UF IFAS Extension UNIVERSITY of FLORIDA

WEC345

Habitat Requirements of the Florida Panther[1]

Elizabeth F. Pienaar and Elena C. Rubino[2]

Introduction

The Florida panther (*Puma concolor coryi*) was listed as endangered under the Endangered Species Act in 1967 (Richardson and Main 2008). Habitat loss and fragmentation are primary threats to the Florida panther (Beier et al. 2003). The loss of panther habitat is being driven by urban development and the conversion of rangelands to row crops, citrus production, and mining (e.g., limerock mining).

Panther recovery depends on securing and protecting habitat of sufficient quality, quantity, and spatial configuration to support viable panther populations in the long run (US Fish and Wildlife Service 2008). In order to achieve effective panther habitat conservation, it is important to:

1. understand how panthers use different habitat types,
2. manage panther habitat on public lands, and
3. find the appropriate mix of market-based incentives and regulatory interventions to protect habitat on private lands (Land et al. 2008).

This document focuses on which habitats are most important for conservation of the Florida panther. It does not address human-panther conflicts or how panther conservation on private lands affects landowners.

Landscape Characteristics

Florida panthers are habitat generalists. This means that panthers use different types of habitat (Onorato et al. 2011; Benson et al. 2008; Land et al. 2008; Kautz et al. 2006), including:

- forests (upland hardwood forest, wetland forest, pinelands, and coniferous forest);
- swamps and marshes (hardwood swamps, cypress swamps, and freshwater marsh), and
- rangelands (dry prairie, grasslands, pasturelands, and citrus groves).

Florida rangelands are particularly important for panther conservation. Rangelands provide a mosaic of native habitats, forested areas, unimproved and improved pasture, and agricultural croplands that support the panther and its prey. Within these rangeland habitats, panthers need areas of dense, ground-level cover for stalking prey, denning, and resting during the day (Florida Panther Recovery Implementation Team 2014; Main et al. 2004). Florida panthers are ambush predators rather than pursuit predators. They use forest and brush cover to stalk their prey. Once they are close to their prey they use a single bound or a short sprint to catch it.

The Florida panther's ability to use heterogeneous landscapes means that efforts to conserve habitat for the panther should not focus on a single habitat type. Instead, habitat conservation should focus on maintaining and increasing

1. This document is WEC345, one of a series of the Wildlife Ecology and Conservation Department, UF/IFAS Extension. Original publication date October 2014. Visit the EDIS website at http://edis.ifas.ufl.edu.

2. Elizabeth F. Pienaar, assistant professor, Human Dimensions of Wildlife, Department of Wildlife Ecology and Conservation, UF/IFAS Extension; and Elena C. Rubino, PhD student, School of Natural Resources and the Environment, UF/IFAS Extension, Gainesville FL 32611.

habitat contiguity, which is the connectivity of habitat, or how uninterrupted or fragmented the habitat landscape is (Olff and Ritchie 2002). On private rangelands the focus should be on keeping rangelands as native habitats or livestock grazing lands, in particular unimproved pasture.

Range and Habitat Connectivity

Because Florida panthers are a wide-ranging species, they require habitat conservation and management on large tracts of land. Home range sizes depend on the availability and abundance of prey and the availability of suitable habitat. The size of home ranges for male panthers also depends on access to female panthers for breeding. The size of panthers' home range is 435 to 978 km^2 for male panthers and 193 to 396 km^2 for female panthers (Thatcher et al. 2009; Comiskey et al. 2002; Maehr et al. 1991; Belden et al. 1988). As a result of these extensive home ranges, large, contiguous tracts of land are required to sustain viable panther populations.

Roads are a particular obstacle to panther conservation, acting as an impediment to panther movement (Schwab and Zandbergen 2011). Although panthers extensively use highway underpasses where they are available, vehicle-related mortality remains a serious threat to panther recovery. Research suggests that vehicle collisions are the third most common cause of panther mortality (Benson et al. 2011).

Conclusion

The Florida panther's ability to use heterogeneous landscapes that include forests, swamps, and rangelands allows the species to inhabit a broad range of habitat areas (Land et al. 2008). Rather than focusing on preserving one type of habitat, panther conservation efforts should aim to protect large swaths of contiguous habitat—preferably with few major roads—in order to create the home-range sizes that panthers require (Schwab & Zandbergen 2011; Thatcher et al. 2009).

References

Beier, P., M. R. Vaughan, M. J. Conroy, and H. Quigley. 2003. "An analysis of scientific literature related to the Florida panther." Florida Fish and Wildlife Conservation Commission, Tallahassee, Florida.

Belden, R. C., W. B. Frankenberger, R. T. McBride, and S. T. Schwikert. 1988. "Panther Habitat Use in Southern Florida." *The Journal of Wildlife Management* 52(4): 660-663.

Benson, J. F., J. A. Hostetler, D. P. Onorato, W. E. Johnson, M. E. Roelke, S. J. O'Brien, D. Jansen, and M. K. Oli. 2011. "Intentional genetic introgression influences survival of adults and subadults in a small, inbred felid population." *Journal of Animal Ecology* 80: 958-967.

Benson, J. F., M. A. Lotz, and D. Jansen. 2008. "Natal Den Selection by Florida Panthers." *The Journal of Wildlife Management* 72(2): 405-410.

Comiskey, E. J., O. L. Bass, L. J. Gross, R. T. McBride, and R. Salinas. 2002. "Panthers and Forests in South Florida: an Ecological Perspective." *Conservation Ecology* 6(1): 1-31.

Florida Panther Recovery Implementation Team. 2014. *Partners for Fish and Wildlife program Proposal for Managing Native Landscape on Private Lands in the Florida Panther Focus Area*. Concept Paper. 19 pp.

Gates, J. E. and L. W. Gysel. 1978. "Avian Nest Dispersion and Fledging Success in Field-Forest Ecotones." *Ecology* 59(5): 871-88.

Iriarte, J. A., W. L. Franklin, W. E. Johnson, and K. H. Redford. 1990. "Biogeographic Variation of Food Habits and Body Size of the America Puma." *Oecologia* 85(2): 185-190.

Kautz, R., R. Kawula, T. Hoctor, J. Comiskey, D. Janesen, D. Jennings, J. Kasbohm, F. Mazzotti, R. McBride, L. Richardson, and K. Root. 2006. "How much is enough? Landscape-scale conservation for the Florida panther." *Biological Conservation* 130: 118-133.

Land, E. D., D. B. Shindle, R. J. Kawula, J. F. Benson, M. A. Lotz, and D. P. Onorato. 2008. "Florida Panther Habitat Selection Analysis of Concurrent GPS and VHF Telemetry Data." *The Journal of Wildlife Management* 72(3): 633-639.

Maehr, D. S., R. C. Belden, E. D. Land, and L. Wilkins. 1990. "Food Habits of Panthers in Southwest Florida." *The Journal of Wildlife Management* 54(3): 420-423.

Maehr, D. S., E. D. Land, and J. C. Roof. 1991. "Social Ecology of Florida Panthers." *National Geographic Research and Exploration* 7(4): 414-431.

Main, M. B., G. M. Allen, and M. E. Sunquist. 2004. *Florida's Large Carnivores.* WEC 183. Gainesville: University of Florida IFAS Extension. Available at: http://edis.ifas.ufl.edu/uw201

Olff, H. and M. E. Ritchie. 2002. "Fragmented Nature: Consequences for Biodiversity." *Landscape and Urban Planning* 58(2-4): 83-92.

Onorato, D. P., M. Criffield, M. Lotz, M. Cunningham, R. McBride, E. H. Leone, O. L. Bass Jr and E. C. Hellgren. 2011. "Habitat Selection by Critically Endangered Florida Panthers Across the Diel Period: Implications for Land Management and Conservation." *Animal Conservation* 14: 196-205.

Richardson, L. W., and M. B. Main. 2008. *Did I See a Panther?* WEC 145. University of Florida IFAS Extension. Available at: http://edis.ifas.ufl.edu/uw144

Schwab, A. C. and P. A. Zandbergen. 2011. "Vehicle-related Mortality and Road Crossing Behavior of the Florida Panther." *Applied Geography* 31: 859-870.

Thatcher, C. A., F. T. Van Manen, and J. D. Clark. 2009. "A Habitat Assessment for Florida Panther Population Expansion into Central Florida." *Journal of Mammalogy* 90(4): 918-925.

U.S. Fish and Wildlife Service. 2008. Florida Panther Recovery Plan (*Puma concolor coryi*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 217 pp.