

Mercury Contamination: Another Threat to the Florida Panther

One of the nation's most critically endangered animals, the Florida panther (*Felis concolor coryi*) is believed to number only 30 to 50 animals in the wild, according to an Endangered Species Technical Bulletin by Dennis Jordan, Florida Panther Coordinator for the USFWS's Florida Cooperative Fish and Wildlife Research Unit.

The bulletin (Feb. 1990, Vol. XV No.2) ascribes the subspecies' decline to habitat loss, a reduction in the prey base, and the killing of panthers by people. But it also notes that recent information indicates an additional serious threat: contamination from mercury, a toxic metal. Extremely high levels of mercury – over 100 parts per million – were found in the liver of a panther that died in the Everglades last summer. Until her death in July 1989, the 4-year-old female (known to researchers as #27) had been radio-tracked by Everglades NP daily for about 15 months.

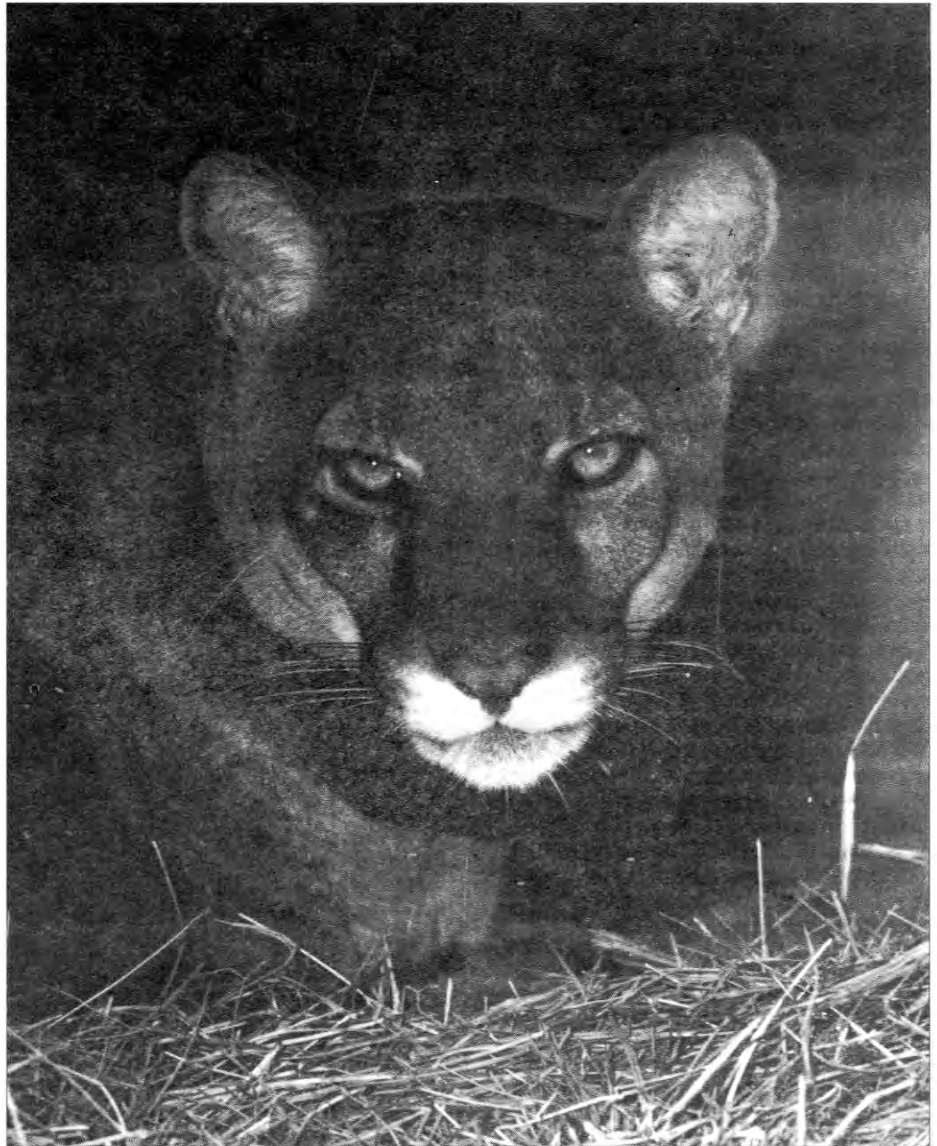
The current US Food and Drug Administration's action level for mercury in fish is 1.0 ppm; concentrations as high as 4.4 ppm have been documented in largemouth bass (*Micropterus salmoides*) filets from sites in southeast Florida. Samples from one section of Everglades NP exceeded 1.5 ppm.

Concern is focusing on finding the source of the mercury contamination in Florida, where the usual sources (pulp and paper mills, coal-fired power plants, etc.) do not figure. According to Jordan:

"While no generally accepted explanation has surfaced, a hypothesis was suggested in a December 1989 report released by the Technical Subcommittee of the Florida Panther Interagency Committee [on which NPS representatives serve]. Its report suggests that the mercury could be coming from a natural source: the peat and muck soils that are common throughout Florida. These often flooded and highly anaerobic soils provide a suitable environment for the methylation of inorganic mercury.

"Methylmercury, a product primarily of anaerobic bacteria, is the biologically active and toxic form of mercury; inorganic mercury, on the other hand, is considered to be biologically innocuous. The slow oxidation of peat and muck soils by burning, draining, or other disturbances, provides an avenue for methylmercury to enter the food web, where this contaminant accumulates in the predators of aquatic animals. While no research has yet been conducted in Florida to verify this hypothesis, studies in Finland – a country with one-third of its land covered in peat soil – have traced mercury contamination to various types of surface disturbances."

Studies of the remains of #27 and other archived dead panthers have caused the Technical Subcommittee to conclude that mercury contamination of the pan-



The Florida panther once occurred throughout Florida and from eastern Texas or western Louisiana through Arkansas, Mississippi, Alabama, Georgia, and parts of Tennessee and South Carolina. Today it is believed to survive only in remote parts of south Florida.

ther is potentially a serious threat. None of the mercury levels documented in the other dead and live panthers analyzed were as high as those in #27, still some were at levels high enough to be of concern.

The Subcommittee also concluded that the Fakahatchee Strand and East Everglades areas appear to be hot spots for mercury contamination of panthers. The presumed source is the panthers' prey – particularly raccoons, which bioaccumulate mercury through the aquatic food web. Mercury contamination is also suspect as the culprit in the lower reproductive success of female panthers in areas where small prey is the predominant food source.

The Panther Interagency Committee in January 1990 recommended acceleration of the routine testing of panthers in the wild, establishment of an action level of 1.4 ppm for whole blood in panthers, action to

better identify problem areas and contaminated prey resources, and increase of uncontaminated prey through habitat management and harvest regulations. The Committee also recommended screening panthers for other potential pollutants, including other metals, organochlorines, and PCBs, and supporting efforts to identify and rectify the source of mercury contamination.

On May 18, 1990, a newly radio-collared male Florida panther in Everglades NP was found dead from a chest infection, apparently caused by accidental puncture by a stick. The only remaining male in the park is closely related to the only two female panthers.

Stephen Nodvin, who heads the NPS/CPSU at U/TN, writes from long and intensive experience with long-term research programs. His views on the NPS Global Change initiatives are strongly held and forcefully expressed in an article in the next George Wright Society Forum, Vol. VII No. 2, scheduled for publication prior to the Nov. 12-17 Conference on Research in the National Parks and Equivalent Reserves, El Paso, TX.