

Guest Editorial:

Toxicology and wildlife conservation in Europe: The inadequacy of current EU regulations

In this issue of The Veterinary Journal, three important review articles are published on animal poisoning in Europe. The authors comprehensively review available information on common toxicants affecting farm livestock and poultry (Guitart et al., 2010a), companion animals (Berny et al., 2010) and wildlife (Guitart et al., 2010b) and put forward sensible suggestions for better data gathering and controls. It was in 1943 that the Spanish philosopher José Ortega y Gasset described the essence of recreational hunting and commented that the scarcity of prey was fundamental in understanding this human activity (Ortega y Gasset, 1943). Ortega cites an adventure from the Chronicles of the Kings of Castile, in which (in 1449) Don Juan II followed a wild boar (*Sus scrofa*) through woodlands for 4 days simply for the thrill of the hunt. Five hundred and more years later our game species are managed so as to be more abundant, largely through practices and control measures that include the use of poisons to reduce the number of wild predators, based presumably on the simplistic equation that 'fewer competitors equal more benefits'. The dangers of this mantra become alarmingly apparent in the context of wild animal poisonings (Guitart et al., 2010b) where the illegal use of pesticides or other poisons are seen to be the major cause of mortality not only of wild predators but also of domestic dogs and cats that succumb to accidental (or intentional) harm as a result of indiscriminate chemical use (Berny et al., 2010). Guitart et al. (2010b) point out that in addition to game managers, farmers in several European countries employ poisons to protect their livestock from large predators, such as the wolf (*Canis lupus*) and the brown bear (*Ursus arctos*). Similarly, vine growers and beekeepers deliberately use pesticides to kill wild rabbits (*Oryctolagus cuniculus*) and European bee-eaters (*Merops apiaster*), respectively, treating these species as if they were damaging pests (Martínez-Haro et al., 2006; Soler et al., 2007). Abuse or illegal use of pesticides must be considered when EU regulations regarding the control of biocides and pesticides are updated, particularly since some formulations contain a high percentage of active ingredients with worryingly low LD50 values (Martínez-Haro et al., 2008). Current laws are clearly inadequate since there is evidence of a dramatic decline in certain species following exposure to poisons. For example, the red kite (*Milvus milvus*), which until recently was a common bird of prey in Europe, is now considered 'Near threatened' by the International Union for Conservation of Nature.¹ This decline can be directly attributed to the misuse of pesticides in baits that are ingested by the kite. Yet it is the legal use of pesticides, particularly the anticoagulant rodenticides, that causes most acute poisoning in many wild and domestic animal species. For example, the second-generation coumarins are particularly harmful for small predators (such as the Mustelidae) as they are highly persistent and accumulate in the liver (Shore et al., 2003). Cyclic 'plagues' of small rodents, such as the common vole (*Microtus arvalis*), have often been systematically managed with these potent chemicals (Olea et al., 2009) with little consideration of the risk to non-target granivorous species such as, say, small game animals (Berny et al., 1997) or domestic pigeons (Sarabia et al., 2008) that readily ingest the bait. Rodenticide poisoning is also common in domestic pets, a problem which is exacerbated by their widespread commercial availability (Berny et al., 2010). Toxicovigilance and risk assessment are essential if we are to ensure that regulations on pesticide use are adequate. Such assessments have been undertaken for some pesticides already, including granular forms of anticholinesterase compounds (Elliott et al., 2008), and this approach must now be expanded and systematically enforced to other poisons that are in common use or readily obtainable. Lead poisoning is the most prominent of the heavy metals implicated in the poisoning of domestic and wild animals.

It occurs particularly in cattle and dogs following ingestion of feed contaminated with old car batteries or paint that contains lead (Berny et al., 2010; Guitart et al., 2010a). In waterfowl wintering in Europe, the mortality rate due to the ingestion of lead shot is estimated at around 8.7% (equivalent perhaps to some 975,000 birds) and there is a strong inverse association between negative population trends in these species and a high ingestion of lead shot (Mateo, 2009). Lead poisoning secondary to ingestion of ammunition has also been described in 17 species of birds of prey, many of which are threatened species, although revised regulations on lead ammunition used for hunting have now been adopted by most EU countries (Mateo, 2009). In general, cases of livestock poisoning are less frequently reported than in other species. Guitart et al. (2010a) concluded that in Europe limited attention is paid to large animal toxicology problems unless the economic loss is high. Nevertheless, the list of toxicants reported by these authors includes many substances that are significant in terms of human food safety, such as pesticides, mycotoxins, heavy metals and halogenated hydrocarbons, so potential sub-lethal exposure to livestock (and human consumers) must be vigilantly considered. Since many cases reported by Guitart et al. (2010a) are related to accidental exposure on farms (including the misuse of pesticides, abandoned lead batteries in pastures, leakages from electrical transformers, etc.), a wider awareness among veterinarians and farmers of the potential toxicological risks in the environment should markedly help to reduce the danger.² Similarly, companion animal poisoning by drugs often occurs accidentally or secondary to the misuse of a product by the pet owner and so should be avoidable (Berny et al., 2010) given proper education and information exchange. Guitart et al. (2010a, 2010b) and Berny et al. (2010) conclude in their valuable series of articles that there is a need to create a network within Europe – perhaps with a central collating centre for animal poisoning. Such a network would facilitate the compilation and analysis of epidemiological data from different veterinary toxicological services within participating European countries. The programme would act as a first step towards providing better information through toxicovigilance regarding, for example, the illegal use of pesticides, the adverse effects of legally used biocides and pharmaceuticals on non-target animals, and the toxicological risks that exist within the habitats of livestock and domesticated animals. Such a network is an imperative target for the future. In the meantime, the comprehensive information provided in this issue of *The Veterinary Journal* (Berny et al., 2010; Guitart et al., 2010a,b) provides a significant and up to date analysis of the epidemiological data on animal poisoning within Europe. The data should be disseminated within the veterinary, ecological and agricultural communities and considered carefully by legislators when discussing or revising regulations on the use of toxic substances.

Rafael Mateo

Instituto de Investigación en Recursos Cinegéticos (IREC)