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Update on Asian vulture crisis – populations respond to effective removal of diclofenac in Nepal but NSAID threat remains

Regional momentum continues to build through the 24 partner organisations of the Saving Asia's Vultures from Extinction (SAVE) consortium, working together with regional and state governments. India prepares for its first releases of captive bred birds, and the partners have agreed upon a national summary vulture policy ahead of updating a Government National Action Plan. Myanmar is the latest major addition to join SAVE, the Myanmar Vulture Working Group comprising six national organisations, and Nepal's Department of National Parks and Wildlife Conservation was another recent addition as the third formalised Government Partner.

But probably the most significant recent development has been in Nepal, where there has been strong endorsement of the combined measures to remove diclofenac from veterinary use (both through legislation and on the ground Vulture Safe Zone – VSZ - work) resulting in the first strong evidence for regional population recoveries for White-rumped- and Slender-billed Vultures (Galligan *et al.* 2019). The population trend for both species switched from strongly negative to strongly positive at about the time that the national awareness-raising and education campaign about diclofenac became fully effective. The actions taken in Nepal have had an impact and are encouraging more initiatives on the ground in India, and in Bangladesh, where the VSZs are formally gazetted by the government, and ketoprofen bans imposed at this regional level. However, these initiatives still need further work, especially in India, to avoid undoing all the hard work. Pharmacy surveys are showing mixed trends across the region, but in Nepal the use of veterinary diclofenac is almost down to zero, and this has added confidence to proceed with the release programme of captive birds, with 30 white rumped vultures now released in three batches, all close to Chitwan National Park. A further 30 wild birds have been satellite tagged in the area to understand their movements and allow a quick response to any mortality for diagnosing the exact cause. So far, so good, but vigilant monitoring of the fate of the tagged birds is essential.



Bird Conservation Nepal

255. Three soft releases in Nepal of 30 birds are so far going well.



C. Bowden

256. Tagged Himalayan Griffions ready for release in West Bengal.

The increasing engagement and financial commitment of the Indian government is also encouraging, and now supports the bulk of the vulture breeding and release programmes, bringing with it important profile to the issue. Pilot releases of rehabilitated Himalayan Griffions happened earlier in Haryana and recently in West Bengal where satellite tags were deployed in India for the first time on released vultures. The first captive bred white rumped vultures are due for release in Haryana very soon. Although the use of veterinary drugs in the wider area is still in need of further measures, these releases add important impetus for getting the environment safer and taking the necessary steps more widely.

An updated vulture policy document for India

The Indian SAVE partners recently agreed to a summary policy document highlighting the key actions needed. This includes an important summary of which Non-steroidal anti-inflammatory drugs (henceforth, NSAIDs) are the key threats, and the key references. For more details on the NSAIDs and all of these updates, consult the NSAID Alert, Resources and News pages of www.save-vultures.org

The Indian Veterinary Research Institute and Bombay Natural History Society are carrying out critically important safety-testing work to conclusively determine which drugs are safe. One additional safe drug, tolfenamic acid (Table 1), is likely to be confirmed very shortly, but otherwise only meloxicam is fully confirmed as a safe alternative for use by the vets. This new development will be welcome positive news, as otherwise there are increasingly urgent concerns regarding the growing popularity of nimesulide, aceclofenac, ketoprofen, flunixin and others, which remain in legal use despite the growing body of evidence that shows they are also vulture killers. Encouragingly, some Indian state governments have agreed not to distribute these other toxic drugs to their veterinary services, ahead of formal bans, and we hope that others will follow this example. But meanwhile, the important Indian Veterinary Research Institute's safety testing needs to be extended quickly to include the full set of available drugs, and ultimately to any new drugs ahead of their licenses being approved.

Table 1. Which veterinary drugs threaten vultures

Drug name	Threat / safety	Known effect
Meloxicam	Safe	Tested and shown to be safe for vultures (Swarup et al. 2007)
Tolfenamic acid	Probably safe	Currently being tested and so far results are positive (to be fully confirmed shortly)
Carprofen	Toxic at high doses	Shown to be at toxic levels for cattle tissues around the injection site (Fourie et al. 2015)
Flunixin	Toxic	Shown to be toxic to <i>Gyps</i> vultures in Spain and Italy
Nimesulide	Probably toxic	Banned in many countries due to safety issues in humans and banned in India for under 12s. Fast becoming popular in NW India. There have been several cases of dead wild vultures with gout and nimesulide but no diclofenac
Aceclofenac	Confirmed toxic	Metabolises into diclofenac in cattle so equivalent effect to diclofenac (Sharma 2012; Galligan et al. 2016)
Ketoprofen	Confirmed toxic	Trials carried out on <i>Gyps</i> vultures showed toxicity at concentrations found in treated cattle in India (Naidoo et al. 2009)
Diclofenac	Confirmed toxic	Confirmed highly toxic in 2003 (Oaks et al. 2004), and banned as veterinary drug since 2006

Unfortunately, further surveillance of which veterinary drugs are being used has shown that both Cambodia and Myanmar have recently started using veterinary diclofenac. The Cambodia consortium, Cambodia Vulture Working Group successfully lobbied for a ban, which was agreed and legally implemented less than a year after this request was made; a highly commendable step. Indeed this and India's readiness to ban veterinary diclofenac was commended at the recent Convention of Migratory Species 13th CoP meeting held in Gujarat, as an important example for European countries like Spain to follow.

Secondary threats, notably of poison baits (usually retaliatory and targeting dogs or large carnivores – and note this is the most widespread threat for European and African vultures) and threats of power infrastructure (electrocution and collision), for wires, pylons and wind turbines, are emerging in South Asia and in need of attention. Developing a database of all vulture mortalities is underway, to better clarify and update the respective importance of these, and messaging will need to incorporate these problems, along with vulture sensitivity mapping being carried out ahead of installation of power infrastructures.

Despite the recent progress and lessons from Nepal, and the growing numbers of captive bred birds available for release, there are recent reports of ongoing declines from Gujarat (where NSAIDs are implicated), and also Cambodia (where other threats including poison baits are key). The ongoing need for monitoring the vulture population and threats through documenting causes of vulture mortality is clear, and if the NSAIDs threats can be taken care of, (and this is something that really can be resolved given the political will) then other issues faced by vultures can be understood and addressed.

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