

PEREGRINE FALCON RECLASSIFICATION GOALS

Approved by the
Illinois Endangered Species Protection Board
at the 108th Meeting
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Prepared by:

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Inserted Update - In December of 2008, the USFWS issued regulations allowing for the take of migrant peregrine falcons in the United States for use in falconry (73 FR 236 12-08-08). Within the terms of that action, the peregrine falcon would be eligible for limited take in Illinois unless a state-threatened or state-endangered status did not otherwise prohibit take. When the Board developed these reclassification goals in 2000, take was not a factor, and during the 2009 review of the IL List of E&T Species, the Board agreed that the impact of take on birds in Illinois needed to be considered as part of the species' status assessment. In May of 2009, the Board requested that the IDNR develop a post delisting management and monitoring plan for the peregrine falcon in Illinois, to be approved by the Board prior to the Board considering the potential for delisting the species.

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Background

Natural History -- The peregrine falcon (*Falco peregrinus*) is a medium-sized raptor weighing approximately 1,000 grams with a wing span of 112 cm (USFWS 1999). The species has an almost worldwide distribution, with three subspecies recognized in North America. The Peale's falcon (*F.p. pealei*) is a year-round resident of the northwest Pacific coast from Washington to the Aleutian Islands. The Arctic peregrine falcon (*F.p. tundrius*) nests in the tundra of Alaska, Canada and Greenland. The American peregrine falcon (*F.p. anatum*) occurs throughout much of North America from Alaska and Canada south to Mexico.

Peregrine falcon populations declined precipitously in North America during the last half of the twentieth century as a result of the widespread usage of organochlorine pesticides. Organochlorine pesticides affected peregrine falcons by either causing direct mortality or by adversely affecting reproduction (USFWS 1999). Organochlorines affect reproduction by causing egg breakage, addling, hatching failure, and abnormal reproductive behavior by the parent birds (Risebrough and Peakall 1988). During the period of heavy organochlorine pesticide use in North America, eggshell thinning and breakage were widespread in peregrine falcons and in some areas (including Illinois) successful reproduction virtually ceased (Hickey and Anderson 1969). Peregrine falcons nesting in U.S. agricultural and forested areas east of the Mississippi River were the most heavily contaminated and were essentially extirpated by the mid-1960s (Berger et al. 1969).

There are relatively few documented breeding records for this species in Illinois. Nelson (1876) said it was "formerly a rare summer resident" and Ridgway (1889) reported several nesting pairs near Mount Carmel in 1878. Widmann (1907) noted that a few pairs still nested along the Mississippi River between Alton and Grafton in the 1880s and 1890s. More recently, a pair bred in Jackson County in 1950 and 1951 (George 1968). This appears to have been the last pair to breed in Illinois until the state initiated a reintroduction program in 1985, as part of a cooperative effort between The Chicago Academy of Sciences, Lincoln Park Zoo, the Illinois Department of Conservation, and the Chicago Audubon Society. In 1986, five peregrines were released on the campus of the University of Illinois - Chicago. The following year, a pair of peregrines attempted to nest in the Chicago area laying 1 infertile egg. Between 1986-1990, 46 immature peregrines were released in the state.

Currently, all known peregrine falcon nesting in the state occurs in urban areas, mostly in the Chicago area. While the tall buildings and bridges of urban areas usually provide safe

nesting areas, nesting in urban areas can create other potential problems which need to be monitored and addressed in order to ensure successful population recovery in the state. One potential problem for urban nesting birds is the fate of birds which leave the nest before they are strong flyers. These birds sometimes end up on urban streets where human intervention is needed for survival. Prior to 1996, about 60-75% of the Chicago area fledglings landed on the streets and therefore required intervention to ensure their survival (Mary Hennen, pers. com.). Between 1997-1999 fewer birds landed on the streets, with less than 20% of 11 fledglings requiring human assistance in 1999 (Mary Hennen, pers. com.). In 2000, however, 12 of 19 fledglings required human assistance (Mary Hennen, pers. com.). In order to achieve successful recovery, the state population must be able to naturally produce (i.e., without human intervention) enough young to maintain population numbers.

Previous Federal Actions

Two of the three North American subspecies (Arctic and American) were listed as endangered in 1970. In 1984, the United States Fish and Wildlife Service (USFWS) reclassified the Arctic peregrine from endangered to threatened and designated all free-flying peregrine falcons in the United States as endangered under the similarity of appearance provisions of the federal act. The Arctic peregrine was removed as a threatened species in 1994 but was still regulated in the lower 48 United States due to the similarity of appearance provision. In 1999, the American peregrine falcon was removed as an endangered species as was the similarity of appearance provision for free-flying peregrines in the conterminous United States. Take of peregrine falcons is still regulated under the Migratory Bird Treaty Act (MBTA). The USFWS is currently establishing criteria for the taking of peregrine falcons for the purposes of falconry, raptor propagation, and scientific collecting. Take will not be permitted under the MBTA until the draft management plans undergo public review, are approved, finalized, and published in the Federal Register (USFWS 1999).

Previous State Actions

The peregrine falcon was listed as an endangered species in Illinois in 1973. Take is not permitted under the Illinois act, except for non-lethal take which can be permitted for scientific purposes.

Existing Population Data and Population Viability Assessment Methods

Existing Data -- Because of its former federal status, high-profile reintroduction programs, and small population size, peregrine falcon populations are well monitored in Illinois and throughout the Midwest. As a result, good data are available for the development of population models to evaluate population viability and recovery within the state. The primary data available for population modeling and viability assessments are (1) the number of breeding pairs, and (2) the number of young produced per nest. At present these data are collected annually by the Chicago Academy of Sciences. Continuation of the annual collection of these data is essential in order to adequately monitor this species' recovery within the state.

Population Viability Assessment Background and Model Selection -- Because of the long history of detailed demographic data for peregrine falcons in Illinois it is possible to construct population viability assessment models that can estimate the likelihood that populations of different sizes will persist within the state. The models chosen for use for peregrine falcons are those of Dennis et al. (1991) as presented by Morris et al. (1999). These models use long-term census data to estimate rates of population growth and the variance associated with the estimated rate of population change. Once the population growth rate (and its variance) are estimated, the models use these parameters to estimate the likelihood of population persistence for varying population levels. For more details regarding these models see Dennis et al. (1991) and Morris et al. (1999).

Viability Assessment Parameters

For peregrine falcons in Illinois the input data for the population viability assessment models was the total number of known nesting pairs within the state. In order to avoid confounding the model with population start up effects, the starting point of the time series used in the analysis was chosen to be 1992 (the year that begins the current streak of continuous, successful, nesting by peregrine falcons in the state).

Population data for the period 1988-2000 are shown in Figure 1. Analysis of data for the period 1992-2000 shows that peregrine falcons had an increasing population during the interval, with an average finite rate of population growth (λ) of 1.49 (95% confidence interval 1.04-2.14).

Reclassification Goals

Threatened -- The overall goal for reclassification from endangered to threatened status in

Illinois is to maintain a healthy, productive population that is at low risk of statewide extirpation within the foreseeable future. Low risk is hereby defined as a less than 5% chance of statewide population extirpation (as estimated by the population viability models) within the specified planning period; and foreseeable future is defined as the next 50 years. Once this population level is achieved, it should be sustained for a period of at least three years before reclassification is proposed. Peregrine falcon productivity within the state also should equal or exceed productivity averages for the region. Average productivity for the eastern U.S. peregrine falcon population averaged 1.5 young/pair between 1992-1998 (USFWS 1999). Therefore the productivity goal for reclassifying peregrine falcons in Illinois to threatened status is an average of 1.5 naturally produced young/pair (measured as a 3-year average ending with the most recent year). Fledglings that require human intervention to ensure their survival should not count in this total, since the population must be self-sufficient in order to be considered recovered. Under current conditions this goal would require a stable population of at least 6 pairs of birds naturally producing an average of at least 9 young for a period of at least three years.

Delisted -- The overall goal for delisting the peregrine falcon in Illinois is to maintain a healthy, productive population that is at very low risk of statewide extirpation within the foreseeable future. Very low risk is hereby defined as a less than 1% chance of statewide population extinction (as estimated by the population viability models) within the specified planning period; and foreseeable future is defined as the next 50 years. Once this population level is achieved, it should be sustained for a period of at least three years before delisting is proposed. Peregrine falcon productivity within the state also should equal or exceed productivity averages for the region. Average productivity for the eastern U.S. peregrine falcon population averaged 1.5 young/pair between 1992-1998 (USFWS 1999). Therefore the productivity goal for delisting peregrine falcons in Illinois is an average of 1.5 naturally produced young/pair (measured as a 3-year average ending with the most recent year pair). Fledglings that require human intervention to ensure their survival should not count in this total, since the population must be self-sufficient in order to be considered fully recovered. Under current conditions this goal would require a stable population of at least 12 pairs of birds naturally producing an average of at least 18 young for a period of at least three years.

Monitoring and Additional Analyses

It is essential that populations of peregrine falcons continue to be monitored annually within the

state so that the population data needed for monitoring progress toward reclassification goals be attained. The PVA analysis should be rerun every 2-3 years and population goals changed accordingly to reflect new population information as it becomes available. If and when delisting is considered peregrine falcon populations in the state should continue to be monitored for a period of at least 5 years.

References

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TABLE 1. Population data used in the PVA of peregrine falcons in Illinois.

Year	# Breeding Pairs	Total # Young Produced	Total # Young Produced/Nest	Total # Naturally Produced Young ^a	Total # Naturally Produced Young/Nest ^a
1988	1	2	2.0		
1989	2	3	1.5		
1990	1	0	0.0		
1991	1	0	0.0		
1992	1	3	3.0		
1993	1	3	3.0		
1994	4	6	1.5		
1995	4	8	2.0		
1996	5	4?	0.8	2	0.8
1997	5	7	1.4	4	1.4
1998	4	11	2.7	6	1.5
1999	5	11	2.2	9	1.8
2000	8	19	2.4	7	0.9

^a preliminary data

[pefa_reclass.wpd]

TO: Distribution List (See Below)
FROM: Jim Herkert, Illinois Endangered Species Protection Board
DATE: 18 October 2000
RE: Peregrine Falcon

Enclosed is a copy of the reclassification goals that the Illinois Endangered Species Protection Board is considering adopting for the Peregrine Falcon in Illinois. Please review these materials and provide any comments you have to the address below. We would like to discuss this matter at our upcoming November Board Meeting in Chicago (17 November), so we are asking for your feedback by 15 November. If you think you'll need more time to review this document, please contact us at the address below. Thank you for taking the time to review this important information.

Send comments to:

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Distribution List

Birkenholz, D.
Bjorklund, R.
Bollinger, E.
Hartman, S.
Hennen, M
Kleen, V.
Kotsiopoulos, G.
Kruse, G.
Murrin, B
Richter, G.
Robinson, S.
Stotz, D.
Sulski, R.
Wenneborg, R.
Williams, K.
Willis, P.