

IUCN OTTER SPECIALIST GROUP BULLETIN VOLUME 6 PAGES 2 - 5

Citation: De Silva, P.K. (1991) Distribution of *Lutra lutra* in the Highlands of Sri Lanka *IUCN Otter Spec. Group Bull. 6: 2-5*

DISTRIBUTION OF *LUTRA LUTRA* IN THE HIGHLANDS OF SRI LANKA

Padma Kumari de Silva

Department of Zoology, University of Peradeniya, Sri Lanka

Abstract: The only otter found in Sri Lanka is *Lutra lutra*. A survey was carried out in 1989/1990 in the highland region of the island, an area drained by four river systems. Abundant signs of otters were found. Freshwater crabs form the main part of the otters' diet in the study area, where few fish are found. Although at present, otters are plentiful, partly because access to tea plantations is limited, reducing pressure on otters living on them, this may not continue as vegetable farming increases, bringing pesticide and fertiliser washoff and soil erosion. Mining is also causing increased water turbidity, and fish farming is leading to otters being destroyed. Peak Wilderness Sanctuary and the Horton Plains National Park help to protect otters and other wildlife, but conservation measures need to be put in place now to protect otters against these growing threats.

Sri Lanka, a continental island of 65 600 km² in area and located just south of India, has only one species of otter, namely *Lutra lutra*, although two other species *L. perspicillata* and *Aonyx cinerea* are present on the Indian mainland. Apart from the general information based on the chance records of sightings, not much is known about its distribution and ecology in Sri Lanka (de Silva & Santiapillai 1988; de Silva 1989). This paper presents some aspects of ecology and distribution of the species in the streams and tributaries of four major river systems in the highlands, > 1000 m above sea level.

STUDY AREA AND METHODS

Topographically, Sri Lanka consists of three peneplains. In general, the first, the second and the third peneplains extend, respectively, from 0 to 122 m, 305 to 762 m above MSL (Cooray 1984). The highlands are, therefore, mostly in the third and the oldest peneplain, which is situated in the central part of the island. The highlands are drained by four major river systems (Figs 1A & 1B).

Climatically, a dry zone and a wet zone can be distinguished in the island (Fig. 1A) depending on the pattern of rainfall. The wet zone receives rains from the two monsoons, the south-west and the north-east, and these rains are rather evenly distributed throughout the year. The dry zone, on the other hand, receives rains only from the north-east monsoon, and because of the seasonality of the rains, there is a distinct dry period. The highlands are in the wet zone. Of the four rivers studied, Kelani and Kalu have south-west monsoonal basins while Mahawell and Walawe receive benefits from both monsoons.

The streams and rivers were examined for otter signs (spraints, footprints, holts and actual presence) following, in general, the method of Macdonald (1988). In each stream and tributary, a stretch of about 600m along the bank and flowing water areas was searched at every 5 km interval. When otter signs were detected, or at the end of the 600 m stretch, the search was discontinued and started afresh at the next 5 km stretch. The study was carried out in 1989/1990.

Spraints, when found, were carefully collected and studied in the laboratory to determine the prey species and the order of significance of the latter in the diet of the otter.

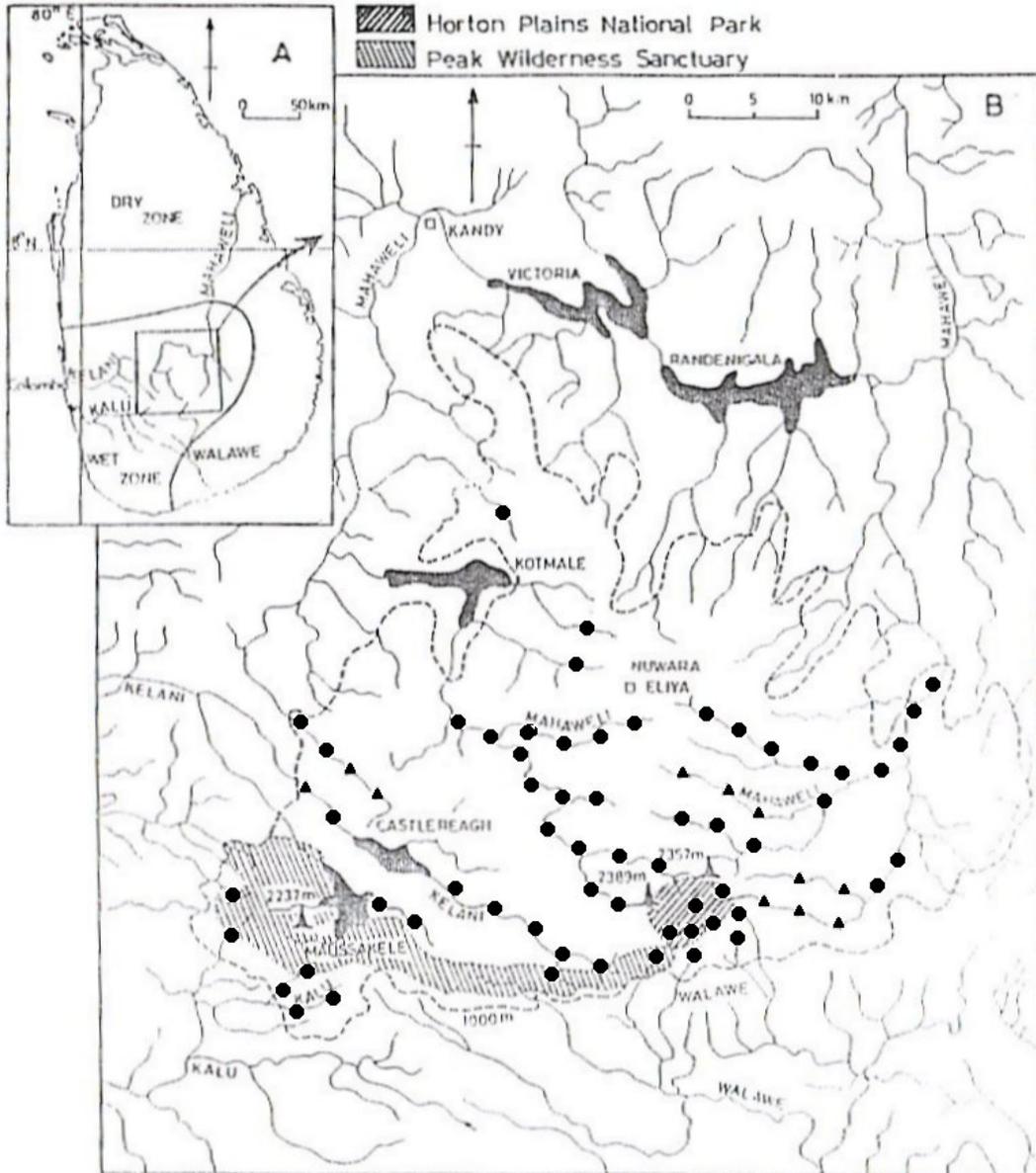


Figure 1. (A) Map of Sri Lanka showing the wet and dry climatic zones and the four river systems surveyed in the highlands. (B) A detailed map of the highlands indicating the sites studied in the four river systems. 1000m contour line is also shown, circles = Positive sites; triangles = Negative sites

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RESULTS AND DISCUSSIONS

Sixty out of 71 sites studied (Fig. 1B, Table 1) in the highlands were positive for otter signs indicating a high frequency of occurrence of the otter in the region. Headwaters of all four river systems contained otter signs.

Table 1: The frequency of occurrence of otter

	No. of Sites Surveyed	No. of Positive Sites	No. of Negative Sites	% of Positive Sites
Mahaweli river	47	37	10	79
Kolani river	11	10	1	91
Kalu river	5	5	0	100
Walawe river	8	8	0	100
Total	71	60	11	85

Freshwater crabs formed the main food item of *L. lutra* in the highlands. Three species of potamonid crabs, namely *Parathelphusa enodis*, *P. rugosa* and *P. soror* are found in the region (de Silva & de Silva 1991). The most common species is *P. rugosa*, which is the largest species growing to about 50mm carapace length, although specimens of carapace length up to about 30 mm are common, and is ubiquitously present in the area. Fish was only of secondary importance in the diet. Only 11 out of 70 of freshwater fish species of Sri Lanka are found above 1000m elevation, while only one species, namely, the introduced rainbow trout (*Salmo gairdneri*) is found above 1500m (de Silva & de Silva 1991). Most of the fish species in the highlands are small (< 100 mm) and are not very common in the streams in the area.

Although the otter is widely distributed in the highlands and apparently is in no danger at present, there are signs that this satisfactory state may not continue for long. This is because the stream habitat in the highlands is now threatened, although to a lesser extent than that in lowlands, by man's direct and indirect interference. A large area of the highlands was cleared less than a century ago by the colonialists for tea plantations. However, this appears to be a blessing in disguise for the otter as the access to tea plantations is restricted. Unplanned settlements are not allowed and the tea plantations do not seem to affect the streams to a significant extent. The forest areas in the highlands are presently cleared mostly for vegetable and potato cultivation and for establishing settlements. Such practices, beside reducing the forest cover, cause soil erosion and contribute to water pollution. Fertilizers get washed down into streams. Pesticides, which are being increasingly and indiscriminately used by vegetable farmers, could drastically affect the food chains in the streams. New settlements will bring along with them the inevitable biological pollution of the streams.

High turbidity of water was observed in some of the sites visited. This was mainly owing to sand extraction for building purposes and gem-mining. High turbidity could affect the fish and other fauna of the streams thus affecting the food supply of the otters. Water diversion and reservoir construction may cause loss of otter holts.

The recent development of pond culture of fish in some of the tea estates could be detrimental to the otter population as the fish farmer will destroy the otter, which will invade his fish ponds. Such incidents have already occurred.

On the positive side, the presence of Peak Wilderness Sanctuary and the Horton Plains National Park (Fig. 1B) as well as other small forest reserves in the area will help the otter as well as the other wildlife.

Thus, although at present *L. lutra* appears to be safe in the highlands of Sri Lanka, conservation measures must be taken now in order to assure the future well-being of the otter as well as other wildlife in the area.

ACKNOWLEDGEMENTS -I acknowledge the field assistance provided by many persons, of whom Mrs U.D. Hindagala and Messrs G.N.Wollone and K.G. Mahinda need special mention. My thanks are due to Drs Sheila Macdonald, University of Essex, United Kingdom and Charles Santiapillai, Chief Scientific Officer of WWF/IUCN Asian programme, Bogor, Indonesia, for their general advice during the project, and to Mr T.S.B. Alagoda of University of Peradeniya for drawing the figures. This study was made possible by a grant provided by the Otter Zentrum, Hankensbüttel, Germany.

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