17 Oct 2020

Diana L. Doan-Crider

Caesar Kleberg Wildlife Research Institute

MSC 218, Texas A&M University-Kingsville

Kingsville, TX78363

(555) 555-5555

janesdoe@wildlife.org

RH: Doan-Crider et al. • Population Dynamics of Un-hunted Black Bear (Doe et al. if >2 authors; running head <45 characters)

**Population Dynamics of an Un-hunted High-Density Black Bear Population in Coahuila, Mexico**

DIANA L. DOAN-CRIDER[[1]](#footnote-1), *Caesar Kleberg Wildlife Research Institute, MSC 218, Texas A&M University-Kingsville, Kingsville, TX 78363-8202, USA*

 DAVID G. HEWITT, *Caesar Kleberg Wildlife Research Institute, MSC 218, Texas A&M University-Kingsville, Kingsville, TX 78363-8202, USA*

THOMAS E. LACHER, JR., *Department of Wildlife & Fisheries, 214CA Heep Building, Texas A&M University, College Station, TX 77843-2258, USA*

**ABSTRACT**   A black bear (*Ursus americanus*) population was studied in the Serranias del Burro, Coahuila, Mexico during 2 phases: 1991-1994 and 1997-2001.  The black bear is listed as endangered under Mexican federal law; in addition, local cattle ranchers have been participating in a pilot bear conservation program since the late 1970's, so the population is un-hunted.  My data indicate that this population has recovered from reduced numbers in the early 1970's, and has now reached densities in the upper 25% for North America.  Conflicts have increased between humans and bears, specificallyconcerning livestock predation and human injury.  During the initial study, reproductive rates were high (2.75 + 0.25 cubs/female), and cub mortality rates were low (0.20).  One case of intraspecific predation was documented when a free-ranging adult female was killed and partially consumed.  Density was calculated using weighted and un-weighted Lincoln-Petersen estimators, and was 0.39 bears/km2 (no variance available) and 0.73 + 0.45 bears/km2, respectively.  During the second phase of the study, reproductive rates continued to be high (3.25 + 0.27 cubs/female), but cub mortality increased to 0.68.  Two cases of intraspecific predation was observed when a trapped adult female was killed by an adult male and consumed, and another free-ranging adult female was apparently killed and consumed.  Four bear scats (*n* = 400) were found that contained cub claws and hair, while none were found during the first study (*n*=642 scats).  Predation upon cattle also increased during the second study, with 67 reports of calves killed during May-June, 2000.  In addition, a near-fatal predatory mauling wasdocumented in the study area by a bear that had been feeding on calves.  A density estimate was repeated for the second study using the same weighted estimator, and had increased to 0.69 bears/km2.  The un-weighted estimator increased to 0.98 + 0.14 bears/km2.  Power was weak, however, due to a low number of recaptures.  Another estimate using mark-resight data indicated that the density was 1.36 + 0.29 bears/km2.  When weighted by the average of proportion of time that telemetered bears spent within the study area (0.78), it was 1.06 bears/km2 (no variance available).  This estimator was more reliable than the mark-recapture due to the high number of resights.  The conditions in the Serranias del Burro offer the opportunity to study population dynamics in an un-hunted black bear population that is not affected by human caused mortality.  Bear populations may have the ability to regulate density, but it appears that such regulation may occur as bears reach high numbers.  These high densities may be above the social carrying capacity for both bears and human tolerance, as evidenced by the increase in problem bear activities on the study area.  Long term impacts to the bear population itself will warrant further study to determine whether the overall growth rate will stabilize once bear numbers are reduced.

1. Email: correspondingauthor@institution.edu (easily added using References->Insert Footnote in byline) [↑](#footnote-ref-1)