

Review Article

**GEOGRAPHIC RECORDS OF SUBFAMILIES, GENERA AND SPECIES OF ANTS
(HYMENOPTERA: FORMICIDAE) IN THE FOUR CLIMATIC ZONES OF SRI
LANKA: A REVIEW**

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ABSTRACT

Ants are a major biotic component in the terrestrial environment of Sri Lanka. For the first time, geographic records of worker ants from the surveys conducted in the four climatic zones of Sri Lanka from 1999 to 2016 have been summarized. Geographic records of subfamilies, genera and 95 species of ants from variety of localities in each climatic zone were pooled and tabulated for each taxon. Among the 11 subfamilies, Amblyoponinae, Dolichoderinae, Formicinae, Myrmicinae, Ponerinae and Pseudomyrmecinae were common to the lands in the four zones while each of the other subfamilies were recorded from a single zone or two or three zones only. The Sri Lankan Relict Ant in Aneuretinae has many records in the wet zone and two records in the intermediate zone. Twenty two among 64 ant genera were recorded from the four climatic zones; 42 genera were found in a single zone or two or three zones. Recorded occurrence of each of the 95 species showed that 24 including 8 invasive species, *Anoplolepis gracilipes*, *Monomorium pharaonis*, *Paratrechina longicornis*, *Solenopsis geminata*, *Tapinoma melanocephalum*, *Technomyrmex albipes*, *Tetramorium bicarinatum* and *Trichomyrmex destructor* were common to the four zones. Further surveys on ants of Sri Lanka are highly recommended for improving the current knowledge on their occurrence and to provide information on the distribution of endemic and invasive ant species in Sri Lanka.

Keywords: Ant diversity, ant surveys, wet zone, dry zone, intermediate zone, arid zone,
Aneuretus simoni

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INTRODUCTION TO ANTS (FAMILY: FORMICIDAE)

Ants are classified under Phylum Arthropoda, Class Insecta, Order Hymenoptera and Family Formicidae. Ants are social insects that forage on the surface and build nests above or below the ground level (subterranean nests). Generally, an ant colony consists of the adult castes, i.e., the de-alate queen, winged males, winged queens and female workers; winged individuals are found only in the reproductive periods. However, many social types deviated from this typical pattern are known as mentioned below. The female ants are born from fertilized eggs. Males are haploid with only one set of chromosomes received from the mother. Males generally survive for a short period with mating being their only role. An ant colony may have a single queen (monogynous), several queens (polygynous) or it may lack queens (gamergate colony). A worker is able to reproduce (= a gamergate) when an ant colony lacks a queen (Sorensen *et al.* 1984); workers of many species can lay haploid eggs even in the presence of the queen, but in some groups like *Pheidole* the workers do not have ovaries so that any reproduction is not possible. Major characteristic features of an adult worker ant are a pair of geniculate antennae, a modified segment between the alitrunk and gaster, **the petiole**, and an additional segment called the **post-petiole** in many ants. Petiole and post-petiole are prominent and well-separated from other body regions. A metapleural gland is generally present postero-laterally on the alitrunk, which opens below the propodeal spiracle. Metapleural gland orifice is variously shaped when present, but may be reduced and secondarily lost in some ants. Workers are used mostly in the classification of ants (Bolton 1994) but current trend is to describe queen and male morphology also for the identification purpose.

ECOLOGICAL AND MEDICAL IMPORTANCE OF ANTS

Worker ants carry and deposit seeds and influence the survival and evolution of many plant species. Many plants have elaiosomes that attract ants; ants take the seeds to their nests and feed the elaiosome to their larvae. The larvae consume the elaiosome on the seeds, the worker ants take the seed to their waste disposal area, which is rich in nutrients from the ant frass and dead bodies, where the seeds germinate. This type of seed dispersal, myrmecochory, is reported in at least 11,000 plants in the world. Ants also disperse seeds in the faeces of frugivores and are

very important in the maintenance of plant composition in the forests (Youngsteadt *et al.* 2009). According to Mayer *et al.* (2014) ant-plant symbioses involve plants that provide hollow structures specialized for colonization of ants and provision of food to ants. In return, the inhabiting ants protect plants against herbivores. Food (extra-floral nectaries, food bodies, fungi and bacteria) and protection are the most important 'currencies' exchanged between partners. The costs and benefits of ant-plant interactions do vary with environmental factors, making them vulnerable to natural or anthropogenic environmental change. Worker ants act as predators, prey, herbivores and omnivores in the food webs. Noxious bites and stings of myrmecines, ponerines and pseudomyrmecines cause allergic reactions in human beings (Ratnathilake *et al.* 2011), farm animals and domestic animals and may cause the death of such animals. Agricultural pests and vectors of the insect pests are not uncommon among the ants. Ants are also important as natural enemies of many agricultural pests.

PAST KNOWLEDGE AND RECENT ANT SURVEYS IN SRI LANKA

Bingham (1903) provided morphological descriptions of 135 ant species in 52 genera of five subfamilies, Camponotinae, Dolichoderinae, Dorylinae, Myrmicinae and Ponerinae from Ceylon and simple taxonomic keys for the ant species recorded from Ceylon, Burma and India. His classification of ants and the taxonomic keys are outdated and currently invalid but his publication still provides valid morphological descriptions of many ant species recorded from Sri Lanka. Several sporadic publications on Sri Lankan ants were also published later (e.g. Bolton & Belshaw (1993) on *Paedalgus*; Dorow & Kohout (1995) on *Polyrhachis*; LaPolla (2004) on *Acropyga*). Accounts on the geographical occurrence of *Aneuretus simoni* Emery (Sri Lankan Relict Ant) between Ratnapura region and Adam's Peak were provided by Wilson *et al.* (1956) and Jayasuriya & Traniello (1985).

A preliminary extensive survey on the diversity of ants in Sri Lanka (Research Grant: NSF RG ZSSL/ 99/ 02), which was conducted at the Department of Zoology, University of Kelaniya from December, 1999 to 2002 investigated worker ants that inhabited the premises of the Kelaniya University, random localities in the Districts of Gampaha, Colombo, Ratnapura and Galle (Fig. 1a) by baited trapping, hand collection and sifting of leaf litter (Agosti *et al.* 2000; Dias & Chaminda 2000; Chaminda & Dias 2001; Dias & Chaminda 2001; Dias *et al.* 2001; Dias 2004; Dias 2006). The intensive ant survey conducted in Ratnapura District (Fig. 1b) from

January, 2004 to June, 2006 (NSF RG 2003/ ZOO/ 06) investigated ant diversity in “Pompekelle” (Dias 2014a), Gilimale Forest Reserve (Dias & Perera 2011), Sinharaja Forest Reserve (Perera *et al.* 2006) and selected tea fields and rubber plantations (Dias & Perera 2006) in bimonthly intervals, using multiple methods simultaneously along ten, 100 m transects. Gunawardene *et al.* (2008) reported the ant diversity observed from March, 2005 to February, 2007 in ten selected regions of Sinharaja Forest Reserve using pitfall trapping and Winkler extraction. Survey on the ant fauna of Sri Lanka was extended to the dry zone in 2006 and worker ants in two disturbed forests and two disturbed lands in Anuradhapura were recorded by honey baiting and soil sifting in January, 2006 (Gunathilake 2007; Dias & Gunathilake 2007a, 2007b). Intensive survey in the dry zone (Kelaniya University research grant: RP/ 03/ 02/ 07/01/ 2005) was extended (Fig 1a) to the selected localities in six forests, Kahalle-Pallekele Forest, Nachchaduwa Forest, Mihintale Forest, Giritale Forest, Nagalakanda Forest, Somawathiya Sanctuary, six vegetable and fruit cultivations and six uncultivated lands in Anuradhapura and Polonnaruwa Districts in 2007 and 2008; soil sifting, litter sifting, honey baiting, honey-baited pitfall trapping and hand collection were employed simultaneously (Kosgamage 2011; Dias & Kosgamage 2012). Another intensive survey of ant fauna in the dry, intermediate and arid zone (NSF RG 2007/ EB/ 03) was conducted from February, 2008 to February, 2010 by employing simultaneous multiple methods in twelve forests (Fig. 1a), Anuradhapura Sanctuary, Mihinthale Sanctuary, Mahakanadarawa Forest, Polonnaruwa Sanctuary, Dambulla Forest (in Polonnaruwa), Kalahagala Forest, Panirendawa Forest (in Madampe), Moragahakanda Forest and Anolundawa Sanctuary (in Chilaw), Badagamuwa Forest, “Koskele” Forest and Kumbukweva Forest (in Egodayagama), twelve cultivated lands and twelve uncultivated lands in Anuradhapura, Polonnaruwa, Puttalam (Fig. 1b) and Kurunegala Districts (Peiris 2012; Dias & Peiris 2015). During 2010 – 2013, the survey (Fig. 2) on the nests of *Aneuretus simoni* and associated ant species was extended to Kirikanda Forest (Dias *et al.* 2013) and Kalugala Proposed Forest Reserve in Kalutara District, Kuluna Kanda Proposed Forest Reserve in Galle District and Wilpita “Aranya Kele” in Matara District (Dias & Ruchirani 2014). Karunaratne and Karunaratne (2013) reported the presence of *A. simoni* in two forests in the intermediate zone. Ant nests in three localities of Meethirigala Forest Reserve were listed and a species list was prepared in 2014 (Udayakantha & Dias 2015). Selected regions of Indikada Mukalana Forest

Reserve in Colombo District (Dias and Udayakantha 2016a, 2016b) and Lenagala Forest Reserve in Kegalle District are being surveyed during 2015 – 2017 for the presence of *Aneuretus simoni* Emery (Sri Lankan Relict Ant) and associated ant species.

LABORATORY IDENTIFICATION OF WORKER ANTS

Workers were identified to the furthest possible taxonomic levels with reference to Bingham (1903), Bolton (1994), relevant websites (e.g. www.antweb.com, Bolton (2014)) and with the assistance of foreign myrmecologists such as Prof. Seiki Yamane (formerly attached to Kagoshima University, Japan). In case no further identification to species level was possible, members of the same genera with distinguishing features were treated as sp. 1, sp. 2, sp. 3 so on (= morphospecies). Taxonomic diversity listed earlier has been revised according to the recent taxonomic revisions of LaPolla (2004), Yoshimura and Fisher (2012), Brady et al. (2014), Schmidt and Shattuck (2014) and Ward et al. (2015).

GEOGRAPHICAL RECORDS OF ANT SUBFAMILIES AND GENERA

Generally, four ecological zones, wet, dry, intermediate and arid zones are recognized in Sri Lanka (Premaratne and Premalal 2005). Based on the findings of ant surveys conducted from December, 1999 to 2016 and information gathered from other related published work, a concise account on the geographical records of 11 ant subfamilies, 64 genera and 95 species in the four climatic zones of Sri Lanka is provided in this article. All information on the ant subfamilies, genera and species (where possible) from the surveys was combined to report the distribution of each of them in the four climatic zones of Sri Lanka.

Among the eleven subfamilies recorded from Sri Lanka (Table 1) six were recorded from all four climatic zones. Aneuretinae was restricted to localities (Fig. 2) in wet and intermediate zones (Dias 2014b) whereas Ectatomminae (Sinharaja Forest Reserve) and Proceratinae (Sinharaja Forest Reserve and Lenagala Forest Reserve) were found in the wet zone only (Gunawardene *et al.* 2008; Personal communication with Prof. Sk. Yamane 2016). Leptanillinae was recorded from the wet and dry zones only. Table 2 presents 64 ant genera recorded from Sri Lanka recently and their presence (+) or absence (-) in the four climatic zones. All 64 genera were recorded from the wet zone. Members of 22 genera were recorded from all zones while other genera were observed only in a single zone or two or three zones.

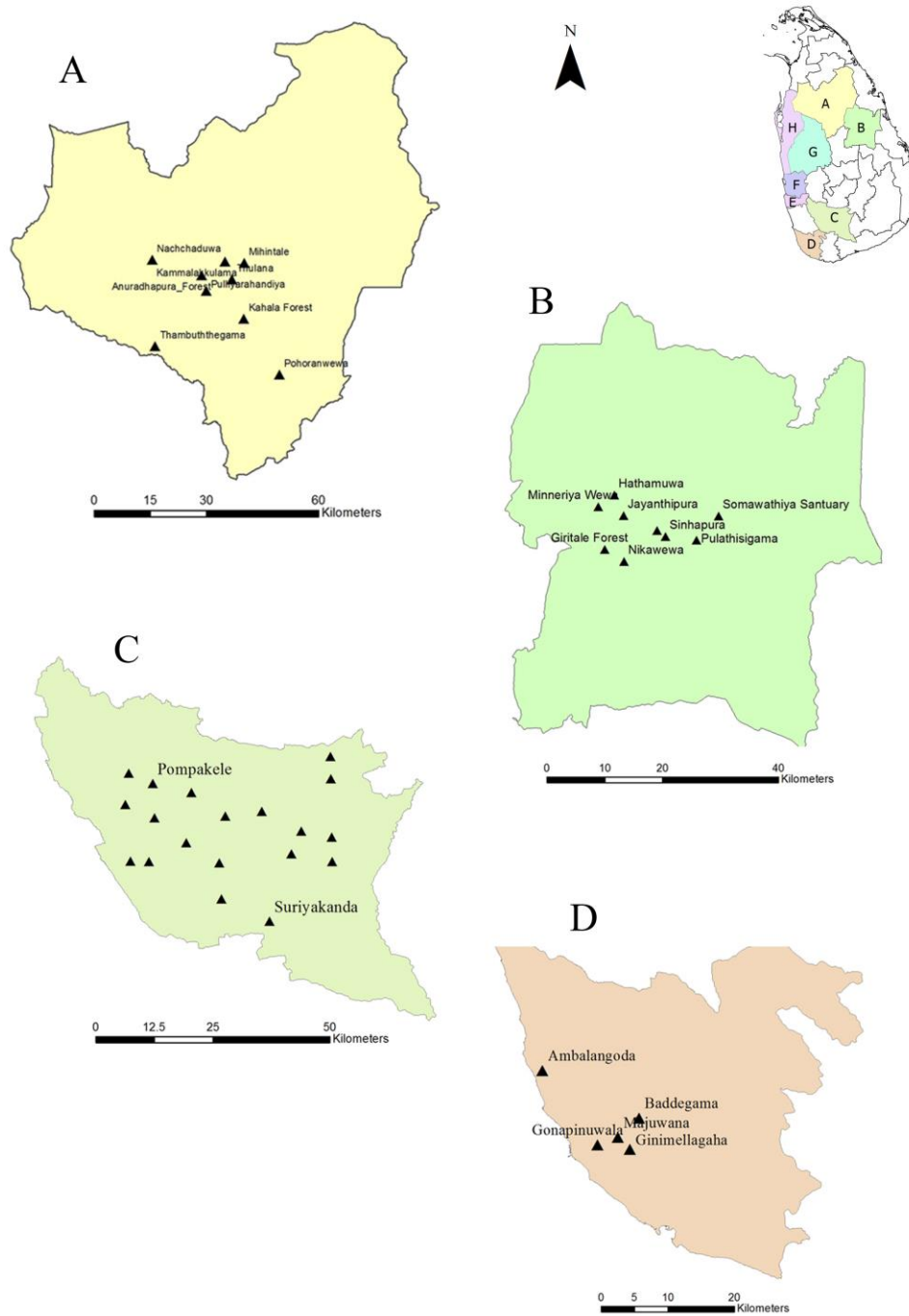


Figure 1a: Maps showing the localities in each District surveyed for ants during 1999 – 2012. A, B – Dry zone; C, D – Wet zone; A – Anuradhapura District, B – Polonnaruwa District, C – Ratnapura District, D – Galle District,

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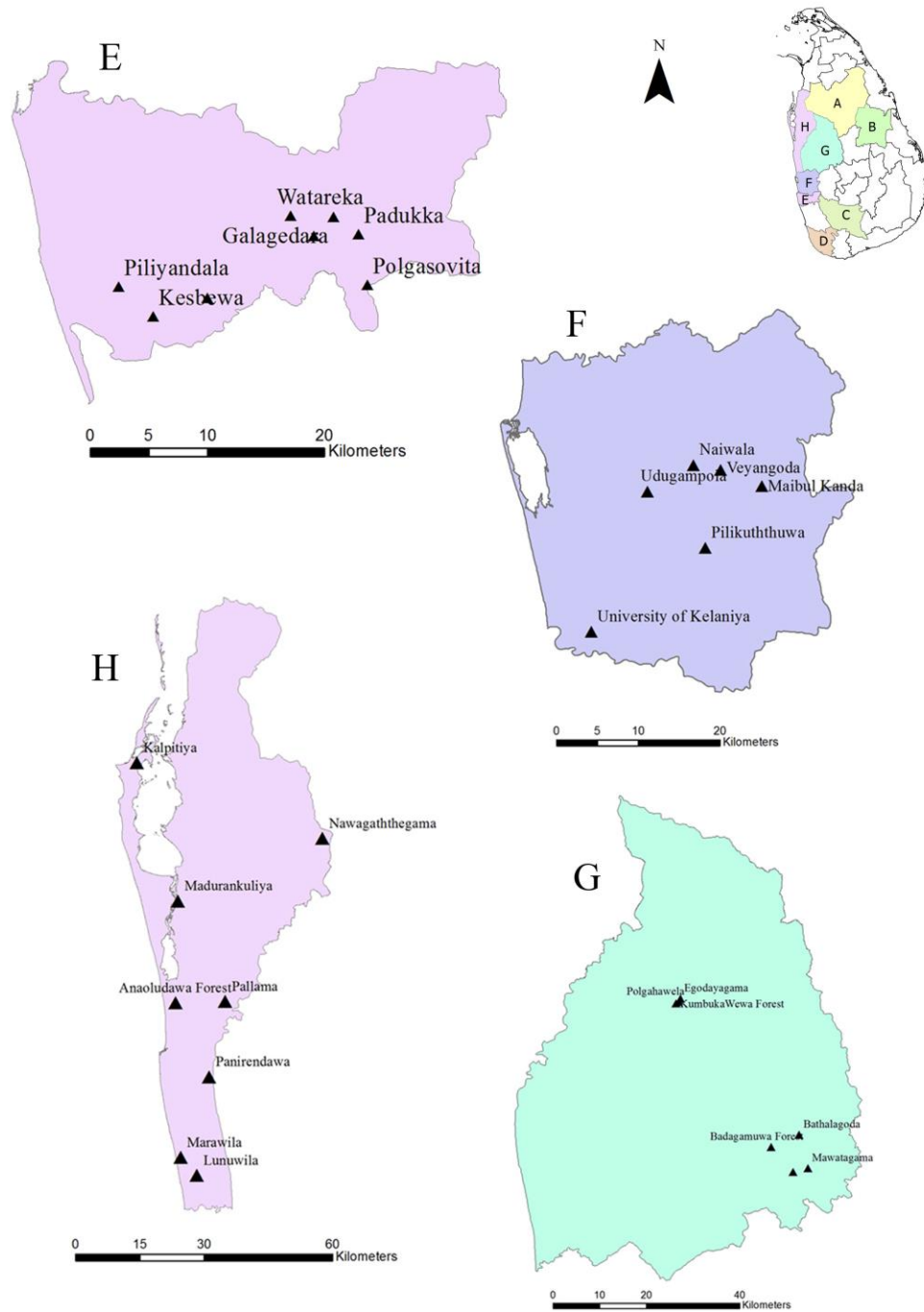


Figure 1b: Maps showing the localities in each District surveyed for ants during 1999 – 2012. E, F – Wet zone; G – Intermediate zone, H – Arid zone. E – Colombo District, F – Gampaha District, G – Kurunegala District, H – Puttalam District

Table 1: Geographical records of ant subfamilies in the wet zone, dry zone, intermediate zone and arid zone of Sri Lanka

- Aenictinae and Cerapachyinae subfamilies are no longer valid and included in Dorylinae (after Brady *et al.* 2014).

** Broken piece of *Gnamptogenys* was reported only from Sinharaja Forest Reserve Gunawardena *et al.* (2008).

¹ Personal communication, Prof. Seiki Yamane (Sep., 2016)

Subfamily	Wet zone	Dry zone	Intermediate zone	Arid zone
1. Amblyoponinae	+	+	+	+
2. Aneuretinae	+	-	+	-
3. Dolichoderinae	+	+	+	+
4. Dorylinae*	+	+	+	-
5. Formicinae	+	+	+	+
6. Ectatomminae**	+	-	-	-
7. Leptanillinae	+	+	-	-
8. Myrmicinae	+	+	+	+
9. Ponerinae	+	+	+	+
10. Proceratinae ¹	+	-	-	-
11. Pseudomyrmecinae	+	+	+	+

Table 2: Geographic records of 64 ant genera recorded from Sri Lanka: 1999 - 2016

* Gunawardene *et al.* (2008): Sinharaja Forest Reserve only.

¹ Personal communication in Sep., 2016), Prof. Seiki Yamane (from Lenagala Forest Reserve) and Gunawardene *et al.* (2008) in **Ponerinae**

² Personal communication in Sep., 2016), Prof. Seiki Yamane (from Lenagala Forest Reserve) and Gunawardene *et al.* (2008)

³ a de-alate queen of *P. ceylonica* (Emery) from Lenagala Forest Reserve only.

Subfamily	Genus	Wet	Dry	Intermediate	Arid
1. Amblyoponinae	1. <i>Stigmatomma</i> Roger	+	+	+	+
2. Aneuretinae	2. <i>Aneuretus</i> Emery	+	-	+	-
3. Dolichoderinae	3. <i>Chronoxenus</i> (Emery)	+	+	-	-
	4. <i>Dolichoderus</i> Lund	+	+	-	-
	5. <i>Ochetellus</i> Shattuck	+	+	+	-
	6. <i>Tapinoma</i> Foerster	+	+	+	+
	7. <i>Technomyrmex</i> Mayr	+	+	+	+
4. Dorylinae	8. <i>Aenictus</i> Shuckard	+	+	-	-
	9. <i>Cerapachys</i> Smith F.	+	+	+	-
	10. <i>Dorylus</i> Fabricius	+	+	+	-
5. Ectatomminae*	11. <i>Gnamptogenys</i> Brown	+	-	-	-
6. Formicinae	12. <i>Acropyga</i> Roger	+	+	-	-
	13. <i>Anoplolepis</i> Santschi	+	+	+	+
	14. <i>Camponotus</i> Mayr	+	+	+	+
	15. <i>Lepisiota</i> Santschi	+	+	+	+
	16. <i>Myrmoteras</i> Forel	+	-	-	-
	17. <i>Nylanderia</i> Emery	+	+	+	+
	18. <i>Oecophylla</i> Smith	+	+	+	+
	19. <i>Paratrechina</i> Motschoulsky	+	+	+	+
	20. <i>Plagiolepis</i> Mayr	+	+	-	-
	21. <i>Polyrhachis</i> Smith	+	+	+	+
	22. <i>Prenolepis</i> Mayr	+	-	+	-
23. <i>Pseudolasius</i> Emery	+	-	-	-	
7. Leptanillinae	24. <i>Leptanilla</i> Emery	+	+	-	-
	25. <i>Protanilla</i> Taylor	+	+	-	-
8. Myrmicinae	26. <i>Acanthomyrmex</i> Emery ²	+	-	-	-
	27. <i>Calyptomyrmex</i> Baroni Urbani	+	-	-	-
	28. <i>Cardiocondyla</i> Emery	+	+	-	-
	29. <i>Carebara</i> Westwood	+	+	+	-
	30. <i>Cataulacus</i> Emery	+	+	-	+
	31. <i>Crematogaster</i> Lund	+	+	+	+

Table 2 continued

	32. <i>Dilobocondyla</i> Santschi	-	+	-	-
	33. <i>Lophomyrmex</i> Emery	+	+	+	+
	34. <i>Meranoplus</i> Smith F.	+	+	+	+
	35. <i>Monomorium</i> Mayr	+	+	+	+
	36. <i>Myrmecina</i> Curtis	+	+	-	-
	37. <i>Myrmicaria</i> Saunders	+	+	-	-
	38. <i>Paratopula</i> Wheeler ³	+	-	-	-
	39. <i>Pheidole</i> Westwood	+	+	+	+
	40. <i>Pristomyrmex</i> Mayr	+	-	-	-
	41. <i>Pyramica</i> Roger*	+	-	-	-
	42. <i>Recurvidris</i> (Bolton)	+	+	+	
	43. <i>Solenopsis</i> Westwood	+	+	+	+
	44. <i>Stereomyrmex</i> Emery	+	+	-	-
	45. <i>Strumigenys</i> F. Smith	+	+	-	-
	46. <i>Tetramorium</i> Mayr	+	+	+	+
	47. <i>Trichomyrmex</i> Mayr	+	+	+	+
	48. <i>Tyrannomyrmex</i> Fernandaz	+	-	-	-
	49. <i>Vollenhovia</i> Mayr	+	-	-	-
9. Ponerinae	50. <i>Anochetus</i> Mayr	+	+	+	+
	51. <i>Brachyponera</i> Emery	+	-	-	-
	52. <i>Centromyrmex</i> Mayr	+	+	-	-
	53. <i>Diacamma</i> Mayr	+	-	+	+
	54. <i>Harpegnathos</i> Jerdon	+	+	-	-
	55. <i>Hypoponera</i> Santschi	+	+	+	+
	56. <i>Leptogenys</i> Roger	+	+	+	+
	57. <i>Mesoponera</i> Emery	+	+	+	+
	58. <i>Myopias</i> Roger*	+	-	-	-
	59. <i>Odontomachus</i> Latreille	+	+	+	+
	60. <i>Ponera</i> Latreille	+	-	-	-
	61. <i>Pseudoneoponera</i> Donisthorpe	+	-	-	-
	62. <i>Platythyrea</i> Roger	+	+	-	-
10. Proceratinae ¹	63. <i>Discothyrea</i> ¹ Roger	+	-	-	-
11. Pseudomyrmecinae	64. <i>Tetraponera</i> Smith F.	+	+	+	+

GEOGRAPHICAL RECORDS OF ANT SPECIES

Ninety five species, so far, identified from the surveys included 24 species common to the four climatic zones (Table 3). Also, non-native tramp species, *Anoplolepis gracilipes* (opportunist), *Plagiolepis exigua* (cryptic species), *Monomorium pharaonis*, *Tapinoma melanocephalum*, *Technomyrmex albipes*, *Tetramorium bicarinatum* and *Trichomyrmex destructor* are among the 24 widely distributed species. Other species including endemics such as *Aneuretus simoni*, *Anochetus longifossatus* and *Stereomyrmex horni* were observed only in one zone or two or three zones. Figure 2 shows the habitat localities of *Aneuretus simoni*, the Endangered Sri Lankan Relict Ant, in Sri Lanka and clearly indicates that it is widely distributed in the country than reported earlier.

Table 3: Geographical records of 95 ant species in Sri Lanka + Present

Species	Wet Zone	Dry zone	Intermediate Zone	Arid Zone
1 <i>Dolichoderus thoracicus</i> Smith, 1860	+			
2 <i>Dolichoderus taprobanae</i> Smith F., 1858	+			
3 <i>Tapinoma indicum</i> Forel, 1895	+	+	+	+
4 <i>Tapinoma melanocaphalum</i> (Fabricius, 1793)	+	+	+	+
5 <i>Technomyrmex albipes</i> (Smith F., 1861)	+	+	+	+
6 <i>Technomyrmex bicolor</i> Forel, 1909	+	+	+	+
7 <i>Technomyrmex brunneus</i> Forel, 1895				+
8 <i>Technomyrmex elatior</i> Forel, 1902	+			
9 <i>Aenictus fergusonii</i> Karavaive, 1901	+	+		
10 <i>Aenictus pachycerus</i> Wilson, 1964	+	+		
11 <i>Aneuretus simoni</i> Emery, 1893	+		+	

Table 3 continued					
12	<i>Cerapachys aitkinii</i> Forel, 1900				+
13	<i>Cerapachys fossulatus</i> Forel, 1895	+			+
14	<i>Cerapachys fragosus</i> (Roger, 1862)	+			+
15	<i>Cerapachys risi</i> (Emery, 1889)				+
16	<i>Cerapachys typhlus</i> (Roger, 1861)		+		+
17	<i>Dorylus labiatus</i> Schuckard, 1850	+	+		
18	<i>Dorylus laevigatus</i> (Smith F., 1857)			+	+
19	<i>Dorylus orientalis</i> Westwood, 1835	+	+		
20	<i>Acropyga acutiventris</i> Roger, 1862	+	+		
21	<i>Anoplolepis gracilipes</i> (Smith F., 1857)	+	+	+	+
22	<i>Camponotus compressus</i> Fabricius, 1787	+	+	+	+
23	<i>Camponotus irritans</i> (Smith F., 1857)	+	+	+	+
24	<i>Camponotus oblongus</i> Forel, 1916			+	+
25	<i>Camponotus reticulatus</i> Roger, 1863			+	+
26	<i>Camponotus rufoglaucus</i> (Jerdon, 1851)	+	+	+	+
27	<i>Camponotus sericeus</i> (Fabricius, 1798)	+	+	+	+
28	<i>Lepisiota capensis</i> (Mayr, 1862)			+	+
29	<i>Lepisiota fergusonii</i> (Forel, 1895)	+	+		+
30	<i>Lepisiota frauenfeldi</i> (Mayr, 1855)	+	+		+
31	<i>Lepisiota opaca</i> (Mayr, 1862)			+	
32	<i>Lepisiota pulchella</i> Forel, 1892			+	

Table 3 continued

33	<i>Nylanderia yerburyi</i> (Forel, 1894)	+			
34	<i>Oecophylla smaragdina</i> (Fabricius, 1775)	+	+	+	+
35	<i>Paratrechina longicornis</i> (Latrielle, 1802)	+	+	+	+
36	<i>Plagiolepis exigua</i> Forel, 1894		+		
37	<i>Polyrhachis bellicosa</i> Smith, 1859	+	+		
38	<i>Polyrhachis bugnioni</i> Forel, 1908	+			
39	<i>Polyrhachis convexa</i> Roger, 1863	+	+		
40	<i>Polyrhachis exigua</i> Santschi, 1920				+
41	<i>Polyrhachis illaudatus</i> Walker, 1859	+			
42	<i>Polyrhachis jerdonii</i> Forel, 1892		+		+
43	<i>Polyrhachis mayri</i> Roger, 1863	+			
44	<i>Polyrhachis punctillata</i> Roger, 1863		+	+	+
45	<i>Polyrhachis rastellata</i> (Latrielle, 1802)	+			
46	<i>Polyrhachis scissa</i> (Roger, 1862)	+	+	+	
47	<i>Prenolepis naoroji</i> Forel, 1902	+			
48	<i>Cardiocondyla nuda</i> (Mayr, 1866)		+		
49	<i>Cataulacus taprobanae</i> Smith F., 1853	+	+		+
50	<i>Crematogaster biroi</i> Mayr, 1897	+	+	+	
51	<i>Crematogaster contemta</i> Mayr, 1879				+
52	<i>Crematogaster dohrni</i> Mayr, 1879		+		+
53	<i>Crematogaster politula</i> Forel, 1902				+
54	<i>Crematogaster rogenhoferi</i> Mayr, 1879	+			+

Table 3 continued					
55	<i>Crematogaster rothneyi</i> Forel, 1913	+	+	+	+
56	<i>Lophomyrmex quadrispinosus</i> (Jerdon, 1851)	+	+	+	+
57	<i>Meranoplus bicolor</i> (Guerin-Meneville, 1844)	+	+	+	+
58	<i>Monomorium criniceps</i> (Mayr, 1879)		+		
59	<i>Monomorium floricola</i> (Jerdon, 1851)	+	+	+	+
60	<i>Monomorium pharaonis</i> (L., 1758)		+	+	+
61	<i>Myrmecina striata</i> Emery, 1889	+	+		
62	<i>Myrmecaria brunnea</i> Saunders, 1915	+	+		
63	<i>Paratopula ceylonica</i> (Emery, 1901)	+			
64	<i>Pheidole rhombinoda</i> Mayr, 1879	+			
65	<i>Pheidole spathifera</i> Forel, 1902	+			
66	<i>Pristomyrmex sinharaja</i> Dias et Yamane, 2016	+			
67	<i>Recurvidris recurvispinosa</i> (Forel, 1890)	+	+	+	
68	<i>Solenopsis geminata</i> (Fabricius, 1804)	+	+	+	+
69	<i>Stereomyrmex horni</i> Emery, 1901	+	+		
70	<i>Strumigenys lyroessa</i> (Roger, 1859)	+	+		
71	<i>Tetramorium bicarinatum</i> (Nylander, 1846)	+	+	+	+
72	<i>Tetramorium smithi</i> Mayr, 1879	+	+	+	+
73	<i>Tetramorium tortuosum</i> Roger, 1863		+	+	+
74	<i>Tetramorium walshi</i> (Forel, 1890)	+	+	+	+
75	<i>Trichomyrmex destructor</i> (Jerdon, 1851)	+	+	+	+

Table 3 continued

76	<i>Tyrannomyrmex legatus</i> Alpert, 2013	+			
77	<i>Anochetus graeffei</i> Mayr, 1870	+	+	+	+
78	<i>Anochetus longifossatus</i> Mayr, 1897	+	+	+	
79	<i>Anochetus nietneri</i> (Roger, 1861)	+	+	+	
80	<i>Centromyrmex feae</i> (Emery, 1889)	+	+		
81	<i>Diacamma ceylonense</i> Emery, 1897	+			+
82	<i>Diacamma indicum</i> (Forel, 1903)	+			
83	<i>Diacamma rugosum</i> Forel, 1911	+		+	
84	<i>Harpegnathos saltator</i> Jerdon, 1851		+		
85	<i>Hypoponera confinis</i> (Roger, 1960)	+			
86	<i>Leptogenys peuqueti</i> (Andre, 1887)	+	+		
87	<i>Leptogenys processionalis</i> (Jerdon, 1851)	+	+	+	+
88	<i>Leptogenys pruinosa</i> Forel, 1900	+	+	+	
89	<i>Odontomachus simillimus</i> Smith F., 1858	+		+	+
90	<i>Mesoponera melanaria</i> (Emery, 1893)	+		+	+
91	<i>Platythyrea parallela</i> (Smith F., 1859)	+	+		
92	<i>Pseudoneoponera rufipes</i> (Jerdon, 1851)	+			
93	<i>Tetraponera allaborans</i> (Walker, 1859)	+	+	+	+
94	<i>Tetraponera petiolata</i> Smith, 1877	+			
95	<i>Tetraponera rufonigra</i> (Jerdon, 1851)	+	+	+	+

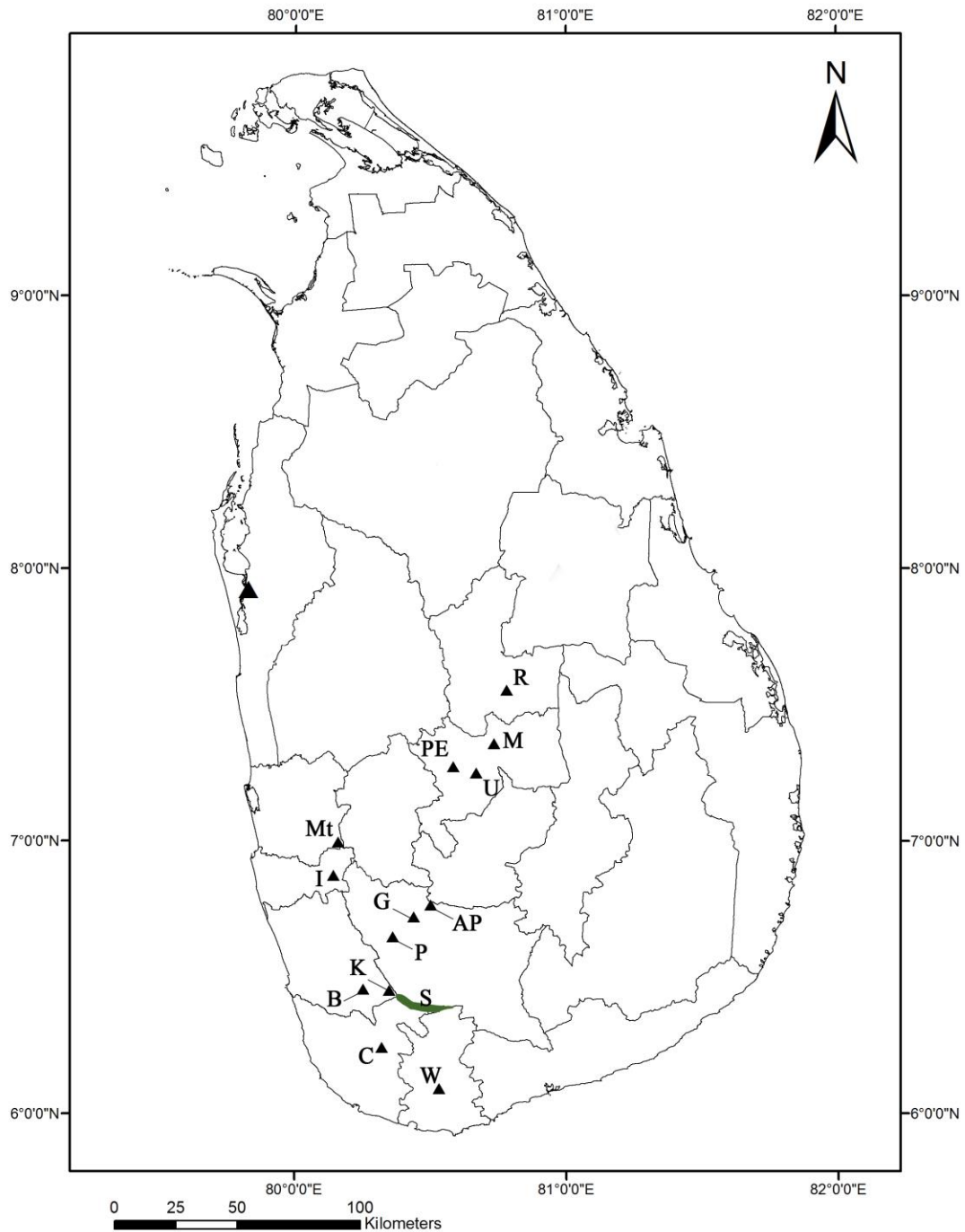


Figure 2: Map of Sri Lanka showing the geographical records of *Aneuretus simoni*
AP - Adam's Peak, B - Kalugala Forest Reserve, C - Kulunakanda FR, G - Gillimale FR, I - Indikada Mukalana FR, K - Kirikanda Proposed FR, M – Moragahakanda in Knuckles, Mt - Meethirigala FR, P - “Pompekelle”, PE – Peradeniya, R - Rambukoluwa in Knuckles, S - Sinharaja FR, U - Udawaththa “Kele”, W – Wilpita “Aranya Kele”

ISSUES AND RECOMMENDATIONS

Twelve subfamilies recorded from Sri Lanka (Dias 2014b) have currently been reduced to eleven because Brady *et al.* (2014) proposed to subsume the six previous dorylomorph subfamilies including Aenictinae and Cerapachyinae previously reported from Sri Lanka, into a single subfamily, Dorylinae. Subfamily Proceratinae is added to the list as the genus *Discothyrea* was recently included in this subfamily (Bolton, 2003). Members of Ectatomminae should be surveyed by appropriate sampling methods as we did not encounter them in the last fifteen years. Geographic distribution of 64 genera (Table 2) recorded in recent surveys was based on the findings of limited surveys conducted in Sri Lanka so that further research on the diversity of ants is encouraged. *Anillomyrma* Emery, *Cryptopone* Emery, *Metapone* Forel, *Myopopone* Roger and *Rophalomastix* Forel were never encountered in the last fifteen years. Bingham (1903) indicated *Lepisiota* as an exotic species to Sri Lanka. Many species e.g. *Anoplolepis gracilipes*, *Tapinoma melanocephalum*, *Paratrechina longicornis*, *Solenopsis geminata* shared by the four zones are known as tramp species and have also been recorded as invasive species globally (McGlynn 1999; Holway *et al.* 2002). Dias (2014) listed all ant species that were recorded from Sri Lanka by various researchers before 1999 as well as those encountered during last fifteen years. It is impossible to prepare a list of species not encountered during last 15 years but recorded by various researchers before 1999 because many specimens in current collection await the species level identification.

Identification to the species level and description of new species of ants require exchange of ant specimens with foreign experts but Wildlife Conservation Department of Sri Lanka has made this task very difficult so that such specimens in the collection remain as morphospecies.

CONCLUSIONS

Six out of eleven subfamilies, 22 out of 64 genera recorded and, 24 including 8 invasive, tramp species among 95 ant species that were reported in recent surveys were shared by the wet, dry, intermediate and arid zones of Sri Lanka. Further surveys in the four zones are essentially required to determine the geographical distribution of ant taxa in the four climatic zones of the country.

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