

Small carnivores in the Americas: reflections, future research and conservation priorities

The Small Carnivore Specialist Group includes among its mandate the gathering and dissemination of data and knowledge for a group of species seemingly unnoticed by many conservationists, researchers, government management authorities and funders. In fact, an emerging major source of data on small carnivores is the ancillary information from projects about larger and more charismatic species (e.g. Jaguar *Panthera onca*), which are much easier to raise funds for and consequently the focus of many researchers and non-government organisations. A common example is the use of data from camera-trap surveys of such animals (see González-Maya *et al.*).

There is great disparity in the amount of published information and hence our 'state of knowledge' between the small carnivore species. Most of the last 20 issues of *Small Carnivore Conservation* have a strong predominance of coverage towards Asia, especially Southeast Asia. This is strategic because this is where the greatest threats lie, but also it reflects: 1) limited evolving process to capture information in many other regions; 2) huge regional deficiencies in data generation due to both paucity of research, and political and social dimensions beyond our control; and 3) that only a few of the projects that do exist publish their data. The two glaring geographic gaps for small carnivore information are Latin America and Africa. Both contain species of small carnivores which are common but about which we know almost nothing. Thus, we felt it prudent to focus occasional special issues of *Small Carnivore Conservation* on little-known regions, to take stock and consolidate what we do know into an accessible form, and to highlight priorities for future research.

Following the IUCN Red List Assessment for 2008 we are identifying a network of experts in the various regions and for each species. With the International Mammalogical Congress to be held in Mendoza, Argentina, in August 2009, the American continents were the clear first choice to trial this approach. Indeed, this special issue is published ahead of its normally scheduled date to coincide with the Congress.

We started organising this issue with three questions: 1) what is the next step after defining threatened species and clarifying the status of several?; 2) can we fill critical data gaps?; and 3) how do we keep species off the IUCN Red List to begin with? First, we wanted to verify and update the conservation status for all threatened species. Second, we wanted a long hard look at each species considered Data Deficient. Finally, we wanted to use experience gained in species recovery to highlight the need to move from discussions of threats and declines to applied research and on-the-ground action.

In the regional context, this seemed not so daunting. In general, small carnivores of the Americas are not faring as badly as in Southeast Asia, for example. Of the 46 species of native small carnivores (Procyonidae, Mephitidae and Mustelidae, including for this purpose, otters) recognised here for the Americas, only eight (17%) are threatened and five (11%) are considered Data Deficient (Belant *et al.*). These figures do not include Eastern Moun-

tain Coati *Nasuella meridensis* or Dwarf Coati *Nasua nelsoni*, not currently assessed on the IUCN Red List (but see Cuaron *et al.*, for preliminary assessment) or the two introduced species, Stone Marten *Martes foina* and Small Asian Mongoose *Herpestes javanicus*. In sum, four species of small carnivores are threatened and not recovering, and therefore need urgent conservation attention. Two (Pygmy Raccoon *Procyon pygmaeus* and Dwarf Coati) occur only on a single small island off the Caribbean coast of Mexico, another (Pygmy Spotted Skunk *Spilogale pygmaea*) along the Pacific Coast of Mexico, and the fourth (Colombian Weasel *Mustela felipei*), in the high Andes of Colombia and Ecuador, is known only from a handful of records.

Have we learned anything from the Black-footed Ferret *M. nigripes* recovery (Jachnowski & Lockhart) to help recover other threatened species? The answer is a resounding 'yes', but there is no secret or fixed formula to successful recovery. The longer we wait, the more resource-intensive recovery becomes. It takes political and social will as well as money, none of which is easy to come by in regions with larger issues at hand, and several hundred species requiring conservation attention and action (such as Mexico and Colombia).

However, one would think that the conservation community could pull together to save two charismatic small carnivores and a handful of other threatened endemic taxa on a small Caribbean tourist destination (Cozumel) in the Mexican 'Riviera'. The scientists and politicians have done so, but only after much of the remaining habitat was lost to development and land conversion. To add insult to injury, a series of hurricanes flattened almost all remaining habitat, making the situation even more urgent. These remaining populations are severely reduced, and mustering the required political and social forces is a daunting task, especially with so few individuals remaining in the wild.

The Colombian Weasel and mountain coatis, all of the Northern Andes, suffer both from extensive habitat alteration and lack of research and conservation. As the banner suggests in Bogota airport, 'Drugs, cartels and wars are so 1990s: this is the new Colombia' - threats to these species are not just the often assumed coca and guerilla warfare problems. The weasel is a high-elevation species perhaps threatened as much by misidentification as by deforestation through logging and for farmland, urbanisation and fragmentation (see Burneo *et al.* and Tirira *et al.*). Similar syndromes affect several other Andean species, and the scarcity of information forestalled assessing the then Mountain Coati for the 2008 Red List: it is now considered to be two species (see Balaguera-Reina *et al.*, Helgen *et al.*).

To clarify the necessary links between science and policy which affect recovery, we need to understand if the Black-footed Ferret is recovering as a result of listing on the US Endangered Species Act (ESA). Most Latin American countries also have national Red Lists and national species priority lists: the principal difference from the ESA is that the ESA has 'teeth': legal ramifications (e.g. penalties for harming Critical Habitat), financial sup-

port to research, recovery, habitat conservation and an enforcement body (the US Fish & Wildlife Service), not to mention numerous independent organisations which monitor recovery efforts (see Jachnowski & Lockhart). However the ESA, weakened in recent years, is not without its problems. We do, however, conclude that in bridging science and policy, we can use national lists to guide laws which are enforceable.

The Black-footed Ferret recovery reflects a combination of funding, will within national, local and tribal governments, public support, and a dedicated group of scientists who went out on a limb to save this species. Vital is the interagency, interdisciplinary, strategic conservation and recovery plan joining politics and science for a common good. Importantly, threats diminished following ongoing adaptive research, education and community outreach. However, it has taken nearly 20 years and millions of dollars, and is not over yet. We do not have resources on this scale for each threatened small carnivore, highlighting the need, strategic and financial, for proactive measure to keep species from becoming threatened and to invest in win-win situations for humans and carnivores. Adequate research to clarify the status of little-known species (Balaguera-Reina *et al.*, Kasper *et al.*, Prevosti *et al.*) and regions (Oliveira), and the effects of potentially threatening processes (Proulx) may allow action before a crisis situation is reached: this is more desirable than recovery plans and conservation fire-fighting.

That the Black-footed Ferret is still with us means that we can halt extinction, not just purely to save a small carnivore, but to benefit *Homo sapiens*. This species offers ecosystem services for human welfare and wellbeing, living in obligatory communion with prairie dog *Cynomys* spp. colonies, the proliferation of which enhance soil quality and native plant communities of the prairies. That prairie ecosystems and soil quality also benefit us should come as no surprise.

We learned several things in assembling this issue. We know a lot less about small carnivores of the Americas than we thought, especially in Latin America. We realised that as scientists and biologists we are not doing a very good job 'selling' our products to meet shifting global information demands. To show the importance of small carnivores in *many* ecosystem services (e.g. controlling pest rodents) will reach new audiences, resources and conservation tools. To focus some efforts on community-scale projects to reveal both the species-level data and the broader context of ecosystem services rendered – then maybe we can muster what we need to keep species off the threatened list. We cannot change the ebbs and flows of global funding but we can do a better job of tying our science and our species of interest into the context

of humanity.

In sum, five research and conservation priorities seem especially relevant to Latin America (where lie most of the data gaps and threats), but can be applied elsewhere:

1. *Recovery*: to keep species off the various threat lists, we need examples of success and lessons learned from unsuccessful efforts. Documentation of what it takes to recover threatened small carnivore species, reverse population declines and keep species out of threat categories, is rare.
2. *Inventory and monitoring research*: at least five species are considered Data Deficient: they very well could be threatened, so clearly are research priorities. Interventions for species already threatened are urgent, with monitoring of populations to assess progress.
3. *Data sharing and accessibility*: some data available are not readily and widely accessible (grey literature, regional reports, etc.). Even more lamentable are the transitory potential data, generated but never captured for eternity, which we need to make available through data sharing and partnerships, e.g. collating by-catch data and then placing them in the public domain.
4. *Education*: we need to educate ourselves, decision-makers and the public on the importance of these species intrinsically, and as part of the ecosystem, and the vital underpinnings of healthy ecosystems to human health and even persistence.
5. *Interdisciplinary studies*: we need to continue to work collaboratively and extend our cross-boundary networks of government management agencies, scientists, conservationists and donors, to ensure the conservation of small carnivores. Linkage of ecological and social sciences to answer complex questions about human aspects, interactions and benefits from small carnivores is so far rare.

We only hope that herein we have encouraged the process by highlighting both species-specific and regional issues – and that more people in the region will see *Small Carnivore Conservation* as a place both to publish their research, observations, lessons learned and notes, and to which they will alert more generalist conservation practitioners.

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