Testing heavy metals biomonitoring through birds of prey as top predators

Valentina Cumbo‡, Francesco Giuseppe Galluzzo‡, Gaetano Cammilleri‡, Antonio Vella‡, Andrea Macaluso‡, Ilaria Rizzuto‡, Antonino Pisano§, Vincenzo Ferrrantelli‡, Salvatore Seminara‡

‡ Istituto Zooprofilattico Sperimentale della Sicilia, Palermo, Italy
§ Consorzio di Ricerca Bioevoluzione Sicilia, Palermo, Italy

Abstract

The Experimental Zooprophyilactic Institute of Sicily has great opportunities and validated methods (accreditated by the national control unit ACCREDIA) for biodiversity monitoring and analysis of fauna samples. The fauna recovery centers of Bosco di Ficuzza (Palermo) and Colli San Rizzo (Messina) routinely send dead specimens to the Institute to perform every category of analysis for both medical and veterinary purpose. Measuring heavy metals concentrations in top predators is a strong indicator for territory and biodiversity health monitoring to take management and conservation actions for natural systems. In this study, two specimens of the Common buzzard (Buteo buteo L., Accipitridae) were investigated for Cd, Fe and Pb content by an Inductively Coupled Plasma Mass Spectrometry (ICP-MS) method. Results show that in one sample only Pb levels exceed cut-off values in organs like the liver, kidney and muscle with a concentration of 0,005 mg/Kg. This is probably a cause of prey ingestion killed by lead pellets. In the other sample the only high level was for Fe with a concentration of 0,386 mg/Kg. According to literature (Scheuhammer 1987), Pb present in plumage is probably a reflection of external pollution and it not depends on diet, while its high concentration in internal organs is directly related to ingestion of lead pellets during consumption of preys killed by them.
Keywords

Heavy metals; *Buteo buteo*; top predators; bioaccumulation

Presenting author

Valentina Cumbo

Presented at

Vth International Congress on Biodiversity: „Taxonomy, Speciation and Euro-Mediterranean Biodiversity“

Conflicts of interest

The authors declare that they have no conflicts of interest.

References