

Recent sightings and habitat characteristics of the endemic Nilgiri Marten *Martes gwatkinsii* in Western Ghats, India

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Introduction

Scientific information on the distribution, abundance and ecology of many carnivore species in Western Ghats such as Rusty spotted Cat *Prionailurus rubiginosus*, Nilgiri Marten *Martes gwatkinsii* and Malabar Civet *Viverra civettina* is very limited (Johnsigh, 1986; Nowell & Jackson, 1996; Mudappa, 1998) and this is a major handicap in their conservation (Kumar & Yoganand, 1999). The Nilgiri Marten is one of the largest and rarest Indian mustelids and is endemic to the Western Ghats. It is the southern counterpart of the Yellow-throated Marten *Martes flavigula* of the Siwaliks and Himalayas. It was considered as rare by Pocock (1941). The Action Plan of the then IUCN/SSC Viverrid and Mustelid Specialist Group (Schreiber *et al.* 1989) recommended field surveys to locate remaining populations of the species and to determine whether the existing reserves give adequate protection to Nilgiri Marten.

In this article I present the recent sight records and information on the habitat of the Nilgiri Marten.

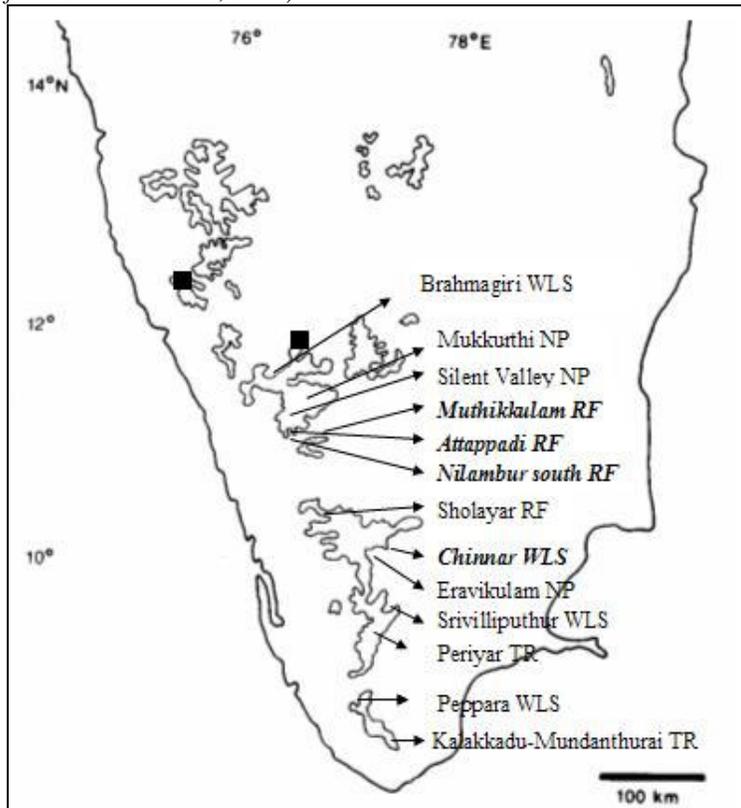
Study species

Within its natural range, the Nilgiri Marten is unmistakable for its mostly black body with a stout tail, typical weasel-like legs

and a flat, pointed head (Mudappa, 1999). The yellowish-orange neck is a particular identification mark of the species. It could easily be mistaken for the Malabar Giant Squirrel *Ratufa indica* that occurs in the rainforests because of its colour and size. However, the Nilgiri Marten has a short black tail that is not as bushy as that of the Malabar Giant Squirrel (Mudappa, 2001). Martens are partly frugivorous and insectivorous. They kill and eat any small bird or mammal which they can overcome (Roberts, 1977). There are reports of them hunting chevrotains *Tragulus meminna* and monitor lizards *Varanus bengalensis* (see Mudappa, 1999) and, even, feeding on nectar (Hutton, 1944).

Quantitative data on the microhabitat use by Nilgiri marten are scarce. Consequently, there is some uncertainty in the preferred habitats and altitudinal distribution of this species. Balakrishnan (1986) states that the Nilgiri Marten occurs in deciduous forest and grasslands. However, this appears doubtful; because it was never recorded from the grasslands of Karnataka in spite of the extensive fieldwork (see Schreiber *et al.* 1989). Mudappa (1999) reported that moist and tropical rainforests falls within an altitudinal range of 300 – 1200 m are the preferred habitats of Nilgiri Marten. Recent reports indicate that it survives in forest patches on mountain summits and is occasionally, encountered in coffee and cardamom plantations (Schreiber *et al.* 1989). In a survey of lesser carnivores in Nilgiri Biosphere Reserve, Yoganand & Kumar (1999) recorded the scats of Nilgiri Marten only from montane-evergreen forests and wattle plantations of Mukkurthi.

Fig.1. Distribution of Nilgiri marten *Martes gwatkinsii* in Western Ghats, India. Localities of new records in bold italics and black boxes represent localities of museum specimens. (Map modified from Schreiber *et al.*, 1989).



Nilgiri Marten has been reported from Rajamala in Eravikulam National Park (Madhusudan, 1995), Mukkurthi National Park (Yoganand & Kumar, 1995, 1999), Peppara Wildlife Sanctuary and Silent Valley National Park (Christopher & Jayson, 1996), Sholayar (Vijayan, 1979), Upper Bhavani (Gokula & Ramachandran, 1996), Brahmagiri (Schreiber *et al.* 1989), Kalakkadu-Mundanthurai Tiger Reserve (Mudappa, 1998), Srivilliputhur Wildlife Sanctuary (see Mudappa, 2001) and Periyar Tiger Reserve (Kurup & Joseph, 2001).

Materials and Methods

This study was carried out as a part of the on-going ecological studies of Grey-headed Bulbul *Pycnonotus priocephalus*, a restricted-range bird species of the Western Ghats. The survey covered all the possible habitat types (dry thorn forest and scrub, moist deciduous, wet and semi evergreen, montane evergreen (shola – grasslands) and plantations (Champion & Seth 1968)), ranging from an elevation of 60 m to 2,300 m. For each detection of the Nilgiri Marten the habitat parameters such as habitat type, elevation, location of the animal in the canopy, height, girth at breast height (gbh) and species of the tree used, canopy height, % canopy cover, % sub-canopy cover, % shrub cover (by visual estimation), distance to nearest water source and distance to the trek path were recorded.

Results and Discussion

A survey across four south Indian states of the Western Ghats covering 730 km resulted in a single sighting of Nilgiri Marten in the upper reaches of the Chinnar Wildlife Sanctuary (10° 15'-21' N, 77° 15'-17' E). There was no sighting from the extensively surveyed Kudremukh National Park of Karnataka, Palni Hills, Kalakkadu-Mundanthurai Tiger Reserve of Tamil Nadu and Goa part of Western Ghats (despite the previous records of the species from some of these areas). There was no sighting from the montane grasslands and moist deciduous forests.

Apart from this single sighting, a total of six sightings of eight individuals of Nilgiri Marten were recorded from various parts of Nilgiri Biosphere Reserve during September 2002 to April 2004. Twice they were seen in pairs and the rest of the sightings were of solitary individuals. All the sightings were from the Kerala part of Western Ghats (Fig. 1). There were three sightings from Silent Valley National Park (11°0 4'-13'N, 76°24'-29'E) and one each from Attappadi Reserve Forests (10°55'-11°14'N, 76°25'-43'E), Muthikkulam Reserve Forests (10°56'-59'N, 76°41'-45'E) and Nilambur South Reserve Forests (11°20'-31'N, 76°06'-16'E). There were two more sightings of the Nilgiri Marten during this period from Silent Valley National Park (Anoop Das, Sibi and Anilkumar, pers. comm.) Both sightings were of paired individuals. All the sightings of the marten were between 10h00 and 14h30.

All the sightings except the one at Chinnar Wildlife Sanctuary were from the medium-elevation rainforests. The lowest sighting was at 600 m and highest was at 1,400 m with an average of 990 m. In Chinnar Wildlife Sanctuary the marten was recorded in a shola forest contiguous to the Eravikulam National Park, at an elevation of 1,350 m. Although it is not possible to speculate on the favoured altitudinal distribution of this species, because neither previous nor recent records have been scaled against effort. Most records come from mid- and higher elevation evergreen forest, shola forests and plantations at higher altitudes; but this is where most forest remains and most effort has been concentrated, so, on its own is uninformative.

Most sightings of the Nilgiri marten came from areas with less canopy and sub canopy cover (Table 1). The vegetation parameters at the detection sites varied considerably, but most of the sightings of martens were in the top layer of the canopy. They preferred taller trees with an average of 16 m height and 190 cm

girth. It is interesting that five of the seven sightings of Nilgiri Marten were on *Elaeocarpus* spp., two in the hollows of the tree and rest in the canopy. The sighting of this marten by Sibi & Anilkumar was also in a hollow of an *Elaeocarpus* tree (Fig 2). The external morphology of the *Elaeocarpus* trees with many hollows may possibly be suitable as shelter to martens. However, it is difficult to draw a conclusion from few sightings about the relationship between Nilgiri Marten and *Elaeocarpus* spp. (*Bhadrasham* in local language). The detection sites were away from the trek paths (mean distance = 99 m), but were at medium distance from water sources (mean = 65 m).

The marten is legally protected (Schedule II part II of the Indian Wildlife Protection Act, 1972); is listed on Appendix III of the Convention on International trade in Endangered Species (CITES), and listed as VU B1+2c (IUCN, 2003). However, habitat destruction, fragmentation and hunting are the major hindrance in the effective conservation of Nilgiri Marten. A local hunter described his kill as a *Maranai* (local name for marten) weighing about two kg from Nilambur Reserve Forests and his description of the animal was similar to the external morphology of the marten.

Most of the past records of the species are from protected areas. However, the result of this study indicates their occurrence in unprotected areas. Of the seven sightings three were from unprotected areas. Although poaching incidents are not so frequent in the protected areas, measures to regulate hunting in the unprotected areas especially in the low elevation forests are not effective. Hence, there is a need for more survey work, and probably more protected areas, in the lower altitudes of the species' range. Legal protection of the reserve forests contiguous to the Silent valley National Park is most essential for the effective conservation of the Nilgiri Marten.

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Table 1. Habitat characteristics at the detection locations of Nilgiri Marten Martesgwatkinsii in Western Ghats, India (N = 7)

Variable	Range	Mean	SE
Altitude (m)	600-1400	992.86	327.15
Location of the animal in the canopy (m)	7-18	11.86	3.72
Height of the tree on which the animal was sighted (m)	9-22	16.86	4.71
Mean Gbh of the tree (cm)	90-310	190.71	79.08
Mean canopy height (m)	10-20	15.86	4.34
Canopy cover (%)	30-50	39.29	8.38
Sub canopy cover (%)	20-40	27.86	6.99
Shrub cover (%)	40-70	57.14	11.13
Distance to nearest water source (m)	5-350	65.29	126.47
Distance to trek path (m)	15-300	99.29	100.18

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References

- Balakrishnan, M. 1986. Wild mammals of Kerala: Their conservation and management. In *Ecodevelopment of Western Ghats*, ed. K. S. S. Nair, R. Gnanaharan & S. Kedharnath, 67-72.
- Christopher, G. & Jayson, E. A. 1996. Sightings of Nilgiri Marten *Martes gwatkinsii* at Peppara Wildlife Sanctuary and Silent Valley National Park, Kerala, India. *Small Carnivore Conserv.* 15:3-4.
- Gokula, V. & Ramachandran, N. K. 1996. A record of Nilgiri marten (*Martes gwatkinsii* Horsfield). *J. Bombay Nat. Hist. Soc.* 93:82.
- Hussain, S. A. 1999. Mustelids, viverrids and herpestids of India: Species profile and conservation status. In *ENVIS Bulletin: Wildlife and protected areas, mustelids, viverrids and herpestids of India*, ed. S. A. Hussain, 2(2):1-38.
- Hutton, A. F. 1944. Feeding habits of the Nilgiri marten. *J. Bombay Nat. Hist. Soc.* 48:374-375.
- IUCN 2003. *2003 IUCN Red list of threatened species*, www.redlist.org Downloaded 4 November 2004.
- Johnsingh, A. J. T. 1986. Diversity and conservation of carnivorous mammals in India. *Proc. Indian Acad. Sci. Suppl.* 73-89.
- Kumar, A. & Yoganand, K. 1999. Distribution and abundance of small carnivores in Nilgiri Biosphere Reserve, India. In *ENVIS Bulletin: Wildlife and protected areas, mustelids, viverrids and herpestids of India*, ed. S. A. Hussain, 2(2):74-86.
- Kurup, D. N. & Joseph, G. K. 2001. Certain observations on the behaviour of the Nilgiri Marten (*Martes gwatkinsii*) in Periyar Tiger Reserve, Kerala, India. *Small Carnivore Conserv.* 25:1-2.
- Madhusudan, M. D. 1995. Sighting of the Nilgiri Marten (*Martes gwatkinsii*) at Eravikulam National Park, Kerala, India. *Small Carnivore Conserv.* 13:6-7.
- Mudappa, D. 1998. Use of camera traps to survey small carnivores in the tropical rainforest of Kalakkad-Mundanthurai Tiger Reserve, India. *Small Carnivore Conserv.* 18:9-11.
- Mudappa, D. 1999. Lesser-known carnivores of the Western Ghats. In *ENVIS Bulletin: Wildlife and protected areas, mustelids, viverrids and herpestids of India*, ed. S. A. Hussain 2(2):65-70.
- Mudappa, D. 2001. Ecology of the Brown Palm Civet *Paradoxurus jerdoni* in the tropical rainforests of the Western Ghats, India. Ph. D. thesis, Bharathiar University, Coimbatore, India.
- Nowell, K. & Jackson, P., eds. 1996. *Status survey and conservation action plan. Wild Cats*. Gland: IUCN. 382 pp.
- Pocock, R. I. 1941. *The Fauna of British India including Ceylon and Burma*. Vol. 1. London: Taylor & Francis.
- Roberts, T. J. 1977. *Mammals of Pakistan*. Tonbridge, Kent: Ernest Benn Ltd.
- Schreiber, A., Wirth, R., Riffel, M., and Van Rompaey, H. 1989. *Weasels, civets, mongooses, and their relatives. An action plan for the conservation of mustelids and viverrids*. Gland: IUCN. 99 pp.
- Yoganand, T. R. K. & Kumar, A. 1995. The distributions of small carnivores in the Nilgiri Biosphere Reserve, southern India: a preliminary report. *Small Carnivore Conserv.* 13:1-2.
- Yoganand, T. R. K. & Kumar, A. 1999. The less known lesser carnivores. In *Silent Valley.- Whispers of reason*, ed. T. M. Manoharan, S. D. Biju, T. S. Nayar & P. S. Easa, 363-371. Thiruvananthapuram: Kerala Forest Department.
- Vijayan, V. S. 1978. Parambikulam Wildlife Sanctuary and its adjacent areas. *J. Bombay Nat. Hist. Soc.* 75:888-901.

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The Nilgiri marten one of the rare endemic mammals of the Western Ghats, photographed from Silent Valley National Park, Kerala. (Photo: Sibi. M.)