

GEORGIA BLACK BEAR PROJECT REPORT AND STATUS UPDATE

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Abstract: Throughout Georgia, bear populations are stable to increasing in size. Bait station surveys were conducted to determine distribution and population trends of bears in north, central, and south Georgia during July of 2008. Results of these surveys, expressed as percent bait station hits, were 71.04%, 45%, and 35.8% for stations in north, central, and south Georgia respectively. Concurrently, harvest in the north, central, and south Georgia populations was 314, 0, and 57 bears, respectively.



Fig. 1 – Black Bear Distribution and Range in Georgia.

The black bear (*Ursus americanus*) symbolizes the wild qualities of Georgia. Prior to the eighteenth century bears were common in Georgia. However, habitat loss, unrestricted hunting and overall degradation of habitat because of human development contributed to a

serious population decline. Georgia Department of Natural Resources wildlife management practices, improvements in law enforcement, and social changes all have contributed to the recovery of bear populations. In Georgia, we have 3 more/less distinct bear populations: 1) north Georgia associated with the Southern Appalachians 2) central Georgia along the Ocmulgee River drainage 3) southeast Georgia in/around the Okefenokee Swamp (*U. a. floridanus*) (Fig. 1). All three populations are believed to be either stable or slightly increasing.

The bear population in north Georgia has been steadily increasing for at least 25 years. While the bear population has expanded to occupy most of what traditionally was deemed to be “suitable habitat,” the human population and development have accelerated. As a consequence, human-bear conflicts often arise. Georgia’s Black Bear Committee revised our “Policy on Handling Human-Bear Conflicts” during FY08. Educational efforts have increased to help educate the public in hopes of minimizing human/bear conflicts. It appears that we are nearing the “social carrying capacity” for bears in north Georgia and because of this, the bear population in north Georgia really needs to stabilize, although by most accounts it still appears to be increasing. Harvest regulations have been liberalized over the past several years in an effort to increase opportunity for hunters and to facilitate population stabilization.

The bear population in central Georgia seems to be stable to slightly increasing. While presently congregated along the Ocmulgee River in Twiggs County, the population is dispersing eastward and southward with movement to the north and west limited by increasing urbanization.

The south Georgia bear population appears to be stable. All primary bear habitat is occupied with the majority of the range protected by state and federal land ownership. In 1990 the U.S. Fish and Wildlife Service (USFWS) was petitioned to list the Florida black bear (*U. a. floridanus*) as threatened under the provisions of the 1973 Endangered Species Act. In December 1998 the Florida black bear was removed from the endangered species candidate list following a status review which found that listing the bear as endangered or threatened was not warranted at that time (Bentzien 1998). Because of an appeal by the petitioners, the threatened status of the Florida black bear was placed under judicial review and the USFWS was ordered to re-examine one of the 5 criteria used in deciding whether to list the Florida black bear. In January 2004 the USFWS published the results of this re-examination and reaffirmed its 1998

determination not to list the Florida black bear as threatened (Kasbohm 2004). In February 2006, the USFWS was sued again for violating procedure in the 2004 decision. In March 2008 the petitioner's motion was denied.

Effective monitoring of the density and/or trends of these black bear populations remains a vital concern if we are to adequately manage and evaluate the effects of hunting, poaching, and land use changes on Georgia's bear populations. The objectives of this study are twofold: 1) determine distribution and population trends of black bears in Georgia, 2) monitor and evaluate harvest trends of black bears in Georgia. Data on illegal kills and road-killed bears also have been included for reference.

STUDY AREA

Bait Station Survey

North Georgia – Bait station surveys were conducted in 11 counties and on 10 wildlife management areas (WMAs) covering a linear distance of about 451 km of bear habitat throughout their range in north Georgia on the Chattahoochee National Forest and associated contiguous habitats. Physiographic types comprising this range include Blue Ridge Mountains, Ridge and Valley, and Upper Piedmont.

Central Georgia – Bait stations surveys were conducted on Oaky Woods WMA, Ocmulgee WMA and adjacent private lands.

South Georgia – The survey area is located in the Okefenokee Swamp region of southeast Georgia. The main survey was conducted on the 156.4 km² Dixon Memorial WMA (DMWMA) in Ware and Brantley Counties, Georgia. This area is located on the northeastern portion of the Okefenokee Swamp and is comprised of several physiographic types including Okefenokee

basin, Trail Ridge, Vidalia Upland, and Coastal Marine Flatwoods. Elevation on the area ranges from near 27.4 m to 36.6 m above sea level.

Habitat on the upland portions of DMWMA is managed as commercial forest and ranges from ridge hardwoods to lowland flatwoods. Principal understory is palmetto - gallberry but varies from wiregrass on xeric sites to titi on wet sites. Swamp acreage retains much of its ecological diversity. A total of 48.7 km² of flowing and non-flowing wetland types are found on the WMA: creek swamp, bay heads, Carolina bays, cypress ponds, blackgum ponds, shrub swamp, and open prairie.

The survey area also included the Okefenokee National Wildlife Refuge (ONWR), which encompasses 1,501.4 km² of the 1,772.5 km² Okefenokee Swamp, and survey lines on privately-owned property on the periphery of the refuge. The periphery lines were in Charlton, Clinch, and Ware Counties. Habitat descriptions for these areas follow those given for DMWMA.

Legal Harvest

North Georgia – Bear hunting was permitted in 24 counties, including 6 that were added prior to the 2007-08 hunting season. Hunting also was allowed on 23 WMAs, on 1 Natural Area, and on 1 State Park. This represents approximately 201,513 km² of public land available for bear hunting, not including other public lands outside of WMAs.

Central Georgia – One day of managed firearms bear hunting is permitted on Ocmulgee WMA during December of each year. No counties or other WMAs currently permit bear hunting.

South Georgia – Bear hunting in south Georgia is allowed in Brantley, Echols, Charlton, Clinch, and Ware counties and on DMWMA.

METHODS

Bait Station Surveys

Bait station surveys have been used as an index to assist in determining distribution and relative trends in black bear populations in north and south Georgia for some time. In 2007, a bait station survey was initiated in central Georgia, as well. Surveys are conducted annually in July; baits (3 partially-opened cans of sardines) are spaced approximately 0.81 km on both study areas.

North Georgia – Bait station sites were established along paved and gravel roads, major trails, and wooded paths. Baits were hung from small diameter trees or trees with smooth bark and left for five nights. Bait sites were checked by either Georgia Dept. of Natural Resources (DNR) or U.S. Forest Service personnel, visitation activity was recorded and bait site debris was removed following examination. Visitation was recorded as no activity, taken by a bear, or taken by other animal. If another animal took the bait, then that station was not used in the calculation of the final visitation rate.

Central Georgia – Bait station surveys have not traditionally been done in Central Georgia as preliminary studies done in years past revealed low densities and seemed to indicate that bait station methods used in north and south Georgia were ineffective in this area. However, in an attempt to develop a useful index to assist in monitoring distribution and trends in this population, bait station sites were established in 2007, primarily along roads on Oaky Woods WMA and Ocmulgee WMA. The resulting assessment may be useful in evaluating hunting opportunity and setting regulations for bears in the 4 county area along the Ocmulgee River south of Macon comprising parts of Bleckley, Houston, Pulaski, and Twiggs counties as well as on the

Ocmulgee and Oaky Woods WMAs. The methods used to conduct the survey were identical to those used in south Georgia.

South Georgia – Bait station sites were established along roads, access trails, and firebreaks on DMWMA (60 stations), ONWR (33 stations) and the swamp perimeter (100 stations). Bait station site locations were established during a previous study and reported by Abler (1994).

Partially opened sardine baits were nailed to trees in mid-July as described by Abler (1991). Baits were checked, bear visits recorded, and cans and nails removed from all trees after an 8-day interval. ONWR stations were set up and run by ONWR personnel; DNR personnel ran all other stations.

Legal Harvest

Bear hunting is permitted in the fall of each year, under different regulations, in each of the three Georgia bear populations. Currently, there is a statewide limit of one bear per hunter per year. It is currently illegal to harvest a female with cubs or any bear under 75 pounds (live-weight) or use bait when bear hunting. These are statewide regulations. There is no spring bear hunting season.

In the northern zone, following harvest hunters are required to report bear harvest within 24 hours and must have the bear physically tagged within 3 business days. At a minimum, the hide and skull must be presented to personnel of the Wildlife Resources Division for tagging. Bears harvested during managed hunts on WMAs must be tagged prior to the hunter's departure from the area. County harvested bears can either be taken to a regional Game Management Office, to a check station open for a managed hunt, or other arrangements can be made between WRD personnel and the hunter to check the bear at a specified location. In the southern zone, bears must be checked at one of three check stations open from 12 noon until 9:00 pm on the hunt

days. Biological data including sex, age, and weight as well as hunter information, location of harvest, and bear dogging information (south Georgia) are recorded for each bear harvested.

North Georgia - Bear hunting was permitted in counties with bear seasons beginning September 13, 2008 using archery equipment, October 11, 2008 using muzzleloading firearms, and October 18, 2008 using modern firearms. Bear season in the counties ended December 7, 2008. Bear hunting on WMAs was permitted within the same general timeframe as county bear hunting, however some areas offered early firearms hunts and others offered hunting opportunities that extended through January. Individual WMAs offered varying amounts of bear hunting and opportunity depended on both WMA regulations and also the density of bears in an area. Some areas open for bear hunting have relatively low density bear populations; however, on these areas, hunters are given the opportunity to harvest a bear, if they encounter one. This is an example of how we have liberalized our hunting regulations in north Georgia to facilitate population stabilization, as previously discussed. The use of dogs was prohibited.

Central Georgia - Bear hunting was limited to a 1-day firearms hunt on the Ocmulgee WMA. The use of dogs was prohibited.

South Georgia – Bear hunting was limited to 3 3-day hunts (Thursday-Friday-Saturday) beginning before the last weekend in September and the first 2 weekends in October. Additionally, there is a 3-day check-in deer/bear hunt on DMWMA during November. Dogs are permitted for hunting bears in the 5 open counties but not on DMWMA. Except for DMWMA, there are no specific archery or primitive weapons seasons for bears in south Georgia.

RESULTS

Bait Station Survey

North Georgia – The overall visitation rate is steadily increasing in north Georgia with another high year of 71.04% visitation based on 556 stations throughout primary bear habitat. The visitation rate has shown a general upward trend from a low of 12.3% in 1983 during the first survey year to a high of 74.5% in 2006.

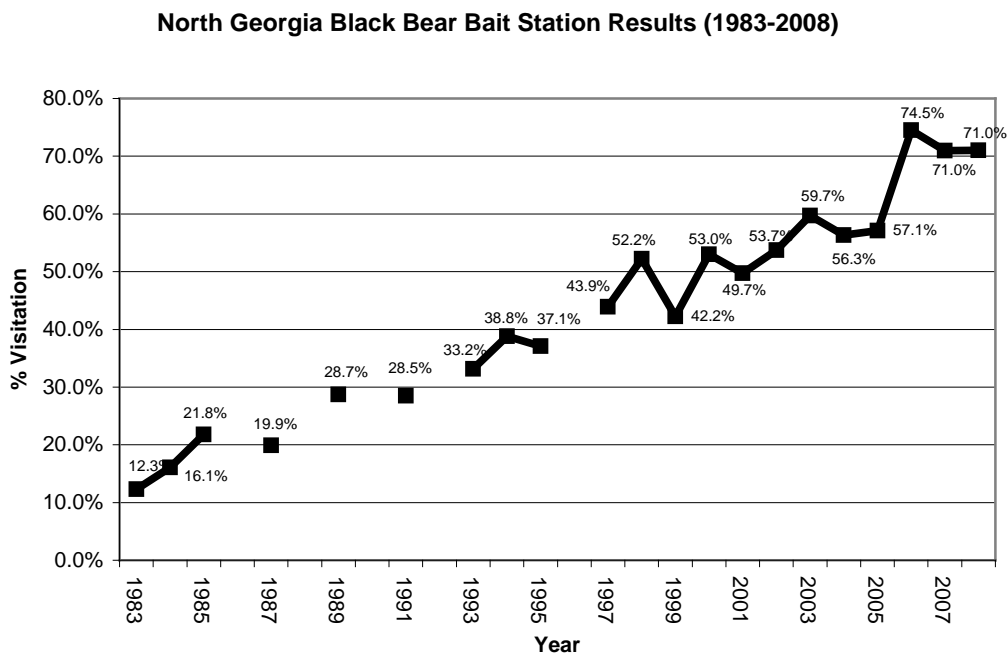


Figure 2. North Georgia black bear bait station survey results from 1983 through 2008.

Central Georgia – The overall visitation rate for both WMAs was 45% (77/170). On Oaky Woods WMA, the visitation rate was 77% (54/70) compared to just 23% (23/100) on Ocmulgee WMA; however, both areas had greater visitation rates than in 2007 (Oaky Woods WMA = 64% and Ocmulgee WMA = 16%). Visual representations for both WMAs are shown below.

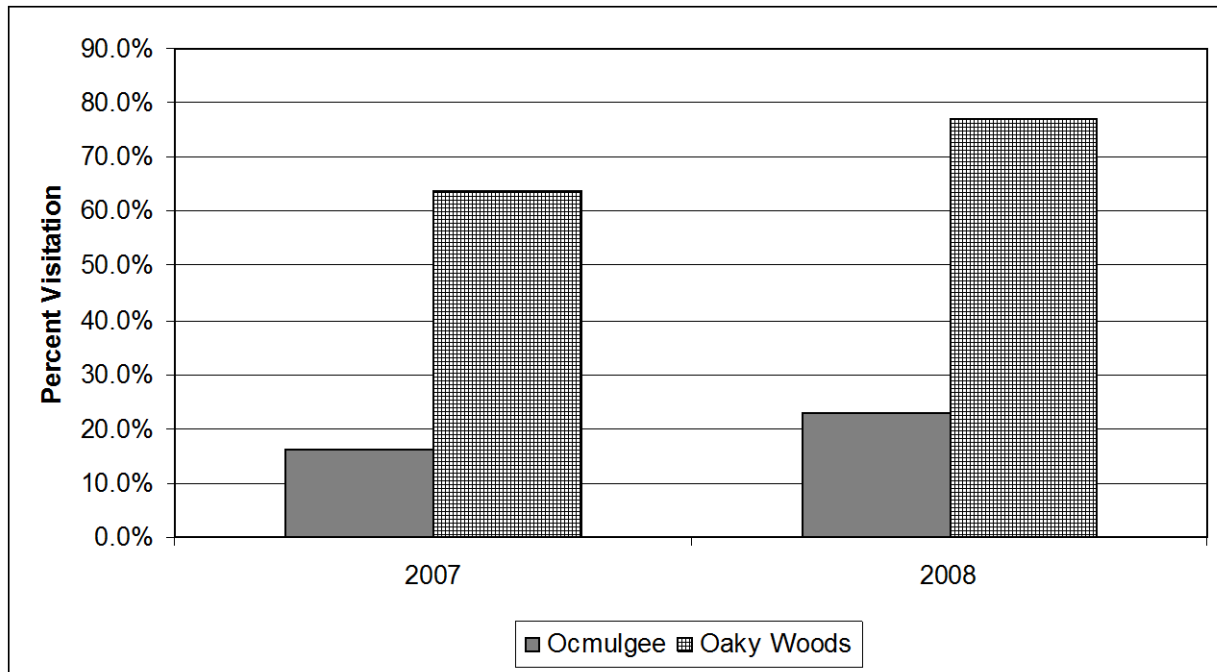


Figure 3 – 2007-2008 Bait Station Survey Results for Oaky Woods WMA and Ocmulgee WMA (includes adjacent private lands).

South Georgia – The 2008 visitation rate for all sites combined (193 stations) was 35.8% (Fig. 4). Visitation rates by survey site were: DMWMA, 63.0%; ONWR, 36.4%; SCWMA, 5.0%; East Perimeter, 7.5%; and West Perimeter, 37.5%.

OKEFENOKEE BLACK BEAR SURVEY

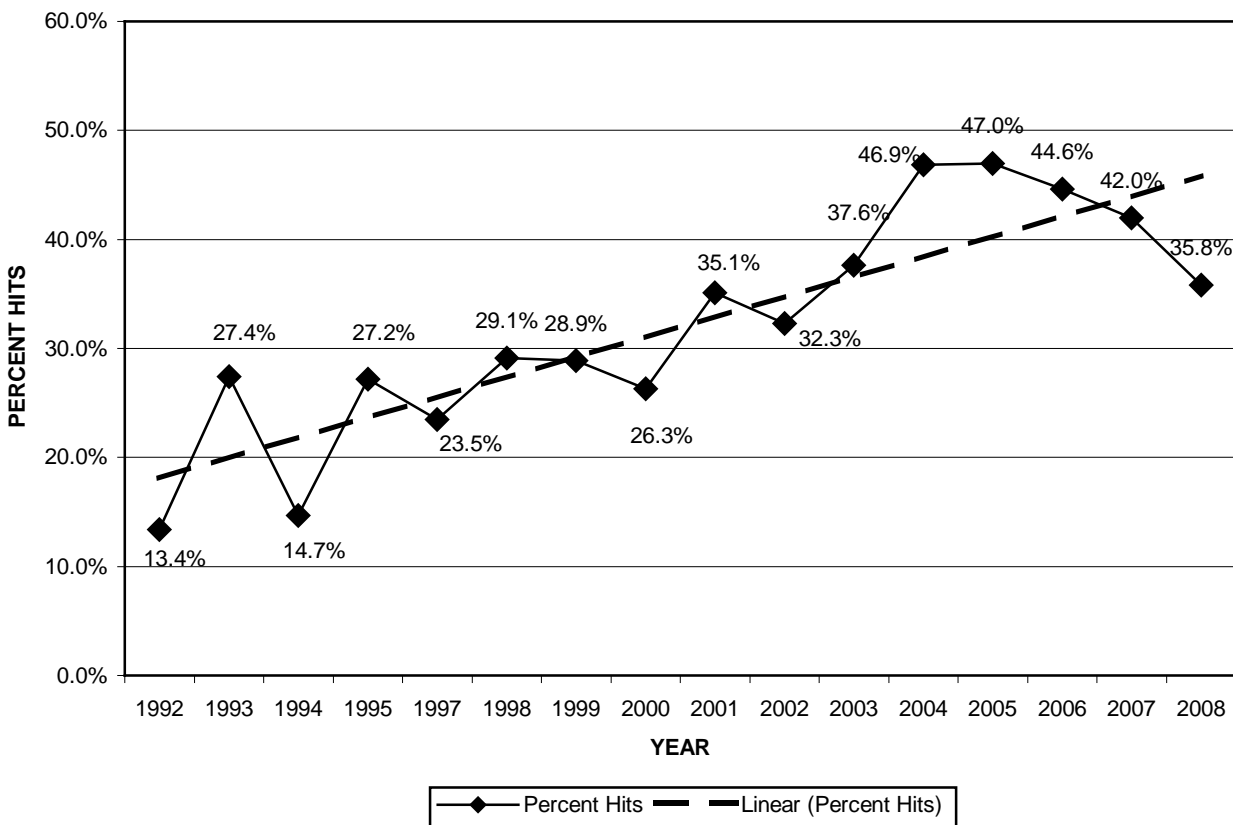


Fig. 4. South Georgia black bear bait station survey results 1992 through 2008.

Legal Harvest

Statewide, 371 bears were legally harvested during the 2008 fall hunting season (Fig. 5), representing the 2nd highest statewide bear harvest on record (425 in 2007 was the highest).

Statewide Bear Harvest (1979-2008)

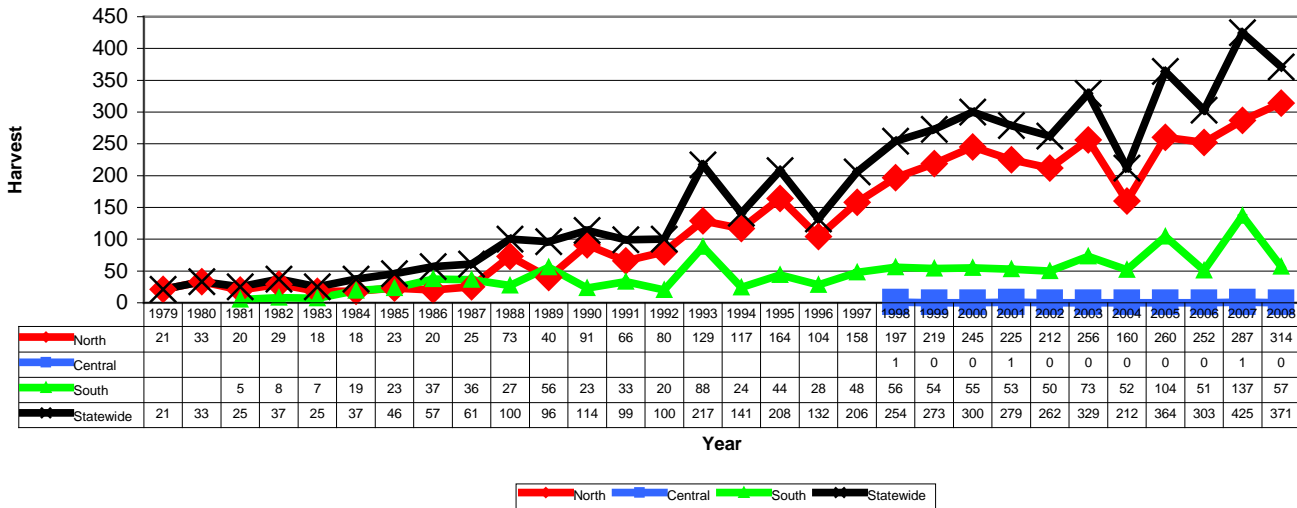


Figure 5. Georgia statewide bear harvest statistics from 1979-2008.

North Georgia – A total of 314 bears were harvested in north Georgia during the 2008 fall hunting season, setting a new record for the 2nd consecutive year (Fig. 5). Record bear harvests occurred in north Georgia during 3 of the last 5 hunting seasons and 6 of the last 10 hunting seasons. In 2008, harvests totals by method of hunting were 60 (19.3%) archery, 13 (4.2%) primitive weapons, and 238 (76.5%) firearms, representing slightly lower percentages for archery and primitive weapons hunters than we’ve observed in recent years. During 2008, 133 (42.4%) females were taken as part of the overall harvest. During the past five years (2004-08), females have comprised 42.3% of the harvest. This is well within the guidelines presented in the 1999 Bear Management Plan, which states that female harvest rate should remain at or below 50% of the annual harvest, with less than 20% of the population being harvested in a single year. Based on our estimates of approximately 1500 bears in the north Georgia population, it appears that our 2008 harvest is approaching or even exceeding the limits presented in the 1999 Bear Management Plan. However, given that our objectives have changed somewhat over the years,

moving from a role of protecting the bear population and allowing it to grow, to more of a role in stabilizing the bear population, we will likely need to revisit these guidelines in the near future.

Georgia’s Black Bear Committee is currently in the process of revising the 1999 Bear Management Plan, and should finalize the revision within the next 12-18 months.

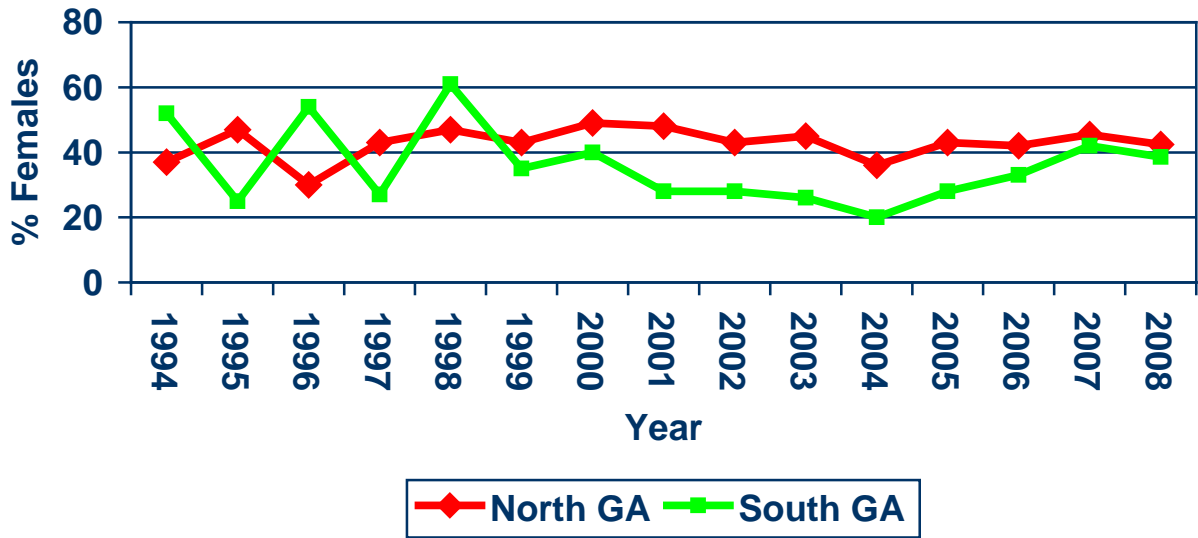


Figure 6. Percentage of females in the harvest (1994-2008) for north and south Georgia

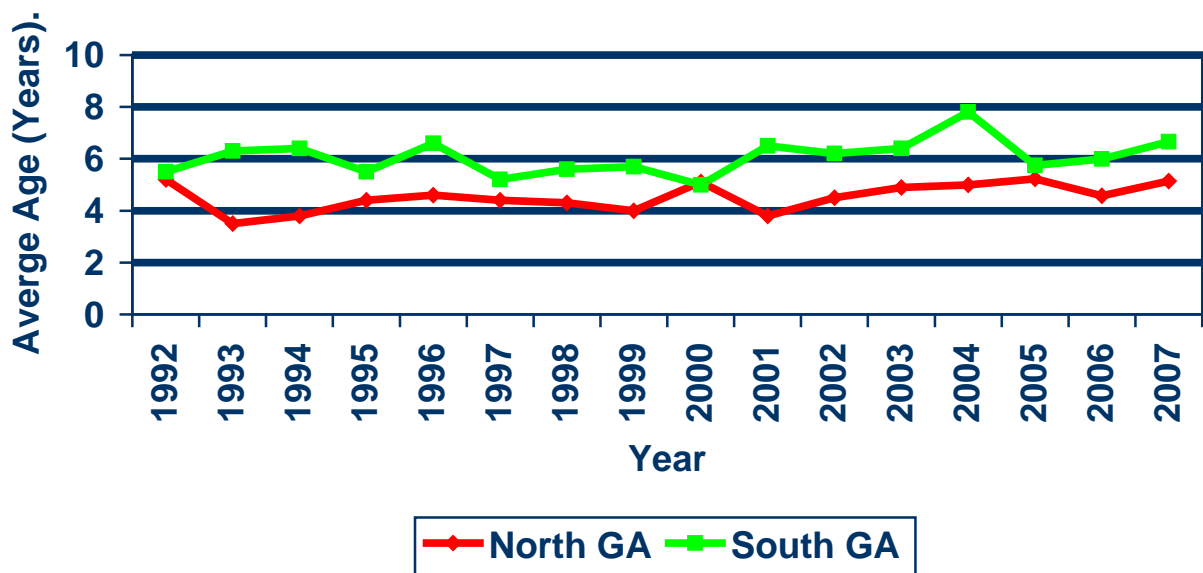


Figure 7. Average age of females in the harvest for north and south Georgia (1992-2007)

The average age of bears harvested during the 2008 season was 3.39 years (n=308). Average age of females was higher (4.28 years, n=131) than males (2.73 years, n=177). The 2008 female age structure was lower than in 2007 (5.14 years, n=128), but the overall trend for average age of females in the harvest remained relatively stable (Fig. 7). It is important to note that the 1999 Bear Management Plan states that female age structure will ideally be held at or above 3.75 to ensure that recruitment rates remain high. Over the past five years for which we have age data (2004-2008), the average age of legally harvested females was 4.82 years (n=525), which is well above the stated minimum goal. Again, depending upon our current objectives, the goals presented in the 1999 Bear Management Plan may need to be adjusted during the upcoming plan revision.

At least 8 bears were killed illegally during 2008, and known road-killed bears totaled 25 for the year.

Central Georgia – No bears were harvested on Ocmulgee WMA (the only WMA in the area open for bear hunting) during the one-day season in December. A minimum of 13 bears were known to have been road-killed from July 2008 – June 2009.

South Georgia – A total of 57 bears, 22 females and 35 males, were harvested in south Georgia during the 2008 fall hunting season. One bear was harvested using a muzzleloader, 1 with a handgun, and the remainder with rifles or shotguns. Average age of bears harvested during the 2008 season was unavailable at the time this report was written. Since 1979 there has been a slightly upward trend in average ages of females in the south Georgia population.

**FEMALE BEAR AVERAGE ANNUAL AGES
HARVESTED, TRAPPED, OR ROAD KILLED**

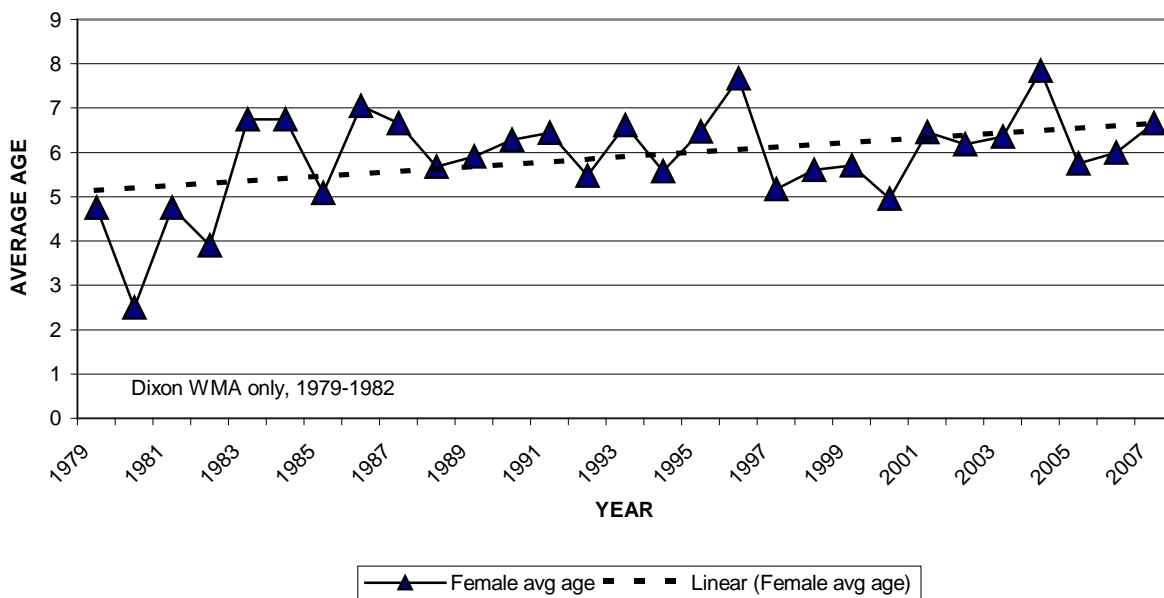


Figure 8 – Average ages of females in south Georgia from 1979-2007.

There were no road-killed bears reported from July 1, 2008 to June 30, 2009. Typically 2-3 bears/year are road-killed in southeast Georgia.

DISCUSSION

Bait Station Survey

North Georgia – As indicated by the 2008 data, bear visitation rates remained high overall. The upward trend in visitation rates observed is in keeping with all of our other datasets related to bears that indicate a healthy, thriving, and increasing population.

Central Georgia – Considering that this was only the second year of the survey in central Georgia, visitation rates have been somewhat higher than expected. This is especially true when compared to the experimental results from the trials more than a decade earlier, when visitation

rates were extremely low. The relatively higher visitation rates for Oaky Woods WMA compared to Ocmulgee WMA, appears to highlight the importance and use of this area to the bears that make up the central Georgia population.

South Georgia – Bear visits, as indicated by the 2008 percent visitation rate for all sardine bait stations, were lower than the 5 preceding years. If the overall trend in visitation rate as expressed in Fig. 4 is an indication of the relative abundance of bears in south Georgia then the population seems to be stabilizing.

Although these trends may reflect a stabilizing bear population, there are a number of factors that may affect the use of bait stations by bears in south Georgia. Bait station visitation rates, as well as harvest rates, may be influenced by bear activity patterns related to food availability. Feeding ecology and seasonal food availability appear to influence bear activity patterns (Garshelis and Pelton 1981, Young and Ruff 1982, Carlock et al. 1983, Garris 1983, Rogers 1987, Abler 1988, Hellgren et al. 1991, Dobey et al. 2002). Hellgren and Vaughn (1990) and Dobey et al. (2002) identified definite shifts in home range use in response to seasonal food availability. In April – June 2007, wildfires burned through or around most of the survey sites. This eliminated many summer foods that did not have time to regrow and produce fruit before the survey. Additionally, timber salvage operations around the ONWR periphery and on DMWMA resulted in large clearcuts that contained some of the survey sites. Stations in these areas typically visited by bears prior to 2007 were avoided in 2007 and 2008. This pattern had been previously observed after large-scale timber harvest (Wes Abler, personal communication).

Legal Harvest

Bear hunting is an important part of Georgia's bear management program. Hunting plays an important role in regulating bear populations and controlling associated nuisance problems while providing an important recreational opportunity for sportsmen and women.

North Georgia – The 2008 harvest represents a record high, the 2nd new record in as many years. Although the record bear harvest in 2007 was largely attributed to environmental conditions that yielded an outstanding acorn crop at high elevations (>2700') and an extremely poor mast crop at low elevations, making the bears more predictable and thus more susceptible to hunters, no similar observation or explanation could be given to explain the record high bear harvest in 2008. There have been some regulation changes on some areas (e.g. Cohutta WMA) over the last few years that intentionally targeted the early season, allowing hunters to hunt with modern firearms even before the season was open in the counties, when bears are typically much more predictable and potentially easier to harvest. Unfortunately, we do not currently have any reliable means of determining bear hunter numbers or any reliable measure of hunter effort. Even so, based on all our data, including nuisance bear complaints from the summer of 2009 (post-2008 hunting season), it appears that the bear population in north Georgia remains very high and may be continually increasing, despite our increasing bear harvest.

Central Georgia – Legal bear harvest likely has no significant impact on the overall population status in the central Georgia black bear population. However, the limited bear hunting opportunity does create awareness for the need to manage the bear population in this portion of the state.

South Georgia – The 2008 harvest of 57 bears was below the average for the 10 preceding years (68). Dobey et al. (2002) estimated a population density of 830 bears (95% CI = 707 –

1,045) for the entire Okefenokee-Osceola ecosystem. Using the lower end of the interval (700 bears) the maximum annual harvest, at the 20% rate, would be 140 bears with no more than 50% of the harvest being females. This season's harvest of 57 bears fell below that maximum target. Except for 3 years, percent females in the harvest has remained below 50% with average ages ranging from 3.90 to 7.84 years. Harvest in this population, therefore, has remained below the annual goals while average ages are well above target.

Annual harvest fluctuations are not easily explained though available food resources may be a critical factor. As explained in the discussion regarding bait station visitation rates, feeding ecology and seasonal food availability apparently influence bear activity patterns and have been found responsible for definite shifts in home range use. Dobey et al. (2002) found that when a highly sought food source such as blackgum fruit was scarce in the swamp during the fall hunting season, radio-collared bears made more use of upland habitats as they foraged for foods such as palmetto and gallberry and were more vulnerable to harvest by hunters. Conversely, during years of high production of blackgum mast, radio-collared bears foraged extensively in the swamp and were less vulnerable to harvest. Unusual spring weather can set these effects in motion. For example, freezing temperatures during April 6-8, 2007 in the local area may have eliminated most blackgum flowers prior to development. Late summer surveys across southeast Georgia revealed little maturing blackgum fruit. Also, the widespread fires of spring 2007 reduced or eliminated most preferred fall food resources on ONWR. Many blackgum and other hardwoods were top-killed. It appeared that resprouting saw palmetto in the adjacent uplands did not have time to produce fruit. This unusual mast failure was probably the biggest contributor to the record bear harvest of fall 2007.

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