

recognize prey species⁴. We found that the selected spider species was available in large numbers under the stairwell of the apartment building in which the nest was found. But several studies have suggested that factors other than abundance of the spider species in the environment contribute largely to the prey selection by wasps^{5,6}. So, in our case, it is difficult to speculate whether the heavy reliance on one spider species was a result of its ample availability, or an intricately

evolved chemical prey-selection mechanism. Or did the wasp choose the site with maximum availability of its selected spider to build its nest?

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Miss Kerala in peril

Science sans ethics takes a heavy toll on wild animals year after year. A recent paper published on the reproductive biology of Miss Kerala (a freshwater fish, *Puntius denisonii*) had in the process sacrificed 1080 individuals¹. *P. denisonii* is endemic to the streams and rivers of northern Kerala and the adjoining western fringes of Karnataka and Tamil Nadu².

P. denisonii is easily the most vividly coloured of Indian freshwater fishes. Although the species was scientifically described as early as 1865 (ref. 3) it had not attracted the attention of aquarists till about 20 years ago, as the formalin-preserved specimens available in zoological collections are far from attractive, providing little clue to its natural splendour. However, a species that stayed 'dormant' for 130 years was 'rediscovered' as soon as live specimens and photographs came to light during the 1990s, and since then the species has been unscrupulously caught and traded as the 'Red Line Torpedo Barb' (Miss Kerala is a more recent synonym).

The complete geographical range, life history and population dynamics of *P. denisonii* are poorly understood. Nevertheless, based on the available ecological information and considering the heavy harvest pressures the species is faced with, the most recent conservation assessment of freshwater biodiversity in the Western Ghats has placed it in the Red List of IUCN in the endangered category².

IUCN has prescribed a set of guidelines for the scientific collection of threatened species⁴. And under the section titled 'Responsible collecting', it has stated 'Scientists working on globally threatened species should act responsibly to ensure that their research is either

directed towards enhancing the conservation status of the species that they are studying, or providing important information that will assist in the conservation of the species. They should ensure that: (i) The material they need is not already available in the museum or other institutional collections; (ii) They do not collect more than the minimum number of specimens necessary for the accomplishment of their research; (iii) They use non-lethal sampling methods instead of lethal collecting when the research objectives allow this, and employ preferential collection of post-reproductive individuals (or the life stage with the least reproductive value) when lethal collection is essential for enhancing the survival prospects of the species; (iv) They place all specimens collected in institutions where they can be preserved in perpetuity and be made available to other scientists, thus limiting the need for further collections; and (v) They submit

copies of reports and publications based on their research in a timely manner to permit-issuing agencies.'

The IUCN guidelines⁴ also go on to state, 'scientists should consult and comply with these guidelines (and, obviously, any collecting must be in full accordance with the laws and regulations of the country, state, or province where the collecting is being conducted)'.

As the authors¹ did not discuss the rationale behind the large-scale killing of an endangered species of fish and as the publication¹ offers no clue as to whether the authors were aware of the IUCN guidelines for responsible collecting⁴, pertinent questions emerge: (1) how widely known are the IUCN guidelines, and (2) to what extent does a global assessment of threat status of any species influence conservation planning in India?

It cannot be disputed that the only available legal instrument in India that accords protection to wild animals is the



Figure 1. *Puntius denisonii*, a freshwater fish.

Wildlife (Protection) Act, 1972. The Act defines wild animal as one 'specified in the Schedules I to IV and found wild in nature'⁵. Ironically, however, the Schedules I to IV of the Act do not include even a single species of freshwater fish underlining the fact that in India, freshwater fishes are not considered as 'wild animals'. That there is no legal instrument that protects our freshwater fishes and that all freshwater fishes are potentially food, at least for subsistence, renders conservation of freshwater fishes as the biggest challenge in the years to come.

The Western Ghats has a great diversity in its fish, with more than half the known number of species being endemic. It is not just Miss Kerala, but there are also many others that are faced with the threat of extinction due to loss of habitat and unsustainable harvest. Nevertheless, while research is necessary, postponing conservation action due to data deficiency is a folly. The Convention on Biological Diversity⁶ in its preamble has specifically stated, 'noting that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat'. It is in

this context that intrusive scientific tools as that adopted by the authors¹ and recommendations² like 'there is an urgent need to undertake a thorough taxonomic review of several genera and species of freshwater fishes', can be perceived as other serious forms of threats faced by already endangered species.

Taxonomy is a means and not the end. Biological concepts are rapidly evolving resulting in the taxonomic unit, traditionally called species, becoming more and more hypothetical. In pursuits to resolve disputes as to which species an individual might belong, several hundreds of fishes (and other rare animals, especially amphibians) are being collected everyday by researchers throughout the Western Ghats (not sparing the Protected Areas too). Lack of training in field identification has further driven researchers to collect everything available. It is in this context that the Miss Kerala experience^{1,2} is an 'early warning' and must be taken seriously by all those concerned with freshwater fish conservation in the Western Ghats. It should also invoke and sustain a sense of 'responsible collecting' in every field biologist.

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Will development spare the spiny-tailed lizards in Kachchh?

The Indian spiny-tailed lizard is a unique reptile that belongs to the family Agamidae. According to Wilms *et al.*¹, its generic name has been recently resurrected from *Uromastix hardwickii* to *Sara hardwickii*. It occurs in large numbers in isolated patches in the drylands of Uttar Pradesh, Rajasthan, Gujarat (Kachchh) and Pakistan². These solitary lizards excavate twisting burrows (6–8 cm wide; 2 m long) for safe living. They are mostly herbivores, but occasionally feed on insects and hibernate in winter^{2,3}.

The spiny-tailed lizard has been listed in the CITES (Appendix II) and Indian Wildlife (Protection) Act (Schedule II). Although the 1998 IUCN Red List had listed the lizard as vulnerable, it has gone missing in the recent list⁴. It is known locally as 'Sandho' in Gujarat, and is hunted due to its aphrodisiac value². The ongoing land developments are already

displacing these lizards due to the construction of a large number of housing and industrial units across rural Kachchh.

Following the 2001 earthquake, the Kachchh District (area 45,652 sq. km) gained prominence for growth in the



Figure 1. An immature spiny-tailed lizard ventures out of its den in Khadir village, Kachchh.