Chapter 3
The Status of Sloth Bears in Sri Lanka

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Sri Lanka, one of the few biodiversity hotspots in the world, faces enormous challenges balancing the needs of humans and wildlife. Sloth bears (*Melursus ursinus*) are threatened throughout their range from habitat loss and conflict with humans. Despite legal protection, sloth bears in Sri Lanka are persecuted because of their reputation for aggressiveness and inflicting serious injury to humans. Moreover, there is a critical lack of knowledge about the biology and status of sloth bear populations in Sri Lanka. We present information on what we currently know about sloth bear populations in Sri Lanka and offer recommendations for their conservation.

Biology

The sloth bear is the only representative of the family Ursidae of the order Carnivora found in Sri Lanka. The subspecies, *M. u. inornatus* (Photo 3.1), is endemic to Sri Lanka, and is smaller on average than *M. u. ursinus*. Wild adult male and female sloth bears at Wasgomuwa National Park in Sri Lanka average 75 kg and 58 kg, respectively (Ratnayeke et al. in press). Phillips (1935) reported body weights of 104 kg and 68 kg for male and female sloth bears in Sri Lanka, although it is unclear if these represented maximum weights, and whether they were obtained from wild or captive individuals.

Photo by Shyamala Ratnayeke

Photo 3.1: An adult male sloth bear at Yala National Park, Sri Lanka.

Sloth bears are most frequently encountered in jungles remote from human habitation (Nicholas 1974; Ratnayeke et al. unpublished data). When disturbed, they may respond aggressively and attack and injure humans (Santiapillai and Santiapillai 1990; Rajpurohit and Krausman 2000), often resulting in their persecution (Ratnayeke unpublishued data). Estimates of home-range size from a radiotelemetry study at Wasgomuwa National Park in Sri Lanka (Ratnayeke et al. in press) are the smallest yet reported for sloth bears: mean 95% fixed kernel home ranges (Worton 1989) were 2.2 km^2 (SE = 0.61, n = 4) and 3.8 km^2 (SE = 1.01, n = 6) for adult females and males, respectively. Although areas outside the national park were accessible to sloth bears, home ranges were almost exclusively placed within the national park boundaries. Within home ranges, open habitats such as abandoned chenas (swidden agricultural fields that have reverted to sparse forest) were used less than forested habitats that provided more vegetative cover.

Sloth bears possess special adaptations for feeding on termites (Pocock 1933; Erdbrink 1953; Sacco and van Valkenburgh 2004). Predictably, termites compose a large proportion of their diet in Sri Lanka (Fig.3.1), but seasonally available foods including fruit, honey and meat are also consumed. In the forests of Sri Lanka, fruits of two endemic species of trees, *Manilkara hexandra* and *Drypetes sepiaria*, and the dry pods of *Cassia fistula*, are among the principal plant foods consumed by sloth bears.

One reportedly unique aspect of the biology of *M. u. inornatus* is its lack of a conspicuous breeding season (Phillips 1935). Typically, *M. u. ursinus* females on the Indian mainland give birth during November - January (Garshelis et al. 1999). Our observations suggest that

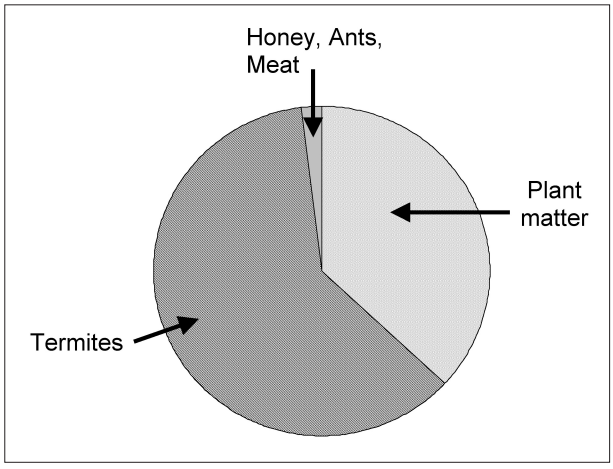

Fig.3.1: a) Percentage composition of food categories found in 666 sloth bear scats at Wasgomuwa National Park, 2002-03. Plant matter consisted mostly of fruit (*Cassia fistula* and *Drypetes sepiaria*).

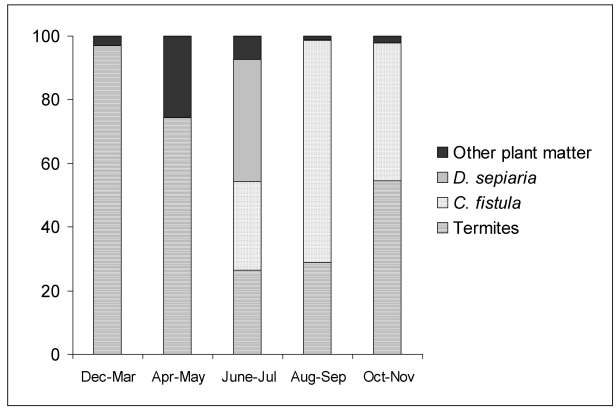

Fig.3.1: b) Percentage composition of sloth bear food items by season at Wasgomuwa National Park, 2002-2003. Fruit composed a larger part of sloth bear diets during the driest months (June - September), whereas termites were the main food item during wetter months (October - April).

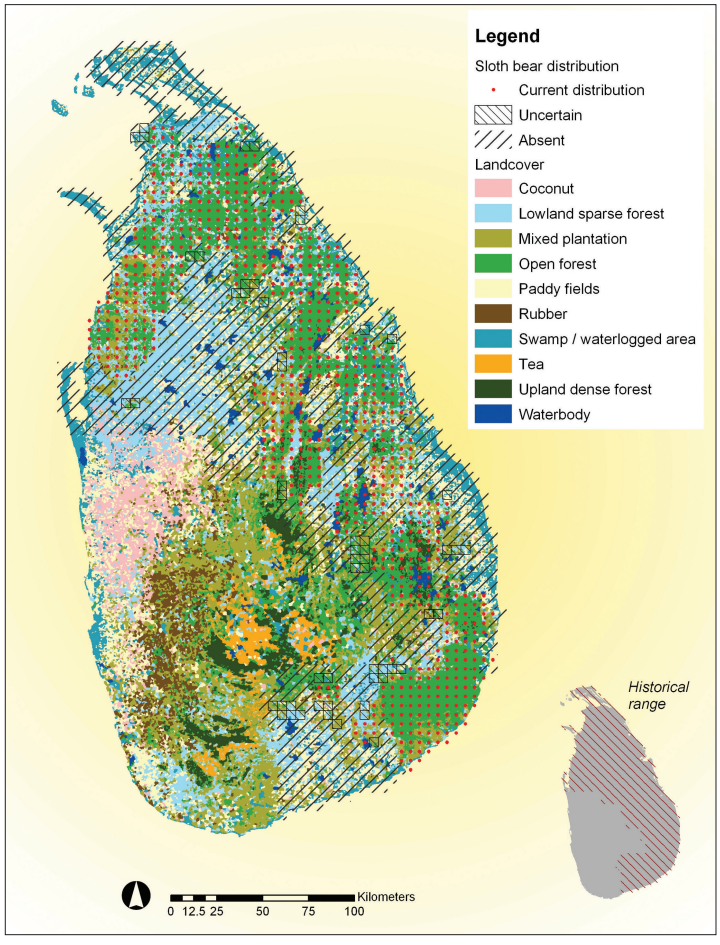

Fig.3.2: The 2004 distribution of the sloth bear in Sri Lanka. All areas within the historic range of the species were surveyed and classified as occupied or unoccupied by sloth bears, or uncertain. Each red dot represents the center of a 5x 5km cell occupied by sloth bears, whereas hatching represents surveyed cells where sloth bears were absent. Areas demarcated as "uncertain" were those with conflicting reports from respondents. The land use map was based on a 2001 satellite image (United Nations Environmental Program 2003).

births in *M. u. inornatus* occur over a somewhat broader time interval, but correspond with the general pattern reported for *M. u. ursinus*.

Status

Accounts of the distribution of the sloth bear in Sri Lanka in the early decades of the 20th century indicate that it was widespread in the lowland jungles of the dry zone (Phillips 1935). A distribution survey we conducted in 2004 indicated that the current range corresponded with the distribution of low elevation open forests where human densities (as indexed by road density) were low (Fig.3.2).

Sloth bear range constituted roughly 17-18% of Sri Lanka's total land area. Elevations where sloth bears occurred was 0-300 m, with less than 2% of sloth bear habitat above 300m. According to estimates for protected areas made by the Sri Lanka Department of Wildlife Conservation (2003), approximately 49% of current sloth bear range is within protected areas such as national parks and strict nature reserves that regulate human activity and prohibit hunting of any kind (Fig.3.3). Most (> 75%) of the remaining 51% lies in the north and east of the island, within zones of ethnic conflict. The estimate of 49% in protected areas does not include some (e.g., Wilpattu National Park and parts of Yala National Park) that lie within regions of ethnic conflict, and which have remained effectively unprotected for extended periods.

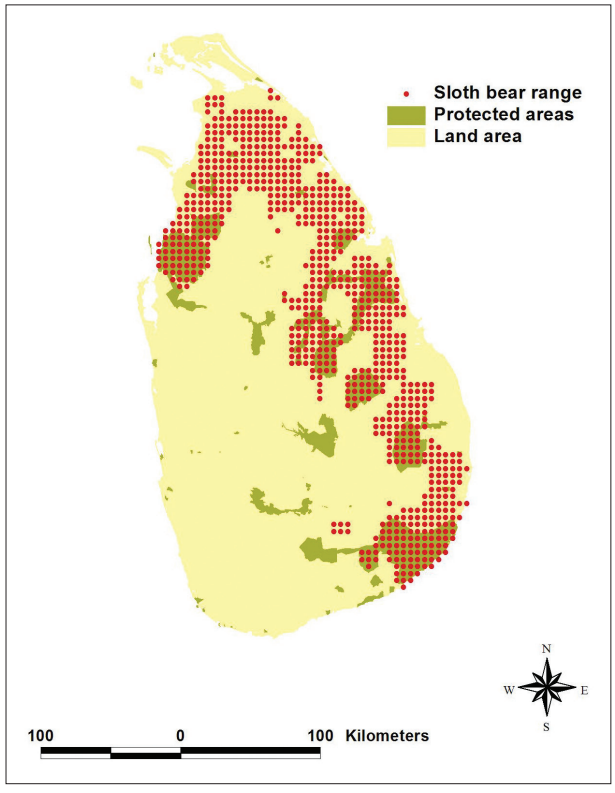

Fig.3.3 : Sri Lanka's network of protected areas and current sloth bear range.

In the absence of any population estimates for sloth bears in Sri Lanka, Santiapillai and Santiapillai (1990) offered a tentative estimate of 300-600 bears within the protected area network of Sri Lanka, based on a crude density value of 0.5-0.1 bears/km^2. Recent work suggests that Wasgomuwa National Park alone, which constitutes about 6% of protected sloth bear range and about 3% of total sloth bear range, may support more than 100-150 bears (Ratnayeke et al. in press). Sloth bear densities in some protected areas may exceed 1 bear/km^2, but habitat conditions vary across protected areas, and densities are probably lower in sparse forests and in unprotected sloth bear range. We therefore cannot provide island-wide population estimates, but suggest that the actual population size of *M. u. inornatus* is probably well in excess of 600 sloth bears.

Human-bear relationships

The Sinhalese and Tamil names for the sloth bear are "valaha" and "karadi", respectively. An old tradition of hunting bears for their fat, which was supposed to stimulate hair growth, is now uncommon. We conducted 266 structured interviews with rural inhabitants who used sloth bear habitat on a regular basis for hunting, chena (slash and burn) cultivation, and collecting forest products. All respondents were males between 20 and 89 years of age (median age = 45) of whom 67% were rural farmers. There were no reports of sloth bears raiding agricultural crops, and sloth bears rarely visited areas used by humans. It is interesting that crop depredation by sloth bears is reported in India and we can only speculate that the extent of habitat degradation in Sri Lanka may not be so severe that sloth bears resort to raiding crops. Sixty five percent of 222 respondents admitted to killing sloth bears, or having knowledge of a bear being killed in their locality (Fig.3.4a), although there was considerable variability in how frequently bears were killed (i.e. from 1-2 bears per month to 1-2 bears per year). Of those respondents that acknowledged that bears were killed, the majority stated that humans killed sloth bears to defend themselves from being attacked. A smaller fraction of respondents stated that they killed bears because they feared them, and a comparable number had killed bears accidentally, because they mistook them for wild boar (*Sus scrofa*, Fig.3.4b).

Human victims of sloth bear attacks were regularly encountered during the survey. We interviewed 277 victims of sloth bear attacks during the survey. The majority of attacks occurred remote from villages when individuals had entered the forest to hunt, gather forest products, or tend their chenas (plots of shifting slash/burn agriculture). Most attacks occurred at close quarters, and between 0900 and 1600 hrs.

Sri Lanka's 2001 forest cover estimates of 24.31% (United Nations Environmental Program 2003) are not dramatically different from an estimated 24.9% forest cover in 1981 (Erdelen 1988) These estimates, derived from remote-sensing techniques, do not account for the progressive degradation of primary forests through illegal felling and other anthropogenic activities (Perera 2001). The island's human population, about 79% of which is rural, increased from 232 to 303 /km^2 within roughly the same period, and currently stands at an estimated 316 /km^2 (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat 2004). Subsistence living well below the poverty level forces most rural individuals in the dry zone to use forests to meet immediate needs. We do not know whether killing of sloth bears is increasing, but it is certain that as human use of natural forests increases, human-sloth bear encounters will also increase to the detriment of sloth bears.

Commercialism of bears

In the Mannar District of Sri Lanka, the sloth bear was so numerous during the early part of the 19th century that the Government encouraged its removal by paying a bounty for every animal that was killed. Records indicate that rewards were paid for the slaughter of at least 442 animals in the Mannar District alone between 1854 and 1880 (Boake 1888). But our 2004 survey indicated that people who used forests occupied by sloth bears rarely killed them for body parts (Fig.3.4). Fat was the main body part taken, followed by skin. Although gall bladders were a prime motivation for killing bears, we had only one report of individuals from an East Asian company offering payment for a bear gall bladder along with the bear's paw, from local hunters.

Present management system

In Sri Lanka, wildlife management is the art of the possible. While much of the attention has been given to the plight of the island's only megaherbivore - the elephant - efforts to conserve the sloth bear (and other carnivores) leave much to be desired. The principal management measure so far has been listing of the sloth bear as one of the protected species (Parliament of the Democratic Socialist Republic of Sri Lanka 1993) in the island, thus giving it legislative protection against hunting. Reservation of habitat for sloth bears has been largely incidental to conservation measures for elephants. The ongoing ethnic conflict, which encom-

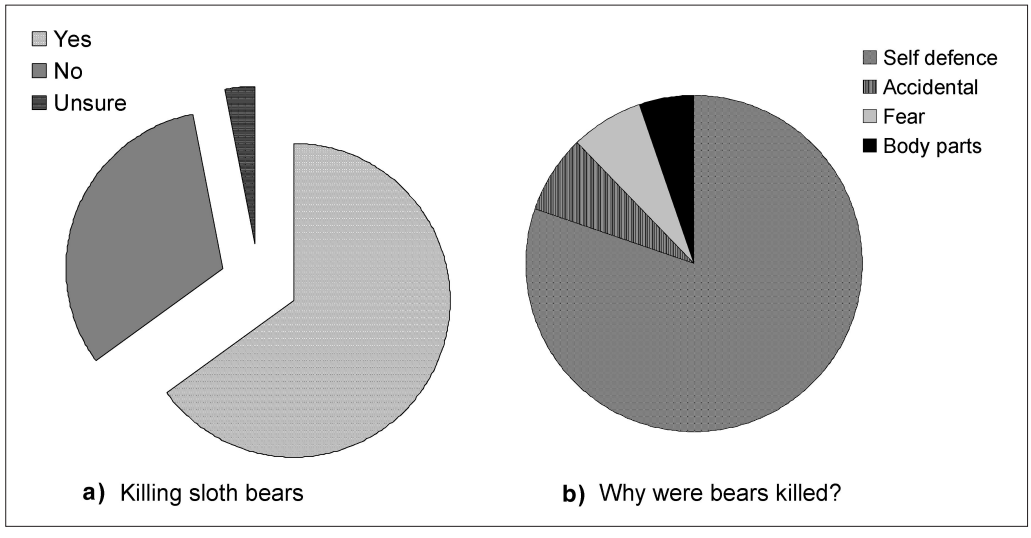

Fig.3.4: Direct threats to sloth bears in Sri Lanka (2004 survey). a) Proportion of 222 respondents who stated whether or not they knew of bears that had been killed in their locality. b) Among respondents acknowledging that bears were killed, proportion citing various reasons for the killing. "Accidental" kills were generally misidentifications, in which hunters mistook them for wild boar.

passes most unprotected sloth bear range, provides obstacles to formally establishing new protected areas. Fortunately, the policy of allowing nature to follow its own course seems to have worked to the advantage of the sloth bear outside the system of protected areas. Much of the sloth bear habitat lies in the low country dry zone, especially in the Vanni, an area that has witnessed almost 20 years of civil war. One of the positive impacts of the war on the environment is its tendency to keep people, including poachers, out of conflict areas (Santiapillai and Wijeyamohan 2003). The prospects of peace in the north and east remain uncertain, but if and when resolved, the resulting resettlement of people will bring new concerns for the future of sloth bears in these areas. The sloth bear, like other large carnivores, is a species where the basis for its management in the wild must be keeping human settlement and wildlife refuges well separated.

Recommendations

Viable populations of the sloth bear still exist in fairly substantial and contiguous extents of the open lowland forest in the Dry Zone where human impacts (as indexed by road density) are relatively low. Apparent trends in habitat conversion have been relatively slow in the past 2 decades, suggesting that sloth bears in Sri Lanka may be reasonably secure in the short term. However, human population trends suggest that fragmentation of sloth bear range and dwindling of sloth bear populations outside protected areas is inevitable. A small isolated population of sloth bears at the extreme southwestern edge of their range (Welanwita-Annasigala area) is in imminent danger of extirpation. In fact, it is highly uncertain whether sloth bears still exist immediately west of this region, (now Uda Walawe National Park), an area that once supported sloth bears.

A large portion of sloth bear range in Sri Lanka lies in unprotected areas, particularly in the north and east of the island (Fig.3.3). Establishing protected areas in those regions and strictly regulating human use of protected areas throughout the island will be crucial for the future of sloth bears. A strong culture of hunting and collecting forest products exists in Sri Lanka. Consequently, human-bear conflicts and killing of bears occur throughout sloth bear range and are expected to increase as human density increases. For example 30% of the sloth bear victims we interviewed admitted they were attacked within protected areas they had entered illegally. This emphasizes the need to reduce human use of protected areas, and provide public education programs to encourage support for wildlife conservation.

The future of the sloth bear in Sri Lanka will belong to those who are willing to accommodate its presence in the habitat they share with other wildlife, while at the same time giving thought to those who will come after them. There are only two possible solutions: man or bear, or man and bear.

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