Peer Review Plan

Date: 4/18/2018

Source Center: U.S. Geological Survey (USGS)
Northern Rocky Mountain Science Center
2327 University Way, Suite 2
Bozeman, MT 59715

Title: Genetic Diversity, Effective Population Size, and Structure among Black Bear Populations in the Lower Mississippi Alluvial Valley, USA

Subject and Purpose: This product provides an analysis of genetic characteristics of several small populations of black bears (*Ursus americanus*), including the recently delisted Louisiana black bear subspecies (*U. a. luteolus*), occupying a fragmented landscape in the Lower Mississippi Alluvial Valley, USA (LMAV). These populations include bears native to the LMAV, bears translocated from Minnesota during the 1960s, and recently reintroduced bear populations in east-central Louisiana and southeastern Arkansas sourced from within the LMAV. Researchers estimated population structure, gene flow, and genetic parameters important to conservation of small populations using genotypes at 23 microsatellite markers for 270 bears from seven populations. Those data suggest that one population in Louisiana was the product of the released Minnesota bears, whereas Minnesota descent was not supported for any other LMAV populations. A founder effect followed by genetic drift and prolonged isolation caused the descendent Louisiana population to have since diverged from the Minnesota source. The data suggest that restricted gene flow has led to substantial structuring among the original three Louisiana black bear populations that existed when federal listing occurred. Consistent with previous bottlenecks, founder effects, and persisting isolation, all bear populations in the LMAV have low genetic diversity or small effective population sizes. Translocating bears among populations within the LMAV as part of a regional genetic restoration program may be considered to overcome the effects of enduring isolation and alleviate the identified genetic deficiencies. This work was funded by the Louisiana Department of Wildlife and Fisheries in cooperation with the U.S. Fish and Wildlife Service. The product will be submitted to the journal Conservation Genetics or publication.

Impact of Dissemination: This information product is considered by the USGS to be Influential Scientific Information.

Timing of Review (Including Deferrals): April - May 2018. Deferrals are not anticipated at this time.

Manner of Review, Selection of Reviewers, and Nomination Process: The review will be conducted via individual letters to the peer reviewers. USGS will select the peer reviewers pursuant to Survey Manual chapter 502.3 –Fundamental Science Practices: Peer Review (http://www.usgs.gov/usgs-manual/500/502-3.html).

Expected Number of Reviewers: Anticipates three reviewers.

Requisite Expertise: Population ecology, genetics.

Opportunity for Public Comment: No opportunity for public comment is formally incorporated for this product.

Agency Contact: peer_review_agenda@usgs.gov.