

LONG-TERM EFFECTS OF LEAD POISONING ON BONE MINERALIZATION IN EGYPTIAN VULTURE *NEOPHRON PERCNOPTERUS*

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ABSTRACT.—Poisoning from lead shot has been well documented globally. However, despite its recognized importance as a threat factor for populations of vertebrates of conservation concern, very little is still known about its hidden long-term effects. Long-lived species are particularly susceptible to bioaccumulation of lead in bone tissues. In this paper we gain insights into the sub-lethal effects of lead contamination on Egyptian Vultures (*Neophron percnopterus*), a globally threatened species. We compared two populations (Canary Islands and Iberian Peninsula) differing in exposure to the ingestion of lead ammunition. The island population, being sedentary, has a greater exposure to the ingestion of lead hunting shot during the winter hunting season. To determine the sub-lethal effects of lead, we analyzed the consequences of the accumulation of this contaminant in bone tissue.

Blood lead levels were higher in the island population showing clear seasonal trends, being highest during the hunting season. Moreover, males were more susceptible to lead accumulation than females. Bone lead concentration increased with age, reflecting a bioaccumulation effect. The comparison of quantitative measurements obtained from deconvoluted FTIR spectra showed that the bone composition was significantly altered by this contaminant and, in particular, the degree of mineralization decreased as lead concentration levels increased. These results demonstrate the existence of long-term effects of lead poisoning which may be of importance in the declines of threatened populations of long-lived species exposed to this contaminant.

GANGOSO, L., P. ÁLVAREZ-LLORET, A. RODRÍGUEZ-NAVARRO, R. MATEO, F. HIRALDO, AND J. ANTONIO DONÁZAR. 2009. Long-term effects of lead poisoning on bone mineralization in Egyptian Vulture *Neophron percnopterus*. Abstract in R. T. Watson, M. Fuller, M. Pokras, and W. G. Hunt (Eds.). Ingestion of Lead from Spent Ammunition: Implications for Wildlife and Humans. The Peregrine Fund, Boise, Idaho, USA. DOI 10.4080/ilsa.2009.0214

Key words: Avian, bone, effects, island, lead, long-lived, scavenger, vulture.

This paper published in full as: GANGOSO, L., P. ALVAREZ-LLORET, A.A.B. RODRIGUEZ-NAVARRO, R. MATEO, F. HIRALDO, AND J. A. DONAZAR. 2008. Long-term effects of lead poisoning on bone mineralization in vultures exposed to ammunition sources. Environmental Pollution, DOI 10.1016/j.envpol.2008.09.015.