

Florida Panther Recovery Implementation Team Meeting Summary

**August 20-21, 2013
Big Cypress National Preserve**

The meeting began with group introductions, including introducing Dawn Jennings as the new acting Florida Panther Recovery Coordinator. The focus of the meeting was to summarize and discuss the current status of eight priority recovery action items as identified in the Florida Panther Recovery Plan.

Priority Recovery Action Items

(1) Inventory and Monitoring (Tim O'Meara)

Currently, a minimum count of panthers is derived using data from radio-collared cats and tracks and other sign. Approximately 25 panthers have radio collars at any given time. FWC has been collecting information on recruitment, survivorship, genetics and general health. A demographic model was developed that indicates the population growth rate was approximately 4% post genetic restoration (1995-2008). The model indicates the population growth rate is most sensitive to female survival and kitten survival.

Three techniques are being developed to obtain a better estimate of the Florida panther population:

1. Spatial capture/recapture with camera traps.
2. Mark/resight using radio telemetry and road kill data.
3. Mark/resight using biopsy darts (collect tissues sample to identify panthers and use road kills as recaptures).

Two data sets from camera traps at Florida Panther National Wildlife Refuge and Picayune Strand are available now. As more data sets are developed on other sites our ability to extrapolate to estimate total population numbers should improve.

There was discussion about why a "total number" of cats in Florida is needed as a population estimate. Some landowners feel that the current population is above the habitat carrying capacity in South Florida (south of the Caloosahatchee River) because there are more visual observations of panthers now than ever in the past. They feel they are carrying the burden of responsibility for conservation of the panther. It was suggested that we should be monitoring trends in the population rather than targeting an actual population number.

(2) Range Expansion and Reintroduction Potential (Larry Williams)

Progress has been made with the acquisition of the American Prime (Lone Ranger WRP) parcel for protecting panther dispersal across the Caloosahatchee River. There was a recent celebration in LaBelle to commemorate the 1 year anniversary of the American Prime parcel and recognize new efforts for conservation easements and conservation banks.

FWC Commissioners are now talking openly about expanding the panther's range across the Caloosahatchee River. They understand what is needed and why, however, that sentiment could change if the public was in opposition to it.

There is a distinction between "natural range expansion," where panthers are moving north of the river on their own, and "facilitated movement" of panthers across the river. There are anecdotal remarks about female panthers already crossing the river. There is no factual evidence of reproducing females north of the river.

Although there are no large blocks of public land immediately across the river, there are important private lands, so we will need to work with those landowners to prepare them for natural movements and possible facilitated introductions of panthers. Larry provided Team members with a draft "Decision Matrix" of tools that are available from the Service to possibly assist those landowners. The matrix provides pros and cons for Service alternatives, including programmatic Safe Harbor agreements, designating a section 10(j) experimental population, and developing Partners for Fish and Wildlife agreements.

There was also discussion about reintroducing panthers outside of Florida. An incentive-based program that is working in Florida will be fundamental to facilitating discussions with other states about reintroductions. It could also be problematic to consider reintroductions to other states given that western cougars are already moving eastward. We will need to look at how the reintroductions of other large mammals (wolves, elk, bison, etc.), particularly predators/carnivores, are working and learn from those. The Service's Regional Director will need to coordinate with the other State Directors before these conversations can occur.

The team requested a presentation on the modeling work that has been done on facilitating movement of panthers across the Caloosahatchee River. FWC also has their Cooperative Conservation Blueprint (CCB) that shows possible landscape corridors for a variety of species. Landscape models should include habitats other than just where panthers occur in South Florida.

We need to work with landowners in North Florida now. The Service is funding a grant with Dr. Elizabeth Pienaar (UF) to design landowner incentive programs from an economics perspective. Dr. Pienaar will be invited to a future meeting to present on her project.

We will also need to combine the tools available within the Service (decision matrix) with tools from other agencies (FWC, NRCS, etc.). Defenders of Wildlife developed a “Conservation Incentives Toolkit” that is a guide to federal and Florida conservation incentive mechanisms that can be used by landowners and managers, agencies and NGOs as a reference. That document is available on FWC’s website as a 2008 CCB project report. In an unpublished report Defenders also reviews about 25 other states for programs that showed promise for being used in Florida.

(3) Genetic Management Plan (Kipp Frohlich/Dave Onorato)

The history and background of the Florida panther genetic management plan was presented. In 1995, eight female Texas cougars were released in Florida. Five of the eight females produced 20 kittens. All of the female Texas cougars were removed in 2003. The resulting offspring from this genetic reintroduction are referred to as “admixes,” not “hybrids.” Results were published by Warren *et al.* (2010) in Science.

Recommendations for moving forward include convening a genetics workshop to identify the genetic thresholds to monitor, incorporating genetics into recovery criteria, and outlining options regarding subsequent introgression events (how often to bring Pumas into Florida in the future).

(4) Programs for Private Landowners (Tom Jones)

Calf predation is a serious issue for private landowners in southwest Florida. Calf losses have increased since the panther population has increased; losses due to panthers are estimated at approximately 6%. The ranchers are providing panther habitat, and have done well managing the habitat, so they are requesting compensation for the calf losses while continuing to protect panthers. Because of the difficulty in assessing the number of calf mortalities that can actually be attributed to panthers, it might be better to provide compensation to landowners on a per acre basis.

Things to consider:

How to deal with current and future livestock losses with an expanding panther population?

How to get landowners to interact with government given the private lands access issues?

How to assure equitable distribution of compensation/funding in light of the diverse habitat, habitat management and agricultural operations on different farms and ranches?

Reference was made to the NRCS “Great Plains Conservation Program” - - a 10 year program with a management plan done in advance, where landowners were receiving payment for ongoing management. Having a finite period for that program was important, as the landowners didn’t want programs into perpetuity. Landowners also often don’t want guidance on how to manage their properties.

[extra note: The Great Plains Conservation Program (GPCP), initiated in 1957, provided cost share and technical assistance to apply conservation on entire farms in 10 Great Plains states from the Dakotas and Montana to Texas and New Mexico. Contracts were limited to \$35,000. At the end of 1995, over 6,800 farms in 558 counties with 20 million acres (81,000 km²) were participating. It was replaced by the Environmental Quality Incentives Program (EQIP) in the 1996 farm bill (P.L. 104-127)].

There was discussion about how such a program could be useful for landowners in South Florida who have panthers on their land.

Dr. Elizabeth Pienaar (UF) will be researching the various types of incentive programs to assess which programs are of most interest to landowners, and how they might be financed.

The Team mentioned creating a subteam on this topic, and appointing Dr. Pienaar to that subteam. There was a suggestion to consider a pilot project while Dr. Pienaar is conducting her research.

In addition, Scott Sanders (FWC) is looking at the different ways Farm Bill funding is allocated. Could it possibly be a source of funding for a compensation plan?

(5) Vehicular Mortality (Laurie McDonald)

There are a number of tools used to prevent Florida panther mortality on roads, including a range of wildlife crossing designs, expanded bridges, speed limits, signage including billboards and a new experimental Roadside Animal Detection System (RADS) that was installed last year on US-41 but has not become fully functional yet.

A draft list of Florida panther wildlife crossings was presented [a more comprehensive list for distribution was completed following the meeting]. Fencing is a very important component of these crossings, although some members of the public find the fencing unattractive and an impediment to accessing previously unfenced areas. The first and only privately-funded wildlife crossing was installed in 2010 on CR 846. Least cost analysis has been used to help identify best places to site crossings. We need to urge DOT to keep crossings in mind whenever roads will be widened, etc.

(6) Guidance for Habitat Restoration and Management (Kevin Godsea and Ron Clark)

There was discussion about the need for management guidelines and recommendations. Prescribed burning and restoration of hydrology are critical. Prescribed burns (typical rotations of 3-4 years) in pine stands increases browse yields for deer and improves the palatability and digestibility of understory plants. Care should be used with fire in hardwoods because trees will eventually be killed or their mast production severely reduced. In South Florida, growing season burns provide the most ecological benefit and nutrients to the deer herd. Winter or

non-growing season burns can be more effective to reduce the understory and midstory growth. Unburned areas provide necessary cover for deer and other wildlife and are used for panther denning.

Promoting diversity of pine flatwoods and hardwood forest is desirable. Intermediate thinning of pine stands is recommended to open the overstory and midstory and encourage diverse understory. A mix of herbaceous grass and palmetto or other hardwood shrubs is desirable to promote deer browse.

Habitat restoration initiatives should consider proximity to other natural areas, roads, wildlife crossings and design features that maximize edge effect. Restoration design should be planned to provide optimal needs for food, water, and cover for predator and prey. Panthers and prey are best adapted to the edge effect between habitat types. Therefore, restoration design should focus on habitat diversity, especially in areas where it is desired to increase the productivity of panthers and their prey. For wildlife corridors, restoration should focus on forest cover with small "trails" or a "ridge" to facilitate movement.

In South Florida, the hydroperiod has been significantly shortened, allowing for the encroachment of cabbage palms and invasive species. Higher unnatural densities of cabbage palms will increase fire intensity damaging the forest stand. It is recommended to restore the hydrology as much as practical and manage understory and mid-story growth through mechanical or chemical thinning to promote a diverse understory.

Picayune Strand is being reforested to increase the hydroperiod. The southwest Florida CERP Feasibility Study was cited as an example of good watershed management. Big Cypress National Preserve is rain driven and altered-canal driven. If it is restored to reduce the flow to sheet flow and hydrate areas longer it will become more fire resistant and will then be better for panthers. There was concern expressed about the east coast getting too wet for panthers.

We need to identify what the restoration needs are and specifically where to invest the effort. Public lands and WRP easements should be looked at first for restoration potential. It was mentioned that we should target an area on American Prime or Dinner Island Ranch WMA for particular management or restoration. The Service is working with NRCS on WRP designs north and south of the Caloosahatchee River. We also need to consider what function we need the land to serve (i.e., primary habitat or corridor).

Lands that have been converted to improved pasture or agriculture can be restored to historical conditions or enhanced to be more productive for prey species. The edge effect, habitat diversity, and geo-spatial proximity to other productive landscapes should be considered in the planning and design of reforestation efforts. Reforestation efforts that resemble pine plantations should be avoided as they are generally not productive for deer or panthers.

There is a perception of better management on private lands than public land. It was noted that agricultural lands were chosen for farming and ranching because of their more productive

soils. There are also burn restrictions on public land. With grazing on private lands wildlife are more visible on open spaces and there is an edge effect. Without grazing, pastures become weedy and wildlife are not as visible.

The Service's At Risk Species initiative was mentioned. There is a desire to enroll landowners in Candidate Conservation Agreements with Assurances for implementing Best Management Practices to conserve at risk species. This effort could overlap with other landowner incentives programs.

It was also mentioned that the Florida Panther Recovery Plan focuses a lot on managing for exotics and it should include more than that.

There were a number of questions raised during this discussion:

- Will Picayune Strand restoration make panthers move to the Collier Property? That shouldn't happen because the spreader dike will take water from the north to south and disperse it.
- Can it be too wet for panthers?
- Is there restoration that would be good for the ecosystem restoration but bad for panthers?
- Can mitigation funding be directed toward restoration rather than something else?

(7) Panther Recovery Criteria (Larry Williams)

The demographic recovery criteria in the Florida panther Recovery Plan are as follows:

- Reclassification will be considered when: Two viable populations of at least 240 individuals (adults and subadults) each have been established and subsequently maintained for a minimum of twelve years (two panther generations; one panther generation is six years).
- Delisting will be considered when: Three viable, self-sustaining populations of at least 240 individuals (adults and subadults) each have been established and subsequently maintained for a minimum of twelve years.

The Service has funded a project with Dr. Madan Oli (UF) and Madelon van de Kerk (PhD student) to develop a spatially-explicit individual-based population model for the Florida panther. This effort will provide insight into the viability criteria in the recovery plan. Members of the Team asked to make sure we are getting what we want from this project, and they asked for a list of all known ongoing research for the Florida panther.

It was mentioned that the Service uses the five ESA factors to evaluate listings, reclassifications and delistings in addition to recovery criteria.

(8) Panther Taxonomic Status (Dawn Jennings)

A brief history of the taxonomy of the Florida panther was presented, leading to the assignment of the subspecies *Puma concolor coryi*. As such, the Florida panther is one of 15 recognized subspecies in North America (32 subspecies throughout the Americas).

In 2000, however, Dr. Melanie Culver and associates investigated the genomic ancestry and diversity in puma populations by examined genetic markers (3 mitochondrial DNA genes and 10 nuclear microsatellite DNA loci) from 315 pumas in North, Central and South America. After reviewing the genetic diversity and population structure analysis, they could not confirm the previous classification of 32 subspecies and could only recognize six subspecies of Puma. They suggested all North American puma be reclassified as a single subspecies (*P. c. cougar* – the name given to the Eastern North America puma) due to lack of genetic structure.

Since the publication of Culver *et al.* (2000), Mammals of the World only recognizes the single North American subspecies. Puma biologists were apparently not consulted for the Mammals of the World taxonomic revision. Some puma biologists accept the revised taxonomy, while others contend that genetic information should be evaluated with morphological, ecological, and behavioral considerations when making subspecies determinations. In addition, Culver *et al.* (2000) offered no evaluation of the existing subspecies of Puma. Nonetheless, these authors provide valuable genetic insights into the historical context, origin, and genetic relationship between the North American puma populations.

In 2011, the Service's Northeast Region conducted a 5-year Review of the Eastern cougar (*P. c. cougar*) and determined the subspecies to be extinct in the wild. From that review, the Service determined that the best available information supports maintaining the previously described subspecies of Puma (from Young and Goldman 1946), and states that a full taxonomic analysis is necessary to conclude that a revision to the Young and Goldman (1946) taxonomy is warranted. Because the Eastern cougar has been declared extinct, the only remaining, known reproducing population of Puma in the East today is that of the Florida panther.

If the Service conducts additional research on the taxonomic status and determines that all North American puma are one subspecies, they could consider conducting an analysis to determine if the Florida panther qualifies as a Distinct Population Segment (DPS). The factors to consider for determining a DPS are Discreteness and Significance, as outlined below:

Discreteness:

- It is markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors. Quantitative measures of genetic or morphological discontinuity may provide evidence of this separation and/or

- It is delimited by international governmental boundaries within which differences in control of exploitation, management of habitat, conservation status, or regulatory mechanisms exist that are significant.

Significance: If a population segment is considered discrete, one or more of these can be considered:

- Persistence of the discrete population segment in an ecological setting unusual or unique for the taxon,
- Evidence that loss of the discrete population segment would result in a significant gap in the range of a taxon,
- Evidence that the discrete population segment represents the only surviving natural occurrence of a taxon that may be more abundant elsewhere as an introduced population outside its historic range, or
- Evidence that the discrete population segment differs markedly from other populations of the species in its genetic characteristics.

Prioritization of Florida Panther Recovery Action Items

The goal of this session was for the Team to identify the highest priority action items, from the list previously discussed, that they consider the most urgent for recovery of the Florida panther. To prioritize the action items, the Team members ranked them individually as High (3 points), Medium (2 points) or Low (1 point). The tallied results from all members are as follows:

- 1.) Inventory and Monitoring = 19
- 2.) Range Expansion and Reintroduction Potential =18
- 3.) Genetic Management Plan = 10
- 4.) Programs for Private Landowners= 21
- 5.) Vehicular Mortality = 10
- 6.) Guidance for Habitat Restoration and Management =11
- 7.) Panther Recovery Criteria = 18
- 8.) Panther Taxonomic Status = 11

The four highest priority recovery actions from this list for the Team to focus on are: Programs for Private Landowners; Inventory and Monitoring; Range Expansion and Reintroduction Potential and Panther Recovery Criteria. Some of the continuing discussion of these specific action items is captured below:

Programs for Private Landowners

We need on-the-ground action and recommendations for moving forward with a resolution concerning an acreage-based compensation program. Let's frame the problem, understand where we are currently, and decide if we need to make changes. Reference the Service-funded project with Dr. Elizabeth Pienaar (UF).

FWC advertised for a Landowner Incentive Program biologist position to be located in south central Florida (north of the Caloosahatchee River). That position will predominantly work on panther issues, and is being called a Landowner Assistance Panther Specialist. The goal of that position is to ensure that everyone working on private lands issues is communicating with each other.

There needs to be an outreach program component associated with this action so agencies will be able to communicate with the public (human dimension for public perception and social acceptance), especially when we consider range expansion and reintroduction. That effort will be different from the “response plan,” the assistance and informational materials that are ongoing now for areas where panthers exist in the suburban/rural areas (Golden Gate Estates, etc.).

One of the highest priorities for landowners where panthers occur now is landowner compensation for the loss of livestock, particularly calves.

Inventory and Monitoring

We need to continue to move forward with the three new techniques for monitoring panthers:

1. Spatial capture/recapture with camera traps.
2. Mark/resight using radio telemetry and road kill data.
3. Mark/resight using biopsy darts (collect tissues sample to identify panthers and use road kills as recapture).

We need to identify demographic parameters that are important to monitor, set target values for those parameters, and determine how best to monitor to assess the status of the panther population.

Stakeholders are wondering why aerial surveys are being done 3x/week. These surveys have produced data valuable for understanding the species' biology and supporting management. Multiple weekly surveys allow us to locate carcasses and determine cause of death and to locate dens for monitoring reproduction. Telemetry information has validated that intraspecific aggression is the primary cause of mortality, followed by vehicular mortality.

Team members can help make decisions about how to continue the monitoring and determine what techniques to use. For example, do we stop flying and use cameras or GPS collars? Do we need to have an estimate of population size? Should we monitor parameters such as kitten survival, population growth rate, and disease? Could these techniques be used on private lands? Are there willing landowners? Can we improve monitoring efforts north of the river? Should we use GPS collars on panthers north of river? The Team could provide direction concerning these questions and timeframes for action. We should also provide alternatives and pros/cons for using telemetry and other monitoring techniques for gathering information on population trends, kitten survivorship and recruitment, and female survivorship.

Range Expansion and Reintroduction Potential

The Team agreed that the recovery goal for the Florida panther is unattainable without expanding its range. Action is needed sooner rather than later because of the availability of habitat now.

The Team also acknowledged that outreach to private citizens is critical, and that any conversations need to be very well thought out. We need to consider how to prepare people for panthers that are moving north of river on their own, for any facilitated movement of panthers north of river, and for facilitated expansion into other states.

If panthers are able to become established north of the river it will take the burden off of landowners south of the river for having the responsibility of managing the species. Landowners in South Florida could receive funding as an incentive for providing Ecosystem Services and landowners in North Florida could receive regulatory relief.

We need to start the process of providing regulatory relief to landowners north of the river now, such as using the alternatives from the draft Decision Matrix and other incentive programs, regardless of whether we move panthers or they move on their own. Landowner agreements will also be needed for lands surrounding any public lands where panthers are reintroduced.

We need to look at the Thatcher *et al.* (2009) publication and available habitat models to determine what areas are being managed north of the river that would provide good habitat for the panther. Then we need to address the socio-economic impacts of reintroduction.

The Service should be responsible for talking to other states about why we need to translocate panthers. Suggestions for the conversation could include: we need to try to recover the panther, the panther's ecology is unstable, landowners in South Florida are carrying the burden of conserving this species right now, we are reintroducing a natural predator (*i.e.*, for the elk that have recently been reintroduced on public lands in the East). We need to "demystify" panthers to the public and involve citizens to become stewards for a reintroduction program. There also needs to be more active public support for the Florida Wildlife Legacy Initiative and the Florida Forever program in order to provide funding for land acquisition and conservation easements with willing landowners.

We need examples to demonstrate where panther/human interactions are working. Examples cited include the response team, sportsmen's groups, the HCP for eastern Collier County and conducting a landowner pilot study.

Panther Recovery Criteria

The Team needs direction about this topic to provide to a subteam. One of the first things needed is an update on the population model from Madan Oli (UF) and Dave Onorato (FWC) to make sure that this model is addressing what we want. We need to understand the science,

determine what else we need, know what represents the best matrix for recovery, and determine whether the criteria in the Recovery Plan are the correct ones to use.

Federal Advisory Committee Act

The Federal Advisory Committee Act (FACA) governs the establishment, management, and operation of groups, meetings, task forces, committees, and other similar groups that qualify as “federal advisory committees” under the Act. Specifically, FACA:

- Defines what constitutes a Federal advisory committee;
- Governs the creation, operation, and termination of advisory committees;
- Requires agencies to use open meetings and public involvement; and
- Ensures that Congress and the public are informed about the number, purpose, membership, activities, and costs of advisory committees.

FACA applies to groups that are established or utilized by a Federal official, include at least one member who is not a Federal Government employee, and provide group advice and recommendations to a Federal agency or the President.

According to the Code of Federal Regulations, Recovery Teams are exempt from FACA.

The Service can include stakeholders on subcommittees set up for particular issues, however, according to FACA, they cannot ask for and cannot accept consensus recommendations nor can they convene regularly scheduled meetings with the same group of invited participants. None of these groups or individuals can be given decision-making authority without going through very specific procedures.

If the Team decides to include subteams to help address all or some of the priority recovery actions, FACA will apply unless the subteam members are also appointed by the Service’s Regional Director. The process for appointing subteam members is the same as for current Team members.

We might want to consider selecting subteams to assist with the highest priority action items.

We considered the benefits of working with existing work groups that needn’t be part of the FACA committee.

A “Terms of Reference, “ as used in the Service’s Recovery Planning Guidance, could be useful for this Recovery Implementation Team and any established subteams.

In general, a Terms of Reference serves the following purposes:

- Clarifies the purposes of the team and expected products

- Details the responsibilities of the Service with respect to the team
- Details the roles of team members, the Team Leader, and the Team Liaison/Recovery Coordinator
- Describes the operating rules of the team
- Addresses the formation and duties of sub-committees, workgroups, and other groups
Emphasizes the confidentiality of drafts and internal documents

Next Steps

Programs for Private Landowners

We need an accounting of all landowner incentive programs - - Defenders of Wildlife did that for FWC as part of the Cooperative Conservation Blueprint effort. A link to that document is on the FWC website.

We need to develop a Payment for Ecosystem Services (PES) program that is specific to panthers. That program would need to relate to other programs currently available. We also need to better understand how to develop a private lands pilot project.

The Team wanted to wait to decide about forming a subteam for this topic until after they learn more about the landowners' incentive programs that are available.

Action Items ongoing/completed since the meeting:

- Kevin sent a list of landowner incentive programs from the Florida Invasive Species Partnership
- Dawn sent a weblink to the Defenders' "Conservation Incentives Toolkit"
- Tom distributed the PFLCC Landowner Incentives Working Group's white paper
- Dawn asked Scott Sanders to attend the next meeting. He will attend and present on FWC's Landowner Incentives Program.
- Dawn invited Russell Morgan (NRCS State Conservationist) to the next meeting and he plans to attend.

Inventory and Monitoring

FWC has the staff to evaluate the three inventory and monitoring techniques and present that information to the Team. The Team can decide which of those techniques is most important or if all of them should be done. The Team can also decide whether a population estimate is needed and, if so, how much effort we want to put into that.

A manuscript will be available soon on the technique of mark/resighting using radio telemetry and road kill data.

Range Expansion and Reintroduction Potential

The Service needs to provide more information to the Team about the various alternatives included in the draft “Decision Matrix” as possible landowner incentives.

We need to revisit the summary from the Human Dimensions of Carnivore Conservation meeting at White Oak Plantation in 2010.

Action Items ongoing/completed since the meeting:

- Dawn invited Elizabeth Pienaar (UF) to the next meeting, however she is unable to attend
- FWC has hired a Landowner Assistance Program biologist to work with private landowners on Florida panther range expansion (not reintroduction). That position will start on Oct 25th.

Panther Recovery Criteria

Action Items ongoing/completed since the meeting:

- Dawn invited Madon Oli (UF) to the next meeting and he and Madelon van de Kerk plan to attend and present information about the panther population modeling effort.
- Dawn is compiling a list of ongoing research and monitoring projects for the panther.

Guidance for Habitat Restoration and Management (tied for 5th ranked priority)

The focus should be on habitat restoration, as most members felt that managing for panther habitat is well understood. We need to identify what the habitat restoration needs are as well as the opportunities that are available for public and private lands.

A subteam for this topic could contribute hydrological or botanical expertise, and knowledge of the relationship between panther and prey populations. They could guide where restoration efforts could occur.

The Team recommended that Tom Hoctor (UF) and a representative from the Florida Division of Forestry be appointed to a subteam for this topic.

We will need to write a summary of what we want this subteam to do.

Panther Taxonomic Status (tied for 5th ranked priority)

The Service also needs to clarify its “position” concerning Puma taxonomy - - that they accept previous subspecies designations rather than the findings of Culver *et al.* (2000).

Next Meeting: Oct 22-23 in Gainesville