Supplemental Information for the Osprey

Biological Status Review Report

The following pages contain peer reviews received from selected peer reviewers, comments received during the public comment period, and the draft report that was reviewed before the final report was completed

March 31, 2011

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Peer review # 1 from Mike McMillian

From: McMillian, Mike
To: Imperiled
Subject: Monroe County Ospreys
Date: Monday, December 13, 2010 2:28:01 PM

Based on the BSR draft, literature review, and contact with the local and scientific communities, I believe that the Florida Fish and Wildlife Conservation Commission's (FWC) request for continued listing as Species of Special Concern is warranted. FWC is correctly taking a conservative stance in light of very little existing information concerning this possible subpopulation of Ospreys.

Direction of future research; may to want to focus on cause of reduction. For example, at what phase in the nesting cycle are problems observed (i.e. egg laying, egg hatching, fledging). This could imply a chemical interaction as with DDT in the past. Are the numbers of nest structures decreasing? Nest structures as the culprit of decline seems unlikely but it's worth looking into. Finally, is the food supply decreasing in Florida Bay? Ospreys will take any species of fish they can catch so this would imply a bay-wide reduction in fish numbers, regardless of species. Has there been an increase in eagle numbers? I have witnessed decreased Osprey nesting in the presence of eagle nests. However, if possible, the Ospreys move to another portion of the lake/bay and resume nesting.

Suggestion
1) Have you contacted Brian Mealey at the Institute of Wildlife Sciences in Palmetto Bay, Florida (305) 975-0200? Brian has measured mercury content in Ospreys and eagles in Florida Bay as well as Lake Istokpoga. Brian has also banded some Ospreys in the bay. I am unaware of any recent work but he may be a great contact.

Peer review #2 from Brian Millsap

From: Brian_A_Millsap@fws.gov
To: Imperiled
Subject: Re: Osprey Draft BSR Report

I have completed my review of the BSR for the osprey (Pandion haliaetus) population in Monroe, Co, FL. The status review group appears to have done a thorough job compiling and evaluating the available biological information. Much of the information used to infer an ongoing population decline is from personal communication and not available for review, so it is difficult to determine whether methods, etc., are appropriate for making such a determination. However, given the credibility of the individuals cited, I am inclined to accept that the population is decreasing, but I encourage publication of those data and the methods used to collect them so that they can be better evaluated. The other major biological issue here is, as the review group noted, whether the non-migratory south FL osprey meets the definition of an isolated population, and is therefore a potential listable entity under the FWC rule. The approach recommended, to tentatively conclude that the population does meet the criteria for isolation but to target further studies to confirm that, seems appropriate if the intent is to be conservative in making changes to the state list. However, the appropriate level and direction of risk aversion is more of a policy call than a biological one; I believe either course (to retain or delist pending additional confirmatory information) is equally supportable scientifically.

Please do not hesitate to contact me if you have further questions.

Regards,

Brian

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Brian Millsap
U.S. Fish and Wildlife Service
P.O. Box 1306
Albuquerque, NM 87103

Peer review #3 from Stephen Nesbitt

From: Stephen Nesbitt
To: Imperiled
Subject: BSR Osprey (Monroe County)
Date: Thursday, January 27, 2011 10:10:44 AM

Being familiar with the BSR process and given the lack of more detailed information on this unique US population of ospreys, this report seems thorough and up to date. Based on my experience with other species of fish-eating birds in southern Florida in general, and Florida Bay in particular, the decline in estimated population is consistent with the general trend for birds in this region. The recommendation to remove the Monroe County designation and expand the listing to include "*the southern coastal osprey population as a Species of Special Concern until more information has been gathered about whether it is a distinct population and about its true geographic range*" seems a reasonable and biologically conservative conclusion at this time.

Stephen Nesbitt

Letters and emails received during the solicitation of information from the public period of September 17 through November 1, 2010

Email from Diane Erdely

From: Diane Erdely
To: Imperiled
Subject: Imperiled species
Date: Tuesday, October 05, 2010 10:19:24 AM

Hello Gentlemen:

My name is Diane Erdely. I live in the community of Solivita, zip code 34759. We straddle the Polk/Osceola County lines. The community, which will consist of about 600 homes when completed, was built with lots of conservation area, and many retention ponds, some of large size. We also have two golf courses. We are within a few miles of the Nature Conservancy's Disney Wilderness preserve. We see some of the imperiled species here on a regular basis.

Florida Sandhill Crane
Very common here. There are at least five breeding pairs in our development. One pair who has had chicks in the past was not successful this year. Several pair successfully raised 2 chicks this year, and one pair raised 1 chick. Have also seen a pair along Marigold Avenue (Marigold and Pleasant Hill Rd.), and sevearl pair on Pleasant Hill Road between here and Kissimmee. I am sure you have the information on the FSC's in The DWP, as we have helped with the survey there.

Limpkin
Often seen around the lakes here. Breed on the property. Several broods have been seen in the development and just outside. At one point this summer, there was a flock of 10 wandering around the area.

Little Blue Heron
Very common around the lakes in this development. There is a little blue rookery by a small natural pond within the development. They have been very successful for several years, raising easily 20 chicks at a time..standing room only.

Osprey
Seen daily flying over the lakes. Don't know the location of a nest.

Snowy Egret
Common. Seen almost daily around the lakes.

Tricolor Heron
Seen occasionally around the lakes.

White Ibis
Common. Seen daily in small flocks, including immature.

Hope this is helpful to you.

PS. We also see swallow-tail kites daily in season. Thery are gone now.

Email from Kurt Snyder

From: Kurt Snyder
To: Imperiled
Subject: Florida Imperiled Species - Living in Port Orange Florida
Date: Tuesday, October 19, 2010 2:04:37 PM

Hello,

I read in the FWC Newsletter about the Biological Status Review being made concerning Florida Imperiled Species. I live in the Cypress Head Golf Course Community in Port Orange, Florida. We have six different species included on the Imperiled Species List that are full time residents here, and one other bird on the list that occasionally has been spotted here. I am not sure if this is the kind of information you are looking for, but if so, let me know and I can provide you with further details.

Here is a list of the 6 species we have at Cypress Head year round:
Florida Sandhill Crane (a dozen or more adult birds, and at least four that were born this spring)
Little Blue Heron (a dozen or more adult birds)
Osprey (two or three adult pairs)
Snowy Egret (5-10 adult birds)
Tricolored Heron (5-10 adult birds)
White Ibis (at least three dozen adult birds and many immature birds born this spring)

Also, for the last three years we have observed one or two Roseate Spoonbills that have stopped for a day or so. If this information is what you are looking for, I would be happy to provide additional details.

Best regards,

Kurt Snyder

Email from Michael McMillian

From: Michael McMillian [mailto:mike.mcmillian@hotmail.com]
Sent: Wednesday, September 29, 2010 10:25 AM
To: Vandeventer, Michelle
Subject: FW: Mike Mcmillian/Osprey Research

Here is some information concerning Ospreys;

Lake Istokpoga; I watched the nesting population go from 55 pairs in 1989 to over 300 pairs in 2004 and 2005. The number has dropped however it remains around 250. There is historical information from this lake that in 1910 there were 75 nests (pre-settlement). In 1973 this lake supported less than 10 nests (Dr. James Layne, personal communication).
Lake Arbuckle; when I first began surveying this lake there were 75 nests. As of 2009 this number had dropped to 18.
Blue Cypress; the number of nests on this lake fluctuates between 250 and 325 plus (I believe the low number of nests was associated with the two hurricane years; 2004 and 2005).

Based on a literature review and speaking with Osprey researchers around the world it appears that Lake Istokpoga and Blue Cypress Lakes support the largest populations of nesting Ospreys in the world.

I have a theory that the number of Osprey nests a lake will support (at least in south Florida) is based on the presence of hydrilla. The vegetative structure of hydrilla provides hundreds and sometimes thousands of additional acres of fish nursery grounds allowing some species of fish to dramatically increase in numbers. Artificially high fish populations support artificially high Osprey populations. I believe this explains the drop in Osprey nest numbers on Lake Istokpoga (this lake has received aggressive hydrilla treatment in the past several years) and Lake Arbuckle.

Three to five years before I began surveying Lake Arbuckle the lake was topped out with hydrilla. The hydrilla was treated and when I began surveying very little hydrilla was left on the lake (a few acres). The nesting success was very poor (similar to the DDT period) and I watched the number of nests decline each year. In 2009, the reproductive success is good and I believe the number of Osprey nests on this lake will soon stabilize.

At first glance the high number of Osprey nests on Blue Cypress Lake does not support the hydrilla theory as there is virtually no hydrilla on the lake. Even though the lake is undeveloped the number of nests is quite high for a relatively small lake (approx. 7,000 acres). When I began surveying this lake I
noticed that it is very rare to see an Osprey forage on the lake. After more investigation and speaking with the FWC fisheries biologist, I found out that the surrounding water bodies which measure several thousand acres are full of hydrilla. This is where the birds forage. For the record I'm not supporting the idea that we keep hydrilla. I'm merely saying that the number of nesting Ospreys appears to be artificially high in the presence of hydrilla. When hydrilla is removed the

number of Ospreys drop to something more natural.

Mike McMillian

Copy of the Osprey BSR draft report that was sent out for peer review

Biological Status Review
for the
Osprey
(*Pandion haliaetus)*
(Monroe County population only)

EXECUTIVE SUMMARY

The Florida Fish and Wildlife Conservation Commission (FWC) directed staff to evaluate all species listed as Threatened or Species of Special Concern as of September 1, 2010. Public information on the status of the osprey (Monroe County population only) was sought from September 17, 2010 to November 1, 2010. The three member Osprey Biological Review Group (hereafter BRG) met on November 3rd, 2010. Group members were Karl Miller (FWC lead), Sonny Bass, and John Ogden. In accordance with rule 68A-27.0012 F.A.C, the BRG was charged with evaluating the biological status of the osprey (Monroe County population only) 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)*. Please visit http://www.myfwc.com/WILDLIFEHABITATS/imperiledSpp_listingprocess.htm to view the listing process rule and the criteria found in the definitions.

The BRG concluded in their biological assessment that the osprey (Monroe County population only) when considered by itself, met criteria for listing. However, based on a literature review, information received from the public, and the BRG findings, staff concluded that further information is needed about the uniqueness of the southern coastal osprey population, including a clearer understanding of its geographic extent. Because the osprey is not constrained by county lines, rather than simply retaining the Monroe county listing designation, staff recommends listing the southern coastal osprey population as a Species of Special Concern until more information has been gathered about whether it is a distinct population and about its true geographic range.

This work was supported by a Conserve Wildlife Tag grant from the Wildlife Foundation of Florida.

BIOLOGICAL INFORMATION

Life History References – Poole (1989), Ogden (1996), Snyder (2001), Poole et al. (2002), Florida Fish and Wildlife Conservation Commission (2003), Martell et al. (2004).

Taxonomic Classification – There are generally four recognized subspecies of osprey (Poole et al. 2002): *Pandion haliaetus carolinensis* (North America), *P. h. ridgwayi* (portions of Cuba, portions of the Bahamas, and the coast of southeastern Mexico and Belize), *P. h. haliaetus* (Eurasia), *P. h. leucocephalus* (Australia and southwestern Pacific; formerly *P. h. cristatus*).

Osprey breeding in coastal southern Florida (i.e., Monroe and Dade counties) are believed to be non-migratory residents (Poole 1989, Ogden 1996, Houghton and Rymon 1997) and therefore a distinct subpopulation. Experts have suggested that osprey in coastal southern Florida are taxonomically affiliated with *P. h. ridgwayi* (J. Ogden, *personal communication*; S. Bass, *personal communication*) because of their physical similarities (e.g., smaller size, pale plumage), and their non-migratory status. However, genetic affinities have not been established through molecular techniques.

Geographic Range and Distribution – The osprey is widely distributed in North America and highly migratory at higher latitudes. Most North American osprey winter in South and Central America (Poole et al. 2002, Lott 2006), with the exception of the non-migratory, resident subpopulation in coastal southern Florida. Geographic extent of this resident subpopulation is unknown. Some have suggested that osprey nesting in peninsular Florida south of 29 degrees latitude are non-migratory residents (Poole 1989, Houghton and Rymon 1997). However, recent satellite telemetry documented that osprey breeding in Lake Istokpoga (Highlands County; approximately 27.25 degrees latitude) routinely migrate to South America (Martell et al. 2004). In Florida, non-migratory, resident osprey have been well documented and extensively studied only in Florida Bay, the southern Everglades, and the Florida Keys, which are primarily or entirely within Monroe County (Bass and Kushlan 1982, Kushlan and Bass 1983, Fleming et al. 1989, Poole 1989, Ogden 1996).

Limited telemetry data (M. Westall, *personal communication*) and anecdotal evidence suggest that at least some individuals may be non-migratory as far north as southern Miami-Dade County (Atlantic coast) and northern Collier County/southern Lee County (Gulf coast). Understanding the movements of presumed "resident" subpopulations is one of the highest research priorities for osprey in North America (Poole et al. 2002).

In addition to non-migratory breeders in southern coastal Florida and migratory breeders elsewhere in Florida, osprey breeding at more northern latitudes also migrate through, and sometimes winter in, the Florida peninsula (Martell et al. 2004, Lott 2006). Ospreys exhibit high fidelity to nesting sites and wintering areas (Martell et al. 2001).

Population Status and Trend – Poole et al. (2002) estimated the osprey population in the United States (excluding Alaska) at approximately 16,000 – 19,000 pairs, which is a significant increase from an estimate of 7,500 – 8,000 breeding pairs during the early 1980s (Poole 1989). Among the contiguous 48 states, Florida, Maine, Virginia, and Maryland have the largest osprey populations (Houghton and Rymon 1997, Poole et al. 2002). Florida's population was estimated at 2,500 – 3,000 pairs in 1994 (M. Westall, unpublished data cited in Houghton and Rymon 1997) and has likely grown to 3,500 – 4,000 pairs. Ospreys are common in Florida where breeding pairs occur along both the Atlantic and Gulf of Mexico coasts, and in the central lakes region of the state (Florida Fish and Wildlife Conservation Commission 2003).

In contrast, the resident southern coastal osprey subpopulation has declined steadily since the early 1970s. The number of breeding pairs in Florida Bay declined 58% from 1973 to the early 1980s (Kushlan and Bass 1983). Most recently, osprey in Florida Bay declined from 136 pairs in 1980 (Kushland and Bass 1983) to 60 pairs in 2007 (S. Bass, *unpublished data*), a 56% decline over a 27-year period. Osprey are also declining in the lower Florida Keys (T. Wilmers,

personal communication) but recent count data are not available. Because data accumulated over many decades show Florida Bay consistently accounts for 50-70% of the Monroe County population, the BRG conservatively estimated the county-wide population at 100 – 150 pairs (S. Bass, *unpublished data*).

Quantitative Analyses – We are not aware of a population viability analysis for osprey in Florida.

BIOLOGICAL STATUS ASSESSMENT

Threats – Use of persistent organochlorine pesticides, particularly DDT, from the late 1940s to early 1970s resulted in bioaccumulation in prey fish and transfer to ospreys. Sub-lethal effects included thinning of egg-shells, reduced breeding productivity and subsequent population declines. The osprey population has responded positively since the banning of these chemicals and is increasing throughout most of North America. Currently, there is concern regarding exposure to heavy metals, especially methylmercury, due to biomagnification in prey items. Mercury has been measured in tissues of juvenile and adult ospreys from Florida Bay at levels associated with reduced reproductive success (Lounsbury-Billie et al. 2008). Osprey productivity is closely tied to prey abundance, and productivity declines have been associated with reduced fish supplies (Bowman et al. 1989, Fleming et al. 1989). Osprey in Florida Bay (Monroe County) have been declining during the last several decades, possibly because of food stress (Kushlan and Bass 1983, Bowman et al. 1989).

Other causes of mortality, both within and outside of Florida, are collisions with objects (Poole and Agler 1987, Deem et al. 1998), increased interspecific competition with bald eagles (Ogden 1975, Ewins 1997), nest predation by raccoons (Fleming et al. 1989, Ewins 1997), and losses resulting from adverse weather in breeding areas or along migration routes. Available information suggests the resident, southern coastalFlorida osprey subpopulation is mostly contained within Monroe County where it is vulnerable to hurricane events both because of its location and its restricted range. However, the osprey subpopulation in Monroe County nests during the early winter, several months after the season when tropical weather events occur.

Ospreys have proven to be relatively tolerant of human disturbance when sensitized (Rodgers and Schwikert 2003) and also have been able to effectively exploit artificial nesting sites, such as channel markers, telephone poles, and nesting platforms (e.g., Schreiber and Shchreiber 1977). Osprey in the Florida Keys now may be largely dependent on such artificial structures, and it is vital that they be retained.

Population Assessment – Please refer to the Biological Status Review Information Sheet for the findings of the BRG. The osprey (Monroe County population only) met multiple criteria for listing, including Population Size Reduction (A2, A3, and A4), Population Size and Trend (C1 and C2), and Population Very Small or Restricted (D1).

Regional Assessment of Subpopulations – Please refer to the Biological Status Review Information Sheet for the regional assessment of the BRG. There was no change from the initial finding.

The BRG concluded that multiple lines of evidence exist establishing two distinct subpopulations of osprey in Florida: one is a declining, winter-nesting, non-migratory subpopulation along the southernmost coast of Florida (primarily in Monroe County), while the other is a stable or increasing, late-winter-or-spring-nesting, migratory subpopulation. The demographic relationship between the southern coastal Florida population and other subpopulations in North America is unknown. Given that osprey in southern coastal Florida are non-migratory and have different breeding phenology from osprey farther north, the opportunity for mixing of these subpopulations may be very limited. The BRG also noted that the number of breeding pairs of osprey in Monroe County has been declining for decades, without any observed "rescue effect" of immigration from farther north, even though more northerly subpopulations are stable or increasing.

The demographic relationship between the southern coastal Florida subpopulation and subpopulations in the Caribbean is unknown; we are not aware of any evidence for immigration from Cuba or the Bahamas.

LISTING RECOMMENDATION

The BRG concluded in their biological assessment that the Monroe County osprey population, when considered by itself, met multiple criteria for listing in the Population Assessment, including Population Size Reduction (A2, A3, and A4), Population Size and Trend (C1 and C2), and Population Very Small or Restricted (D1).

However, based on a literature review, information received from the public, and the BRG findings, staff concluded that further information is needed about the uniqueness of the southern coastal Florida osprey population, including a clearer understanding of its geographic extent. Because the osprey is not constrained by county lines, rather than simply retaining the Monroe county listing designation, staff recommends listing the southern coastal osprey population as a Species of Special Concern until more information has been gathered about whether it is a distinct population and about its true geographic range.

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Biological Status Review Information
Findings

Species/taxon: Osprey (Monroe County population only)
Date: 11/03/10
Assessors: Karl Miller, Sonny Bass, John Ogden

Generation length: 6-7 yrs

Criterion/Listing Measure	Data/Information	Data Type*	Criterion Met?*	References
(A)Population Size Reduction, ANY of				
(a)1. An observed, estimated, inferred or suspected population size reduction of at least 50% over the last 10 years or 3 generations, whichever is longer, where the causes of the reduction are clearly reversible and understood and ceased[1]	No evidence that reduction has ceased.		N	
(a)2. An observed, estimated, inferred or suspected population size reduction of at least 30% over the last 10 years or 3 generations, whichever is longer, where the reduction or its causes may not have ceased or may not be understood or may not be reversible[1]	Data from last four decades show Florida Bay consistently accounts for 50-70% of county-wide population. Counts of nesting pairs in Florida Bay declined from 136 in 1980 to 60 in 2007, a 56% decline over a 27-year period. Nesting pairs in lower Florida Keys also declining. Causes of decline not well understood and have not ceased.	O, E	Y (a)	Kushlan and Bass (1983); Fleming et al. (1989); S. Bass, unpublished data; T. Wilmers, personal communication.
(a)3. A population size reduction of at least 30% projected or suspected to be met within the next 10 years or 3 generations, whichever is longer (up to a maximum of 100 years) [1]	No evidence that reduction has ceased. Productivity in Florida Bay has fallen to lowest levels recorded for the region since the 1960s. Habitat quality (e.g., reduced fish supplies) in Florida Bay and the lower Everglades, a possible cause of decline, unlikely to improve in near term. Documented high levels of mercury in osprey associated with reduced reproductive success.	P	Y (b,c)	Kushlan and Bass (1983); Bowman et al. (1989); Fleming et al. (1989); Poole (1989); Lounsbury-Billie et al. (2008); S. Bass, unpublished data.
(a)4. An observed, estimated, inferred, projected or suspected population size reduction of at least 30% over any 10 year or 3 generation period, whichever is longer (up to a maximum of 100 years in the future), where the time period must include both the past and the future, and where the reduction or its causes may not have ceased or may not be understood or may not be reversible.[1]	Same as A2 and A3 above.	O, E, P	Y (a,b,c)	Same as A2 and A3 above.
[1] based on (and specifying) any of the following: (a) direct observation; (b) an index of abundance appropriate to 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.				
(B)Geographic Range, EITHER				

(b)1. Extent of occurrence < 20,000 km^2 (7,722 mi^2) OR	Monroe County area, land and water combined, < 9,700 km^2	O	Y	FWC land cover map of Florida.
(b)2. Area of occupancy < 2,000 km^2 (772 mi^2)			N	
AND at least 2 of the following:				
a. Severely fragmented or exist in ≤ 10 locations	Exist in limited number of "locations" where tropical weather events could severely impact all breeding individuals; however, mitigated by the fact that tropical storms occur several months prior to winter nesting season.		N	
b. Continuing decline, observed, inferred or projected in any of the following: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent, and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals	See A3 above. Habitat quality (e.g., reduced fish supplies) in Florida Bay and the lower Everglades, a possible cause of decline, unlikely to improve in near term. Documented high levels of mercury in osprey associated with reduced reproductive success.	O, I, P	Y (ii,iii,v)	Kushlan and Bass (1983); Bowman et al. (1989); Poole (1989); Lounsbury-Billie et al. (2008); S. Bass, unpublished data.
c. Extreme fluctuations in any of the following: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			N	
(C)Population Size and Trend				
Population size estimate to number fewer than 10,000 mature individuals AND EITHER	Total county population conservatively estimated at 100-150 pairs.	O, E, I	Y	S.Bass, unpublished data; T. Wilmers, personal communication.
(c)1. An estimated continuing decline of at least 10% in 10 years or 3 generations, whichever is longer (up to a maximum of 100 years in the future) OR	See A3 and B above. Habitat quality (e.g., reduced fish supplies) in Florida Bay and lower Everglades, unlikely to improve in near term. Documented high levels of mercury associated with reduced reproductive success.	P	Y	Kushlan and Bass (1983); Bowman et al. (1989); Fleming et al. (1989); Poole (1989); Lounsbury-Billie et al. (2008); S. Bass, unpublished data.
(c)2. A continuing decline, observed, projected, or inferred in numbers of mature individuals AND at least one of the following:	See A3, Bb, and C1 above.	P	Y	
a. Population structure in the form of EITHER	Total county population conservatively estimated at 100-150 pairs.	O, E, I	Y	S.Bass, unpublished data; T. Wilmers, personal communication.
(i) No subpopulation estimated to contain more than 1000 mature individuals; OR				
(ii) All mature individuals are in one subpopulation			N	
b. Extreme fluctuations in number of mature individuals			N	
(D)Population Very Small or Restricted, EITHER				
(d)1. Population estimated to number fewer than 1,000 mature individuals; OR	Total county population conservatively estimated at 100-150 pairs.	O, E, I	Y	S.Bass, unpublished data; T. Wilmers, personal communication.

(d)2. Population with a very restricted area of occupancy (typically less than 20 km^2 [8 mi^2]) or number of locations (typically 5 or fewer) such that it is prone to the effects of human activities or stochastic events within a short time period in an uncertain future			N	
(E)Quantitative Analyses				
e1. Showing the probability of extinction in the wild is at least 10% within 100 years			N	

Initial Finding (Meets at least one of the criteria OR Does not meet any of the criteria)	Reason (which criteria are met)
Meets multiple criteria.	A2, A3, A4, C1, C2a, D1
Is species/taxon endemic to Florida? (Y/N)	N
If Yes, your initial finding is your final finding. Copy the initial finding and reason to the final finding space below. If No, complete the regional assessment sheet and copy the final finding from that sheet to the space below.	
Final Finding (Meets at least one of the criteria OR Does not meet any of the criteria)	Reason (which criteria are met)
Meets multiple criteria.	A2, A3, A4, C1, C2a, D1

1	Biological Status Review Information Regional Assessment	Species/taxon:	Osprey (Monroe County population only)
2		Date:	11/03/10
3		Assessors:	Karl Miller, Sonny Bass, and
4			John Ogden
5			
6			
7			
8	Initial finding		Meets multiple criteria
9			
10	2a. Is the species/taxon a non-breeding visitor? (Y/N/DK). If 2a is YES, go to line 18. If 2a is NO or DO NOT KNOW, go to line 11.		No
11	2b. Does the Florida population experience any significant immigration of propagules capable of reproducing in Florida? (Y/N/DK). If 2b is YES, go to line 12. If 2b is NO or DO NOT KNOW, go to line 17.		Do not know (Suspect no because a) different nesting phenology and non-migratory status, and b) subpopulation continues to decline without any rescue effect)
12	2c. Is the immigration expected to decrease? (Y/N/DK). If 2c is YES or DO NOT KNOW, go to line 13. If 2c is NO go to line 16.		
13	2d. Is the regional population a sink? (Y/N/DK). If 2d is YES, go to line 14. If 2d is NO or DO NOT KNOW, go to line 15.		
14	If 2d is YES - Upgrade from initial finding (more imperiled)		
15	If 2d is NO or DO NOT KNOW - No change from initial finding		
16	If 2c is NO or DO NOT KNOW- Downgrade from initial finding (less imperiled)		
17	If 2b is NO or DO NOT KNOW - No change from initial finding		No change
18	2e. Are the conditions outside Florida deteriorating? (Y/N/DK). If 2e is YES or DO NOT KNOW, go to line 24. If 2e is NO go to line 19.		
19	2f. Are the conditions within Florida deteriorating? (Y/N/DK). If 2f is YES or DO NOT KNOW, go to line 23. If 2f is NO, go to line 20.		
20	2g. Can the breeding population rescue the Florida population should it decline? (Y/N/DK). If 2g is YES, go to line 21. If 2g is NO or DO NOT KNOW, go to line 22.		
21	If 2g is YES - Downgrade from initial finding (less imperiled)		
22	If 2g is NO or DO NOT KNOW - No change from initial finding		
23	If 2f is YES or DO NOT KNOW - No change from initial finding		
24	If 2e is YES or DO NOT KNOW - No change from initial finding		
25			
26	Final finding		Meets multiple criteria

Appendix 1: Biological Review Group Members' Biographies

Karl E. Miller received his Ph.D. from the University of Florida and is currently the Upland Nongame Bird Leader for FWC's Fish and Wildlife Research Institute. Miller has more than 15 years experience implementing research and monitoring projects for imperiled birds and mammals in Florida, with more than 50 articles or book chapters published in scientific journals or popular magazines. Miller's expertise is focused on the population ecology and community ecology of raptors, woodpeckers, and songbirds.

Oron "Sonny" Bass is Supervisory Wildlife Biologist at the Daniel Beard Research Center in Everglades National Park, where he has led research and monitoring projects on imperiled birds and mammals for the past three decades. Bass's expertise includes the conservation biology of bald eagles, ospreys, Cape Sable seaside sparrows, and Florida panthers, especially in relation to habitat quality and water management issues in the Everglades.

John C. Ogden received his M.S. degree in Biological Sciences from Florida State University. He has served as research ecologist with the Everglades National Park and National Audubon Society, environmental scientist with the South Florida Water Management District working on the Everglades restoration, and most recently as research director with Audubon of Florida. His expertise is in the ecology of wading birds. He has served on the USFWS recovery teams for the wood stork, California condor, and American crocodile, and has published over 100 technical papers.

Appendix 2: Summary of letters and emails received during the solicitation of information from the public period of September 17, 2010 through November 1, 2010:

Information was received from Mike McMillian on the status of osprey nesting on the interior lakes in south-central Florida. "Based on a literature review and speaking with Osprey researchers around the world it appears that Lake Istokpoga and Blue Cypress Lakes support the largest populations of nesting Ospreys in the world." McMillian reported that osprey numbers on Lake Istokpoga peaked at >300 nesting pairs during 2004-2005 and subsequently dropped to ca. 250 nesting pairs, while osprey numbers on Blue Cypress seem to fluctuate between 250 and 325 nesting pairs. In contrast, his monitoring data indicate that ospreys are steadily declining on Lake Arbuckle. McMillian also reported that he believes that the number of nesting ospreys appears to be artificially high in the presence of hydrilla, and when hydrilla is removed "…the number of ospreys drops to something more natural."

Appendix 3. Information and Comments Received from Independent Reviewers.