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Two new localities of *Aneuretus simoni* Emery (Formicidae: Aneuretinae) from Knuckles mountain range

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Abstract

Aneuretus is the only extant ant genus of the tribe Aneuretini of which all the other genera are extinct. *Aneuretus simoni* (Sri Lankan relict ant), the sole extant species of monotypic subfamily Aneuretinae, is endemic to Sri Lanka and has been of interest due to its intermediate evolutionary position between advanced and primitive groups of ants. Presently this species is considered as one of the world's three critically endangered ant species, mainly due to its limited distribution within the island. Current localities of *A. simoni* include three lowland rain forests; Sinharaja, Gilimale and Kirikanda, and a second growth forest – Pompekelle. A recent survey conducted from October 2011 to March 2012 to study litter ants in Knuckles mountain range discovered this rare ant species from two forest types (Moraella lowland rain forest and semi evergreen forest at Rambukoluwa) outside the Knuckles Conservation Forest.

Moraella lowland rain forest (7.364075 N 80.734975 E) is a 95 ha mixed dipterocarp forest fragment located in Panwila division in Kandy district, at an elevation of 500-700 m within the valleys of Hulu ganga basin of south-western foothills of Knuckles range. Semi evergreen forests are the major natural vegetation type in eastern lowlands below 700 m in the Knuckles range and are seasonally dry. The study sites were located in Rambukoluwa area (7.54849 N 80.79133 E) in Matale district. Moraella forest belongs to the wet zone while study site in Rambukoluwa area belongs to intermediate zone of the country. In each forest type, three 100 m transects were laid and ants were collected within twelve 1 m² quadrates along each transect using two methods; Winkler extraction (in six quadrates) and hand collection (in six quadrates). All the ants were preserved in 70% alcohol. Environmental parameters such as air temperature, altitude, relative humidity were also measured at each quadrate. In Moraella forest, air temperature and relative humidity were from 23.1- 26.2 °C and from 65.1- 94% respectively whereas those ranged from 24.7-29.7 °C and from 67.6-79.9% in semi evergreen forest during the study period. Forty four workers of *A. simoni* were collected from four quadrates along only one transect (elevation 592 m) in Moraella forest while 111 workers were collected from three quadrates along two transects (average elevation 549 m and 552 m) in semi evergreen forest. Relative abundance of *A. simoni* in Moraella forest (1 %) was much lower compared to that in the semi evergreen forest (2.6 %). Of the *A. simoni* workers collected, 92% were collected by Winkler extraction method and it seems to be an effective method to collect this species.

Compared to the hand collection method So far *A. simoni* has been recorded only from the lowland wet zone of the country. The new discovery of this species in semi evergreen forests in Rambukoluwa extends its distribution to Matale district and is the first record of this species from the intermediate zone of the country.

Record of *A. simoni* from recently discovered Moraella lowland rain forest is one indication of the potential high biodiversity in this unique disappearing forest fragment. The present findings highlight the necessity of re-assessing the conservation status of *A. simoni* in Sri Lanka.

Keywords: *Aneuretus simoni* Emery, Knuckles mountain range