Florida Black Bear Biological Status Review Report

March 31, 2011

Biological Status Review
for the
Florida black bear
(*Ursus americanus floridanus*)
March 31, 2011

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 November 8, 2010 that had not undergone a status review in the past decade. Public information on the status of the Florida black bear was sought from September 17 to November 1, 2010. The members of a Biological Review Group (BRG) met on November 3-4, 2010. Group members were Walter McCown (FWC lead), Mel Sunquist (University of Florida, Emeritus), and Bill Giuliano (University of Florida) (Appendix 1). In accordance with rule 68A-27.0012, Florida Administrative Code (F.A.C.), the BRG was charged with evaluating the biological status of the Florida black bear using criteria included in definitions in rule 68A-27.001, F.A.C., 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 (Version 8.1)*. Please visit http://myfwc.com/wildlifehabitats/imperiled/listing-action-petitions/ to view the listing process rule and the criteria found in the definitions. Rule 68A-27.003, F.A.C., designates Florida black bears as State-designated threatened throughout the State, but excludes those found in Baker and Columbia counties and in Apalachicola National Forest. For the purposes of this review, however, we evaluated the taxon's status on a statewide basis, as the bears within these counties and national forest are not biologically distinguishable from those outside these areas, nor are they isolated by these areas' political boundaries.

In late 2010, staff developed the initial draft of this report which included BRG findings and a preliminary listing recommendation from staff. The draft was sent out for peer review and the reviewers' input has been incorporated to create this final report. The draft report, peer reviews, and information received from the public are available as supplemental materials at http://myfwc.com/wildlifehabitats/imperiled/biological-status/.

The BRG concluded from the biological assessment that the Florida black bear did not meet listing criteria. Based on the literature review, information received from the public, and the BRG findings, staff recommends that the Florida black bear not be listed as a Threatened species.

BIOLOGICAL INFORMATION

Taxonomic Classification – The Florida black bear was initially described by Merriam (1896) as a separate species based on its long skull and highly arched nasal bones. Subsequently, Hall and Kelson (1959) and Harlow (1961) recognized the Florida black bear as one of 16 subspecies of the American black bear.

Life History – Florida black bears are uniformly black except for a tan or brown muzzle and occasionally a white chest patch (Maehr and Wooding 1992). Adult females weigh 130 to 180 lbs., and adult males usually weigh 250 to 350 lbs.

The habitat used by Florida black bears is diverse and ranges from temperate plant communities in northwestern Florida to subtropical communities in southern Florida (Maehr and Wooding 1992, Land et al. 1994). Bears inhabit cypress swamps, cabbage palm forests, pine flatwoods, mixed hardwood swamps, sand pine scrub, mixed hardwood hammocks, mixed hardwood pine forests, oak scrub, pine plantations, upland hardwood forests, bay swamps, sandhill communities, and mangrove swamps (Hoctor 2003, Maehr and Wooding 1992). Bears are opportunistic omnivores, eating a wide variety of plant material including soft fruits, hard mast, and herbaceous material but also including insects and some vertebrates, (Maehr and Wooding 1992). Bears will alter their habitat use and home range size seasonally depending on food availability and reproductive status (Maehr and Wooding 1992, Ulrey 2008, Moyer et al. 2007).

Florida black bear females become sexually mature between 3 and 4 years of age (Garrison 2004). Mating takes place in June or July and females may mate with several males (Maehr and Wooding 1992). Reproductive females den for an average of 113 days beginning in mid-December to mid-January, emerging in late March to late April (Garrison 2004, Dobey et al. 2005). Dens are usually shallow depressions on the ground in dense thickets of shrubs and vines (Garrison 2004, Maehr and Wooding 1992). Cubs are born in January or February in litters of two to four offspring (Maehr and Wooding 1992, Dobey et al. 2005, Garrison et al. 2007). Cubs weigh six to eight pounds when they leave the den at ten weeks old (Garrison et al. 2007). Cubs remain with their mother until they are 15-17 months old. Males disperse but females generally form a home range that overlaps their natal home range (Moyer et al. 2006). Variation in home range size and shape is influenced by the temporal and spatial distribution of food, reproductive status, and human influences. Annual home ranges of female Florida black bears vary from 3.8 km^2 to 126.9 km^2 (Dobey et al. 2005, Moyer et al. 2007). Home range size for male black bears generally varies from 94 km^2 to 185 km^2 (Land et al. 1994, McCown et al. 2004, Ulrey 2008).

Geographic Range and Distribution – The Florida black bear was historically widespread throughout mainland Florida and the southern portions of Georgia and Alabama (Maehr and Wooding 1992). Currently, there is one subpopulation in and around the Okefenokee National Wildlife Refuge in Georgia; one subpopulation near Mobile, Alabama; five large Florida subpopulations (Ocala/St. Johns, Osceola, Eglin, Apalachicola, and Big Cypress), and two small, remnant subpopulations in Florida (Chassahowitzka and Glades/Highlands) (Figure 1). This report assesses the portion of the Florida black bear population within the state of Florida.

Bear range in Florida was estimated (Simek et al. 2005) by dividing the state into a systematic grid of 4,447 ha (10,000 ac) cells based on estimates of minimum patch size needed for bears (Cox et al. 1994, Maehr et al 2001). The presence of bears was determined within each cell using 1999-2003 locations of nuisance and roadkill bears, captures, telemetry data, FWC's Wildlife Observation Data Base, observations from FWC personnel, and interviews with owners or managers of large land holdings. Based on these data, each grid cell was coded to document the distribution of bears as either breeding range (females present) or non-breeding range (no females documented). The extent of the calculated breeding range was 26,099 km^2 and the nonbreeding range was estimated to be 19,306 km^2. Within this document, breeding range is considered to be equivalent to the IUCN term Area of Occupancy (AOO), and the breeding range and the non-breeding range combined (45,405 km^2) are considered to be equivalent to the IUCN term Extent of Occurrence (EOO).

Within Florida the largest expanse of virtually unoccupied, but apparently suitable, bear habitat is in the Big Bend Region. Deforestation and persecution by humans in the early to mid-1900s were probably the primary factors contributing to the extirpation of bears there. Subsequent regrowth and replanting of forest cover, however, has improved the potential habitat quality for bears in the area. Hoctor (2006) modeled the probability of occupancy of black bear habitat in Florida based upon land cover type, patch size, distance from habitat patches, and connectivity and size of large habitat mosaics. A conservative estimate of potential density (0.08 – 0.10 bears/km^2) for the 5, 949 km^2 of the best bear habitat in the Big Bend suggests this area could support 475 – 590 bears. It currently supports < 100 bears (FWC unpublished data). Although female bears normally establish home ranges that overlap their natal home ranges (Moyer et al. 2006) and thus are poor dispersers, the Big Bend shares a landscape linkage with currently occupied bear range in Apalachicola National Forest and is likely to support more bears over time.

Although the black bear is widespread in Florida, its distribution is fragmented with limited landscape connectivity or genetic exchange between subpopulations (Dixon et al. 2007, Maehr and Wooding 1992). Black bears in Florida currently inhabit 18% of their historic range totaling approximately 45,405 km^2 (17,531 mi^2) (EOO), within which reproduction occurs on approximately 26,000 km^2 (10,077 mi^2) (AOO) (Figure 1).

Population Status and Trend – The full black bear species, *Ursus americanus*, is currently listed as Least Concern by the IUCN because "this species is widespread, with a large global population estimated at more than twice that of all other species of bears combined. Moreover, in most areas populations are expanding numerically and geographically. Threats exist only in a few isolated places" (Garshelis et al. 2008).

The sub-species of black bear in Florida became listed as a state Threatened species in 1974 but remained a game animal on private lands in Baker and Columbia counties, on the Osceola and Apalachicola national forests, and on Tyndall Air Force Base (through 1976). The threatened designation was removed from bears in Baker and Columbia counties and Apalachicola National Forest in 1978 and regulations were established prohibiting the hunting of threatened species in 1979 (GFC 1993). As a result, the black bear is currently listed as a

Threatened species by the State of Florida except in Baker and Columbia counties and Apalachicola National Forest. For the purposes of this review, however, we evaluated the taxon's status on a statewide basis as the bears within these counties and national forest are not biologically distinguishable from those outside these areas, nor are they isolated by these areas' political boundaries.

Obtaining a reliable population estimate of black bears is challenging. They are reclusive animals with large home ranges and inhabit remote, densely forested habitats making direct counts impractical. Mark-recapture population estimation techniques, however, are available that are reliable and scientifically sound (Williams et al. 2002). These techniques have been used in combination with genetic analyses that allow identification of individual animals to provide accurate population estimates of a wide array of species (Luikart et al. 2010, Guschanski et al. 2009). This approach was used to estimate abundance of bears in the breeding range (AOO) of five subpopulations in the state in 2002. Study areas within representative habitat were selected in the Eglin, Apalachicola, Osceola, Ocala/St. Johns, and Big Cypress subpopulations.   Mark-recapture techniques provided an abundance estimate for each study area, and, using the effective study area size, a density estimate was obtained. The density estimate for each study area was then extrapolated across the previously identified breeding range (AOO) to obtain an abundance estimate for each subpopulation. The abundance of bears outside of the breeding range (AOO) was not estimated.   Resulting abundance estimates for 2002 were: Apalachicola 568 bears; Big Cypress 697 bears; Eglin 82 bears; Ocala/St. Johns 1,025 bears; and Osceola 256 bears (Simek et al. 2005). Bear abundance in the Chassahowitzka (20 bears; Orlando 2003) and Glades-Highlands (175 bears; John Cox Univ. of Kentucky 2009 pers. comm.) subpopulations were estimated from field studies.   The total population estimate, therefore, was $2,823 \pm 59$ (SE).

Early estimates of black bear abundance in Florida (Figure 2) were primarily opinions of FWC species experts with input from local staff and, therefore, may not have been as reliable as the 2002 estimates. The various estimates do, however, suggest an increase in bear numbers over the past three decades. This apparent increase is corroborated by the increase in nuisance bear calls during that time (Figure 3) and by the increase in distribution (Figure 4). It is likely the black bear population in Florida will continue to increase over the next 24 years due to extensive conservation efforts and suitable habitat (Hoctor 2006) that is currently unoccupied but adjacent to occupied range.

Quantitative Analyses – Maehr et al. (2001) used the program VORTEX 8.21 (Lacy et al. 1995) and data from individual subpopulations to predict a zero (0.0) probability of extinction for the Eglin, Apalachicola, Osceola, Ocala and Glades-Highlands populations and 0.2 – 0.4 percent chance of extinction for the Chassahowitzka population within the next 100 years. Hostetler et al. (2009) used specific demographic data gathered from long term research to estimate that the Ocala subpopulation was growing at 1-2% per year.

BIOLOGICAL STATUS ASSESSMENT

Threats – The greatest threats to Florida black bears are habitat loss and degradation and negative interactions with people. The Florida black bear is particularly vulnerable to habitat

loss because of its large home range sizes, low population size and density, and low productivity (Hostetler et al. 2009, Maehr and Wooding 1992). Its habitat is also degraded by fragmentation from roads and development, which results in additional threats from increased interactions with humans and their vehicles (Hostetler et al. 2009, Maehr and Wooding 1992). Incompatible land management can also result in degradation of habitat quality. Commercial saw palmetto (*Serenoa repens*) berry harvesting and fire management regimes benefitting other species may remove important resources utilized by black bears (Maehr et al. 2001, Stratman and Pelton 2007). Although these practices do not threaten black bear populations statewide, they may lower the biological carrying capacity of some local areas.

The FWC addresses habitat loss and degradation in a number of ways. FWC employees provide comments and information to other agencies and non-governmental organizations to help identify and conserve parcels of high value to bears. They provide comments on county comprehensive plans and developments of regional impact in bear range and have published a wildlife conservation guide for planners, developers, and consultants seeking to reduce impacts of development on bears. They periodically update and refine bear distribution maps for use in conservation planning, have identified landscape level corridors between bear subpopulations and promoted their conservation, and will begin research in 2011 to identify high-value conservation lands in the Ocala to Osceola corridor. They have identified FWC-managed lands that support bears, produced a priority list of areas to be managed to benefit bears, and incorporated conservation measures in the Wildlife Conservation Prioritization and Recovery Plans for these areas. FWC bear staff provides guidelines for managing bear habitat to land managers and is cooperating with plant monitoring staff to develop quantitative descriptions of optimal conditions for bears in major plant communities in Florida that will be provided to managers of critical bear habitat. The FWC funded a synthesis of available literature on management of saw palmetto and scrub palmetto (*Sabal etonia),* critical components of Florida black bear habitat. FWC bear staff also provides instruction on managing habitat to benefit bears at multi-agency prescribed fire workshops.

Human-bear interactions have increased in Florida due to greater populations of both bears and humans (Figure 3). Although some human/bear encounters are positive or neutral in their outcome, many are negative and can lead to death of the bear through vehicle collisions, illegal killing, or euthanasia (Annis 2008, Hostetler et al. 2009, Maehr et al. 2004, McCown et al. 2009). Furthermore, increased conflicts between humans and bears could lead to devaluation of the bear among Florida citizens, which could threaten bear conservation efforts in the State.

Documented bear mortality is largely due to human factors (Hostetler et al. 2009, Land et al. 1994). Bears are illegally killed or hit by vehicles. Bears come into contact with humans more frequently in highly fragmented habitat, and human-caused mortality in such habitat can be significant (Brown 2004, Hostetler et al. 2009). For example, adult female bears living adjacent to Ocala National Forest experienced levels of mortality that would not have been sustainable in a smaller, isolated population (McCown et al. 2004). Although the FWC documented 140 bears illegally killed in Florida between 1989 and 2009, a rate of 7 bears per year, the total number of bears killed each year is unknown. The statewide mortality rate due to roadkill was 4.8% in 2002 (Simek et al. 2005). Roadkills can be significant to small isolated populations but do not limit larger populations. Populations of black bears that are demographically similar to Florida

black bears (breed at 3 years of age, females have 2 cubs every other year) can sustain an absolute annual mortality of up to 23% before the populations begin to decline (Bunnell and Tait 1980).

FWC staff works to reduce human/bear conflicts with multiple partners on a number of fronts. In 2010, staff and contract employees responded to more than 4,000 bear-related calls from the public with technical assistance, site visits, bear deterrent equipment loans, or, when warranted, trapping and removing problem bears (translocation or euthanasia). Responses included canvassing neighborhoods with frequent bear interactions and meeting one-on-one with residents to provide information on avoiding conflicts. FWC staff provides bear aversive-conditioning training to municipal, county, and state law enforcement personnel to enlist their help in deterring problems. Staff works with stakeholders to produce bear festivals in areas of high human-bear interactions and provides bear educational presentations to schools and civic groups., The FWC produced a video, "Living with the Florida Black Bear," to allow educators and civic groups to share the message with their students and constituents. Staff worked with Defenders of Wildlife to produce and update the Black Bear Curriculum Guide, which helps elementary school students learn math, science, and history while learning about bears. The FWC has partnered with local governments and waste management companies to make garbage less accessible to bears and bear-resistant trash containers more available to homeowners and created and enforces a wildlife feeding rule. The draft black bear management plan, currently in preparation, calls for the creation of "Bear Smart" communities where the FWC will work with local governments, businesses, and residents to reduce bear conflicts and serve as a model for other communities.

In an effort to reduce bear mortality resulting from vehicle collisions, the FWC maintains a database of all roadkills. Staff uses this information to coordinate with the Florida Department of Transportation (FDOT) to identify and mitigate chronic roadkill hot spots and provide comments on road projects in bear range. The FDOT has constructed more than 24 large wildlife underpasses along highways targeting Florida panthers and/or black bears as a result. These structures have proven effective in reducing mortality of bears from vehicular collisions. Additionally, plans for future traffic enhancement projects in critical bear roadkill areas have incorporated wildlife underpasses that target bears in the design phase.

FWC documents basic demographic parameters of black bear subpopulations. Bear staff works to update and refine bear distribution. FWC provides guidelines for managing bear habitat to land managers. FWC bear staff has identified landscape level corridors between bear populations and promoted their conservation. FWC will begin research in 2011 to identify high-value conservation lands in the Ocala to Osceola corridor.

Population Assessment – Findings from the Biological Review Group are included in the Biological Status Review Information Findings and Regional Assessment tables following.

LISTING RECOMMENDATION

The BRG concluded that the Florida black bear did not meet listing criteria. Staff, therefore, recommends that the black bear not be listed as a Threatened species.

SUMMARY OF THE INDEPENDENT REVIEW

Comments were received from five reviewers: Dr. Dave Garshelis, Minnesota Department of Natural Resources, co-chair IUCN Bear Specialist Group; Dr. Madan Oli, Professor, Department of Wildlife Ecology and Conservation, University of Florida; Dr. Michael Pelton, Professor Emeritus, Department of Forestry, Wildlife and Fisheries, University of Tennessee; Dr. Frank van Manen, US Geological Survey, University of Tennessee, President International Association for Bear Research and Management; and Stephanie Simek, Mississippi State University and former FWC Bear Management Section leader. Their reviews can be found at MyFWC.com. All of the reviewers supported the findings of the BRG. Appropriate editorial changes were made and additional information was added as suggested by the reviewers. Specific comments and staff's responses are as follows:

Three reviewers questioned the validity of the population viability analysis (PVA) conducted by Root and Barnes (2006) because it used inappropriate parameters and because it modeled one connected statewide population instead of individual subpopulations.

Discussion of the results from this PVA was removed. References to results from one other PVA based on subpopulations and a specific population model were added.

One reviewer suggested that more detail be provided on parameter estimates, assumptions, data, etc. used in the models.

This detail is available in the cited references, and its inclusion would be beyond the scope of this report.

Two reviewers suggested caution in interpreting estimates of bear abundance prior to 2002 because the methods used were subjective and not scientifically valid.

Staff acknowledges the limitations of these estimates and provided comments in the report to reflect this.

Two reviewers noted the trend in nuisance bear incidents might support the contention that bear numbers had increased.

A figure reflecting the increase in calls concerning bears received by the FWC was added to the report.

One reviewer noted that the number of bears killed on highways over time was not included in the report but may be an indicator of population status.

When staff examined the trend of bears killed on the highways, it was more suggestive of traffic level trends than of bear abundance trends.

Two reviewers noted that the method used to estimate 2002 bear abundance likely provided a conservative estimate, and one suggested re-analysis of the data using alternative methodologies.

Staff concurs with these comments. The FWC only estimated bear numbers within five breeding ranges (AOO), and thus it was not an estimate of all bears in Florida. Text was added to emphasize that bears outside of these areas were not estimated. Further, staff notes that male bears comprised 55% of all sampled bears despite the fact that males experience a higher mortality rate than female bears and, as a result, there should be fewer of them. Correction factors to account for this gender-based behavioral response would likely result in an increase in the estimate and, therefore, would not change the findings of this report. Also, time did not allow re-analysis of the mark-recapture data for this review.

Two reviewers noted that the IUCN criteria rely on an estimate of the number of mature (capable of reproduction) individuals while FWC estimates of bear abundance do not distinguish mature individuals from immature individuals.

Due to their small stature, cubs were unlikely to leave hair tufts on barbed-wire strands 25 and 50 cm. above the ground and, therefore, were unlikely to be included in the population estimates. Staff acknowledges that reproductively immature animals (1-2 year old bears) were included in the estimates. However, we note that, overall, the technique provides a conservative estimate (as two reviewers noted). Although generating a revised estimate based upon an untested correction factor to include only mature individuals would reduce the population estimate, it likely would not change the population trend or the finding of this report (i.e., it is unlikely the population estimate would be fewer than 1,000 mature individuals).

One reviewer recommended an alternative method for calculating and presenting variation in the statewide population estimate.

Calculations were revised as recommended and changes were made to the document.

Two reviewers noted there was no mention of habitat management conducted to benefit bears.

A summary of habitat management efforts by FWC to benefit bears was added.

One reviewer suggested that the document should explain why the black bear is not listed as Threatened in Baker and Columbia counties and Apalachicola National Forest.

Staff was unable to find documentation as to why bears in these areas were not listed as Threatened.

One reviewer suggested the variation between the criteria used to initially list the sub-species and the current IUCN criteria be reviewed.

The criteria used to initially list the sub-species are not available.

One reviewer suggested that, because the population of bears in Florida is fragmented into several subpopulations, the IUCN criteria may be too lax to provide any meaning for the long-term conservation of black bears within the State, and suggested a few of the subpopulations might meet the IUCN criteria for listing if the criteria were applied to them.

The IUCN criteria were developed by numerous experts and tested worldwide on 30,000 species. The decision to use these criteria to assess the biological status of 61 state-listed species was a result of extensive stakeholder involvement in development of the listing process. The task assigned to the BRG of evaluating the status of the black bear statewide in Florida was based on this process as specified in rule 68A-27.0012, F.A.C. The criteria include measures of geographic range, fragmentation, and subpopulation structure. Staff, therefore, believes application of these criteria to assess the status of the Florida black bear on a statewide basis is appropriate.

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Biological Status Review Information Findings	Species/taxon:	Florida black bear (*Ursus americanus floridanus*); Entire population.			
	Date:	11/3/2010			
	Assessors:	Walter McCown, Mel Sunquist, and Bill Giuliano			
	Generation length:	**8.0** (based on ~ 500 ♀ in FWC database ≥ 4.0 y.o. = 7.4)			

Criterion/Listing Measure	Data/Information	Data Type*	Criterion Met?	References
*Data Types - observed (O), estimated (E), inferred (I), suspected (S), or projected (P). Criterion met - yes (Y) or no (N).				
(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]	Numbers have been increasing over the past 24 years (3 generations)	S	No	GFC Historical population estimates, Pelton and Nichols 1972, Kasbohm 2004, and others (see Figures 2-4).
(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]	Numbers have been increasing over the past 24 years (3 generations)	S	No	GFC Historical population estimates, Pelton and Nichols 1972, Kasbohm 2004, and others (see Figures 2 -4).
(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]	Expected to increase over next 24 years due to conservation efforts and suitable vacant habitat	P	No	Hoctor 2006
(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]	Numbers have been and continue to increase due to conservation efforts and suitable vacant habitat.	P	No	Hoctor 2006
[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	EOO > 7,722 mi^2 (17,531 mi^2)	E	No	Simek et al. 2005
(b)2. Area of occupancy < 2,000 km^2 (772 mi^2)	AOO > 772 mi^2 (10,077 mi^2)	E	No	Simek et al. 2005
AND at least 2 of the following:				
a. Severely fragmented or exist in ≤ 10 locations				

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				
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				
(C) Population Size and Trend				
Population size estimate to number fewer than 10,000 mature individuals AND EITHER	2,212 – 3,433 bears	E	Yes	Simek et al. 2005
(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	Has increased for more than last 24 years. Expected to increase over next 24 years due to conservation efforts and suitable vacant habitat.	P	No	
(c)2. A continuing decline, observed, projected, or inferred in numbers of mature individuals AND at least one of the following:	Has increased. Expected to increase over next 24 years due to conservation efforts and suitable vacant habitat.	P	No	
a. Population structure in the form of EITHER				
(i) No subpopulation estimated to contain more than 1000 mature individuals; OR				
(ii) All mature individuals are in one subpopulation				
b. Extreme fluctuations in number of mature individuals				
(D) Population Very Small or Restricted, EITHER				
(d)1. Population estimated to number fewer than 1,000 mature individuals; OR	2823 ± 59 bears	E	No	Simek et al. 2005
(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	AOO > 8 mi^2 (10,077 mi^2) and locations > 5.	E	No	Simek et al. 2005
(E) Quantitative Analyses				
e1. Showing the probability of extinction in the wild is at least 10% within 100 years	Probability of extinction ~ zero	E	No	Maehr et al. 2001

Initial Finding (Meets at least one of the criteria OR Does not meet any of the criteria)	Reason (which criteria are met)
Does not meet any criteria	

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Is species/taxon endemic to Florida? (Y/N)	No
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)
The Florida black bear does not meet any of the criteria.	

Additional information: In regards to Criterion C2, the team recognized and discussed the potential for habitat loss predicted by Wildlife 2060 to affect the finding for this criterion. Bear populations are centered on large parcels of conserved public lands. However, the predicted loss of non-conserved habitat will be significant and will negatively impact currently occupied bear range and, we inferred, bear numbers. Hard boundaries between bear range and urban development will be created which will increase human-bear interactions which will increase the mortality rate of bears on the fringe of conserved bear habitat. This situation would likely contribute to a reduction in bear numbers from current estimates. Since the 2002 estimate for our largest subpopulation (Ocala) currently straddles the 1,000 mature individuals trigger for c2a(i), a reduction in bear numbers in the future could cause this criterion to be met. However, there is no current decline in bear numbers occurring, thus a decline cannot continue (since it does not now exist) (IUCN guidelines p. 26). The team thought that if a decline occurs due to the events predicted by Wildlife 2060, the full impact will occur further out than the specified time horizon of 3 generations. Further, the team thought the potential future reduction in bear numbers would be mitigated somewhat by the occupancy over time of > 1 million acres of currently unoccupied and under-occupied but suitable bear habitat (Hoctor 2006) in the Big Bend region. The Big Bend region is adjacent to currently occupied bear range (Apalachicola) and not predicted to be greatly affected by potential 2060 impacts. Additionally, the potential loss should be mitigated by the current and planned conservation efforts outlined in Current Management (above) and in the black bear management plan which is under development. After the discussion the team was unanimous that bears did not meet this criterion.

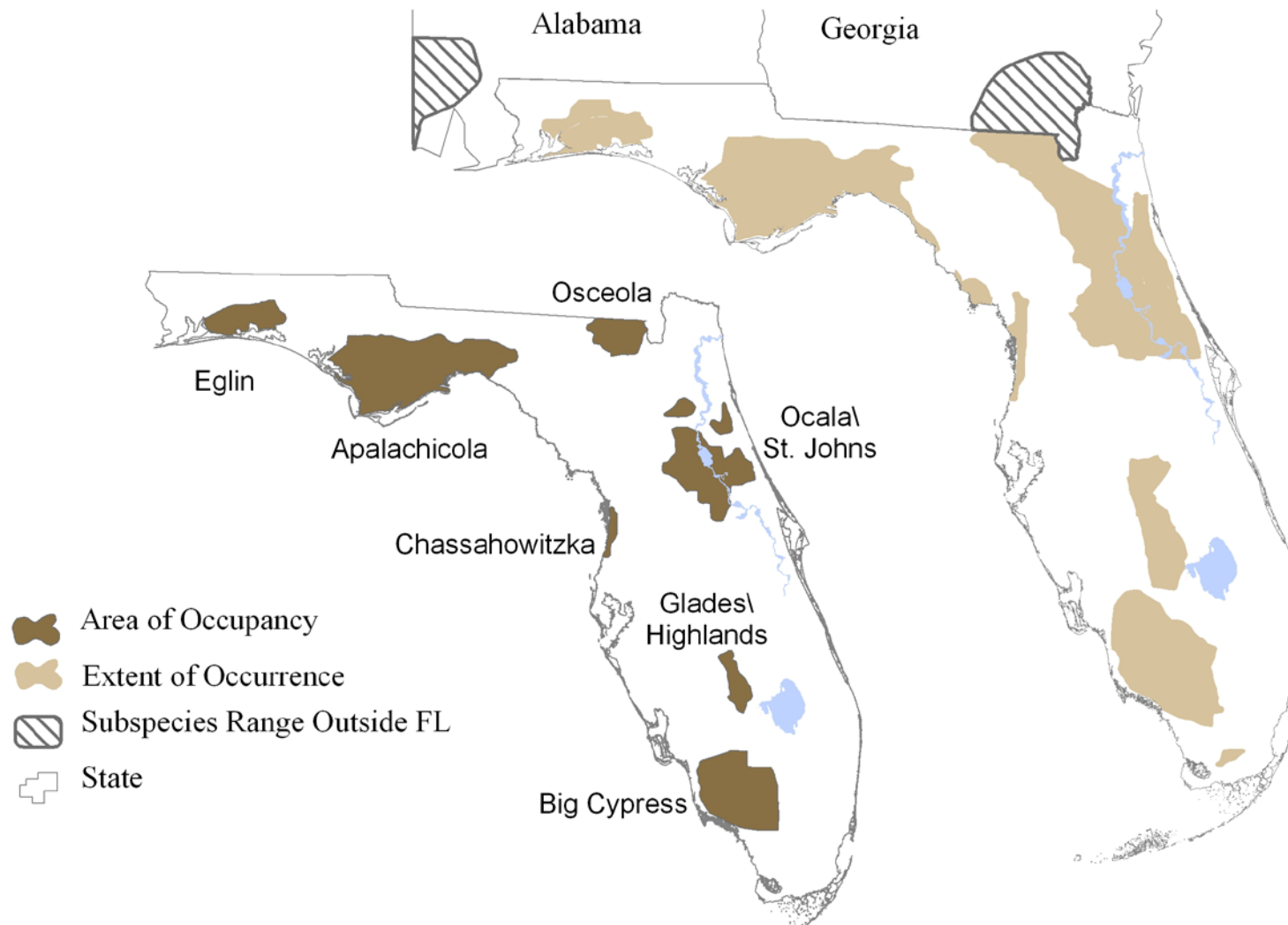|		
1	Biological Status Review Information	Species/taxon:	Florida black bear (Ursus americanus floridanus) Entire population
2		Date:	11/3/10
3	Regional Assessment	Assessors:	Walter McCown, Mel Sunquist, and Bill Giuliano
4			
5			
6			
7			
8	Initial finding		Supporting Information
9			
10	2a. Is the 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.		N
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.		N
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 Florida 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		N
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		No change

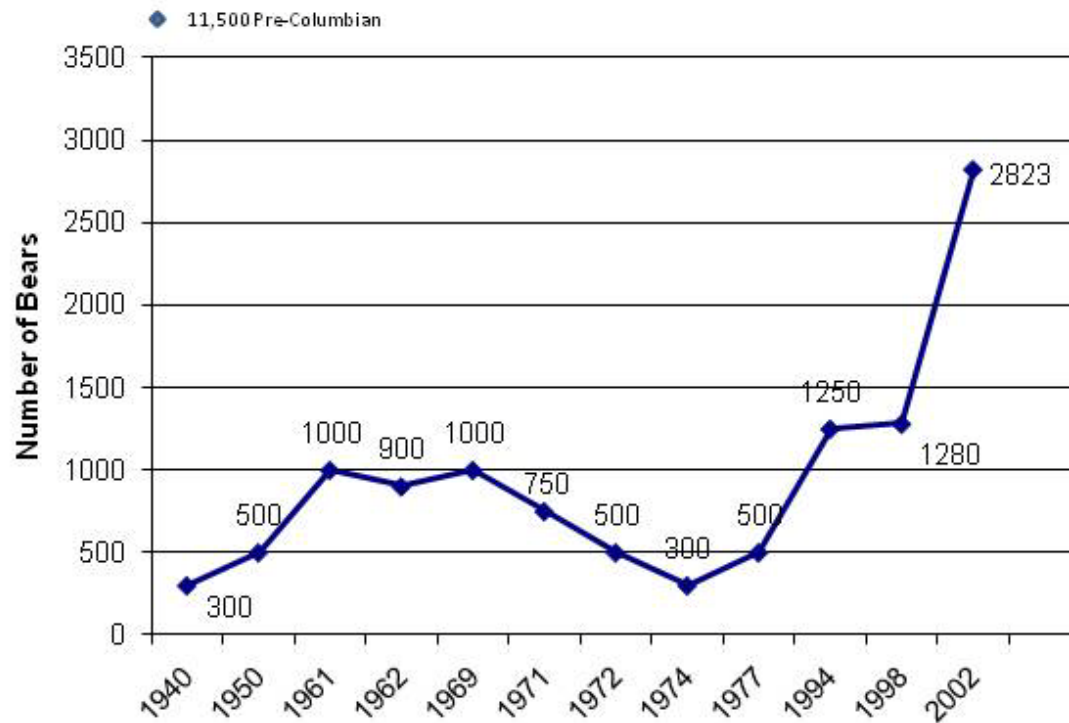Figure 1. The 2002 range of the Florida black bear (From Simek et al. 2005).

Figure 2. Estimates of black bear abundance in Florida.

1940: Florida Game and Fresh Water Fish Commission. 1940. Biennial Report. Tallahassee

1950: Frye, O.E., B. Piper, and L. Piper. 1950. The black bear: saint or sinner? Florida Wildlife 4:6-7

1961: Harlow, R.F. 1961. Characteristics and status of Florida black bear. Transactions of the North American Wildlife Conf. 26:481-495.

1962: Harlow, R.F. 1962. Black bear population investigations. Project W-41-R-9. Florida Game and Fresh Water Fish Commission. Tallahassee

1969: U.S. Department of Interior. 1969. Environmental impact of the Big Cypress Swamp jetport. Mimeo. 155 pp.

1971: Florida Game and Fresh Water Fish Commission. Bear Dilemma. Tallahassee. 8pp.

1972: Pelton, M. R., R. G. Nichols. 1972. Status of the black bear (*Ursus americanus*) in the southeast. Eastern Black Bear Workshop 1:18–23.

1974: McDaniel, J. 1974. Status of the black bear in Florida. Eastern Black Bear Workshop. 2:12

1977: East, B. 1977. Bears. Crown Publishers, Inc., New York. 275 pp.

1994: Florida Game and Fresh Water Fish Commission. 1993. Management of the black bear in Florida: A staff report to the commissioners. Florida Game and Fresh Water Fish Commission. Tallahassee.

1998: Kasbohm. J.W. 2004. Federal Register 69[9]: 2100-2108.

2002: From Simek et al. 2005, Orlando 2003 (Chassahowitzka), and J.J. Cox, University of Kentucky, 2009, personal communications (Glades-Highlands).
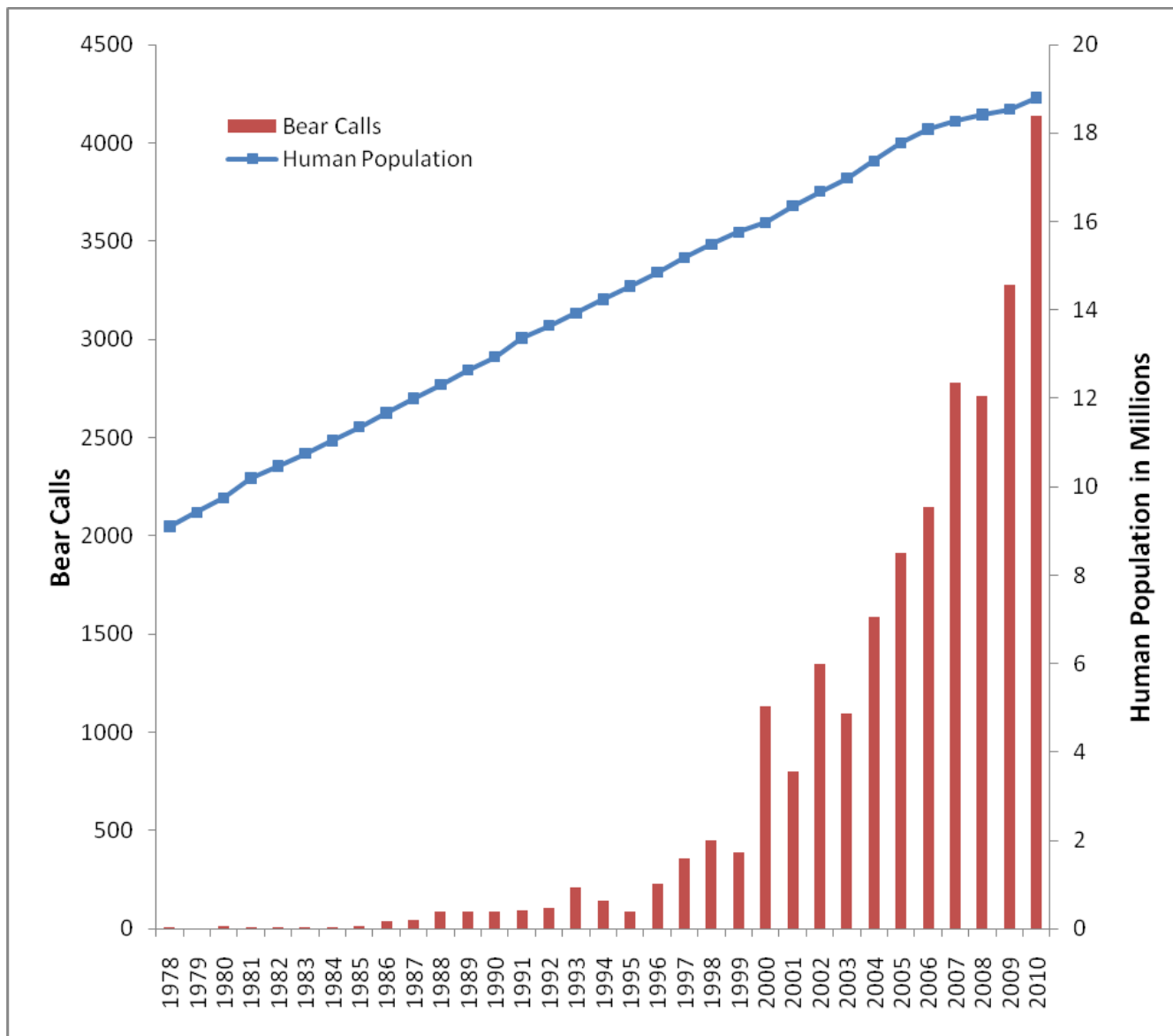
Figure 3. Number of calls received by the Florida Fish and Wildlife Conservation Commission concerning bears and human population levels in Florida 1978 – 2010.
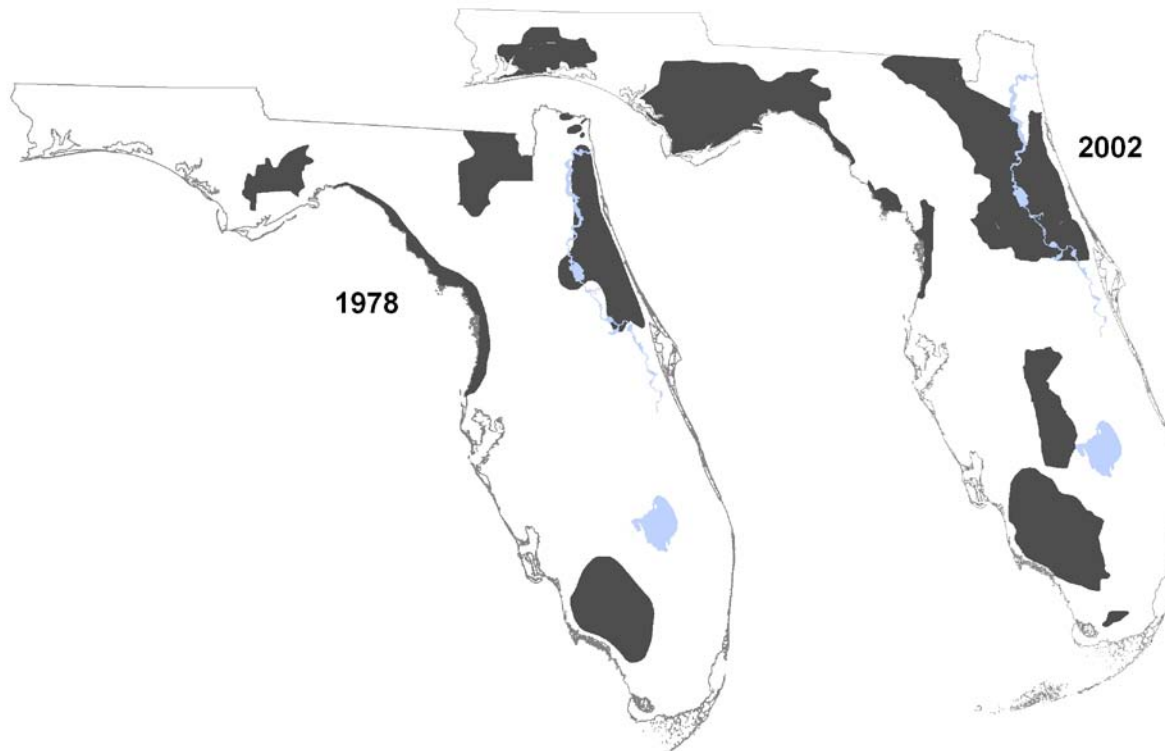
Figure 4. Black bear distribution in Florida in 1978 and 2002.

1978: Brady, J.R., and J.C. McDaniel. 1978. Status report for Florida. Eastern Black Bear Workshop. 4:5-9
2002: Simek et al. 2005.

APPENDIX 1. Brief biographies of the Florida black bear Biological Review Group members.

Walter McCown has a B.S. in Biology from Columbus State University. He has worked on a variety of wildlife issues with FWC and since 2004 has been a biologist in FWC's Terrestrial Mammal Research Subsection. Mr. McCown has over 14 years experience in research and conservation of black bears in Florida.

Mel Sunquist has a Ph.D. in Wildlife Ecology from the University of Minnesota. He is currently a Professor Emeritus with the University of Florida. Dr. Sunquist has 20 years teaching and research experience in the UF Department of Wildlife Ecology and Conservation and has more than 30 years experience working on the behavior, ecology, and conservation of mammalian carnivores, in Florida and worldwide.

Bill Giuliani has a PhD from Texas Tech University in Wildlife Science, a MS from Eastern Kentucky University in Biology, and a BS from the University of New Hampshire in Wildlife Management with a Minor in Zoology. He currently serves as the Professor and State Extension Specialist in the Department of Wildlife Ecology and Conservation at the University of Florida. He has researched and developed management programs for a variety of wildlife species for more than 20 years such as black bears, jaguars, fishers, pine martens, raccoons, coyotes, hogs, rabbits, squirrels, and various rodents, among others.

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.**

- Betsy R. Knight, Big Bend Wildlife Sanctuary, Inc.

l. Protect enough land for the survival of the Florida Black Bear and you protect enough land to support protection of most all Florida Species. There should be a corridor from Big Cypress Swamp to Eglin Air Force Base for these large mammals to range, breed and maintain a healthy population. When you divide the State in to segments you end up with bits and pieces of bear habitat such as the Chassahowitzka population where inbreeding is occurring.

2. The answer is education, education and more education; I have been signed up as a volunteer for about a year, have received my DVD for educational programs, but haven't been asked to go to one single program. We need to utilize all volunteers and saturate the State with education on the Florida Black Bear.

Hunting of the Florida Black Bear should be prohibited. In an effort to compromise, I might suggest in healthy populations such as the Apalachicola National Forest, you might suggest allowing dogs to run a bear a day for a ten day period, but the dogs would not be able to continue to run the same bear continuously for days.

The Florida Black Bear needs to be kept on the Threatened Species list!!!

- Chris Papy commented on the large number of bears in Aucilla WMA.

- David Dapore commented on the large number of bears and bear sign in numerous wildlife management areas in central Florida. During an outing he often sees more bears than any other species of wildlife. He considers the restoration of bears to have been successful.

- James Aldridge commented on the large number of bears he sees in Ocala National Forest.

- Kitty Loftin saw 2 bears in Wakulla County, Florida.

- Meagin Jackson commented on the large number of bears in northern Osceola National Forest and mentioned several encounters with bears in the area and believes that the area has as many bears as it will hold.

- Dick Kempton has seen bears on several occasions in the Big Cypress National Preserve, 12-15 miles north of Oasis Visitor Center.