tributed their 'best' research between foreign and Indian journals in 2000 and 2005 in percentages that ranged from 100 (Cochin Univ. Sci. & Technol. in 2005) to 88 (ICMR in 2000). That is, only a few premier agricultural and medical institutions have sent a noticeable percentage (not more than 11) of their best work to Indian journals. Table 2 shows the major publishers favoured by Indian authors for publishing their best work. Nearly half appears in the journals of one single publisher, namely Elsevier. Only 0.64% appears in journals produced by Indian publishers which are indexed in the *Web of Knowledge*. In 2005, ICMR journals accounted for slightly more than 60%, CSIR journals for nearly another 20%, and the Indian Academy of Sciences journals for approximately 5% of this meagre 0.64% share.

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Observations on the spider cache of mud-dauber *Sceliphron* sp. nest

It is well known that mud-dauber wasps *Sceliphron* spp. (family Sphecidae) paralyse spiders and store them in their nests as food provision for their offspring. The species differ in their number of cells in a nest, the number of spiders provisioned in a cell, and the number and preference of spider species collected for provisioning[1].

On 2 July 2011, we observed six spiders that appeared paralysed being carried away by ants on the kitchen floor of an apartment. The source of these spiders was a mud-dauber wasp (*Sceliphron* sp.) constructing a nest on the central ceiling fixture (Figure 1 *a*). The identity of the wasp species could not be ascertained, as it was not collected. All the six spiders belonged to the family Araneidae (Figure 1 *b*). Over the next few days, the wasp completed its nest and all the cells were sealed. In all, there appeared to be five cylindrical cells.

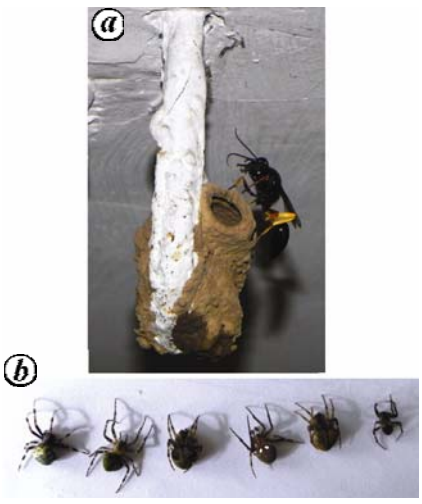

Figure 1. ***a***, *Sceliphron* sp. building a nest. ***b***, Spiders discarded by *Sceliphron* sp. while building the nest.

In the second week of September, some of the cells were open indicating emergence of adult wasps. On 14 September, the nest was removed and a few spiders spilled out. The nest was collected on a sheet of paper and the contents were sorted. Two empty cocoons were found, indicating that at least two adult wasps had emerged. Since the nest was damaged while removing, the state of other cells could not be ascertained. In one of the cells, however, a small, live larva was also present. Perhaps, it did not develop properly.

In addition, a surprisingly large number of spiders was stashed inside. The nest was disturbed carefully and all the spiders were separated from the hardened mud. Further, the entire mud was dissolved in water so that any remaining spiders could float. Since the cells were disturbed, we could not keep a cell-by-cell count of the spiders. The entire nest contained 104 spiders (Figure 2). Of these, 92 spiders belonged to a certain species of Uloboridae, 9 to a species of Theridiidae, 1 individual of Araneidae (*Neoscona nautica*) and 2 others which could not be identified as they were damaged.

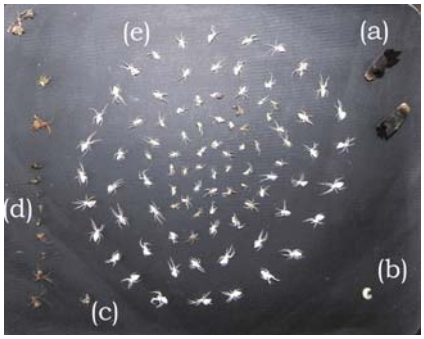

Figure 2. Sorted contents of the *Sceliphron* sp. nest: (a) Cocoons of the emerged wasps; (b) Live, undeveloped larva; (c) Exoskeleton of a spider; (d) Theridid spiders; (e) Uloborid spiders.

Interestingly, one spider exoskeleton was also found. Is it possible for a paralysed spider to recover and moult inside a nest? It has been speculated that the spider was about to moult when it was captured by the wasp and ultimately it moulted inside the nest (G. N. Vankhede, pers. commun.). But there is evidence that the wasp venom acts on the spider as a tranquilizer only and its effect subsides with time[2].

The initial observation showed that wasps may discard some spiders even after capturing them and bringing them to the nest. But why would a wasp invest energy in capturing, paralysing and carrying the spiders only to discard them ultimately? That too when later observations suggested that wasps specialized on a particular spider to a great extent? Still more curiously, why do the discarded spiders belong to a particular family?

Since the wasp larvae consume all the edible parts of a spider[3], it could be speculated that the 92 intact individuals of Uloboridae were stored for the single undeveloped larva. By extrapolation, the wasp might have stored at least 270 individuals of this spider inside the nest for its entire brood of at least three larvae.

The tendency of the wasps to collect individuals of a particular spider species is clearly established[1,4]. It is even clear that wasps use cuticular chemical cues to

recognize prey species[4]. 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 individuals[1]. *P. denisonii* is endemic to the streams and rivers of northern Kerala and the adjoining western fringes of Karnataka and Tamil Nadu[2].

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 category[2].

IUCN has prescribed a set of guidelines for the scientific collection of threatened species[4]. 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 guidelines[4] 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 authors[1] did not discuss the rationale behind the large-scale killing of an endangered species of fish and as the publication[1] offers no clue as to whether the authors were aware of the IUCN guidelines for responsible collecting[4], 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.