

Panthers 🐾 Kittens 🐾 Scientists

# TRAILS & TAILS

the endangered

*Florida Panther*  
of the **PICAYUNE  
STRAND**

**SAVING  
THE  
FLORIDA  
PANTHER**  
WHAT YOU CAN DO



# Saving the Florida Panther

Florida's leaders decided decades ago that protecting native Florida lands is critical to preserving a high quality of life for all Floridians. Since 1964 the state has bought millions of acres through a variety of programs such as the Environmentally Endangered Lands program, Conservation and Recreation Lands program, Save Our Coast and Save Our Rivers programs, Preservation 2000 and Florida Forever. Parks and preserves exist all over the state.

On the southwestern coast of Florida, the area now most critical to survival of the panther, large areas of panther habitat are located within parks, preserves and refuges managed by the Department of the Interior. These areas include the 720,000 acre Big Cypress National Preserve, the 26,600 acre Florida Panther National Wildlife Refuge, and Ten Thousand Islands National Wildlife Refuge, Rookery Bay National Estuarine Research Reserve, and Everglades

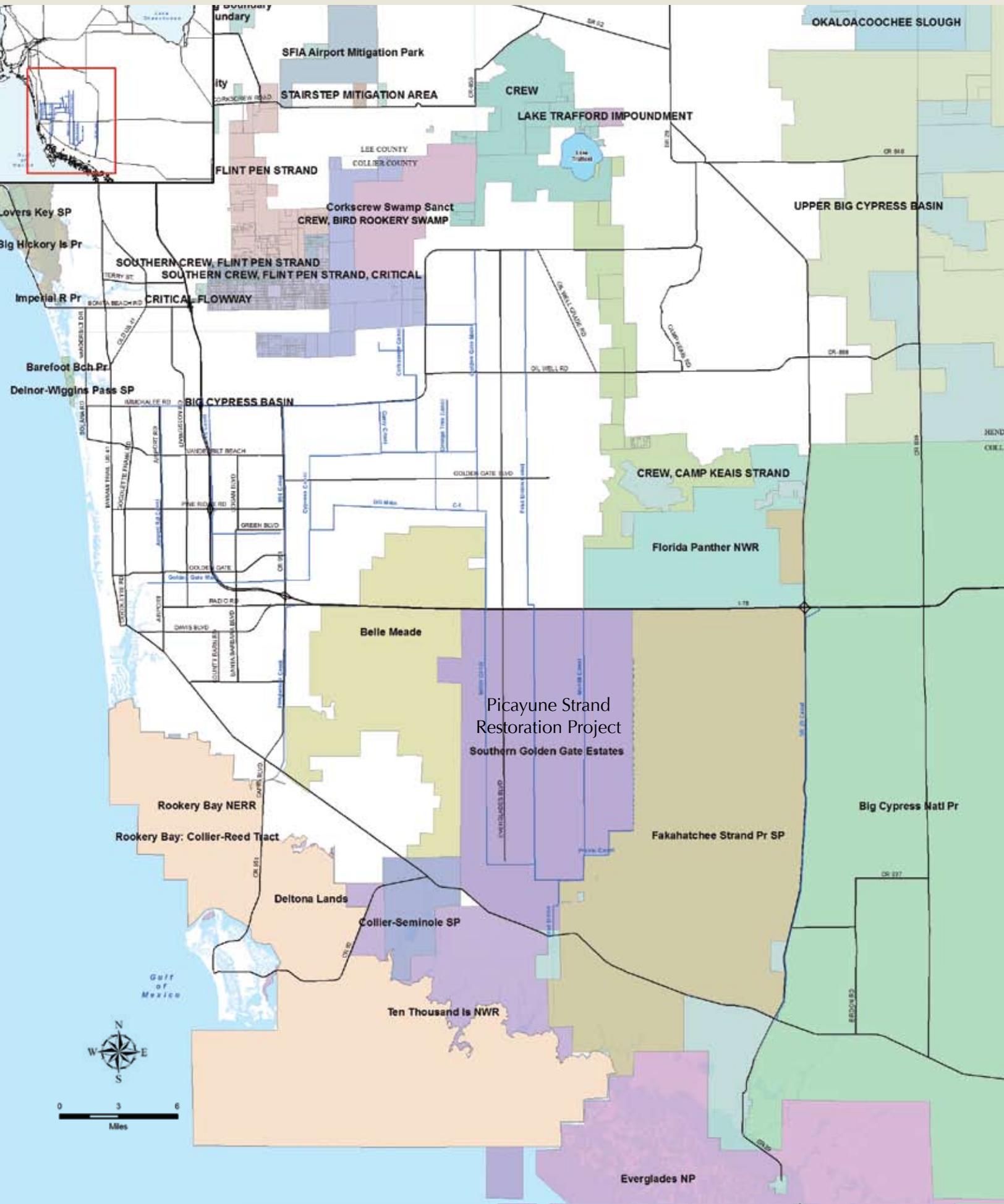
National Park. But, many acres of much needed habitat do not have a protected status.

State protected areas include the Picayune Strand State Forest, Fakahatchee Strand Preserve State Park and Collier-Seminole State Park.

For more information about the Florida panther, visit:  
[www.fws.gov/floridapanther](http://www.fws.gov/floridapanther)



# Public lands surrounding the Picayune Strand Restoration Project area.



# *Panthers are Fighting to Survive*

**T**he number of Florida panthers remaining in the wild changes as new kittens are born and panthers die from various causes, but scientists estimate that there are only about 100 to 120 Florida panthers in existence.

Many factors have contributed to the decline in the Florida panther population. In the 1800s and early 1900s, panthers were hunted, not only for their fur, but because early settlers considered them a threat to their safety and to their livestock. Over time, Americans developed a greater desire to protect this country's wildlife. In

1958, the panther was given complete legal protection by the Florida Game and Fresh Water Fish Commission.

It was removed from the native game animal list and hunting Florida panthers became illegal.

Yet, the panther population continued to decline into the 1970s. Biologists soon began to understand that destruction of the panthers' habitat was a principal cause of the cat's decline.

Today, the greatest threats to the panther's survival are a combination of small population size, isolation and loss of habitat.

## *What is inbreeding and why is it a problem?*

In the Florida panther population, geographic isolation, habitat loss and small population size have resulted in inbreeding and significant loss of genetic variability and health. Inbreeding is the mating of closely related individuals in an isolated group of organisms.

Inbreeding tends to increase the appearance of recessive, often undesirable traits. In the Florida panther population, this has taken the form of relatively harmless characteristics such as cowlicks and crooked tails.

Scientists have found other, more serious physical problems caused by inbreeding. These problems include atrial septal defects (a hole in the heart), and reproductive problems that endanger the survival of the entire species. Reproductive defects include abnormal and poor quality sperm and Cryptorchidism. This condition occurs when one or both testicles fail to descend and move outside a maturing male panther's body. The lower temperatures outside the body are critical to the production of viable sperm and reproductive success.

Because inbreeding undermines the viability of the Florida panther population, large tracts of land and wildlife corridors must be preserved.



photo by Dave Onorato, FWC



photo by Dave Onorato, FWC

*Increasingly, panther territory is becoming people territory.*

photo by Bob Reppenning



*This panther was lucky, but they don't always make it across roads. Highway mortalities increase as roads are built and additional cars use those roads.*



photo by Dave Onorato, FWC

*A sign warns drivers to watch carefully for panthers, but the big cats roam at night, when drivers can't easily see them.*

photo by Ricky Pires



*Wildlife underpasses help to keep wide-ranging animals such as panthers and black bear safe as they cross roads located within their large territories. When people preserve large tracts of land and provide corridors between those areas, they can protect "umbrella" species such as the Florida panther. Protecting the habitat of umbrella species protects the other wildlife that live there, too.*



photo by Darrell Land, FWC

*A highway mortality occurred next to a warning sign that requires reduced speed at night to avoid collisions with panthers and other wildlife.*

# Capturing and tagging panthers: the process in photos



1 Florida panther capture team members may spend days or weeks tracking the cats in areas that are remote and difficult to access. They sometimes carry heavy gear long distances on foot.

2 Specially trained hounds are an important part of the capture team. Here, Frankie has tracked and treed a panther. Frankie bravely barks and tries to keep the cat at bay until the rest of the team arrives. Hounds must be both careful and courageous because they not only deal with panthers, but they also encounter alligators and snakes.

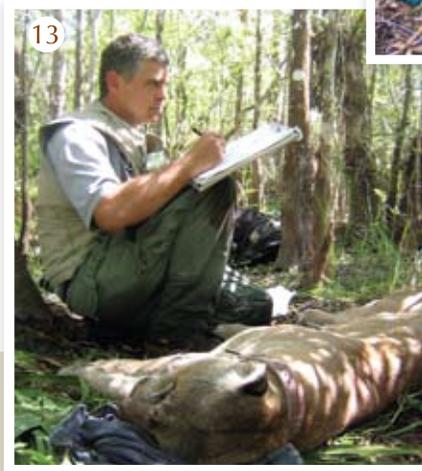
3 An expert houndsman and marksman with 25 years of experience, Roy McBride takes careful aim with an air rifle loaded with a tranquilizer dart. McBride is able to accurately estimate the weight of an animal. The team veterinarian uses this information to calculate the correct dosage to use in the dart.

4 A shot is well-placed on the rump of the cat. The anesthetic takes effect within minutes and the team quickly moves into place.

5 The panther is far up a pine tree. Team members are prepared for just about anything, including climbing trees up to 45 feet to secure and bring the panther safely to the ground.

6 The team quickly assembles a "crash bag" to provide a cushion for the cat. The crash bag is made up of air-filled trash bags held within a larger partitioned bag. Depending on the situation, the team may also use a safety net as an extra precaution.

7 A team member uses tree-climbing spikes and a safety harness to climb the tree and retrieve the sedated cat. Using a security rope, the cat is slowly lowered to the ground.



8 Team members quickly ensure the panther is doing fine before they begin testing.

9 Biologists use a caliper to accurately measure the front pad of the panther. The information is part of the basic biometric data that is collected, including weight, length, and height at the shoulder.

10 As one team member tattoos a number on the inside of the panther's ear (the tattoo is a backup for a transponder tag), other team members work simultaneously. One biologist monitors the heart rate, while another shaves fur that will be tested for environmental contaminants such as mercury. An "IV," or intravenous drip, helps keep the cat hydrated and cool. Captures are physically strenuous, and scientists work together as a team, rotating jobs to keep everyone fresh.

11 Wildlife veterinarian, Dr. Mark Cunningham, uses a stethoscope to listen to the heart and lungs of the still-sedated panther.

12 Dr. Cunningham "sets up office" at the capture site. Whenever people have surgery and anesthesia is used, doctors caution that there are always risks. During captures, the risks to the animal are considerable, so each team includes a veterinarian and over 100 pounds of emergency equipment, including water, medication, and oxygen. Dr. Cunningham says they try to take every precaution possible. In addition to the standard stethoscope and thermometer, Dr. Cunningham carries an "IV," vaccines for rabies and viruses such as feline leukemia, and vials for blood samples.

13 Dr. Cunningham records data including the gender (male or female), approximate age, whether a female is pregnant or nursing, whether testicles have descended in males (this helps to determine age or may indicate physical problems), scars or other identifying marks, and where the cat is collared or not.

14 Biologists look at the wear patterns on the teeth to estimate the age of a cat. The panther is a meat-eating carnivore, and its teeth are designed for catching prey and eating meat. Panthers have four large, sharply pointed canine teeth for biting prey. Teeth called carnassials (pronounced "kahr-nas-ee-uhs") are used when the panther tilts its head and chews on one side of its mouth. Think about how a dog looks when it is gnawing on a bone.

# Kittens and Den Work

Scientists also work with kittens in the den to give them the healthiest start possible and to learn more about them. Because researchers normally fly over panther territory about three days a week to monitor the movement of radio-collared cats, they can usually tell if a panther has not moved for several days. If they notice that a female panther is staying in one place, it may indicate that the mother has denned and given birth to her kittens.

Typically, the mother remains at the den with the kittens for five to seven days after giving birth. That kind of consistent location reading is what prompts the scientists to try to pinpoint the location of the den.

The antenna on the tracking device is directional, meaning that the signal from the collar is strongest when the antenna is pointing directly towards it. The strongest signal indicates the direction of the panther.

When the collared mother panther and den are located, scientists set up an innovative and time-and-money saving device called the “biologist-in-a box,” which was invented by Darrell Land of Florida Fish and Wildlife Conservation Commission (FWC). Before its development, scientists spent hours driving to remote den locations just to check the status of a panther.

## Biologist-in-a-box

A biologist-in-a-box is a device that allows scientists to monitor the presence or absence of a panther at a den allowing biologists to know when it’s safe to approach the site and examine the kittens.

Encased in a waterproof case, the biologist-in-a-box consists of a battery (right) that powers the cell phone (middle) and a radio telemetry receiver (left) that is set to the panther’s collar frequency and will beep if the collared panther is close by. The phone is connected to the receiver and is set to answer automatically. When scientists make a call, they hear whatever the receiver is detecting. If the panther is at the den, scientists will hear

the beep-beep-beep signal from the radio-collar. If she is away, they’ll only hear static.



photo by Mark Lotz, FWC

The biologist-in-a-box is set up in the field at the base of a tree. Biologists usually attach the H-shaped telemetry antenna and phone antenna to a tree, and aim them in the direction of the den and nearest cell phone tower to maximize signal strength.

The first time that the scientists monitoring the biologist-in-a-box



photo by Mark Lotz, FWC

Inside a Biologist-in-a-box

hear static over the phone, indicating the mother has left the den to hunt, they quickly move into action.

The mother typically has not eaten in several days and usually leaves the den sometime between sunset and sunrise. She stays out until she makes a kill, eats her fill and covers the cache with leaves. This normally takes several hours, giving the panther team plenty of time to process the kittens.

After that first kill, the mother's trips away from the den are relatively short because she will head straight to the kill, grab a quick bite, and return fairly rapidly. It's not until she has to make another fresh kill, which requires more time, that the scientists will have another good opportunity to handle the kittens. Generally, this occurs when the kittens are about two weeks old.

It takes about 20 minutes on average to process a kitten, which includes determining sex, weighing, de-worming, inserting a transponder, taking a biopsy and hair samples, and collecting a fecal sample.

A transponder is a small microchip about the size of a grain of rice encased in glass. Biologists insert it just below the skin between the shoulder blades. It is the same device many people use to identify their pets and provides a permanent means to identify an individual. The chip contains a unique alphanumeric code (letters and numbers). It can be read with a portable scanner, and it won't wear out because it has no moving parts.

photo by Mark Lotz, FWC



photo by Joe Bozzo



(Top) A team member gives de-wormer to a tiny kitten. Panthers are susceptible to the same types of diseases as domestic cats, and when the team captures both kittens and adults, they receive treatments such as de-worming and a feline leukemia vaccine, just like a domestic cat.

(Bottom) Biologists used radio-telemetry equipment, including this H-shaped antenna, to locate the high, dry den site of FP149. What is it like when they first reach the kittens? "They act all tough at first and growl," Mark Lotz says, "but it sounds more like a purr. They sometimes spit too, but soon wear themselves out."

# Kittens, kittens, kittens

*(one is cuter than the other!)*

FP148's kittens are carefully hidden in thick protective vegetation while their mother is out hunting.

FP148's kitten



FP140's kitten



FP149's kitten



photo by Mark Lotz, FWC



photo by Mark Lotz, FWC

(Left) Dave Onorato uses a mesh bag and scale to weigh FP107's squirming kitten, and records the information in a waterproof notebook.

(Right) Kathleen Smith wears a bug jacket with rope-like netting underneath a layer of mesh. This simple design creates a space that prevents an insect's stinger from coming in contact with the skin. An attached hood protects the face and neck.

There are many obstacles for kittens on the way to adulthood, and even mosquitoes can be a problem. The team visited one den where the mosquitoes were so horrendous that it was difficult for them to work. They observed that the kittens had unusual scabs and calluses on their noses. As soon as they finished with a kitten and set it down, it would immediately go into a "defensive"

posture – burying or hiding its face by placing it down against the ground between its front legs. It turns out that the kittens' noses were calloused because they were trying to protect themselves from the mosquitoes. Kitten fur does a pretty good job of protecting them from mosquitoes because it is thick and dense enough so the mosquitoes can't reach their skin. They are vulnerable around

the eyes, nose and mouth where the fur is thinnest.

The White Oak Conservation Center in Yulee, Fla. (north of Jacksonville) also cares for orphaned, sick, and injured panthers. Caretakers give the panthers live prey in a fifteen-acre pen to hone their predatory skills. Once proficient at capturing deer, their preferred prey, they are ready for release.



These two kittens were orphaned in the Florida Panther National Wildlife Refuge and biologists had to place them in captivity when they were only two weeks old. Since they were so young, they had to be bottle-fed and handled extensively by humans. The Jacksonville Zoo is the permanent home of these feline ambassadors.



This panther's picture was taken because its movement and body heat triggered the shutter of a specially-equipped camera.

# Turning Back Time for Picayune Strand and the Florida panther

“The crown jewel of habitat restoration projects, the 55,000-acre Picayune Strand contains some of the most important Florida panther habitat on the planet,” says Paul Souza of the U.S. Fish and Wildlife Service. “Restoring Picayune Strand lets us turn back time. We can restore this land to the way it was before humans thought it should be converted into a residential development.”

Scientists believe that plugging canals and removing roads on the now-abandoned Southern Golden Gate Estates residential development will help re-establish historic water flows and revive the land. Over time, plant communities will revert to those that were naturally occurring when the area was wetter. These changes in the “natural infrastructure” will improve the value of the on-site wildlife habitat for many species, including the Florida panther and its prey.

But how will scientists know if more panthers are using the land once the restoration project is complete? To evaluate the effect of the project on the Florida panther, scientists will compare pre-restoration data to post-restoration data.

Between May 2005 and May 2007, the U.S. Army Corps of Engineers commissioned a pre-construction panther-prey monitoring survey in the Picayune Strand restoration area. The U.S. Fish and Wildlife Service, which is responsible for recovery of the endangered Florida panther population in Florida, played a pivotal role in making this happen.

The study focused on the panther and its primary prey species, white-tailed deer and feral hog. Infrared remote cameras were placed at regular intervals across the site and were operated 24 hours a day. Biologists will use the data collected over two years as reference when post-restoration data is collected.

To hear Paul Souza, U.S. Fish and Wildlife Service, talk about the importance of Picayune Strand restoration, visit [www.evergladesplan.org](http://www.evergladesplan.org).



Paul Souza, U.S. Fish and Wildlife Service representative