

BIOLOGICAL STATUS REPORT
for the
Peregrine Falcon
(Falco peregrinus)

Prepared by the Peregrine Falcon Biological Review Panel:

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EXECUTIVE SUMMARY

The Florida Fish and Wildlife Conservation Commission (FWC) received a petition to remove the peregrine falcon (*Falco peregrinus*) from the State's endangered species list (Rule 68A-27.003 Florida Administrative Code [F.A.C.]). Threats such as organochlorine and other pesticides that originally caused the species to be listed have been reduced such that all sub-species of the peregrine falcon in the United States were de-listed federally in 1999. The three-member Peregrine Falcon Biological Review Panel (BRP) approved by the Commission to conduct the status review met on December 17, 2007 and conducted the biological assessment by evaluating species specific data against imperilment criteria found in Rule 68A-1.004 F.A.C. The BRP concluded from the biological assessment that the peregrine no longer met criteria for listing at any level, has not met the criteria for listing within the past 5 years, and unanimously recommended removing the species from the FWC list of endangered species.

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For the Peregrine Falcon
(*Falco peregrinus*)

INTRODUCTION

The peregrine falcon (*Falco peregrinus*) is currently state listed as endangered (Rule 68A-27.003, F.A.C.) but is not federally listed under the Endangered Species Act. The Florida Fish and Wildlife Conservation Commission (FWC) received a petition (available at <http://myfwc.com/imperiledspecies/petitions/peregrine-falcon.htm>) in September 1999 to remove the peregrine falcon from the State's endangered species list. However, a listing moratorium was initiated in 2003 that precluded action on the petition until a review of the listing process was completed in 2005. Following the guidelines of the listing process rule (Rule 68A-27.0012, F.A.C.; Appendix 1), the Commission directed staff in February 2007 to move forward with the peregrine petition during the 2007-2008 fiscal year. In June 2007 the Commission approved the membership of the Peregrine Falcon Biological Review Panel (BRP; Appendix 2). Public input on the status of the peregrine was sought from June 15 to July 31, 2007. The three-member BRP met on December 17, 2007 and conducted the biological assessment by evaluating species-specific data against imperilment criteria found in Rule 68A-1.004, F.A.C. (Appendix 3).

BIOLOGICAL INFORMATION

Taxonomy

The peregrine falcon exhibits considerable variation in plumage color and body measurements throughout its worldwide range with 19 subspecies recognized, of which 3 subspecies are recognized in North America: *F. p. anatum*, *F. p. pealei*, and *F. p. tundrius* (del Hoyo et al. 1994, White et al. 2002). Two of these subspecies, the arctic peregrine (*F. p. tundrius*) and American peregrine (*F. p. anatum*), occur in Florida as migrant or wintering birds (Meyer and Smallwood 1996; Lott 2006a, 2006b). In addition, peregrines now breeding in the eastern United States and southeastern Canada that may migrate through or winter in Florida are largely the result of widespread reintroductions with progeny of captive-bred peregrines from a variety of subspecies (Gruver and Millsap 2000, White et al. 2002, Millsap 2007). The reintroduced peregrines in the Midwest and eastern United States are not considered the same population of birds designated as American peregrine falcons (Enderson, pers. comm.). Thus, members of at least three distinct peregrine populations may occur in Florida as migrants or over-wintering birds: (1) arctic peregrines from tundra zones of Alaska, Canada, and Greenland; (2) American peregrines from the taiga zone of Canada and Alaska; and (3) members of the reintroduced population that occurs in the eastern United States and southeastern Canada.

Listed Status

The peregrine falcon (*F. p. tundrius* and *F. p. anatum*) was listed as endangered in 1970 by the U. S. Fish and Wildlife Service (USFWS) (USFWS 1999). *F. p. tundrius* was reclassified to threatened in 1984 and delisted in 1994 (Swem 1994). *F. p. anatum* was delisted in 1999 (USFWS 1999). Recovery of these subspecies was based on increases in the number of peregrines following restrictions on organochlorine pesticides in the U.S. and Canada, and successful management activities including the reintroduction of captive-bred birds and translocation of wild-hatched peregrines to regions of low population numbers. The species has been listed as endangered by the FWC since 1972. The International Union for Conservation of Nature (IUCN) ranks the peregrine falcon as a species of Least Concern on a global basis (IUCN 2007).

Historical Distribution

The peregrine falcon has almost a worldwide distribution occurring from the tundra to the tropical regions of both eastern and western hemispheres, although it mostly breeds in the northern latitudes and winters in southern latitudes (del Hoyo 1994). Historically, the species bred across most of the North American continent from the tundra south to the southern edge of the Mexican Plateau (White et al. 2002). Major declines occurred in peregrine numbers and distribution after 1950, reaching its lowest numbers and distribution by the early 1970s partly due to habitat loss, but mostly due to an increase use of DDT and related chemicals. Recovery and reoccupying of its historical range had occurred by the 1980s in part due to banning of persistent pesticides and release of captive-bred falcons by several organizations.

The peregrine falcon is a regular, albeit rare-to-locally common, fall and spring migrant and very rare to uncommon winter resident in Florida (Robertson and Woolfenden 1992). The species is most conspicuous in the fall along the Atlantic coast and in the Keys (Meyer and Smallwood 1996) where it frequents waterfowl and shorebird concentrations, and during the winter in urban areas where it feeds on rock doves (Millsap pers. obs.). Lott (2006a, 2006b) observed a yearly average of 1,790 peregrines during 1999-2004 in the Keys. There are no breeding records for the species in Florida.

Life History and Habitat Requirements

The peregrine falcon is a medium to large falcon, with noticeable sexual size dimorphism (males range from 36 to 49 cm and females range from 45 to 58 cm total length); resident birds in the northern range are larger than in the more southern parts of their range (White et al. 2002). The weight of females is almost twice that of males (White et al. 2002). Adults have bluish-gray backs, with a variable-width blackish facial stripe extending down from the eye across the malar set off by a pale cheek. The under parts are whitish, grayish, or buff with a variable amount of blackish spotting and barring; under wing and tail surfaces are barred pale gray and black; the legs and toes of adults are

yellow to orange. Immature falcons are similar to adults in size but the upperparts vary from pale to slate or brownish and the underparts are buff with blackish streaks.

Except for *F. p. pealei* in North America, most peregrines are highly migratory over land and offshore routes, though mostly at low altitude (100-900 m). Peregrines, mostly originating in the high latitudes, pass through Florida in the fall where large numbers concentrate in the Keys (Lott 2006a, 2006b). Northern birds generally move the farthest south, some as far as Central and South America. Data from radio-instrumented falcons indicate they spend about 17 hours a day perching, 6 hours in flight, and 1 hour foraging during migration (*in litt.* White et al. 2002). American peregrines in the southern part of their range (Midwest U.S., California, Mexico) are less migratory, if at all (Enderson pers. comm.). Most peregrines in Florida can not be distinguished from the northern nesting population or from migrants elsewhere on the Atlantic seaboard or the Gulf Coast in the fall. In the spring, many peregrines that passed through Florida in the fall mix with other migrant birds to move northward along the Texas coast. Florida peregrines are not a genetically distinct sub-population.

Breeding habitat of peregrines consists of most terrestrial habitats but especially tundra and coastal habitats; subtropical and tropical habitats are used less frequently (White et al. 2002). The species is generally monogamous; males engage in courtship calls and aerial displays to attract a female to his territory. Peregrines most commonly nest on cliffs with adjacent open areas for foraging; some falcons have adapted to urban environments using tall buildings and towers for nesting. Nests are usually a scrape made in the substrate but sometimes falcons nest in other species' nests. Breeding occurs in late winter to early summer, later in more northern latitudes. The regular spacing of pairs suggests that territorial behavior may result in nesting density limits and saturation of breeding effort in some areas.

Demographic characteristics are summarized by White et al. (2002). Age of first breeding is variable: females (2-4 years) tend to breed earlier than males (3-4 years). Mean clutch ranges from 3.0 eggs in arctic regions to 3.72 eggs in mid-latitudes, with smaller average clutch sizes towards Mexico. Annual reproductive output since the pesticide ban ranges from 1.2 to 1.9 fledglings/pair per territory. First-year survival is estimated to be about 54%, 67% during the second year, and 80% for adult annual survivorship rates (Craig et al. 2004). Maximum longevity ranges from 16 to 20 years.

Peregrines are habitat generalists and feed mostly on smaller species of birds (77-99% of prey) but will capture larger birds including ducks, rarely sandhill cranes, and geese. They occasionally consume mammals (especially bats and rodents) but rarely fish and invertebrates (White et al. 2002). Prey is usually captured in flight or less frequently from the surface of water. Peregrines forage mostly from a perch or while diving to capture its prey. The species is known for its spectacular aerial dives to knock birds from the air, which makes it a favorite for falconry. In turn, peregrines may be killed by other avian species (eagles, owls, other falcons), whereas their ground nests may be depredated by mammals (foxes, raccoons).

Falconry

Peregrine falcons are a highly prized species for the sport of falconry. The Association of Fish and Wildlife Agencies, on behalf of the state fish and wildlife agencies, has petitioned the USFWS to allow take of peregrines for falconry. A harvest of nestling peregrines from the western U.S. resumed in 2002. It has been determined that if properly managed, the harvest of wild peregrines could be sustained elsewhere, including Florida (Millsap and Allen 2006, Millsap 2007).

Threats

Major historic threats to peregrine falcons included the use of pesticides throughout the falcon's range and release of heavy metal (mostly mercury) contaminants especially in northern latitudes. Use of organochlorine pesticides from the late 1940s to the early 1970s resulted in bioaccumulation in the food chain. This in turn contaminated falcons causing both lethal and sub-lethal effects including egg-shell thinning. Shooting of migrating birds, egg-collecting, and unregulated harvest for falconry also were a problem at the local level prior to protections being established for the species (White et al. 2002). Current threats include loss of habitat for breeding (cliff nesting in some regions) and possibly hazards experienced during migration (e.g., tower strikes, wind turbines, late season hurricanes in south Florida). However, because of their wide distribution across most of Florida, the migrant population as a whole probably is not especially vulnerable to adverse weather. Peregrines appear more versatile than previously thought (e.g., nests in trees in British Columbia, pingos on the Arctic slope of Alaska, ground nests at Rankin Inlet, flat coastal islets in California, and nests on a variety of man-made structures). Peregrines may still experience unknown hazards during migration at stopover sites and on their wintering grounds in Central and South America. For example, large numbers of peregrines are known to concentrate at roosting sites in undeveloped areas of the Florida Keys (Lott, pers. comm.), which are on private lands subject to development.

PUBLIC COMMENT

A public comment period was held from June 15 to July 31, 2007 to solicit input about the status of the peregrine falcon in Florida. The comment period was advertised in the Florida Administrative Weekly and on the FWC's web site. These comments are summarized in Appendix 4, no new substantive information about the status of falcons was obtained for use in the assessment.

BIOLOGICAL ASSESSMENT

In accordance with rule 68A-27.0012 F.A.C, the Peregrine Falcon Biological Review Panel (hereafter BRP) was charged with evaluating the biological status of the

peregrine falcon using criteria included in definitions in 68A-1.004 and following the protocols in the *Guidelines for Application of the IUCN Red List Criteria at Regional Levels Version 3.0* and *Guidelines for Using the IUCN Red List Categories and Criteria (2004)*. We also communicated with IUCN staff regarding clarification of several definitions of “area of occupancy” and “restricted area of occupancy” as they apply to the peregrine falcon that came up during our evaluation process. If the peregrine falcon meets the threshold for listing at any of the five criteria, it may be considered for State listing at the highest threat level identified by these criteria.

In our review of the peregrine falcon’s status, the BRP made the following assumptions and conclusions:

- The total number of peregrines in North America is not accurately known but the trend and counts appear to be increasing.
- There probably are at least 3,800 adult pairs, perhaps as many as 9,800 pairs, in North America and there is strong evidence the Arctic peregrine population is stable.
- Reproductive output increased during the last two to three decades but appears to have leveled off and maybe even has decreased in localized parts of its range due to habitat saturation from the increased number of falcons (e.g., Grand Canyon region).
- There is a potential bias against males that may fly directly past Florida or along some undetected route and are less frequently sighted or trapped in our state.
- Peregrines concentrate during fall migration as they pass through the Keys but it is unknown what potential threats future development pressures in south Florida will have on roosting habitat, foraging habitat, and prey availability.
- We assumed the impact of future harvest for falconry will be properly managed and relatively low (circa 100 immature individuals in North America but an unknown number in Florida).
- The species appears very adaptable to some manmade environments (e.g., towers and buildings), although possible concomitant sources of mortality (e.g. collisions with vehicles or structures, human persecution) are not known.
- We assumed a generation time of 6.3 years (equals the average age of nesting birds in models used by the USFWS to assess the potential harvest impacts [Millsap 2007]) for the species.
- The BRP recognized a dilemma in the application of the IUCN criteria to the case of the migrant peregrines in Florida because the IUCN guidelines do not address entirely migratory components of populations.

The following is a description of the biological assessment for the peregrine falcon by the BRP, conducted during a face-to-face meeting on December 17, 2007 and subsequent email exchanges during December 2007 and January 2008. While data from Florida were used in our evaluation as the region of concern is the State of Florida, we also considered the influence of the entire North American peregrine population on the species occurrence in Florida when using the regional application.

Criterion A: Population reduction

Criterion A is designed to evaluate species that have undergone significant population declines in the near past or are projected to experience significant population declines in the near future.

Sub-criteria A1, A2, A3 and A4.—A reduction in the peregrine population during the last three generations (18.9 years) is required to qualify for listing under these sub-criteria. Instead the number of birds has increased throughout most of its North American range and during fall migration in Florida for the last three generations. The BRP did not find any evidence that the species will experience a population decline of $\geq 30\%$ during the near future (i.e., within three generations). **Therefore, this species does not warrant listing based on any of these sub-criteria.**

Result: This species does not warrant listing based on criterion A, population reduction.

Criterion B: Geographic range in the form of either area of occupancy or extent of occurrence

Criterion B is designed to identify populations with restricted distributions that also are severely fragmented, undergoing a form of continuing decline, and/or likely to exhibit extreme fluctuations in the present or near future. The BRP discussed at length the interpretation of how extent of occurrence and area of occupancy are defined by the IUCN and its application to the migratory status of peregrines in Florida. Specifically, the BRP attempted to resolve how to interpret the range of peregrines in Florida during the short migratory period. It appears from reliable count data that most immatures and adult females (but probably not the adult males as they appear to bypass Florida or at least are not sighted in numbers as large as the other two groups) funnel down through the state and eventually into the Keys over the course of 30-40 days before heading farther south into the West Indies or Central and South America. The number counted in the Keys during this time period totals about 1800-1900 falcons each year although the number of falcons seen in the Keys on any one day may only be about 100 birds (Lott 2006a). Thus, on any one day the falcons are dispersed over most of the state as they migrate south but cumulatively most pass through the Keys bottleneck sometime during the 30-40 day fall migratory time period. The BRP discussed two options:

- consider the number of locations as multiple sites (i.e., the distribution of falcons on a single day is dispersed among many sites (>10) across the entire state with an area of about 54,000 sq. miles);
- consider the distribution as a single location (i.e., the Keys and Monroe County are about 997 sq. miles) when the population is considered over the entire migratory time period.

Thus, with the latter option this bottleneck could be interpreted as a single location and the extent of occurrence being $<7,700$ sq. miles. Furthermore, many keys are less than 1 mile wide and highly developed. This dilemma will surface again in Criterion D below.

Sub-Criterion B1.—The BRP was concerned that peregrines migrating through Florida would experience a bottleneck in the Keys prior to moving farther south into the West Indies and South America. However, the BRP was uncertain if the Keys should be considered as a single location (i.e., equal to 1 in criterion B1). We sought clarification from the IUCN staff in England via email. The IUCN responded with the definition of location as “...based on the area where a **single** threatening event can rapidly affect **all individuals** of the taxon present.” With this interpretation of location, the BRP concluded that no single hurricane or single catastrophic event in the Keys could affect all peregrines or the entire population due to the protracted movement of birds over a 30-40 day period. **In conclusion, this species does not warrant listing based on this sub-criterion.**

Sub-criterion B2.—There is no evidence that the extent of occurrence (*B2i*) or area of occupancy (*B2ii*) is decreasing in North America or Florida during migration. However, the BRP was concerned that the area and/or quality of habitat (*B2iii*) in the Keys may degrade in the future. In this situation, we again used the above interpretation of location to conclude that no single habitat loss in the Keys could affect all peregrines or the entire population, and impacts to habitat in the Keys are now regulated by state agencies. **In conclusion, this species does not warrant listing based on this sub-criterion.**

Sub-criterion B3.—The BRP concluded that the species did not exhibit extreme fluctuations in any the four conditions of this criterion. Evidence suggests that the species is relatively stable for these variables. **In conclusion, this species does not warrant listing based on this sub-criterion.**

Result: This species does not warrant listing based on criterion B, extent of occurrence and area of occupancy.

Criterion C: Small population size and decline

Criterion C is designed to identify species with a small population size that is currently declining or may decline in the future. As indicated in Criterion A above, the peregrine population is either increasing or stable across most of its North American breeding range and migratory range in Florida.

Sub-criteria C1 and C2.—The peregrine is a non-breeding migratory species in Florida, originating in regions farther north. The best available estimates suggest a population of about 4,660-9,860 pairs (9,300-19,720 individuals) of mature peregrines in North America (Table 1), with at least 1,800 birds migrating through Florida (Lott 2006a, 2006b). Thus, the species meets the Species of Special Concern level of <10,000 in Florida and may qualify as Threatened with a level of <2,500 individuals migrating through the Keys. However, there is no evidence for a decline in the peregrine population for the species to meet either of these two sub-criteria. **In conclusion, this species does not warrant listing based on these sub-criteria.**

Result: This species does not warrant listing based on criterion C, small population size and decline.

Criterion D: Very small or restricted population

Criterion D identifies very small or restricted populations.

Sub-criterion D1.—Based on the data presented in Table 1 and Lott (2006), the peregrine does not meet the requirement for <1,000 mature individuals. **In conclusion, this species does not warrant listing based on this sub-criterion.**

Sub-criterion D2.—The peregrine does not meet the level of a <8 sq. mile restricted range. However, the BRP considered the possibility that the migrating birds passing through the bottleneck of the Florida Keys might qualify the species as occupying ≤ 5 locations. See *Sub-criterion B1* above. After much discussion, the BRP concluded the species does not qualify as a Species of Special Concern based on the narrow interpretation of the Keys being a single location. Further, we did conclude that the North American breeding population could rescue the Florida population should it decline due to some catastrophic event in the Keys during fall migration.

Result: This species does not warrant listing based on criterion D, very small or restricted population.

Criterion E: Quantitative analysis

Criterion E assesses the probability of a species becoming extinct based on a quantitative analysis. There has not been a population viability analysis on peregrines for the Florida populations or other major regions in North America. The BRP is aware of no data that suggest this species has a high probability of extinction. However, the USFWS (2007) has modeled the species for harvest thresholds and concluded there still will be population growth for the species with some harvest for falconry. Also see Millsap (2006, 2007) for further discussion on the sustainability of falconry harvest on the North American population.

Result: This species does not warrant listing based on criterion E, quantitative analysis.

Regional Application

The regional assessment guidelines require the above initial evaluation for *Criteria A-E* to produce a preliminary categorization based on regional data. The following evaluation assesses the impacts of the global or extra-regional populations on the Florida population and requires the level of imperilment be adjusted if the global population affects the risk of extinction in our state. It should be pointed out that the BRP considered listing the peregrine at the level of Species of Special Concern based on the above analysis for *Sub-criterion D2*.

The IUCN (2007) ranks the global status of the peregrine falcon as a species of Least Concern based on its large range (1×10^7 km²) and population (10,000-100,000 individuals) and stable population trend. Since the species is a non-breeding visitor to Florida, we considered if conditions (e.g., habitat, environmental, etc.) outside of Florida were deteriorating and would affect the migrants passing through the state. Since the Florida population is drawn from a vast geographic region, the entire population would have to experience a decline simultaneously to be reflected in Florida. While the effects of climate change and habitat alteration are of concern for all species, the BRP could not envision the peregrine disappearing from Florida during the next three generations because conditions were unfavorable elsewhere in the species' range. This also was true for the conditions in Florida. However, we did conclude that the North American breeding population could replenish the Florida population should it decline due to some catastrophic event in the Keys (e.g., a category 5 hurricane during the peak of fall migration). However, local weather mortality would not have a significant effect across the entire population. Thus, even if the BRP did recommend the species as a Species of Special Concern in *Sub-criterion D2*, we would have downgraded the category for the regional or Florida population based on the rescue effect, as specified by the Guidelines.

Review Summary

The BRP concludes that the peregrine falcon does not meet any of the FWC criteria for listing at this time. It should be noted that there was some vacillation by the BRP for a definitive recommendation on *Sub-criterion D2* because of the concentration of peregrines during their migration through the lower Florida peninsula and especially the Keys is a point of possible vulnerability. This concentration in the Keys could make the species vulnerable to future activities such as poorly managed falconry harvest or other anthropogenic impacts, such as wind farms, if peregrines are prone to striking turbines, and habitat loss due to further development. In considering other potential effects of future development, the BRP noted that prey selection and risks related to urban foraging have not been studied for peregrines in Florida. Some bird-eating raptors apparently exhibit increased foraging success in urban settings, but there also is evidence of risks of greater injury (e.g., vehicle and powerline strikes) and human persecution (e.g., immature birds, which make up most of Florida's migratory peregrine population, may be at a greater risk due to inexperience). Given the rate of development in coastal Florida and the potential concentration ("bottleneck effect") during migration through southern peninsular Florida and Keys, the BRP suggests that the direct impact of these factors on the peregrine falcon be considered when drafting the species' management plan.

LISTING RECOMMENDATION

The BRP unanimously recommends removing the peregrine falcon from the endangered list because the species does not meeting any one of the criteria for listing as described in Rule 68A-1.004. It was unanimously agreed there is no biological

justification for recommending any classification that is different from the population assessment that the species has recovered from historic low numbers.

ACKNOWLEDGMENTS

The BRP thanks the following individuals for reviewing and providing comments on the draft BSR: Casey A. Lott, James H. Enderson, Keith L. Bildstein, G. Clayton White, and Kathryn E. Sieving. The FWC has provided the bulk of the funding for a long-term monitoring project by Casey Lott that is designed to track peregrine falcon and other raptor populations in the Florida Keys (Lott 2006a, 2006b). The BRP relied heavily on the data generated from this important project.

SUMMARY OF THE INDEPENDENT REVIEW

Comments of Keith L. Bildstein (Hawk Mountain Sanctuary):

“The quality of science used the BSR, including its methods, data analysis, and interpretation, are appropriate for this document and its intended use. Specifically, the Peregrine Falcon BSR is thorough and complete, as well as scientifically accurate in every regard. In addition, its assumptions and conclusions are both reasonable and justifiable...The species in question has undergone a remarkable recovery in the past 30 years, and in all probability now exists at population levels that rival those of pre-European colonization of Florida and elsewhere in North America. Significant known threats to the species have been eliminated, and no known threat currently looms on the horizon. As such, the authors of the BSR are on solid scientific grounds in their assessment of the conservation status of the species, as well as in their recommendations.”

Comments of James H. Enderson (Colorado College):

“The analysis of the status of the Peregrine Falcon in Florida by the Biological Review Panel generally accommodates the guidelines established by the IUCN. The Panel concluded that the status of the peregrine, which occurs as a migrant and in winter in Florida, meets none of the criteria for any level of listing in the IUNC Red List. This conclusion is appropriate in view of the data provided in the Draft Biological Status Report.”

Comments of Casey A. Lott (HawkWatch International, Inc.):

“The review panel was highly qualified for this task and appears to have closely followed FWC and IUCN guidelines for status review. The species background information is thorough and accurately presented. In sum, the document is well prepared and is not lacking any pertinent biological information that might inform decision making. I have a small number of comments which should probably be addressed before the status review document is made final. As acknowledged on page 9 of the BSR, the

concentration of a large number of peregrine falcons in a narrow geographic bottleneck (the Florida Keys) during fall migration presents a difficult conservation issue. I agree with the committee that peregrines should not remain listed as endangered because of this phenomenon alone. However, it is extremely important that conservation issues related to peregrine falcons (and other fall migrant raptors) in the Florida Keys are adequately addressed in the ensuing management plan.”

Comments of Clayton W. White (Brigham Young University):

“I am in full agreement with the conclusion that the committee has drawn. I think the data support your findings.”

Comments of Kathryn E. Sieving (University of Florida):

“I agree with all major results of the report, regarding the discussions of what is known about the national and FL populations of the peregrine, and agree (with reservations) with the unanimous decision to down-list the FL species’ status... Overall – I had only the one major concern / set of questions concerning the treatment of quantitative issues. Overall, however, I agree with the decision and overall biological assessment.”

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Table 1. Maximum and minimum population size estimates based on most recent counts or projections for North American peregrine falcon populations (compiled by B. A. Millsap 2007).

Population	Location	Minimum Number of Pairs	Maximum Number of Pairs	Source
Northern	Interior Alaska	930	930	USFWS 2006
Northern	Arctic Alaska	225	225	Enderson et al. 1995
Northern	Canada	1,143		G. Hoyroyd in Taubert et al. 1996
Northern	Canada		4,350	Enderson et al. 1995
Northern	Greenland	450		Enderson et al. 1995
Northern	Greenland		2,000	W. G. Mattox in Taubert et al. 1999
Total Northern Population		2,748	7,505	
Eastern	Eastern U.S.	275	275	USFWS files
Eastern	Labrador and Newfoundland	22	22	Rowell et al. 2003
Eastern	Bay of Fundy, Nova Scotia, New Brunswick	11	11	Rowell et al. 2003
Eastern	Southern Quebec	28	28	Rowell et al. 2003
Eastern	Southern Ontario	53	53	Rowell et al. 2003
Eastern	Southern Manitoba	3	3	Rowell et al. 2003
Total Eastern Population		392	392	Rowell et al. 2003
Western	Southern Saskatchewan	4	4	Rowell et al. 2003
Western	Southern Alberta	23	23	Rowell et al. 2003
Western	Interior British Columbia	1	1	Rowell et al. 2003
Western	Lower British Columbia, Victoria Island	11	11	Rowell et al. 2003
Western	Northern Alberta	29	29	Rowell et al. 2003
Western	Porcupine River, Yukon	35	35	Rowell et al. 2003
Western	Peel River, Yukon	22	22	Rowell et al. 2003
Western	Yukon River	46	46	Rowell et al. 2003
Western	Southern Lake Yukon	46	46	Rowell et al. 2003
Western	Mackenzie Valley, NWT	80	80	Rowell et al. 2003
Western	Langara Island	9	9	Rowell et al. 2003

Western	Queen Charlotte	60	60	Rowell et al. 2003
Western	Northern Vancouver and Scott Island	20	20	Rowell et al. 2003
Western	Triangle	7	7	Rowell et al. 2003
Western	Coastal Alaska		600	Enderson et al. 1995
Western	Coastal Alaska	149		Enderson et al. 1995
Western	Arizona	167	167	USFWS 2007
Western	California	167	167	USFWS 2007
Western	Colorado	87	87	USFWS 2007
Western	Idaho	26	26	USFWS 2007
Western	Montana	54	54	USFWS 2007
Western	Nevada	24	24	USFWS 2007
Western	New Mexico	37	37	USFWS 2007
Western	Oregon	76	76	USFWS 2007
Western	Utah	164	164	USFWS 2007
Western	Washington	104	104	USFWS 2007
Western	Wyoming	65	65	USFWS 2007
Total Western Population		1,513	1,964	
Total All Populations		4,653	9,861	

Appendix 1. Procedures for Listing, Delisting and Reclassifying Endangered, Threatened and Species of Special Concern.

Rule 68A-27.0012, Florida Administrative Code (F.A.C.)

- (1) Petition to list, delist, or reclassify a species in Rule 68A-27.003, 68A-27.004, or 68A-27.005, F.A.C.
 - (a) Persons wishing to add, delete or reclassify species in Rule 68A-27.003, 68A-27.004, or 68A-27.005, F.A.C., shall submit a written petition to the Commission. Petitions will be reviewed for completeness from July 1 through December 31.
 - (b) Petitions shall be clearly identified as such, and must contain the following in order to be considered complete:
 1. The rule to which the species is proposed to be added, removed from, or reclassified to,
 2. The name, address, and signature of the petitioner, and
 3. Sufficient information on the biology and distribution of the species to warrant investigation of its status using the criteria contained in definitions of endangered, threatened, or species of special concern in Rule 68A-1.004, F.A.C.
 - (c) Incomplete petitions will be returned to the petitioner with insufficiencies clearly noted in writing. Corrected petitions may be resubmitted for consideration.
 - (d) Complete petitions will be evaluated in accordance with the provisions in subsection (2).
 - (e) Emergency petitions may be submitted at any time and, if in the opinion of the Executive Director, immediate inclusion of a species in Rule 68A-27.003, F.A.C., is essential to prevent imminent extinction, such listing may be effected on a temporary basis by Executive Order; provided that the Executive Order shall be approved or terminated at the next regularly scheduled meeting of the Commission. Commission staff shall, within 365 days after the effective date of such approval, conduct the evaluations prescribed in subsections (2) and (3) of this rule to determine the appropriate final classification of the species. The Commission shall take final action on the listing at the next regularly scheduled meeting following the 365 day evaluation period.
 - (f) Notwithstanding the provisions contained in this paragraph, these procedures shall not be applied to harvested marine species that: would only meet the listing criteria in Rule 68A-1.004, F.A.C., due to declines caused by either recreational harvest, commercial harvest, or both; that are monitored through periodic stock assessments or other techniques; that are the subject of any rule in Title 68B, F.A.C., that allows harvest; and that have a management plan or other system of rules and processes that functions as a management plan.
- (2) Review of petitions to determine biological status; Phase 1.
 - (a) The Commission shall establish an annual work plan for investigating pending complete petitions, considering conservation priorities and available resources. The work plan shall establish a deadline for completion of each biological status review. Complete petitions not identified for staff action will be reconsidered with new complete petitions each subsequent year.

- (b) The Commission shall provide notice by mail to parties who request such notification and shall publish in the Florida Administrative Weekly a solicitation of information on the biological status of the petitioned species. Written comments regarding biological status shall be accepted by the Commission for a period of no less than 45 days following public notice.
 - (c) Staff shall recommend and the Commission shall designate a biological review panel of scientists with demonstrated knowledge of species conservation and management that consists of an odd number of three to seven members. The biological review panel shall summarize information provided in the petition, information obtained from the public, and other available biological data on the status of the petitioned species into a biological status report. When assessing a species, this panel shall follow “Guidelines for Application of IUCN Red List Criteria at Regional Levels Version 3.0” and “Guidelines for Using the IUCN Red List Categories and Criteria, March 2004.” The biological status report shall contain a listing classification based on the IUCN guidelines and criteria in Rule 68A-1.004, F.A.C. In addition, the panel may provide within the report a biologically justified recommended classification which differs from the criteria-based classification by one level.
 - (d) Staff shall seek a minimum of three independent scientific reviews focused on the science used in the biological status report, including methodology, data, analysis, and interpretation. Reviewers will be provided no less than 45 days to comment on the biological status report.
 - (e) The Commission shall consider the biological status report, independent scientific reviews received, and public comments regarding the biological status in making a final determination whether addition, deletion or reclassification of the petitioned species in Rule 68A-27.003, 68A-27.004, or 68A-27.005, F.A.C., is warranted.
 - (f) If the petitioned species is determined by the Commission to warrant inclusion in or removal from Rule 68A-27.003, 68A-27.004, or 68A-27.005, F.A.C., the Commission shall:
 - 1. Specify the appropriate listing category for the species based on biological status.
 - 2. Establish a deadline for completion of Phase 2 for the species as described in subsection (3) below, considering the recommendation of Commission employees and other interested parties.
 - 3. If the species is not already listed in Rule 68A-27.003, 68A-27.004, or 68A-27.005, F.A.C., it shall be added to the list of candidate species in Rule 68A-27.0021, F.A.C., and the protective provisions therein shall apply to the species.
- (3) Development of management plans; Phase 2.
- (a) Phase 2 will be initiated subsequent to Commission action pursuant to subsection (2) except for a decision not to list a previously unlisted species. Within 45 days following the Commission meeting, the Commission shall provide notice by mail to parties who request such notification and shall publish in the Florida Administrative Weekly a solicitation of information on the conservation needs of

- the species, and any economic and social factors that should be considered in its management.
- (b) The Commission shall use information obtained from the public and other available information to develop a draft management plan for each species described in paragraph (3)(a) of this rule section. This draft plan shall at a minimum address:
 - 1. Biological status as determined in Phase 1,
 - 2. Conservation objectives,
 - 3. Recommended management actions,
 - 4. Recommended regulations and incentives,
 - 5. Anticipated economic, ecological, and social impacts of implementing or not implementing the recommended conservation actions.
 - (c) The Commission shall provide notice by mail to parties who request such notification and shall publish in the Florida Administrative Weekly a notice of the availability of the draft management plan. Written comments regarding conservation recommendations and expected economic and social impacts of implementation of the management plan shall be accepted by the Commission for a period of no less than 45 days following public notice.
 - (d) Final Commission action on the petition shall include:
 - 1. Deletion of the species from Rule 68A-27.0021, F.A.C., if appropriate, and addition to and/or deletion from Rule 68A-27.003, 68A-27.004, or 68A-27.005, F.A.C., in accordance with the determination made in subsection (2) of this rule.
 - 2. A determination on any proposed regulations in the management plan.

Appendix 2. Peregrine Falcon review panel brief bios

James A. Rodgers Jr. (Ph.D., University of South Florida) has worked on the breeding ecology and behavior of birds in Florida since 1974. He started work with the Florida Fish & Wildlife Conservation Commission (FWC) in 1980 and has published over 65 papers on snail kites, wading birds, wood storks, and buffer zones for avian species. Jim served on the U.S. Fish & Wildlife Service (USFWS) Recovery Teams for both the snail kite and wood stork. He is an Elected Member of the American Ornithological Union and a Certified Wildlife Biologist with The Wildlife Society. Jim currently is the Avian Research Subsection Leader in the Fish & Wildlife Research Institute.

Brian A. Millsap (M.S., George Mason University) has worked professionally as a wildlife biologist since 1978, including as a raptor biologist for the National Wildlife Federation in Washington D.C. He worked for the FWC from 1986 (Regional Nongame Wildlife Biologist) to 2002 (Chief of the Bureau of Wildlife Diversity Conservation). Brian served as USFWS's Chief of the Division of Migratory Bird Management from 2002–06 and currently is New Mexico State Administrator for the USFWS. He also has served as Vice President and President of the North American Falconers Association and Vice President and President of the Raptor Research Foundation. In addition to his administrative experience with the FWC and USFWS, in recent years he has served as principle investigator on field research projects investigating the effects of urban development on burrowing owl and bald eagle fecundity and survival, and on the foraging ecology of the Cooper's hawk relative to impacts on northern bobwhite.

Ken Meyer (Ph.D., University of North Carolina) has worked on the ecology and conservation of birds in Florida since the early 1980s. His special interest is birds of prey and has published over 25 papers on raptors and other avian species. Ken is currently studying the jabiru stork in South America and short-tailed hawk in Florida. He has received numerous awards and grants during the last 10 years, including the Partners in Flight Research Award. Ken works for the private Avian Research and Conservation Institute in Gainesville.

Appendix 3. Definitions of the Florida Fish and Wildlife Conservation Commission Relative to Listed Species.

Rule 68A-1.004, Florida Administrative Code (F.A.C.)

(27) Endangered species – As designated by the Commission, a species, subspecies, or isolated population of a species or subspecies which is so few or depleted in number or so restricted in range or habitat due to any man-made or natural factors that it is in imminent danger of extinction, or extirpation from Florida, as determined by paragraph (a), (b), (c), (d), or (e) below in accordance with Rule 68A-27.0012, F.A.C.

(a) Reduction in population size based on any of the following:

1. An observed, estimated, inferred or suspected population size reduction of at least 80% over the previous ten years or three generations, whichever is longer, where the reduction or its causes may not have ceased or may not be understood or may not be reversible, based on (and specifying) any of the following:
 - a. Direct observation,
 - b. An index of abundance appropriate for the taxon,
 - c. A decline in area of occupancy, extent of occurrence, or quality of habitat,
 - d. Actual or potential levels of exploitation,
 - e. The effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites.
2. A population size reduction of at least 80%, projected or suspected to be met within the next ten years or three generations, whichever is longer (up to a maximum of 100 years), based on (and specifying) any of subparagraph 1.b., 1.c., 1.d., or 1.e. above.
3. An observed, estimated, inferred, projected, or suspected population size reduction of at least 80% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both past and future, and where the reduction or its causes may not have ceased or may not be understood or may not be reversible, based on (and specifying) any of subparagraph 1.a., 1.b., 1.c., 1.d., or 1.e. above.
4. An observed, estimated, inferred, or suspected population size reduction of at least 90% over the last 10 years or three generations, whichever is longer, where the causes of reduction are clearly reversible and understood and ceased, based on (and specifying) any of subparagraph 1.a., 1.b., 1.c., 1.d., or 1.e. above.

(b) Geographic range in the form of either extent of occurrence estimated to be less than 40 square miles or area of occupancy estimated to be less than 4 square miles, and estimates indicating any two of the following:

1. Severely fragmented or known to exist at only a single location.
2. Continuing decline, observed, inferred or projected, in any of the following:
 - a. Extent of occurrence

- b. Area of occupancy
 - c. Area, extent, and/or quality of habitat
 - d. Number of locations or subpopulations
 - e. Number of mature individuals
 - 3. Extreme fluctuations in any of the following:
 - a. Extent of occurrence
 - b. Area of occupancy
 - c. Number of locations or subpopulations
 - d. Number of mature individuals
 - (c) Population size estimated to number fewer than 250 mature individuals and either:
 - 1. An estimated continuing decline of at least 25% within three years or one generation, whichever is longer (up to a maximum of 100 years in the future), or
 - 2. A continuing decline, observed, projected or inferred, in numbers of mature individuals and at least one of the following:
 - a. Population structure in the form of either no subpopulation estimated to contain more than 50 mature individuals, or at least 90% of mature individuals in one subpopulation.
 - b. Extreme fluctuations in number of mature individuals.
 - (d) Population size estimated to number less than 50 mature individuals.
 - (e) Quantitative analysis showing the probability of extinction in the wild is at least 50% within ten years or three generations, whichever is longer (up to a maximum of 100 years).
- (74) Species of special concern – As designated by the Commission, a species, subspecies, or isolated population of a species or subspecies which is facing a moderate risk of extinction, or extirpation from Florida, in the future, as determined by paragraph (a), (b), (c), (d), or (e) below in accordance with Rule 68A-27.0012, F.A.C.
- (a) Reduction in population size based on any of the following:
 - 1. An observed, estimated, inferred or suspected population size reduction of at least 30% over the last ten years or three generations, whichever is longer, where the reduction or its causes may not have ceased or may not be understood or may not be reversible, based on (and specifying) any of the following:
 - a. Direct observation.
 - b. An index of abundance appropriate for the taxon.
 - c. A decline in area of occupancy, extent of occurrence, and/or quality of habitat.
 - d. Actual or potential levels of exploitation.
 - e. The effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites.
 - 2. A population size reduction of at least 30%, projected or suspected to be met within the next ten years or three generations, whichever is longer (up to a

- maximum of 100 years), based on (and specifying) any of subparagraph 1.b., 1.c., 1.d., or 1.e. above.
3. An observed, estimated, inferred, projected, or suspected population size reduction of at least 30% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both past and future, and where the reduction or its causes may not have ceased OR may not be understood OR may not be reversible, based on (and specifying) any of subparagraph 1.a., 1.b., 1.c., 1.d., or 1.e. above.
 4. An observed, estimated, inferred, or suspected population size reduction of at least 50% over the last 10 years or three generations, whichever is longer, where the causes of reduction are clearly understood and reversible and ceased, based on (and specifying) any of subparagraph 1.a., 1.b., 1.c., 1.d., or 1.e. above.
- (b) Geographic range in the form of either extent of occurrence estimated to be less than 7,700 square miles or area of occupancy estimated to be less than 770 square miles, and estimates indicating any two of the following:
1. Severely fragmented or known to exist at no more than 10 locations.
 2. Continuing decline, observed, inferred or projected, in any of the following:
 - a. Extent of occurrence.
 - b. Area of occupancy.
 - c. Area, extent, and/or quality of habitat.
 - d. Number of locations or subpopulations.
 - e. Number of mature individuals.
 3. Extreme fluctuations in any of the following:
 - a. Extent of occurrence.
 - b. Area of occupancy.
 - c. Number of locations or subpopulations.
 - d. Number of mature individuals.
- (c) Population size estimated to number fewer than 10,000 mature individuals and either:
1. An estimated continuing decline of at least 10% within ten years or three generations, whichever is longer (up to a maximum of 100 years in the future); or
 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and at least one of the following:
 - a. Population structure in the form of either no subpopulations estimated to contain more than 1,000 mature individuals, or all mature individuals are in one subpopulation.
 - b. Extreme fluctuations in number of mature individuals.
- (d) Population very small or restricted in the form of either of the following:
1. Population size estimated to number fewer than 1,000 mature individuals.
 2. Population with a very restricted area of occupancy (typically less than 8 square miles) or number of locations (typically 5 or fewer) such that it is

prone to the effects of human activities or stochastic events within a very short time period in an uncertain future.

- (e) Quantitative analysis showing the probability of extinction in the wild is at least 10% within 100 years.

(78) Threatened species – As designated by the Commission, a species, subspecies, or isolated population of a species or subspecies which is facing a very high risk of extinction, or extirpation from Florida, in the future, as determined by paragraph (a),(b), (c), (d), or (e) below in accordance with Rule 68A-27.0012, F.A.C.:

(a) Reduction in population size based on any of the following:

1. An observed, estimated, inferred, or suspected population size reduction of at least 50% over the last ten years or three generations, whichever is longer, where the reduction or its causes may not have ceased or may not be understood or may not be reversible, based on (and specifying) any of the following:
 - a. Direct observation
 - b. An index of abundance appropriate for the taxon
 - c. A decline in area of occupancy, extent of occurrence, and/or quality of habitat
 - d. Actual or potential levels of exploitation
 - e. The effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites
2. A population size reduction of at least 50%, projected or suspected to be met within the next ten years or three generations, whichever is longer, (up to a maximum of 100 years), based on (and specifying) any of subparagraph 1.b., 1.c., 1.d. or 1.e. above.
3. An observed, estimated, inferred, projected, or suspected population size reduction of at least 50% over any 10 year or three generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both past and future, and where the reduction or its causes may not have ceased or may not be understood or may not be reversible, based on (and specifying) any of subparagraph 1.a., 1.b., 1.c., 1.d., or 1.e. above.
4. An observed, estimated, inferred, or suspected population size reduction of at least 70% over the last 10 years or three generations, whichever is longer, where the causes of reduction are clearly understood and reversible and ceased, based on (and specifying) any of subparagraph 1.a., 1.b., 1.c., 1.d., or 1.e. above.

(b) Geographic range in the form of either extent of occurrence estimated to be less than 2,000 square miles or area of occupancy estimated to be less than 200 square miles, and estimates indicating any two of the following:

1. Severely fragmented or known to exist at no more than five locations.
2. Continuing decline, observed, inferred or projected, in any of the following:
 - a. Extent of occurrence
 - b. Area of occupancy

- c. Area, extent, and/or quality of habitat
- d. Number of locations or subpopulations
- e. Number of mature individuals
- 3. Extreme fluctuations in any of the following:
 - a. Extent of occurrence
 - b. Area of occupancy
 - c. Number of locations or subpopulations
 - d. Number of mature individuals
- (c) Population size estimated to number fewer than 2,500 mature individuals and either:
 - 1. An estimated continuing decline of at least 20% within five years or two generations, whichever is longer (up to a maximum of 100 years in the future); or
 - 2. A continuing decline, observed, projected, or inferred, in numbers of mature individuals and at least one of the following:
 - a. Population structure in the form of either no subpopulation estimated to contain more than 250 mature individuals, or at least 95% of mature individuals in one subpopulation
 - b. Extreme fluctuations in number of mature individuals
- (d) Population size estimated to number fewer than 250 mature individuals.
- (e) Quantitative analysis showing the probability of extinction in the wild is at least 20% within 20 years or five generations, whichever is longer (up to a maximum of 100 years).

Appendix 4. Summary of letters and emails received during the public comment period of June 15, 2007 through July 31, 2007.

One standard letter was received from Karen I. T. Carroll (15209 165th Road, Live Oak, FL 32064) dated July 26, 2007. She recommended a reclassification of peregrine falcons to a species of special concern status that would allow the species to be taken by falconers. She further recommended priority be given to master class falconers when issuing permits to take birds.

Email from Ray Carr (carr4436@bellsouth.net; 4237 NW 69 St., Gainesville, FL 32606) dated July 19, 2007. He offered to do volunteer work for the FWC.

Email from Danny Durrance (d3groves@strato.net; 3067 College Hill Rd., Bowling Green, FL 33834) dated July 29, 2007. He would like to see a limited harvest of “passage” peregrine falcons, trapped in the fall and released in the spring. Florida falconers should receive their quotas first with falconers from “reciprocal states” to follow.

Email from Darryl A. Perkins (nafaprez@yahoo.com), President of the North American Falconers Association (NAFA; 14 Union St., Blackstone, MA 01504) dated July 24, 2007. In addition to providing information on the population status of the species in North America in a detailed four-page letter, NAFA recommends removal of the peregrine falcon from the endangered status in Florida. They further recommend that because the practice of falconry does not have a negative impact on raptor populations, managing peregrine populations for their use in falconry in Florida be consistent with regulations for any other healthy raptor species. Once delisted in Florida, NAFA urges the FWC to allow the use of peregrines in falconry under existing regulations and federal guidelines. Finally, they believe no special considerations, limits or quotas would be necessary to protect the peregrine in Florida, beyond those in the “falconry regulations.”

Email from Diane Reed (dreedster@aol.com), President of the St. Johns Audubon Society (St. Augustine, FL) dated June 26, 2007. She wanted to inform the FWC they conduct a 16 day survey every year for migratory peregrines on the coast off of Hwy A1A at the GTMNERR (Guana) Preserve north of St. Augustine. Their data is sent to the database at <http://www.hmana.org/Hawk Migration of North America>.

Email from Frederick Neal Ottoway (f_h_f@yahoo.com), President of the Florida Hawking Fraternity (8907 Legacy Court, Apt. 306, Kissimmee, FL 34747) dated July 30, 2007. He cited population data and trends for peregrines in North America. The FHF commends the proposed action by the FWC as the peregrine is no longer considered endangered or threatened anywhere in North America by the USFWS and they support removal of the peregrine falcon from the list of endangered species in Florida. The FHF also urges the FWC to allow the use of the species in falconry under the existing regulations and federal guidelines. Further, they maintain that no special considerations,

limits or quotas are necessary to protect the peregrine in Florida, beyond those in the “falconry regulations.”

Email from Gary Parsons (parsonskg@cox.net; Niceville, FL) dated June 26, 2007. This former master falconer cited the “continental” peregrine having made a strong recovery and being delisted by USFWS, however, he states the tundra peregrine appears to be less numerous now than it was in the 1960s when he first started trapping them. He believes the species should be recognized as species of special concern and protected and monitored for migratory status. He also voiced concern that some falconers are breeding and interbreeding species within the genus *Falco* with the likely risk of corrupting the genetics of peregrines. Parsons would like to see the state investigate this practice and put safeguards in place to insure that it is not abused and that rigorous standards are enforced for those involved in the practice.

Email from James Rogers (jamesdog69@earthlink.net; Riverview, FL) dated June 29, 2007. He provides information on previous sightings of peregrines in his area but not since several large sub-division were built in place of some native habitat. He believes the species should be at least on the species of concern if not threatened list.

Email from Michael McCoy (mmccoy@esciencesinc.com; 5310 NW 33rd Avenue, Suite 111, Fort Lauderdale, FL 33309) dated July 17, 2007. He did not have any information to contribute at this time but would like to be included on any email list to receive public notices, etc.

Email from George Mageo (mageo98@bellsouth.net) dated July 20, 2007. He wanted to inform the FWC of some wintering peregrines at several locations in south Florida. He further states peregrines are as common as red-tailed hawks.

Email from Tom J. Davidowicz (TJDavidowicz@pbsj.com; PBS&J, 5300 W. Cypress Street, Suite 200, Tampa, FL 33607) dated July 11, 2007. He reported several recent observations of peregrines in the Tampa Bay area.

Email from Bill Murrin (bmurrin@sbcglobal.net), President of the Wild Raptor Take Conservancy (WRTC, 1521 Calumet Rd., Brookings, SD 57006) forwarded from Eric Edwards of the Florida Falconer’s Association (ericedw1@gmail.com). Murrin stated the WRTC supports the delisting of the peregrine in Florida because they have recovered and have exhibited impressive growth rates in their populations. He further contends that both federal and state laws are sufficient to protect the species from hunters and trappers and falconry laws are sufficient to “provide controlled access to peregrines.”

Appendix 5. Information and comments received from the independent reviewers.

Letter and comments from Keith L. Bildstein:



**Hawk Mountain
Sanctuary Association**
Acopian Center for Conservation Learning
410 Summer Valley Road
Orwigsburg, PA 17961

Phone: 570•943•3411
Fax: 570•943•2284

13 February 2008

TO: FWC Commissioners
FR: Keith L. Bildstein, Director of Conservation Science, Hawk Mountain Sanctuary
RE: Scientific review of the BSR for Peregrine Falcons in Florida

James A. Rodgers Jr. has asked me to review for scientific quality and accuracy the preliminary BSR for the Peregrine Falcon in Florida. I am happy to do so.

The quality of science used the BSR, including its methods, data analysis, and interpretation, are appropriate for this document and its intended use. Specifically, the Peregrine Falcon BSR is thorough and complete, as well as scientifically accurate in every regard. In addition, its assumptions and conclusions are both reasonable and justifiable.

The species in question has undergone a remarkable recovery in the past 30 years, and in all probability now exists at population levels that rival those of pre-European colonization of Florida and elsewhere in North America. Significant known threats to the species have been eliminated, and no known threat currently looms on the horizon. As such, the authors of the BSR are on solid scientific grounds in their assessment of the conservation status of the species, as well as in their recommendations.

Most respectfully,

A handwritten signature in black ink, appearing to read "Keith L. Bildstein". The signature is fluid and cursive, with a long horizontal stroke at the end.

Keith L. Bildstein, Ph. D.

Sarkis Acopian Director of Conservation Science

Peregrine Falcon document review
From: Keith Bildstein
[bildstein@hawkmtn.org]
Sent: Wednesday, February 13, 2008 2:27 PM
To: Rodgers, James
Subject: RE: Peregrine Falcon document review

Attachments: Florida Fish and Wildlife Commission letter re peregrine
relisting.doc

Hi Jim,

Attached is my letter in support of the BSR. If I need to change it in any way, do not hesitate to ask me to do so. A hard copy is en route as well.

I found three small items on the BSR that you may wish to consider changing. They are...

Page page 3, paragraph 3, line 1

Insert "North America" directly after ..peali, to explicitly state that you are referring to peregrines in that part of the world.

Page 4, paragraph 2, line three

Change "Harvest of..." to "A take of.." as "harvest typically refers to something we have planted with the intent of use. I don't believe this applies to the peregrine.

Page 5, paragraph 3, bullet point 2, line two

Change "Artic peregrine" to "Arctic peregrine"

Letter and comments submitted by James H. Enderson:

James H. Enderson, Prof. Emeritus of Biology
Colorado College
18 February 2008

Independent Scientific Review
Draft Biological Status Report
Peregrine Falcon

This review of the draft BSR for the peregrine falcon focuses on scientific merit, but I have taken the liberty of suggesting minor editorial changes. Hopefully, they contribute to a more effective document. Please take all of my comments as suggestions only. In general, I agree with the findings of the Biological review panel that the peregrine in Florida does not require listing as threatened, endangered, or is it of special concern.

Comments are referenced by page number-paragraph-line.

2-2-6: The reference to peregrines in Florida in Millsap 2007 is based on Lott 2006, so the former citation is unnecessary. Millsap 2007 is a draft document and is now in review. It will most likely undergo revision and should not yet be cited as a reference.

2-2-10: In Taubert et al 1999, arctic and northern American peregrines are not distinguished. The report actually considers all those north of 54 degrees north latitude as one group. Further, I cannot find in Taubert et al 1999 a discussion of the makeup of Florida migrants and wintering falcons. Also, this report does not mention the reintroduced Midwest and Eastern US peregrines as separate from the designation American Peregrine Falcon. All North American peregrines, other than tundrius and pealei, are anatum (American Peregrine Falcons).

3-1-8: Add “a species of” Least Concern....

3-2-2: Because your focus is size dimorphism, it would be better to use mass rather than length in comparison of the sexes (see White et al 2002, p39). The data on mass show females are almost half again as heavy as males.

3-2-1: American peregrines in the southern part of the range, (Midwest, California, Mexico), are not very migratory, if at all. Add ...farthest south, ”some as far as” Central and

3-4-3: Change advertising to “courtship” ..., and ... falcons have “adopted” urban...

3-4-6: Are there records of peregrines actually nest-building?

3-5-2: The best data for age at first breeding are from the Midwest during the recent expansion. Tordoff reported essentially all females bred at age 2. It might be best to say ...females (“2-4” years) and ...males (“3-4” years). I would change “during the non-pesticide era” to ”since the pesticide ban”. Finally in that paragraph, 1.2 to 1.9 “fledglings/ pair on territory” seems better. It would be nice to add 67% second-year and 80% adult annual survivorship rates from Craig et al 2004 (p1035). By the way, the citation is not correct in the Literature Cited section (J. H. Enderson was the third author).

4-1-2: Add “and rarely” in front of sandhill cranes. Line 5 might better read “or by diving to capture prey”. I would change cats to raccoons in the last line, The latter are a big deal east of the Mississippi at cliff sites.

4-2-3: It might be good to state here legal harvest began in 2002 (I think) in Arizona, and is now allowed in 6 states and pending in another (Montana, might be finalized by now).

4-3-7: Were disturbance and habitat loss factors in the decline? At least three recovery plans did not point to those factors, and I cannot remember if the Eastern Plan mentioned the possibility or not. In any case, those factors would be hard to substantiate now in view of the vast numbers of pairs in urban settings and all of the ongoing visits to eyries to band nestlings.

Consider placing the section “Historic Distribution” first, under Biological Information.

4-5-1: Were heavy metals a “major” threat in northern latitudes? Also, DDE/DDE was a major problem at all latitudes, Peale’s falcons excluded.

5-1-3: This should read “were” problems... You might want to see White et al. 2002 on these factors. Surely they were not problems at the population level, but were local at some times.

5-4-4: Be sure to document where and when loss of breeding habitat (cliffs) was a threat. I know of no paper that claims this was, or is, a problem. Instead, peregrines seem more versatile than we knew formerly (tree nests in British Columbia, pingos on the arctic slope of Alaska, ground nests at Rankin Inlet, flat coastal islets in California, not to mention a interesting variety of human-made structures).

5-3-5: This might be changed to say “perhaps as many as 9,800 pairs.

5-3-12: Data “are”. Next line and elsewhere, omit “time” before “period”. A period is a unit of time.

5-3-20: Avoid speculation on the number of birds that will be allowed for falconry. It could be more or less, and will surely vary in the future. Perhaps a harvest will not happen at all.

5-3-last line: Check with Tordoff for the Midwest, he has information on causes of mortality. Your use of the word “threat” sounds ominous and implies population-wide difficulty. We really should wonder if human-caused agents of mortality are at high rates so they become significant. Mortality is not a threat, scores of peregrines die every day.

6-2-3: The sentence beginning on this line seems awkward.

6-5-15: Are the Keys really a “bottleneck”? The term suggests restriction, but the migrants pass freely in low numbers per hour.

The BRP faces a dilemma in the application of the IUCN Criteria to the case of migrant peregrines in Florida. I see no place in the IUNC Guidelines where migrant components of populations are addressed. Regarding Sub-Criterion B1 on page 7, the BRP interprets location to mean a limited area of Florida, but for Sub-criteria C1 and C2, for example, the whole North American population is considered. Somewhere, maybe in the Historic Distribution section, you should provide a clear explanation of peregrine in Florida, including perhaps the following points:

a) Peregrines, mostly originating in high latitudes, pass through Florida in the fall. The number over-wintering in the state is substantial but unknown.

b) Migrants are surely spread across Florida in the fall. A hundred or more can be counted on some days in the Keys.

c) Age groups are misrepresented in the counts; males, especially adult males, are much less common, either because they tend to migrate elsewhere or are less detectable, or both.

d) Most peregrines in Florida are not separate from the vast northern nesting population, or from migrants elsewhere on the Atlantic seaboard or the Gulf Coast in the fall. In the spring, many peregrines that passed through Florida in the fall mix with others to move northward on the Texas coast. Florida peregrines are not a sub-population (genetically distinct).

d) Peregrines are habitat generalists. They forage readily on both migrant and resident prey in a variety of situations including profoundly human-modified environments. They are adept at hunting over the open ocean.

e) At any one time, migrant or wintering peregrines in Florida are distributed widely and thinly, but at some places and times several may be found in one view.

f) Because of their wide, thin distribution, the migrant component as a whole is not especially vulnerable to adverse weather. (In severe storms in Texas individuals are uncanny in finding shelter in the lee of hummocks on inundated wash flats, or on other solid structures such as South Padre condos).

9-2-10: Consider replacing “rescue” with a brief statement that local weather mortality could not be significant population-wide.

9-3-6: Why mention “unregulated falconry harvest”? To some, it will mean falconers are ominous bad guys. Hell will freeze before the take of peregrines for falconry is unregulated. Further, no quotas are set for take of many other raptor species for falconry, but the take is nevertheless regulated, just as the take allowed for snow geese is sometimes unlimited.

9-3-15: What is a “potential bottleneck effect”? The preceding sentence regarding costs and benefits is not clear.

9-4-2: Suggest changing to read “...endangered list because the species does not meet any one of the criteria...”.

Table 1:

a) If only one estimate is available it could appear in the “Minimum” column, but not in both columns.

b) In the third line of the table, Holroyd instead of Hoyroyd, and the citation is Taubert et al. 1999.

c) In the title or as a footnote be sure to mention many of the data are probably outdated in view of recent increases. For example, at least 16 of the 20 accounts in Rowell et al. 2003, for the 2000 Canadian survey, mention increases over the previous survey (1995).

d) Is “USFWS 2006” the report by Green et al? If so, be sure to mention those counts were of pre-determined subsets of peregrine nesting sites in a state, and not results of searches for all sites. The numbers are dreadfully off the mark for 2007. There are about 106 known territories on Lake Powell in Utah alone, about 160 in Colorado, 85 in Wyoming, and 70 in Montana, more than 90 known in New Mexico; Arizona is surely the most populous state with likely more than all these above together.

e) Is Table 1 necessary? Why not simply cite a few of the estimates for high latitudes and emphasize most of Florida’s migrants are from those regions? Many of the peregrine

localities in the table have little or nothing to do with Florida migrants. You could also cite White et al. 2002 (North American Bird Series). It provides estimates by subspecies.

Summary

The analysis of the status of the Peregrine Falcon in Florida by the Biological Review Panel generally accommodates the guidelines established by the IUCN. The Panel concluded that the status of the peregrine, which occurs as a migrant and in winter in Florida, meets none of the criteria for any level of listing in the IUNC Red List. This conclusion is appropriate in view of the data provided in the Draft Biological Status Report.

Respectfully submitted,

Letter and comments submitted by Clayton M. White:

From: Clayton White [mailto:clayton_white@byu.edu]
Sent: Wednesday, February 27, 2008 3:42 PM
To: Rodgers, James
Subject:

Jim:

I reviewed the document you sent regarding the trapping of peregrine falcons in Florida. I am in full agreement with the conclusion that the committee has drawn. I think the data support your findings. If you need this on letterhead please let me know.

Sincerely
Clay

Dr. Clayton M. White
Professor of Zoology
Department of Plant and Animal Sciences
Brigham Young University
Provo, Utah 84602 USA

phone - 801-422-4860
fax - 801-422-0008

I have some suggestions on the document.

Page 8/Criterion E: Since state population is drawn from a vast geographic region, that entire region would need to decline simultaneously to be reflected in Florida numbers.
Page 9/paragraph 2: Hurricanes might eliminate only one cohort of immatures and with no estimate of annual survival (or odds ratios) of each cohort, effects of hurricanes may not be manifested. Examples are Swainson's hawk annual mortality by chemicals (4-5,000+) not really manifested following year on breeding grounds.
Page 9/paragraph 2: Need to demonstrate that additive mortality of one year's cohort would affect breeding population 2-3 years later.

Letter and comments submitted by Casey A. Lott:

From: Casey Lott [clott@abcbirds.org]
Sent: Monday, March 03, 2008 3:45 PM
To: Rodgers, James; Gruver, Brad; Boughton, Robin; O'Meara, Tim; meyer@arcinst.org;
brian_a_millsap@fws.gov
Subject: Casey Lott's review of Peregrine Falcon Biological Status Review

Attachments: Peregrine_Draft_Biological_Status_Report_Lott.doc;
FWC_Biological_Status_Report_review_Casey_Lott.doc;
HWI_comments_on_Peregrine_Falconry_Take_DEA_Feb_2008.pdf; JRR 2006 Florida Keys paper.pdf

Cc: Robin Boughton, Tim O'Meara, Brad Gruver, Brian Millsap, Ken Meyer

Hi Jim,

March 3, 2008

Attached to this email, please find my review of FWC's Draft Biological Status Review (BSR) for Peregrine Falcons. Thank you for the opportunity to review this document.

Please find the following 4 documents attached:

1. "Peregrine Draft Biological Status Report Lott.doc". This is a version of the Draft BSR document that I have altered using the reviewing feature in MS Word to briefly note the locations, within this document, that correspond with my detailed comments in the following 4-page document (#2 on this list). Please note that document #1 does not constitute my full comments on the BSR (see below); rather, it points out areas where either: 1) suggested changes to the draft BSR might take place as it is revised, or 2) points that should be emphasized in a management plan for this species.
2. "FWC Biological Status Report Review Casey Lott.doc". This document includes my 4 pages of comments regarding the Biological Status Report. Please ensure that the entirety of this document becomes part of the official record for this process.
3. "HWI Comments on Peregrine Falconry Take DEA Feb 2008.pdf". This is a supplementary document, referenced in document #2, that includes 18 pages of comments that HawkWatch International submitted to both the USFWS and FWC regarding the proposed take of migrant peregrines for falconry in Florida.
4. "JRR 2006 Florida Keys Paper.pdf". This is a reprint of a peer-reviewed journal article about raptor migration through the Florida Keys that was not referenced in the draft BSR. This reference should probably be incorporated in the final BSR.

Please let me know if I may be of further assistance in this process.

Sincerely,

Casey Lott
HawkWatch International
Director, Florida Keys Raptor Migration Project
(208) 629-8705

General comments

These comments have been prepared and submitted by Casey Lott of HawkWatch International.

Thank you for the opportunity to review the Draft Biological Status Report (BSR) for Peregrine Falcons. The review panel was highly qualified for this task and appears to

have closely followed FWC and IUCN guidelines for status review. The species background information is thorough and accurately presented. In sum, the document is well prepared and is not lacking any pertinent biological information that might inform decision making.

I have a small number of comments which should probably be addressed before the status review document is made final (comments 1-3 below).

As acknowledged on page 9 of the BSR, the concentration of a large number of peregrine falcons in a narrow geographic bottleneck (the Florida Keys) during fall migration presents a difficult conservation issue. I agree with the committee that peregrines should not remain listed as endangered because of this phenomenon alone. However, it is extremely important that conservation issues related to peregrine falcons (and other fall migrant raptors) in the Florida Keys are adequately addressed in the ensuing management plan (see comments 4-7 on this topic).

Finally, the status review does not mention that FWC has provided the bulk of the funding for a long-term monitoring project (1999-2007 and ongoing) that is designed to track peregrine falcon population trends via a raptor migration count in the Florida Keys (Lott 2006a, 2006b). Trend analyses from this count, which documents the largest concentration of migratory peregrine falcons in North America, will provide one of the best and most cost-effective sources of monitoring data to track future population trends, now that breeding season monitoring programs have been cut back after peregrines have been federally delisted.

Continued funding of the long term migration count at Curry Hammock State Park in the Florida Keys should be a priority when a management plan is written for this species since: 1) other sources of monitoring data for population trends that were available when peregrines were federally listed will not be available in future years; 2) if allowed, harvest of peregrine falcons for falconry is likely to be concentrated in the state of Florida, with the bulk of management responsibilities resting on FWC (see attachment A); and 3) development pressures still exist (leading to habitat loss or increased mortality threats) within the Florida Keys bottleneck, which hosts a large proportion of the continental population of peregrine falcons, albeit for a short period of time each year. Delisting the peregrine falcon removes regulatory mechanisms to manage this development to minimize risks to peregrines.

Specific comments- minor edits

1. Claims on page 5 and 6 of the BSR regarding peregrine age ratios in Florida are incorrect. The table below shows age ratio information from HawkWatch International's counts in the Florida Keys. Several important aspects of these data must be clarified to facilitate interpretation. From 1999-2001, observers aged all peregrines that they felt confident that they could age, regardless of distance from the watch site. In 2002, we decided that this was probably not a valid approach, since it is easier to identify an adult peregrine as an adult at great distances (because of the strong patterning of the plumage) than it is to identify an immature peregrine as an immature at great distances (since the relatively drab nature of their plumage leads to uncertainty, which results in many of these birds being classified as unknown-age birds, affecting overall age ratios from

summarized data). To eliminate this potential bias, we began only ageing birds within a relatively short distance of the hawk watch (defined by landmarks) where viewing conditions eliminated the effect of distance on our ability to accurately assign an age to an individual bird. Note that the percentage of birds that we assigned to age dropped precipitously after we made this decision, from 41%, 31%, and 21% of the migrant sample in 1999-2001 to a range of 1-7% of the sample in 2002-2007, resulting in a smaller, but theoretically less biased, sample. In each year post-2002, the majority of aged birds were adults, contrary to the claims in the BSR that most peregrines in the Keys are immature birds. Similarly, from 1999-2001, with larger sample sizes, but potential bias towards the identification of adults, only one of these years had a majority of birds that was aged as immature.

Table 1. Peregrine Falcons counted by HawkWatch International at Curry Hammock State Park in the Florida Keys from 1999-2007, with data on age-specific identifications.

Year	Adult	Immature	Unknown	Total	% immature	% aged
1999	255	394	920	1569	61%	41%
2000	403	175	1316	1894	30%	31%
2001	241	62	1129	1432	20%	21%
2002	60	30	1911	2001	33%	4%
2003	152	52	2654	2858	25%	7%
2004	20	17	1658	1695	46%	2%
2005	60	21	1263	1344	26%	6%
2006	31	25	1811	1867	45%	3%
2007	15	9	2089	2113	38%	1%

2. The claims on page 5 and 6 of the BSR about the unbalanced sex ratio comprising the migrant sample are probably not valid. It is true that 67% of the 247 peregrine falcons that were trapped in the Florida Keys were females; however, it is possible that this is a biased dataset that does not reflect a representative sample of the population of peregrine falcons that migrate through the Florida Keys. Although no studies have examined this bias specifically, and it would be difficult to do so, many raptor trappers agree with the belief that females are easier to trap than males for several raptor species, including peregrines. If this is the case, then sex ratios from trapping data may not represent true sex ratios of migrant counted at a nearby watch site.
3. The claim of migrant origins from stable isotope studies on page 4 of the BSR is too strongly stated for the confidence I have in stable isotope results. I have addressed this issue in much more detail in the comments HawkWatch International recently

submitted to both FWC and the USFWS in response to the draft EA for migrant peregrine take for falconry (see attached). Although it is possible that many of the migrants that pass through the Keys are from northern origins, I do not believe we have an adequate and unbiased sample of band returns, or enough confidence in the accuracy of stable isotope studies, to make this statement unequivocally. Only satellite tracking of Florida migrant peregrines would give an unbiased picture of their origins. This has not yet been attempted.

Specific comments- threats to migrant peregrines within the Florida Keys bottleneck

4. The threats section on page 4 might include more information about threats during migration. For example, prior to large water crossings within the Keys and beyond the Keys into the Caribbean, roosting habitat may be equally as important, if not more important, as foraging habitat. Large numbers of peregrines are known to concentrate at roosting areas in undeveloped areas (such as Boot Key) in the Florida Keys, some of which are not secured as public lands (Brashear and Stoddard 2001).
5. The Florida Keys migratory bottleneck is defined as being 7,700 square miles on page 7 of the BSR. However, there are numerous areas within the Florida Keys bottleneck (all of them, actually) that are MUCH smaller than 7,700 square miles, where large flights of peregrine falcons are concentrated during fall migration. For example, in many cases, the landmass of the middle Florida Keys is less than 1 mile wide, and is cluttered with development (including towers, roads, and lost natural habitat). Surely, at many points within the Keys, threats to migrating peregrines are much more focused than would be implied if the area is defined as 7,700 square miles. This definition understates the prevalence of acute mortality risks that occur regularly across the landscape within this bottleneck and under-emphasizes the importance of the loss of even relatively small individual stopover sites, which may be the only remaining foraging and roosting locations within a day's travel (for the birds) within the larger bottleneck.
6. The comment on page 7 that "impacts to habitat in the Keys are now heavily regulated by state agencies" is not true. There are many undeveloped areas in the Keys that will be developed in future years. State agencies affect this process far less than pro-development agencies such as Monroe County or the incorporated Towns of Marathon (very pro-development), Islamorada, and Key West; especially when regulatory mechanisms to protect endangered species are no longer available. The massive habitat loss associated with the widening of the 18-mile stretch (which will bring more tourist traffic and development to the Keys) is a good example of exactly how state agencies are not in control of habitat protections. Similarly, the recent "Florida Keys Carrying Capacity Study" <http://www.sfrpc.com/gis/fkccs.htm> opened the door to further development, which state agencies will be very hard-pressed to limit. Even the properties that are managed by state or federal "land-management agencies," such as DEP's State Parks, FWC's Wildlife and Environmental Areas, or USFWS' National Wildlife Refuges, are under constant pressures to adopt management practices that would not benefit birds (e.g., allowing mosquito control to spray these properties, which ultimately reduces prey availability for raptors, since invertebrate abundances are reduced, which

- then reduces small bird abundances; to allow communications towers to be constructed on “managed” lands; to allow the presence of feral cat colonies; to allow the development of recreational facilities that increase visitor use and reduce undeveloped habitat areas). In sum, 1) state and federal land management agencies exert little control in the Florida Keys over private property areas (even less when endangered species are delisted) and 2) these agencies have to fight considerable pressures to do the right thing for wildlife even on public land properties that they manage on their own.
7. For many years, state land acquisition programs have purchased lands for conservation in the Florida Keys through the CARL program in the past and the Florida Forever program in recent years (<http://www.dep.state.fl.us/lands/acquisition/FloridaForever/>). Two existing land acquisition proposals with Florida Forever, the “Florida Keys Ecosystem” and the “North Key Largo Hammocks” projects, have been highly ranked for years, although the rate of acquisitions has slowed in recent years. If peregrine falcons are to be delisted, then efforts should be increased to acquire high-priority properties, such as Boot Key, that serve as important raptor roosting and foraging sites during fall migration. Many of these properties are already listed on Florida Forever proposals, such as two listed above; however, a focused radio telemetry study of roosting habitat use by fall-migrant peregrines (and other raptors) would be very helpful to define the spatial extent of roosting concentrations within the Florida Keys bottleneck and address threats in these areas. Using such information, existing proposals could be amended, or a new proposal could be submitted to Florida Forever to secure important roosting and foraging areas for peregrine falcons. This won’t address all of the conservation issues within the Florida Keys bottleneck, but it will help to limit the already tremendous habitat loss and fragmentation that has occurred within this globally important migratory flyway.

References

- Brashear, C.B., and P.K. Stoddard. 2001. Autumn raptor migration through the Florida Keys with special focus on the peregrine falcon. Final report NG96-101. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. 97 pages.
- Lott, C. A. 2006a. Systematic monitoring of peregrine falcons and seven other diurnal migrant raptor species in the Florida Keys. Final report NG02-302. Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida. 40 pages.
- Lott, C.A. 2006b. A new raptor migration monitoring site in the Florida Keys: counts from 1999-2004. *Journal of Raptor Research* 40(3):200–209.

Letter and comments submitted by Kathryn E. Sieving:

Hi Jim – I have reviewed the DRAFT BIOLOGICAL STATUS REPORT for the PEREGRINE FALCON, and consulted the associated documents to insure that I understand the charge of the team presenting the report. In particular the regional recommendations provided by IUCN in applying their criteria are particularly helpful in understanding the situation for the FL populations of the Peregrine.

I agree with all major results of the report, regarding the discussions of what is known about the national and FL populations of the peregrine, and agree (with reservations) with the unanimous decision to down-list the FL species' status.

My reservations have to do with the lack of considered quantitative analysis in the report. There are some estimates of population sizes presented under the geographic range section, but no analyses of population trends are presented. Apparently, there are some analyses (a USFWS model of potential harvest effects on the N American population, and a couple of the references would appear to have done trend analyses for regional sub-populations) – yet nothing is presented under Criteria E of any substance. Perhaps this is because only quantitative analyses done by the BA team is supposed to be presented under this section? If so then it should be stated. Otherwise, I would like to see some of the results from the USFWS report concerning potential (lack of) harvest effects. Such an analysis could not have been done without standard population modeling using parameters based on population estimates and productivity (both well-reported from around N America) suggesting population status and trends past, present, and future.

The IUCN guidelines for applying their criteria regionally/locally clearly indicate that in the cases of species like this, with significant/major population ranges outside the region of concern that the status of the larger population is of principal concern when assessing regional threats. In this regard, I think more attention needs to be given to actual quantitative assessment of the larger N American population. Given the significant concerns raised in the Report with bottleneck effects that translate into 'restricted population' concerns in FL re the listing Criteria B, C, and D – I think it is necessary for there to be something in the Quantitative Analysis section to back up statements such as the following;

“...we did conclude that the North American breeding population could rescue the Florida population should it decline due to some catastrophic event in the Keys (e.g., a category 5 hurricane during the peak of fall migration).”

And I became particularly confused when I arrived at the Listing Recommendation section where I find only two brief sentences indicating the delisting is being unanimously recommended based on a quantitative assessment that doesn't seem to exist.

“The BRP unanimously recommends removing the peregrine falcon from the endangered list It was unanimously agreed there is no biological justification for recommending any classification that is different from the *quantitative assessment*.

The discussions under all of the other criteria were quite substantive and full of insights, yet the listing decision seems to be based on the discussion under Criteria E alone – the least substantive of all. Some population numbers are presented in the Geographic range section – I recommend these be re-summarized under Criteria E along with the basic nuts and bolts of the USFWS modeling effort on whether the N Am. population can tolerate harvest of 100 birds. Perhaps this report went further than that and might hold some insights into whether losses of larger numbers (a couple thousand) from hurricanes or turbines or other factors could be tolerated in any kind of sustained manner? Harvest models are not PVAs, but they are proven to be useful for short-term projections under increased mortality.

Also – under the listing decision – I would emphasize results under the other criteria findings more than quantitative assessment.

Clearly, the team is aware of, and clearly states, the major potential future sources of trouble for FL peregrines. As an outsider to the listing / de-listing process, I assume that these concerns will be dealt with fully in the management plan for the Peregrine. But if the species is not listed as at least Special Concern, then will there even be a management plan for Peregrines after the decision to de-list is complete?

Overall – I had only the one major concern / set of questions concerning the treatment of quantitative issues. Overall, however, I agree with the decision and overall biological assessment.

Cheers –
Katie

Page 4/paragraph 2: Since FL peregrines are not breeding here, harvest here would involve capture of wild adults for falconry, rather than nestlings. This seems obnoxious to me. The taming process for adults is more stressful than raising nestlings in captivity.

Page 5/paragraph 1: Is it regulated now??

Page 5/paragraph 1: Are there quantitative assessments of this source of mortality at current towers? Projections of increased mortality with increased (projected) tower installations?

Page 5/paragraph 3: How many in FL?

Page 8/Criterion E: But there have been trend analyses – What about them? Is a PVA the only possible type of Quantitative Analysis?

Page 8/Criterion E: Where is the reference for the model results? Is it the 2007 paper listed in the Lit Cited? They need to be included. Can results of the analysis be included here? It has to be equivalent to a PVA to assess the effects of harvest on the N American population. I sense that delisting the peregrine will pique interest in falconry acquisition, and I (somehow) doubt that 100 juvenile birds per year will be enough to satisfy new demands. Did they model larger levels of take than 100 (legal) birds?

Page 8/Criterion E: Maybe this is officially proper, but I do not see logically how lack of a quantitative assessment satisfies a criterion that should require one to be done. Given the demographic parameters reported so far, a PVA could easily be done. Perhaps the USFWS model of harvest effects would suffice in this regard? Again – where is the reference, or at least summary, to the results of this modeling effort?

Page 9/paragraph 3: Yes – Have there been assessments of the degree to which this currently occurs (for this and other raptor species in the US) and the degree to which interest may be piqued by de-listing in Peregrines? What efforts to prevent unregulated harvest in the Keys bottleneck area could be made? Are being made? Birds may be especially vulnerable there.

Page 9/paragraph 3: Data on this should be available by now. I'd like to see a reference or two and some numbers – of strikes and turbine placement assessments (future plans) for the Keys ?

Page 9/paragraph 3: OK – this will work.

Page 9/paragraph 4: What quantitative assessment?!?!? There is none presented or discussed under Criterion E !?!?! The numbers tossed about under Criterion B are population estimates, but they do not constitute a quantitative assessment of increase, potential or real decreases.