

**Ecology and Population Dynamics of the
Florida Panther in Everglades National Park**

August 1991

Oron L. Bass, Jr.

**South Florida Research Center
Everglades National Park
P.O. Box 279
Homestead, Florida 33030**

TABLES OF CONTENTS

	<u>Page</u>
LIST OF TABLES	ii
LIST OF FIGURES	iii
EXECUTIVE SUMMARY	iv
ACKNOWLEDGEMENTS	v
INTRODUCTION	1
METHODS	3
RESULTS	6
DISCUSSION	6
LITERATURE CITED	13

LIST OF TABLES

Page

- | | |
|----------|---|
| Table 1. | Summary of captured and radio-collared Florida panthers in Everglades National Park, 1986-1991. |
| Table 2. | Estimated home ranges of radio-collared Florida panthers in Everglades. |
| Table 3. | Food items of Florida panthers in Everglades National Park. |

LIST OF FIGURES

Page

- Figure 1. Landscape composition and composite home range of Florida panthers in south Florida (from Smith and Bass, in prep.).
- Figure 2. Home ranges and core activity areas of six radio-collared Florida panthers in Everglades National Park and adjacent lands in south Florida (from Smith and Bass, in prep.).
- Figure 3. Preliminary home range of Florida panther #23.
- Figure 4. Preliminary home range of Florida panther #39.
- Figure 5. Preliminary home range of Florida panther #42.

EXECUTIVE SUMMARY

A free-ranging, wild Florida panther population estimated at 30-50 individuals still exists in Florida, primarily in the cypress swamp, pine forest, and sawgrass ecosystems south of Lake Okeechobee. Prior to the late 1970's, few useful data were available on the biology and population status of the Florida panther. In 1981 the Florida Game and Fresh Water Fish Commission began a radio-tracking study in the Big Cypress ecosystem to provide much needed current information on that segment of the population. However, few data were available on the status of the Everglades sub-population. As a result of the initial meeting of the Florida Panther Inter-agency Committee (FPIC) in 1986, the National Park Service agreed to fund a radio-tracking study in Everglades National Park (EVER). The primary objective of this study was to be an integral part of a comprehensive research program to evaluate the overall status and recovery needs of the Florida panther in cooperation with the FPIC.

To date, a total of eight panthers have been captured in EVER between December 1986 and March 1990. In FY 1987, six panthers were captured and radio-collared, including two adult females and the twin kittens of each. In addition, a young adult female was radio-collared in April 1988 and a young male in February 1990. Preliminary findings indicate that the distribution of panthers may be related to sex, reproductive status, distribution of deer, and hydrologic cycles.

Breeding females have exhibited stable, insular ranges that overlap in the Long Pine Key/Hole-in-the-Donut area. Adult panthers, particularly females that are pregnant or with kittens, appear to rely primarily on white-tailed deer as prey. Panthers typically concentrate their activities along pine forest and hammock edges where they kill deer. Immature panthers have dispersed to the edges of their natal ranges and beyond into unprotected, peripheral habitats where they utilize small prey such as raccoons and rabbits. In the wet season, panthers noticeably reduce their home ranges, concentrating activity at high elevations. Given the finite size of the available habitat and the population of white-tailed deer, the potential population of Florida panthers in the eastern Everglades appears to be inherently low. At present the EVER population consists of only 2 individuals. The continued existence of this segment of the population will require long-term monitoring and management.

As a result of the recent mercury problem, this project may be terminated if the two remaining male Florida panthers are: 1) translocated to an area outside of EVER; or 2) placed in the captive breeding program at White Oak Plantation.

ACKNOWLEDGEMENTS

I wish to thank the cooperation and support of the Florida Game and Fresh Water Fish Commission; in particular, D. Maehr, C. Belden, M. Roelke, and T. Logan. I also thank my field assistants, R. Brazie, D. Jansen, and T. Smith. Computer assistance was provided by F. Draughn, D. Buker, and J. Ford. Special thanks to V. Thue for input of the location data. Most of all I thank R. McBride for his long hours and dedication to the Florida Panther.

INTRODUCTION

The Florida Panther (*Felis concolor coryi*) originally occurred throughout most of the southeastern United States, and is one of 30 recognized subspecies (Hall 1981, Anderson 1983). According to Cory (1986), the Florida panther was fairly common in undeveloped areas of Florida as late as the 1890's. Because it was considered a threat to humans and livestock, the State of Florida offered a bounty for panthers and animals were killed whenever encountered. In 1950, concern about the uncontrolled hunting of panthers led the State to classify the panther as a game animal and, since 1958, the panther has been fully protected from legal hunting in Florida. In 1967, the Florida panther was included on the first federal list of endangered and threatened species developed by the U.S. Department of the Interior, and it is presently listed as an endangered species by both the federal government and the State of Florida.

In March 1976, the Florida Audubon Society sponsored a meeting to discuss the status of the Florida panther. The consensus of opinion among those attending was that the continued existence of the Florida panther was in doubt. In July 1976, the U.S. Fish and Wildlife Service appointed a Florida Panther Recovery Team charged to identify needs and to develop a recovery plan to ensure the survival of the Florida panther. The Florida Panther Recovery Plan, approved in 1981 and revised in 1987, identified the Florida Game and Fresh Water Fish Commission (GFC) and the U.S. National Park Service as the agencies responsible for conducting field research.

As a federal land management agency, the National Park Service has a legislated responsibility to conserve federally listed endangered and threatened species. National Park Service policy states that "active management programs, where necessary, will be carried out to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystem on which they depend". This responsibility can only be met when information on population status is sufficient to permit detection of adverse trends and enable the initiation of management action in a timely

fashion. The Florida panther is a federally-listed endangered species with a population believed to consist of 30-50 adult individuals. The only known surviving population is found in wilderness areas of southern Florida, most of which are within Everglades National Park (EVER) and Big Cypress National Preserve (BICY). Florida panthers are known to occur in the northeast portion of BICY and the Long Pine Key area of EVER. However, data on overall distribution, habitat utilization, reproduction, and other basic population parameters were lacking. Oil and gas development, ORV use, hunter use, etc., and lack of knowledge on the Florida panther in general make it imperative that baseline population data within park areas be determined. These data will enable the Service to measure trends and establish management strategies in response to legislated mandates contained in the 1973 Endangered Species Act.

The primary objective of this study is to determine the status of the Florida panther population in Everglades National Park. This study is an integral part of a comprehensive research program to evaluate the overall status and recovery needs of the Florida panther, in cooperation with the ongoing Florida panther research program of the Florida Game and Fresh Water Fish Commission and the U.S. Fish and Wildlife Service.

The specific objectives of the Florida panther research in Everglades National Park are to: 1) determine basic population parameters, including population size and distribution and age structure, sex ratio, reproductive success, and recruitment rate; 2) determine behavioral and ecological requirements, including food habits, kill rates, and utilization; habitat preference and utilization, seasonal movements, and home range; and social organization and behavior; and 3) determine the general health and genetic condition of the population, including physical condition and reproductive status; parasites and infectious diseases; and genetic variability.

METHODS

To obtain basic biological and ecological data on the Florida panther, panthers are captured and radio collared. Capture and immobilization are accomplished by using the skilled capture team and well-developed procedures of the Florida Game and Fresh Water Fish Commission. The capture team consists of a houndsman and dogs, a wildlife veterinarian, and wildlife biologists and technicians.

Prior to the capture period, the houndsman and the NPS wildlife biologist search the study area for panther signs and determine what areas the animals are using. Capture attempts are made as soon as daytime temperatures decrease to a point considered safe for the immobilization of panthers. Trained hounds are used to find, trail, and tree panthers. The hounds may trail a panther for hours, but the actual chase usually takes less than 30 minutes (Maehr 1986).

The decision whether to immobilize a treed panther is made at the scene by consultation of the wildlife veterinarian, NPS wildlife biologist, and houndsman. Such assessment is based on the physical appearance of the animal, stress from the chase, and air temperature, as well as other site conditions (Roelke 1985). Panthers are immobilized with ketamine hydrochloride delivered by a compressed air dart gun (Roelke 1985). After immobilization, the panther is lowered by rope from the tree or allowed to fall into an air cushion bag and safety net.

Once on the ground, the wildlife veterinarian monitors the heart rate, respiration, and body temperature until complete recovery and release. During immobilization each panther is weighed, measured (body length, girth, feet and teeth), and the animal is fitted with a radio-collar. The transmitter is designed by Teleonics of Mesa, Arizona, and employs conventional solid-state circuitry powered by lithium cell batteries and includes mortality and activity sensors; weighs approximately 900 grams (2 lbs); and has a projected operational life of 24 months. Dental and

foot impressions are also made. Each panther is aged and sexed. Panthers are aged according to tooth wear and coloration of the enamel as described by Shaw (1983). Dental impressions are also made of each panther for follow-up aging studies. During routine field work, tracks of panthers known or suspected to be uncollared provide additional information on the age and sex composition of the population.

Standard telemetry techniques of ground and aerial tracking are used for monitoring radio-collared panthers. A fixed-wing aircraft is equipped with directional "H" antennas mounted on each strut and attached to a switch box for selecting right, left, or both antennas (Belden 1983). A hand-held directional antenna and receiver are used for ground tracking.

Radio-collared panthers are monitored from a fixed-wing aircraft daily throughout the year. Locations are plotted on 7.5 minute USGS orthophoto quadrangle maps. Date, time, location (UTM), and vegetation type are recorded for each occurrence. Home ranges (Burt 1943) of radio-collared panthers are estimated by the modified minimum area method (Harvey and Barbour 1965) which, given essentially daily monitoring, appear to best describe this parameter. Core activity areas of panthers are delineated by the harmonic mean method (Dixon and Chapman 1980) using program HOMERANGE (Samuel et al. 1985) and defined as areas which encompassed 60 percent of the animal's locations (i.e., the area within the 60% activity area isopleths).

Determination of the general health and genetic condition of captured panthers is under the direction of wildlife veterinarian, Dr. Melody E. Roelke. During capture and immobilization, the veterinarian evaluates physical condition (muscling, fat, haircoat) and reproductive status of each Florida panther. Biological samples taken are blood, urine, feces, ectoparasites, hair, skin, biopsies, semen, vaginal swabs from the female, and swabs for viral and bacteriological culture.

Laboratory analyses are conducted immediately after leaving the field and include a complete blood count (CBC), serum biochemical determinations (SMA 21), serum protein electrophoresis, urinalysis, bacteriological culture of feces, and antibiotic sensitivity studies. Blood samples for genetic studies are processed at the field laboratory within 24 hours of collection and are frozen for later analysis. Skin biopsies for genetic studies are shipped via overnight mail service to the National Cancer Institute. Serum for infectious disease screening and reproductive hormones are also frozen for later analysis. Feces for parasite examination and food habit studies are preserved appropriately for later evaluation.

To determine what prey items are taken by panthers, all suspected panther scats and kills are collected. Ground search of areas used by radio-collared panthers is conducted in an effort to find scats and kills. Panther scats are sent to the Florida State Museum for analysis. Each scat is analyzed to determine prey consumed. Through monitoring of radio-collared panthers, data are gathered on kill rates of large prey such as white-tailed deer. When it is determined or suspected that a panther has made a kill, a ground search of the area is made and the remains collected and identified.

Reproductive assessment of each panther is made by the veterinarian at the time of capture and immobilization. Monitoring of the females provides information on denning habitat and location, movement, and activity patterns associated with reproductive activity, development of the young, and postnatal care. The monitoring of radio-collared males and females provides data on periods of reproductive activity. A particular effort is made to capture and radio-collar young (9-24 months old) Florida panthers. Those radio-collared young are monitored to determine characteristics of survival, dispersal, and recruitment into the population.

Habitat maps of the study area are being developed using remote sensing techniques (LANDSAT). Habitat use by panther is characterized and quantified according to vegetation types.

RESULTS

A total of nine panthers have been captured in Everglades National Park between December 1986 and March 1990 (Table 1). In the first year of the study (FY 87), six panthers were captured and radio-collared. This included two adult females, each with twin kittens. A young adult female panther was radio-collared in FY 88. During FY 89 captive work, no new panthers were located in EVER. In FY 90, two males were captured and radio-collared.

All radio-collared panthers were tracked daily with location, habitat type, and activity recorded for each individual panther. To date, over 5,000 data locations have been recorded and entered in the computer database. These data are presently being analyzed and have provided information on home range size (Table 2) (Figs. 1, 2, 3), movement patterns (Figs. 1, 2, 3), habitat use (Fig. 1), and food habits (Table 3). Some of these findings are presented in a paper on white-tailed deer and Florida panthers in EVER (Smith and Bass in prep.; Figs. 1, 2).

DISCUSSION

The following is a preliminary summary of information for each radio-collared panther in EVER.

Florida panther #14

Florida panther #14, an adult female, approximately 5-6 years old, was captured in December 1986. At the time of initial capture, she had two yearling kittens; one male (#16) and one female (#21). Between December 1986 and July 1991, panther #14 was radio-tracked approximately 1300 times. This represents the longest period of data collection for any individual in this study. Panther #14 had a home range of about 145 square miles covering the eastern portion of Long Pine Key/Hole-in-the-Donut area and southern Taylor Slough. Her average daily movement

ranged from 1 to 6 miles. She primarily (80%) ate white-tailed deer and had killed 15 of the radio-collared deer. In late December 1988, she mated with panther #16 (her son). This mating produced two kittens, but only one kitten, a male (#42), survived. Again she mated with #16 in November 1990 and denned approximately 63 days later in early March 1991. On June 21, 1991, panther #14 was found dead on the east side of the Hole-in-the-Donut. Movement patterns and behavioral activities, as determined by radio tracking, indicated that she had kittens. After her death a search of the area found no kittens. The fate of the kittens is unknown, but they are assumed dead. The cause of her death is also unknown at this time, but may have been caused by a combination of chronic renal diseases, mercury contamination, and stress of the recent pregnancy.

Florida panther #15

Florida panther #15, an adult female, was captured December 1986. At time of capture she had two kittens. Both kittens (#22 and #23) were captured in March 1987. Between December 1986 and June 1988, panther #15 was located 505 times. Panther #15 had a home range of approximately 185 square miles covering the western portion of Long Pine Key and eastern edge of Shark Slough. Average daily movements ranged from 0 to 6 miles. Based on kill remains and fecal sample, panther #15 fed primarily on white-tailed deer (over 60%). In February 1988, she mated with male #16, and denned approximately 90 days later. Panther #15 was found dead on June 10, 1988. The necropsy report listed the cause as natural, due to bacterial infection from a puncture wound. A search of the den site area found no kittens.

Florida panther #16

Florida panther #16 is an adult male, presently 5-6 years old. Captured in January 1987, as an 18-month-old yearling still with his mother, #14. In March 1987, he separated from his mother

and moved north into the East Everglades. Between March 1987 and March 1989, panther #16's home range included eastern portions of EVER as far north as Tamiami Trail and south to the Long Pine Key area, approximately 325-square-miles in size. During March 1989, panther #16 crossed Shark Slough and moved into southern BICY. He used the Stairsteps and Loop Units the majority of the time, occupying a home range of 350+-square-miles. In late October 1989, he returned to the eastern side of Shark Slough (EVER). At present he occupies the largest home range of all the study animals, which is in excess of 900-square-miles. This includes most of EVER and southern BICY. His daily movements range from a few miles to more than 15 miles. He feeds primarily on white-tailed deer and feral hogs (70%), but takes alligators regularly.

Florida panther #21

Florida panther #21 is an adult female approximately 5-6 years old. She was captured in March 1987, as an 18-month-old yearling still with her mother, #14. She separated from her mother in late March 1987 and travelled east of EVER crossing U.S. Highway 1 and Card Sound Road. She was struck by a vehicle on July 21, 1988. Between April 1987 and July 1988, panther #21 was radio-tracked 469 times. During this period more than 45 crossings of major roads occurred. Her home range was approximately 165-square-miles, 60 percent of which occurred outside the boundary of EVER. The areas utilized by panther #21 consisted primarily of abandoned farm lands, and sawgrass marshes with buttonwood hammocks south of Homestead/Florida City.

Florida panther #22

Florida panther #22, an adult female was captured along with her litter (male #23) in March 1987. She separated from her mother (#15) in December 1987 at 16 months old. Between December 1987 and March 1989, panther #22 was located 504 times with a home range of over 220-square-miles, covering the Long Pine Key/Hole-in-the-Donut area and southern Taylor Slough. On March

19, 1989, radio transmission was lost. Subsequent searches of her home range during the FY 89 and FY 90 capture seasons were unable to locate her. In February 1991, panther #22 was recaptured and the malfunctioning collar replaced. Between February and July 1991, she was radio-tracked three times a week. During this period of time she utilized the same general home range as before (western portion of Long Pine Key/Hole-in-the-Donut). One July 22, 1991, panther #22 was found dead at the bottom of a solution hole in western Long Pine Key. Preliminary cause of death was by a subcutaneous bacterial infection. At the time of her death, she had lost 50 percent of her body weight. This suggests that the infection was progressive over a relatively long period, one to two weeks.

Florida panther #23

Florida panther #23 is an adult female 4 years old. She was captured as a 6-month-old kitten along with her sister #22 in March 1987. As a result of capture-related activity, she was abandoned by her mother and spent the majority of the first 3 years (June 1987 - January 1989) in captivity. In late February 1989, she was returned to EVER and released on Long Pine Key. Between February 1989 and February 1990, she had an extensive home-range, covering the eastern portion of EVER, extending from the mangrove forest along Florida and Whitewater bays to the agricultural lands in the East Everglades. During this period she primarily ate small prey such as muskrats, raccoons, and rabbits. In early March 1990, #23 crossed Shark Slough and moved into southern BICY, utilizing much of the same area as male panther #16. In a three month period (March -May 1990) panther #23 had a home range of over 125-square-miles located south of U.S. Highway 41, within the Stairsteps and Loop Management Units of BICY. During this time, panthers #23 and #16 were documented together over a four day period. In late June 1990, panther #23 crossed U.S. 41, entering the area north of Jetport in eastern BICY. By mid-July 1990, she showed signs of denning, and remained at the same location for the next month. On August 13, 1990, panther #23 moved north from the den site location and did not return. This

movement pattern indicated that she had lost the kitten(s) at about a month old. A subsequent search of the den site area was unable to locate any sign of the kitten(s).

At present panther #23 occupies the eastern portion of BICY north of U.S. 41 with a home range of approximately 150-square-miles.

Florida panther #27

Florida panther #27, a 3-4 year old female, was captured and radio-collared in April 1988. She has been located 451 times between April 1988 and July 1989. During this 15-months of radio-tracking, panther #27 had a home range estimated at over 400-square-miles, occupying portions of northern Long Pine Key, the East Everglades, and northern Shark Slough. Approximately 50 percent of her home range occurred outside the boundary of EVER. She primarily utilized the hardwood hammocks in these areas. Data on food habits of this panther indicate that she fed almost exclusively on small prey. Of the 12 kills recovered, all were raccoon. On July 26, 1989, panther #27 was found dead in a tree island in northeast Shark Slough. A necropsy, performed by the Florida Game and Fish Commission veterinarian on this animal, found no obvious cause of death. As a result of recent findings of high levels of mercury in freshwater fish in EVER, it was suggested that the animal be screened for pesticides and heavy metals. The results from tests for all carbamates^s and organochlorines were negative. However, high levels of mercury (98 ppm) and selenium (22 pm) were found in the animals liver. Mercury toxicosis was the most likely cause of death of panther #27.

Florida Panther #39

Florida panther #39, an adult male, approximately 3-4 years old, was captured on a tree island in lower Shark Slough on February 19, 1990. At the time of capture he weighted 102 pounds.

From February to May 1990, he was radio-tracked only 81 times, representing the shortest period of data collection for any of the study animals. During this period, panther #39 had a large home range of over 275-square-miles, ranging from Long Pine Key and East Everglades area, to Rattlesnake ridge on the west side of Shark Slough. Relatively few data were gathered on food habits of this panther (only 2 deer kills recovered), but he appeared to feed primarily on white-tailed deer.

His average movement ranged from a few miles to 10 miles a day, and crossed Shark Slough frequently. Between May 4 and May 18, 1991, panther #39 stopped his normal movement patterns and confined himself to a hardwood hammock and willow stand on the west side of Shark Slough. On May 16, 1990, a ground check of the area was made to determine the condition of the animal. The cat was approached on the ground and exhibited only limited movement remaining out of sight. The decision was made to recapture the panther for examination. On the day of capture, May 18, 1990, the panther was found dead. The necropsy report listed cause of death as severe pyothorax from a puncture wound to the chest cavity.

Florida Panther #42

Florida panther #42 is a sub-adult male, presently 2 years old. Captured in March 1990, as a 10-month-old yearling still with his mother, he is the offspring of a backcross between Panther #14 (mother) and #16 (#14's son). In May 1990, he separated from his mother and moved north into the East Everglades. The next 12-month period, May 1990-May 1991, panther #42 had a home range confined primarily to northeast Shark Slough in East Everglades, covering less than 100-square-miles. While in this area he fed mostly on small prey (raccoons) and white-tailed deer. In early May 1991, he moved his center of activity into northern Shark Slough and west of Shark Valley Tower. Present home range of panther #42 is a relatively small area (less than 100-square-

miles) between Shark Valley Tower Road west to EVER-BICY boundary. Unlike panther #16, panther #42 has a much smaller daily movements, ranging from 0 to 5 miles.

LITERATURE CITED

- Anderson, A. E. 1983. A critical review of literature on puma (*Felis concolor*). Colorado Div. Wildl. Spec. Rept. No. 54.
- Beldon, R. C. 1983. Florida panther recovery plan implementation - a 1983 progress report. Proc. Int. Cat Symp., Kingsville, TX. In press.
- Burt, W. H. 1943. Territoriality and home range concepts as applied to mammals. J. Mammal. 24:346-352.
- Cory, C. B. 1896. Hunting and fishing in Florida. Boston: Estes and Lauriat.
- Dixon, K. R. and J. A. Chapman. 1980. Harmonic mean measures of animal activity areas. Ecology 61:1040-1044.
- Hall, E. R. 1981. The mammals of North America. Vol. II. New York: John Wiley and Sons.
- Harvey, M. J. and R. W. Barbour. 1965. Home range of *Microtus ochrogaster* as determined by modified minimum area method. J. Mammal. 46:398-402.
- Maehr, D. S. 1986. Florida panther movements and habitat use of Corkscrew Swamp Sanctuary: a research proposal. Unpubl. Report. Florida Game and Fresh Water Fish Commission, Naples, FL.

Roelke, M. E., E. R. Jacobson, G. V. Kollias, and D. J. Forrester. 1985. Medical management and biomedical findings on the Florida panther, *Felis concolor coryi*. Florida Endangered Species Project E-1-09.

Samuel, M. D., D. John Pierce, E. O. Garton, L. J. Nelson, and K. R. Dixon. 1985. User's manual for program home range. Forest, Wildl. and Range Exp. Stn. Tech. Rept. 15, Univ. Idaho, Moscow. 70 pp.

Shaw, H. G. 1983. Mountain lion field guide. Arizona Game and Fish Dept. Sp. Rept. No. 9.

Smith, T. R. and O. L. Bass, Jr. *In press*. Landscape, white-tailed deer, and the distribution of Florida panthers in the Everglades. In S. Davis and J. Ogden (eds.) Proc. Everglades Symp., Key Largo, FL, October 1989.

Table 1. Summary of captured and radio-collared Florida panthers in Everglades National Park, 1986-1991.

Panther No.	Date Captured	Sex	Estimated Age at Time of Capture	Weight (lbs.)	Reproductive Status	Comment
14	07 Dec 1986	Female	5-6 yrs.	71	2 kittens: 1 male, #16 1 female, #21	
15	13 Dec 1986	Female	5-6 yrs.	72	2 kittens: 1 female, #22 1 female, #23	
16	12 Jan 1987	Male	14-18 mos.	84	Yearling	Dispersed at ~ 18 months old
21	16 Mar 1987	Female	14-18 mos.	56	Yearling	Dispersed at ~ 18 months old
22	18 Mar 1987	Female	5-6 mos.	33	Kitten	Dispersed at ~ 14 months old
23	18 Mar 1987	Female	5-6 mos.	31	Kitten	Abandoned at 6 months old
27	12 Apr 1988	Female	2-3 yrs.	50	Adult	
39	19 Feb 1990	Male	3-4 yrs.	102	Adult	
42	06 Mar 1990	Male	12 mos.	60	Yearling	Offspring of panthers #14 and 16. Dispersed at ~ 16 months old.

Table 2. Estimated home ranges of radio-collared Florida panthers in the eastern Everglades.

Panther No.	Sex	Tracking Period	Approximate No. of Locations	Estimated Total Home Range (mi²)
14	F	Dec 86 - Jun 91	1352	145
15	F	Dec 86 - Jun 88	505	185
16	M	Apr 87 - Jul 91	1338	900+
21	F	Apr 87 - Jul 88	469	165
22	F	Dec 87 - Jul 91	504	200+
23	F	Feb 89 - Oct 90	659	700+
27	F	Apr 88 - Jul 89	451	400+
39	M	Feb 90 - May 90	181	275
42	M	May 90 - Jul 91	262	200+

Table 3. Food items of Florida panthers in Everglades National Park.

Source	No.	FOOD ITEMS					
		Deer	Rabbit	Raccoon	Armadillo	Alligator	Other
Scats	250	167	54	17	9	2	15
Kills	95	61	3	12	1	7	11
TOTALS	345	228	57	29	10	9	26
% Occurrence		66	16	8	3	3	8

Figure 1. Landscape composition and composite home range of Florida panthers in south Florida (from Smith and Bass, in prep.).

Figure 2. Home ranges and core activity areas of six radio-collared Florida panthers in Everglades National Park and adjacent lands in south Florida (from Smith and Bass, in prep.).

Figure 3. Preliminary home range of Florida panther #23.

Figure 4. Preliminary home range of Florida panther #39.

Figure 5. Preliminary home range of Florida panther #42.