

## Florida Mountain Lion Status Report

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The Florida panther (*Puma concolor coryi*) has been protected as an endangered species by the Florida Fish and Wildlife Conservation Commission (FWC) and the United States Fish and Wildlife Service (USFWS) since 1958 and 1967 respectively. Research and management activities were initiated by the FWC in 1981. Many state and federal agencies, as well as several private and non-governmental agencies, participate in panther recovery efforts today. Historically ranging throughout the southeastern United States, Florida panthers were reduced and isolated to a small population of <30 individuals in southwest Florida. To alleviate deleterious effects of low heterozygosity, genetic introgression was implemented in 1995 by releasing 8 female Texas pumas (*P. c. stanleyana*) throughout the Florida panther range. Preliminary analyses show genetic introgression has had a positive impact on the panther population via the reduction of several chronic morphometric and physiological problems. Additionally, Florida panthers have reoccupied vacant areas within their current breeding range as the population has rebounded to >100 individuals. Although several males have dispersed north into central Florida from the current breeding range in south Florida, no females have been documented outside of this core area since 1972. Habitat loss and fragmentation continue to be the biggest threat to the long-term survival and recovery of the Florida panther. However, growing populations of people and panthers in south Florida has led to increased conflict, predominantly in the form of hobby livestock depredations. Recognizing the potential for human-panther conflicts, an Interagency Florida Panther Response Team, consisting of the USFWS, FWC and National Park Service (NPS), was created in 2004 with the primary objective of creating a Response Plan to guide agencies responding to human-panther interactions and depredations. The Response Plan is expected to be finalized in 2008.

### Population Status and Monitoring

Based on known individuals and quantifying observations of uncollared panther sign encountered during field activities, we estimate the current Florida panther population at approximately 100. The population has been near this estimate for the past few years. Much of the available habitat in south Florida appears to be occupied and we documented eight transient and dispersed males in central and north regions of the state during 2005-2007. Four of these panthers were road mortalities; the northernmost male being recovered on I-95 on the Flagler/St. Johns County Line just south of St. Augustine on the east coast. This is roughly 240 miles from the known breeding range in south Florida. Four other panthers were confirmed by tracks or photos.

Florida panthers are captured using hounds from November through March when environmental conditions (e.g., cool temperatures and lower water levels) are more favorable. Since the first panther was collared in 1981, 164 panthers have been equipped with radio collars by FWC and Big Cypress National Preserve (BCNP). Three agencies (FWC, BCNP, Everglades National Park [ENP]) share aerial location duties within their respective monitoring area throughout the year on a 3 times-per-week schedule (Monday,

Wednesday, and Friday). Neonate kittens are handled at the den when approximately 2 weeks old. Since 1992, 265 kittens have been permanently marked with passive integrated transponders. Additionally, biological samples and morphometric data are also collected.

Road mortality and intraspecific aggression are the two most important mortality factors for Florida panthers. The number of annual road kills has mirrored the rising population trend. Nine, 11, and 15 road mortalities were documented in 2005, 2006, and 2007 respectively. The vast majority of these were panthers that were never handled before. Not surprisingly, road mortalities are occurring in areas without protective measures such as wildlife underpasses and fencing. Underpasses (43) are typically located adjacent to protected public lands where the majority of our capture efforts are conducted. Therefore, most radiocollared panthers are able to cross highways safely and are not as likely to be killed by vehicles. Conversely, 1, 4, and 3 intraspecific aggression mortalities were documented in 2005, 2006, and 2007 respectively. Intraspecific aggression is difficult to document unless the animal is wearing a working radio collar. This form of mortality is most commonly documented in the radiocollared population which resides predominantly in the areas protected with underpasses.

### **Human—Panther Conflict**

Florida has experienced an increase in human-panther conflicts over the past few years due, in part, to an increase in both the panther and human population in south Florida. Fortunately, all human-panther interactions have been benign sightings or encounters and there have been no human safety issues. Sightings, without verifiable evidence, can not be confirmed. Because sightings have low levels of risk to humans, few actions are warranted outside of public education. Likewise, encounters pose little human risk but still need to be verified. Outreach is the standard course of action imposed by FWC. Depredations on hobby livestock to include goats and sheep cause the greatest amount of conflict between humans and panthers.

### **Florida Panther Response Plan**

Prior to 2003, conflicts between people and panthers were virtually nonexistent. Two events involving repeated sightings and hobby livestock depredation in 2003 and 2004 respectively (Lotz 2005) prompted the regulating agencies (FWC, NPS, FWS) to initiate actions to manage concerns posed by these circumstances. These actions would evolve into the formation of the Interagency Florida Panther Response Team (Response Team) and the creation of the Interagency Florida Panther Response Plan (Response Plan).

The Response Team is comprised of biologists, law enforcement officers, public information staff and other agency representatives from the FWC, FWS, and NPS. The impetus of the team is to respond to human-panther interactions in such a way to ensure public safety and the continued existence and recovery of the Florida panther. The Response Plan mirrors the methodology used by many western states to manage their human-mountain lion interactions but also recognizes the special needs posed by the endangered status of the Florida panther. Since its inception in 2004, the draft Response Plan has been the guiding document for the agencies when dealing with human-panther

interactions. Six categories of interactions covered in the Response Plan include sighting, encounter, incident, threat, attack, and depredation (Table 1).

**Table 1.** Categories, definitions, and risk factors of Interagency Florida Panther Response Plan

<b>Category</b>	<b>Definition</b>	<b>Risk Factor</b>
Sighting	A visual observation or fleeting glimpse of a panther from a distance.	Low
Encounter	An unexpected direct meeting or a series of meetings over a short period between a human and panther. Panther exhibits non-threatening behavior.	Low - Moderate
Incident	An interaction between a panther and a human as described in an Encounter, except that the panther displays potentially threatening behavior.	Moderate – High
Threat	An unprovoked aggressive/predatory behavior toward a human that requires the individual to take defensive action to avoid direct contact.	High
Attack	A direct, physical contact between a panther and a human involving aggressive panther behavior.	High
Depredation	A panther that preys upon domestic pets (e.g., dogs, cats) or livestock (e.g., goats, pigs, horses, cows).	Low

Because the Florida panther is listed as a federally endangered species and the Response Plan allows for permanent removal from the wild and use of aversive conditioning techniques, which are classified as “take” under the Endangered Species Act, the Response Plan is subject to requirements of the National Environmental Policy Act (NEPA). The USFWS initiated NEPA and the drafting of the Environmental Assessment (EA) for the Response Plan in 2005. The final EA and Response Plan were submitted for publication in the federal register in March 2008 and will soon be finalized. Currently, the draft EA including the full Response Plan can be viewed at <http://www.fws.gov/verobeach/images/pdflibrary/Panther%20Response%20Plan%20Final%20EA%20101207.pdf>

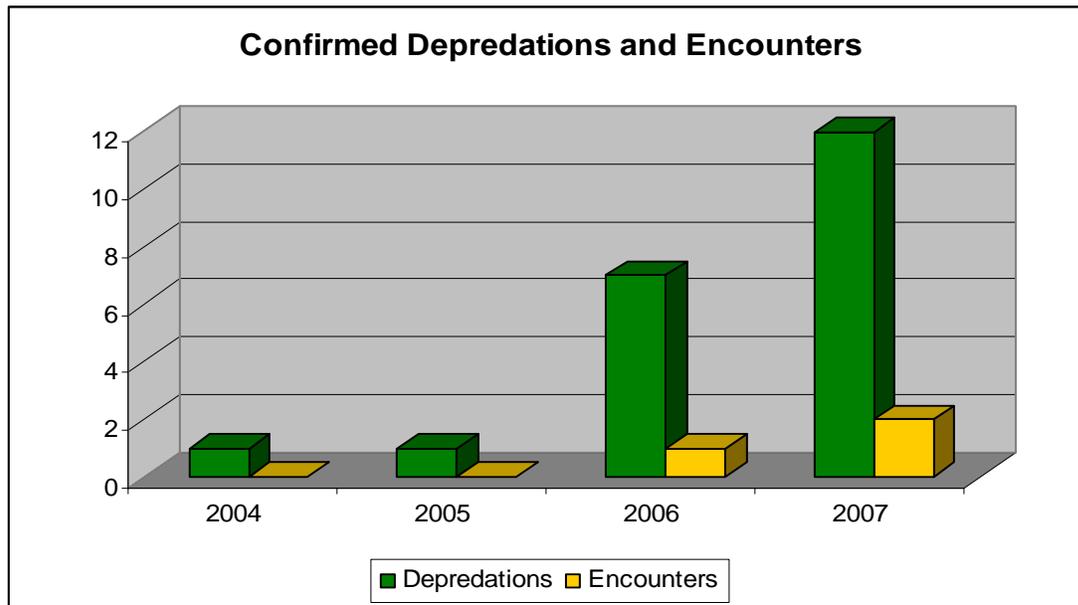
### **Public Education / Outreach**

While the Response Plan outlines actions the agencies will take to respond to human-panther interactions and depredations, public outreach and education are vital to minimize negative interactions and promote coexistence between humans and panthers. Therefore, several strategies have been developed to educate residents and visitors on how to coexist safely with panthers. Several public information meetings have been focused in areas that have potential for or have experienced conflicts (i.e., depredations). Additionally, *A Guide To Living With Florida Panthers* brochure outlining actions and precautions to take in panther country has been produced. Another successful campaign, organized by Defenders of Wildlife, involved building 3 “light load” livestock pens (fashioned from a portable car port) at two residences that have experienced livestock/pet loss and one at the Collier County Agricultural Extension Service for public demonstration purposes. These pens provide a secure enclosure for pets and livestock,

protecting them from predators. Many partners and private citizens assisted in constructing these pens

### Confirmed Encounters

There were 3 confirmed encounters from May 2005-April 2008 as defined by our Response Plan (Fig. 1). One encounter in 2006 involved two turkey hunters that were standing on a dike when a family group of 4 panthers, including 3 approximately 60-pound juveniles and their mother, approached a cross-over area near the hunters (FWC 2006). The juveniles became curious of the camouflaged-clad hunters and were dissuaded from approaching closer when rocks were thrown in their direction as the mother called to them from nearby cover. Two encounters occurred in Everglades National Park in 2007. In July, a 1.5-year-old kitten of a radiocollared female was observed lounging on a horizontal oak branch along a popular hiking trail. Park visitors found an egg shell on the ground and, thinking it was from a bird nest, looked up to find the nest and saw the panther instead. Several pictures were obtained before the trail was temporarily closed allowing the panther to come down of its own accord. The egg was from a turtle and the trail was opened the following day. In December a couple was returning to their vehicle and encountered a radiocollared panther standing on the boardwalk looking out across the saw grass marsh. The couple was at a T-junction and, after taking a few pictures, stepped back allowing the panther to pass by on the boardwalk.



**Figure 1.** Confirmed Florida panther depredations and encounters, 2004-2007.

### Confirmed Depredations

Depredations of hobby livestock (i.e., primarily goats) and pets have recently increased (Fig. 1). In 2005, 2006 and 2007, there were 1, 7, and 12 confirmed depredations or attempts respectively. By far the most common hobby livestock animals preyed upon by panthers were goats. Other animals attacked or consumed included turkeys, chickens, geese, emus, dogs, hogs, a miniature donkey, sheep, and fallow deer. In three of these

cases (a large breed dog, miniature donkey, goat) the intended prey animal survived. Radiocollared and non-radiocollared male panthers were identified as depredators. One radiocollared individual was removed to permanent captivity after being deemed a “threat” under the Response Plan (FWC 2006). Florida panther #79 habitually sought out domestic prey even after being relocated to the opposite end of his home range. Our actions were warranted based on the inability to alter this new behavior. Several residents had repeat depredation incidents after failing to heed suggested corrective measures.

### **Current Research**

FWC’s current research goals are objective-driven to provide the information necessary to manage and conserve Florida panthers (FWC 2007). Current research objectives include, but are not limited to, evaluating the utility of new GPS collar technology, using GPS technology to collect resource-selection data, delineate movement patterns of panthers along the urban-wildland interface, determine movement and kill rates, quantifying denning habitat characteristics, estimating multiple demographic parameters, and developing a population viability model. Additionally, assessment of the genetic introgression project continues.

### **Literature Cited**

- Florida Fish and Wildlife Conservation Commission. 2007. Annual report on the research and management of Florida panthers: 2006-2007. Fish and Wildlife Research Institute & Division of Habitat and Species Conservation, Naples, USA.
- Florida Fish and Wildlife Conservation Commission. 2006. Annual report on the research and management of Florida panthers: 2005-2006. Fish and Wildlife Research Institute & Division of Habitat and Species Conservation, Naples, USA.
- Lotz, M. A. 2005. Florida mountain lion status report. Pages 73-77 in R.A. Beausoleil and D. A. Martorello, editors. Proceedings of the Eighth Mountain Lion Workshop, Olympia, WA, USA.