

Dead dogs can't guard: poisoned baits undermine a human-brown bear conflict resolution tool in Greece

Maria Petridou^{1,2,*}, Yorgos Iliopoulos¹, Maria Psaralexi^{1,3}, Alexis Giannakopoulos^{1,4}, Constantina Tsokana^{1,4}, Eirini Hatzimichail¹, Victoria Saravia⁵, Yorgos Lazaros¹, Thanos Tragos¹, Yannis Tsaknakis¹ and Yorgos Mertzanis¹

¹Callisto Wildlife and Nature Conservation Society, Thessaloniki, Greece

²Department of Biological Applications and Technology, University of Ioannina, Greece

³Department of Ecology, School of Biology, Aristotle University of Thessaloniki, Greece

⁴Faculty of Veterinary Medicine, University of Thessaly, Greece

⁵Hellenic Ornithological Society, Athens, Greece

Corresponding author: petridoulc@gmail.com

Livestock guarding dogs (LGDs) have been used for centuries for livestock protection from brown bear and grey wolf attacks. In Greece, there are three indigenous LGD breeds, whose preservation is undermined by the widespread illegal use of poisoned baits across the country. We conducted semi-structured interviews (n=78) with local shepherds to investigate LGD mortality caused by poisoned baits in Florina prefecture (1. Amynteo municipality, 05-06/2017, n=41, under LIFE15NAT/GR/001108; 2. Prespes National Park, 12/2016-01/2017, n=37). Over the last decade, the majority of interviewed shepherds (65.4%) have experienced LGD losses due to poisoned baits, with 418 LGDs poisoned in total (360 in Amynteo MUNI, 58 in Prespes NP). The mean total number of LGDs lost per herd was 8.2 (range=1-35). Lost LGDs per incident ranged from 1 to 9, with cases where shepherds lost all their LGDs in one incident. The three major causes of poisoned bait use as claimed by shepherds were: intentional poisoning related to rivalries with hunters (32.3%), other local disputes (18.5%) and accidental poisoning during illegal fox control (21.5%). Poisoned bait types mostly mentioned were poisoned pieces of meat (72.2%) and cyanide capsules (16.7%). Intensive use of poison may have multilevel deleterious effects on brown bear and wolf populations through direct mortality (e.g. at least 33 known cases of poisoned bears in Greece since 1996) or human-caused mortality due to increased livestock depredation as a result of high quality indigenous LGD losses. Furthermore, shepherds were not familiar with first-aid for LGD poisoning thus the problem is aggravated. To address

these issues: (a) first-aid leaflets were disseminated to shepherds, (b) a poison detection dog unit has been recently established by the NGO HOS (c) 1200 anti-poison first-aid kits with guideline pamphlets as well as LGD puppies will be donated to shepherds by the NGO CALLISTO under the LIFE15NAT/GR/001108 project.