

The shadow of diclofenac hangs over European vultures

To the Editor — Of the sixteen Old World vultures, 81% are globally threatened or near-threatened; four vulture species inhabit Europe, of which three are threatened or near-threatened. Since 1993, the EU and various national governments have invested significant financial resources in the conservation of vultures — including at least 76 LIFE projects related to these species — and between 1993 and 2014 spent €121.9 million, of which €59.7 million came from European funds. During this period, Spain, home to 90% of all European vultures, invested €72.8 million (€30.8 million received from EU) on 38 projects related to vulture conservation¹.

However, all these conservation efforts will be of little worth if the use of veterinary diclofenac, authorized in Spain since 2013, spreads. A mathematical model has estimated that annually diclofenac could cause 715–6,389 vulture deaths². Thus, its potential ecological impact on ecosystem services is obvious.

In November 2014 the Conference of the Parties of the UNEP Convention on Migratory Species adopted a resolution aimed at providing the veterinary sector with guidance on how to prevent the poisoning of migratory birds and called for an evaluation of the risks that veterinary medicinal products pose to scavenging migratory bird species³. In December 2014, the European Medicines Agency's Committee for Medicinal Products for Veterinary Use proposed to the European Commission that the veterinary use of diclofenac in Europe should be regulated⁴. In June 2015, the Veterinary Pharmaceutical Committee (VPC) decided not to initiate a withdrawal of marketing authorizations for veterinary products containing diclofenac in Europe since, in the Committee's opinion, the management measures being

applied by member states would be effective in keeping the risk to vultures and other necrophagous birds under control. On 4 July 2016, in a VPC meeting, member states were invited to provide an update of the situation in their territories. Their report indicates that (1) most member states say that they have not yet authorized the use of diclofenac; (2) those that have authorized the use of this product state that appropriate safety warnings are included in the product literature and that fitting measures have been put in place for the safe disposal of fallen stock and to provide birds of prey with carrion; (3) no member states have yet reported any deaths of vultures due to poisoning by veterinary medicinal products in their territories. However, the true situation is somewhat different:

(1) the use of diclofenac has been authorized in at least five member states (Spain, Italy, Estonia, Czech Republic and Latvia) and currently there is a request for a permit in Portugal; (2) the safety warning in the product literature is insufficient and merely recommends “Do not administer to animals susceptible to enter the wild animal food chain,” there is no information about the ‘appropriate measures’ to be applied for the safe disposal of carrion by avian scavengers or any supervision of these measures; (3) until 2016, there was no monitoring of NSAIDs (nonsteroidal anti-inflammatory drugs) contamination of ungulate cadavers available to vultures and other obligate and facultative avian scavengers. Nevertheless, to date at least one griffon vulture has been reported to have died as a result of ingesting flunixin⁵, an NSAID with similar effects to diclofenac. Thus, it is just a question of time before deaths due to diclofenac begin to occur.

Currently, there is no complete ban on diclofenac in Europe and the potential

risk it represents is still present⁶. Given that the VPC has no data for anywhere in Europe on veterinary medicine residues in carcasses available to scavengers, the current risk cannot be effectively assessed. Accordingly, the precautionary principle must be applied, which should entail the immediate ban on the use of diclofenac for livestock to avoid undesirable consequences to vulture populations⁷ and the promotion of the use of safe alternatives such as meloxicam⁸. The catastrophic decline in Asian vulture populations^{9,10} is sufficient warning of what could happen and, likewise, ought to make it unnecessary to have to wait until more dead vultures begin to appear. □

Antoni Margalida^{1,2*} and Pilar Oliva-Vidal¹

¹Department of Animal Science, Faculty of Life Sciences and Engineering, University of Lleida, Lleida 25198, Spain. ²Division of Conservation Biology, Institute of Ecology and Evolution, University of Bern, Bern 3012, Switzerland.

*e-mail: amargalida@ca.udl.cat

Published online: 21 July 2017

DOI: 10.1038/s41559-017-0255-y

References

1. LIFE Programme *European Commission* <http://ec.europa.eu/environment/life/> (accessed 17 February 2017).
2. Green, R. E., Donazar, J. A., Sánchez-Zapata, J. A. & Margalida, A. *J. Appl. Ecol.* **53**, 993–1003 (2016).
3. *Review and Guidelines to Prevent the Risk of Poisoning of Migratory Birds* (UNEP/CMS, 2014).
4. *CVMP Assessment Report Under Article 30 (3) of Regulation (EC) No 726/2004* (EMVA/CVMP, 2014).
5. Zorrilla, I., Martínez, R., Taggart, M. A. & Richards, N. *Conserv. Biol.* **29**, 587–592 (2014).
6. Margalida, A. et al. *Science* **46**, 1296–1298 (2014).
7. Swan, G. E. et al. *PLoS Biol.* **4**, e66 (2006).
8. Margalida, A. et al. *Conserv. Biol.* **28**, 631–632 (2014).
9. Oaks, J. L. et al. *Nature* **427**, 630–633 (2004).
10. Green, R. E. et al. *J. Appl. Ecol.* **41**, 793–800 (2004).

Competing interests

The authors declare no competing financial interests.