2008, at the NJ Palisades Interstate Park

Program Objective: *To maintain, monitor and protect the Peregrine Falcon (*Falco peregrinus anatum*) population in New Jersey.*

Project Summary:

In 2008 the New Jersey peregrine falcon population remained mostly unchanged at 20 known pairs. Two previous nest locations in the cliff habitats were not occupied, but a new territory there was occupied and successful. One long-active pair at the Walt Whitman Bridge moved across state lines to occupy the bridge tower in PA, so is reported this year by PA.

Statewide, 14 pairs nested on towers and buildings and three on bridges in NJ. Of 13 pairs on coastal structures and buildings, 11 nested successfully, producing 26 young for a rate of 1.86 young per active nest on towers and buildings. This is near the average of 1.81 recorded since 1986 when the population stabilized. New Jersey monitored three pairs on bridges spanning the NJ-PA border. Pairs on the Betsy Ross and Tacony-Palmyra bridges raised three and two young, respectively; a new pair at Burlington-Bristol Bridge laid eggs but did not hatch young. The Walt Whitman pair, usually in NJ, moved across the line into PA and raised four young. Other bridges may have been occupied in 2008, but the program lacked monitors to document all possible sites, particularly in northern NJ.

The peregrines on the natural cliff habitat dropped to two documented pairs and a third possible pair, from four pairs in the last two years. We speculate that one pair relocated to a nearby bridge, leaving an unoccupied territory. Two of the cliff pairs fledged young in 2008, and for the first time ENSP staff banded those young. The orientation of the cliffs makes all the cliff population vulnerable to easterly and northeasterly storms, which may have played a role in reducing nest success again this year.

For a third year, we donated peregrine nestlings to a mountain hack site in West Virginia. A total of seven young were translocated and hacked at the New River Gorge site near Beckley. We are hopeful that NJ peregrines will help promote peregrine falcon recovery throughout the historic Appalachian Mountain range.

We banded all 34 young produced at 15 nests, using both a federal band and a bicolor band with an alpha-numeric code.

We collected seven addled eggs from four sites for future analysis. The study of contaminants in mid-Atlantic eggs was published in the journal Envir*onmental Contamination*

and Toxicology (Clark et al. 2008); coastal NJ eggs were of special concern with regard to elevated levels of PCBs and DDT compounds, and warrant continued study.

In 2008 we continued to employ remote, motion-activated cameras to photograph peregrines at the nests. By this method we were able to read the legbands on 20 breeding adults at 10 nest sites. This is a tool valuable for identifying nesting adults and recording their origin, age and site fidelity, information useful to judge the stability and viability of the population.

Background: The decline of the peregrine falcon in the eastern U.S. has been linked to persistent organochlorine pesticide contamination. The eastern population plunged from an estimated 350 active sites in the 1930's and 1940's to no active breeding birds in 1964 or 1975. Recovery efforts began in 1975 after DDT was banned in the U.S. The NJ Division of Fish and Wildlife and the Peregrine Fund first hacked falcons in 1975 at Sedge Islands Wildlife Management Area in Barnegat Bay. Hacking continued at several sites until pairs established territories. Wild nesting began at Forsythe National Wildlife Refuge in 1980, and expanded slowly until 1993, when the population reached its present level. In New Jersey, a recovery goal is *consistent, successful nesting by eight to ten pairs*. While there have been 8-10 pairs successful since 1999 (disregarding the variable bridges), we seek longer-term success that includes a stable population in historic and protected nest sites to achieve full recovery. The reestablishment of peregrines in the historic Palisades cliffs in 2003 was the beginning of that more complete recovery. However, we remain concerned about the effects of persistent organochlorine contaminants on the population. NJ participated in a recent study of contaminants in eggs of mid-Atlantic peregrines, and found that New Jersey coastal peregrines had some of the heaviest loads of DDE and mercury. Our work to track life history and nest success, along with contaminant exposure, will help identify effects on the population. Annual management includes monitoring nests, banding young, and improving conditions at nest sites to enhance productivity.

Results and Discussion

There were 20 occupied sites checked during the nesting season (Table 1), with 19 of them known to be active (with eggs). Fourteen pairs on towers and buildings continued to be the core of the nesting population, producing 26 young, for a productivity rate of 1.86 young per active nest. Three active pairs on bridges produced five young, for a rate of 1.67 young/active nest. A

fourth bridge pair were territorial in Trenton, but their outcome was unknown. Only two nests were known active at the natural cliff habitat in northeastern NJ, down from the previously-occupied four territories; the two nests produced two and one young, respectively.

All 34 young were banded with a black-anodized federal band and a black/green bicolor auxiliary band for future identification.

The webcam at 101 Hudson Street, Jersey City, continued to allow viewers to see the workings in that rooftop nest. Unfortunately, two nor'easters on May 9 and 12 wreaked havoc again. Coincidentally, on May 9 biologists were on a planned visit to medicate the nestlings to prevent *Trichomonas* infection, a pigeon-borne contagion to which the urban peregrines are vulnerable. We found one of the four nestlings extremely chilled and near-death, and took that one bird for treatment; the other three were damp but all right. But the cold rain continued all day, with wind directing it into the nest box, and two of the remaining three died by the next morning. The fourth nestling recovered miraculously and was returned to the nest the following week. Eventually two young fledged, but one of those died after fledging due to impact injuries – another hazard of urban locales. Biologists plan to replace this nest box and change the orientation to lessen the effects of easterly storms.

For a third year, we donated peregrine nestlings to a mountain hack site in West Virginia. A total of seven young (five from towers and buildings and two from a bridge) were translocated and hacked at the New River Gorge hack site near Beckley. Some of the hacked birds were fitted with radio-transmitters; information on the hack site can be found at: http://www.nps.gov/neri/naturescience/peregrine.htm. The translocation of young from the coastal population, where production is well above the minimum necessary for population stability, supports the recovery of the peregrine in the entire Northeast and Mid-Atlantic region, and specifically the southern Appalachian mountains where peregrine nesting is still lacking.

Recoveries

We resighted 20 breeding birds using a remote camera, and four others using optics. Of 24 birds resighted as nesting adults in NJ, 17 were the same birds observed in 2007, representing a 29% turnover. This is a higher turnover rate, nearly double, than that observed the previous two years. Contributing to that in 2008 were two nests where both adults were replaced: at Sedge Island, where the pair had been the same individuals for three years, the new female was from Maryland and the new male was a two-year old from Manahawkin. At Heislerville, the new female was a

four-year old from Ocean Gate, and the new male a three-year old from Brigantine. The 2007 nesting female at Egg Island (a 1999 bird) was replaced this year with a two-year old from Virginia. Sedge Island offspring replaced adults at two sites: Ocean Gate (a 2005 male) and Brigantine (a 2000 male). Over recent years, we have identified 20 females and 20 males. Most males (>90%) originated in NJ, while 40-60% of nesting females are of NJ origin. Nesting females from elsewhere represented Maryland (5), Virginia (3), Delaware (1), and Massachusetts (1), while two males were from nearby NY and one from Connecticut. These data show that NJ peregrines are mostly local, but part of a mid-Atlantic region population dynamic.

Last year, we read the band on a falcon nesting on a cliff and learned she fledged from a building ledge nest in Springfield, Massachusetts, in 2001. That bird was not observed in 2008, and may have moved to nest on the nearby George Washington Bridge. We suspect she had nested at the cliffs for at least two years.

An out-of-state resighting included a falcon banded in 2004 at the Atlantic City Hilton (W/*S, black/red), resighted in June 2008 nesting at a quarry in West Roxbury, Massachusetts.

Other recoveries included bird number 987-95667 banded June 2006 in Heislerville, and recaptured at a hawk banding station in September 2006 in Cape Charles, VA. Unfortunately, this same bird was reported dead in Cuba in January 2007. A fledgling from the Jersey City nest this season was picked up injured in June shortly after fledging, and treated at the Raptor Trust; it was released in late June but died shortly thereafter after flying into a window.

Conclusions: Peregrines continued to do well in New Jersey in 2008. Nest success was good at 81%, and 20 active pairs fledged 34 young. Nest success was slightly improved from 2007, but number of young produced was down from the excellent year in 2007. We remain concerned for long-term nest success in the natural cliff habitats, where occupancy dropped in 2008 for the first time since reestablishment of nesting in 2003. We will investigate ways to improve nesting where possible.

We plan to continue the investigation of contaminants in unhatched, salvaged eggs, as well as the close monitoring of nesting pairs to detect problems. The analysis of eggs collected through the 1990s indicated that NJ coastal peregrines were exposed to relatively higher levels of organochlorines than other coastal or inland birds. Research in other areas suggests peregrines also accumulate brominated fire-retardant compounds to a high degree, which bears watching.

Management of nesting pairs and nest sites is essential to maintain peregrines in New Jersey. Bridge-nesting birds are especially vulnerable to nest-site problems, and many other pairs occupy human-constructed sites. With management and the cooperation of bridge and building personnel, these sites can contribute to population viability and stability.

Our Thanks To: Volunteers who protect and watch over peregrine falcons in New Jersey, including Pete McLain, McDuffy Barrow, Beth Balbierz, Tim Jankowski, Larry Walton, Steve James, Chuck Wadding, Keith and Jackie Parker, Jay Nugent, Rick Weiman, Sue and Mark Canale, Hans Toft; Atlantic City Hilton staff (Mel Thompson, Pete Aiuto, Nancy Bowen and others); Forsythe NWR staff and volunteers; Delaware River Port Authority staff; Palisades Interstate Park Commission and the Palisades Interstate Parkway Police; Betty Ann Kelly, John Salerno and Thomas MacDermant at the Union County Court House; the Burlington County Bridge Commission and Jack DiGiovanna, the Port Authority of NY/NJ, Mack-Cali managers and engineers. Thanks to caregivers Don and Karen Bonica at Toms River Avian Care, Dr. Stephen Wurst at Barnegat Animal Clinic, The Raptor Trust, and Tri-State Bird Rescue & Research. Thanks to Shawn Padgett of VA for assistance with remote cameras. Special thanks to John Gumbs and Mitzi Kaiura at the cliffs.

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The Jersey City WebCam (www.njfishandwildlife.com/peregrinecam) was funded by the Conserve Wildlife Foundation of NJ and Verizon, and maintained by Division staff Paul Tarlowe and Jeff Smith. Special thanks to Barbara Deen and Mack-Cali engineers.

We remember Linn Pierson who was dedicated to the restoration of peregrines in New Jersey, and whose donations continue to support this work.

References:

Clark, K.E., Y. Zhao, and C. Kane. 2008. Organochlorine pesticides, PCBs, dioxins, and metals in postterm peregrine falcon (*Falco peregrinus*) eggs from the Mid-Atlantic states, 1993–1999. Arch. Environ. Contam. Toxicol.

Table 1. Site-specific results of peregrine falcon nesting in New Jersey, 2008.

Name	Occupied	Active	Eggs	Yng Hatched	Yng@ BandAge	Yng Fledged	Comments
Sedge Island WMA Tower	Y	Y	≥2	2	1	1	Lice problem
Forsythe NWR/Brigantine Tower	Y	Y	4	4	3	3	
Forsythe NWR/Barnegat Tower	Y	Y	4	≥3	0	0	Interrupted by intruding M?
Marmora WMA / Sea Isle Tower	Y	Y	4	4	4	4	
Great Bay WMA/ water tower	single	N					
Heislerville WMA Tower	Y	Y	4	0	0	0	
Egg Island WMA Tower	Y	Y	3	2	2	2	
Swan Bay WMA Tower	Y	Y	4	3	3	1	2 to WV
Tuckahoe WMA Tower	Y	Y		1	1	1	
Ocean Gate (AT&T) Tower	Y	Y	3	?	0	0	
Stone Harbor marsh	Y	Y	4	2	2	2	
Margate marsh	Y	Y	≥2	≥2	2	2	
Hilton/The Grand Casino	Y	Y	4	4	4	1	3 to WV
101 Hudson, Jersey City	Y	Y	4	4	2	2	5/9 NE storm killed 2. 1 Died post-fledging
Newark -Broad St bldg.	U	U					
Elizabeth-Union Co. Court House	Y	Y	≥2	≥2	2	2	
SUBTOTAL TOWERS & BUILDINGS	***14***	***14***			***26***	***21***	
Natural Site C-1 (Alpine)	Y	Y	≥3	≥3	2	2	
Natural Site C-2 (South)	N	N	0				
Natural Site C-3 (South)	N	N	0				
Natural Site C-4 (North)	Y	Y	3	≥1	1	1	
Natural Site C-5 (Tenafly)	U	U					
SUBTOTAL NATURAL SITES	***2***	***2***			***3***	***3***	
G. Washington Br. (Hudson River)	U	U					
Betsy Ross Br. (Delaware River)	Y	Y	4	3	3	1	2 to WV
Walt Whitman Br. (Delaware River)	Y	Y	4	4	4	1	(PA) 3 to WV
Ben Franklin Br. (Delaware River)	Y	Y					PA
NJ-PA Turnpike (Delaware River)	Y	Y	4	4	4	4	PA
Tacony-Palmyra (Delaware River)	Y	Y	4	2	2	2	
Burlington-Bristol (Delaware River)	Y	Y	4	0	0	0	
Brigantine Bridge (A.C.)	N	N					
Vince Lombardi - NJTP Bridge	U	U					
Secaucus-Kearny NJTP Bridge	U	U					
Newark Bay Bridge (NJTP)	U	U					
Trenton RR Bridge	T	U					
SUBTOTAL BRIDGES	***4 (NJ)***	***3***			***5***	***3***	
Totals (NJ only)	**20**	**19**			**34**	**27**	**(7 yng to WV)**

Figure 1. Nesting and productivity of peregrine falcons in New Jersey, with comparisons between towers/buildings, cliffs, and bridges.

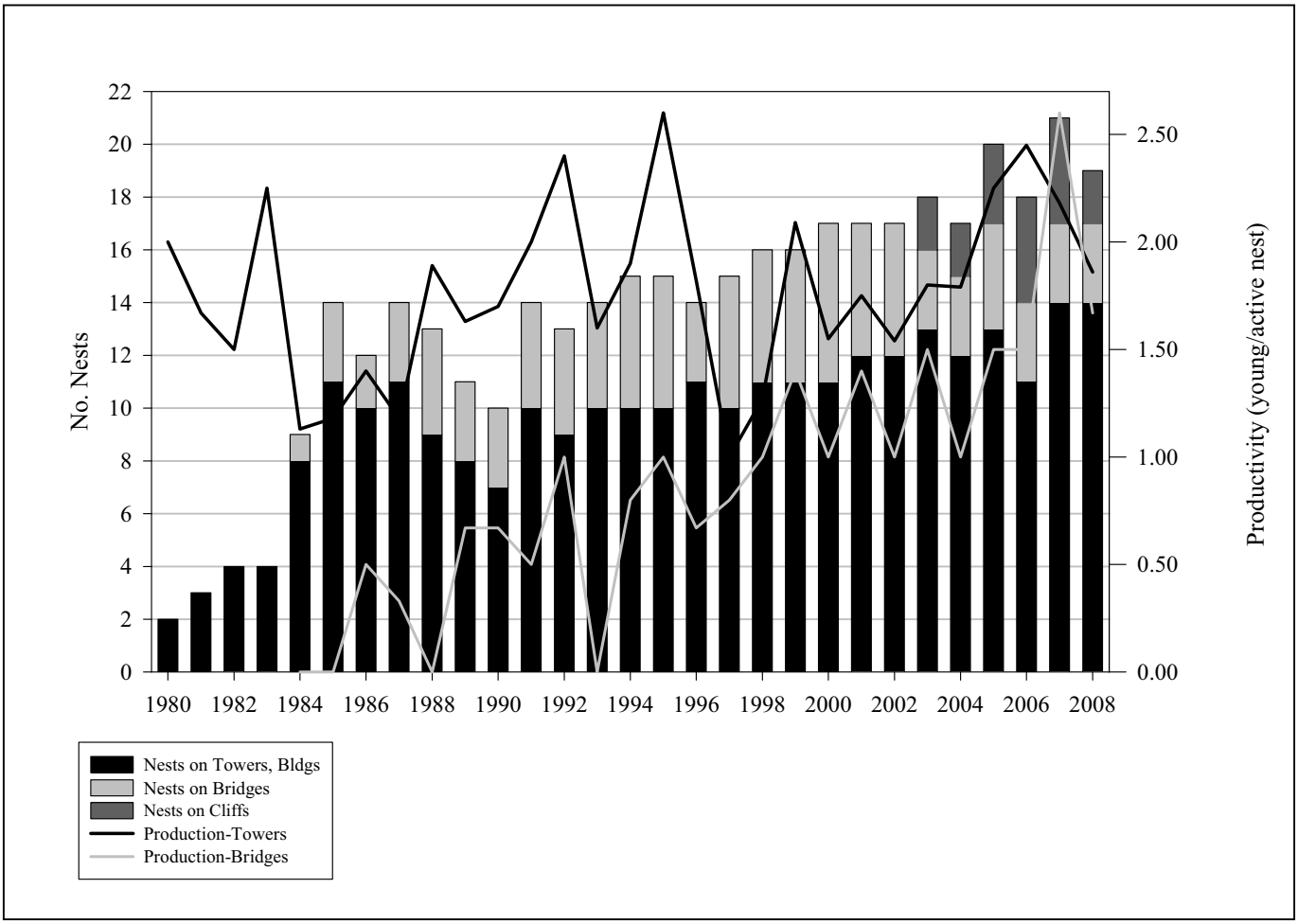

Table 2. Band numbers of peregrine falcons banded at New Jersey nest sites in 2008.

PEREGRINES BANDED IN 2008 IN NEW JERSEY						
Band	Aux Mkr	Aux color	Date	Location	Sex	Comments
2206-75761	Y/34	b/g	10-May-08	Sea Isle City	M	
2206-75762	Y/22	b/g	18-May-08	Swan Bay	M	
2206-75763	Y/23	b/g	18-May-08	Swan Bay	M	Translocated+hacked_WV
2206-75764	Y/24	b/g	22-May-08	A.C. Hilton	M	Translocated+hacked_WV
2206-75765	Y/25	b/g	23-May-08	Betsy Ross Bridge	M	Translocated+hacked_WV
2206-75766	Y/26	b/g	23-May-08	Betsy Ross Bridge	M	Translocated+hacked_WV
2206-75767	Y/27	b/g	30-May-08	Union Co. Courthouse	M	
2206-75768	X/82	b/g	2-Jun-08	Palisades-C-1	M	
2206-75769	X/83	b/g	2-Jun-08	Palisades-C-1	M	
2206-75770	X/84	b/g	2-Jun-08	A.C. Hilton	M	
2206-75771	X/85	b/g	7-Jun-08	Tuckahoe	M	
2206-75772	X/87	b/g	14-Jun-08	Egg Island/Dividing Cr	M	
2206-75773	X/92	b/g	23-Jun-08	Stone Harbor	M	
2206-75774	X/93	b/g	3-Jul-08	Margate	M	
987-95697	Y/31	b/g	10-May-08	Sea Isle City	F	
987-95698	Y/32	b/g	10-May-08	Sea Isle City	F	
987-95699	Y/33	b/g	10-May-08	Sea Isle City	F	
987-95700	Y/35	b/g	18-May-08	Swan Bay	F	Translocated+hacked_WV
1657-02801	Y/36	b/g	22-May-08	Jersey City	F	
1657-02802	Y/37	b/g	22-May-08	Jersey City	F	
1657-02803	Y/38	b/g	22-May-08	A.C. Hilton	F	Translocated+hacked_WV
1657-02804	Y/39	b/g	22-May-08	A.C. Hilton	F	Translocated+hacked_WV
1657-02805	Y/40	b/g	23-May-08	Betsy Ross Bridge	F	
1657-02806	Y/41	b/g	23-May-08	Tacony-Palmyra Bridge	F	
1657-02807	Y/42	b/g	23-May-08	Tacony-Palmyra Bridge	F	
1657-02808	Y/43	b/g	26-May-08	Palisades-C-6	F	
1657-02809	Y/44	b/g	30-May-08	Union Co. Courthouse	F	
1657-02810	Y/45	b/g	12-Jun-08	Forsythe-Brigantine	F	
1657-02811	Y/46	b/g	12-Jun-08	Forsythe-Brigantine	F	
1657-02812	Y/47	b/g	12-Jun-08	Forsythe-Brigantine	F	
1657-02813	Y/48	b/g	13-Jun-08	Sedge Island	F	
1657-02814	Y/49	b/g	14-Jun-08	Egg Island/Dividing Cr	F	
1657-02815	A/00	b/g	23-Jun-08	Stone Harbor	F	
1657-02816	A/01	b/g	3-Jul-08	Margate	F	