

INSECTA : HYMENOPTERA : FORMICIDAE

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INTRODUCTION

Ants (Formicidae: Hymenoptera: Insecta) have the most highly organized social life among all the insects. The major factor responsible for their ecological success is division of labour. They live in highly organized and well-established community with hundred and thousands of individuals of distinct forms. Bingham's (1903) fauna is the main source of knowledge on ant fauna of British India. Later Rothneyi (1889) published extensive notes on ants of Bengal whereas Wronghton (1892) provided a good account on Formicidae mainly from Maharashtra. Chapman and Capco (1951) published a checklist of the ants of Asia. Chhotani and Maiti (1977) worked on ants of Andaman Islands. Pajni and Suri (1978) reported the Formicidae Fauna of Chandigarh.

Mathew (2000) and Mathew and Tiwari (2002) dealt with the ants of Tripura and Meghalaya. Ali (1991 & 1992) reported the ant fauna of Karnataka. Bharti (2001 & 2002) has given the checklist of Northwest India. Tiwari (1997) has worked out the ants of Delhi. Tiwari, *et al.* (1998, 2002, and 2003) has published the ant fauna of West Bengal, Orissa and Sikkim.

Hymenoptera fauna of Rajasthan was described by Chhotani and Ray (1976). Tak (1995, 2000 a & b, 2008) has dealt the ants of Rajasthan. Tak and Rathore (1996) has reported the ant fauna of the Thar Desert. Ant (Formicidae) fauna of Desert National Park, Rajasthan has been reported by Tak and Rathore (2004); Tak, *et al.* (2007) has worked the ants of adjacent areas of Pichhola Lake, Udaipur.

The present studies are based on the material collected from Ranthambhore National Park of Rajasthan by the survey parties of Desert Regional Station, Zoological Survey of India. The manuscript deals with sixteen ant species distributed under eight genera and six subfamilies *viz.* Ponerinae, Dorylinae, Dolichoderinae, Formicinae, Pseudomyrmecinae and Myrmicinae of Family Formicidae of Order Hymenoptera. All the sixteen species are new records from Ranthambhore National Park.

Abbreviation used :

N. S. Rathore	-	N. S. R.
R. Sewak	-	R. S.
S. Kumar	-	S. K.

*New Record from Ranthambhore National Park.

**New Record from Rajasthan.

SYSTEMATICS**Class INSECTS****Order HYMENOPTERA****Family FORMICIDAE**

1. Subfamily DORYLINAE Leach

1. *Dorylus (Typhlopone) labiatus* Shuckard*

2. Subfamily PONERINAE Lepeletier

2. ***Anochetus taylori* Forel*

3. ***Anochetus yerburyi* Forel*

3. Subfamily PSEUDOMYRMECINAE Emery

4. *Tetraponera (Tetraponera) rufonigra* Jerdon*

4. Subfamily MYRMECINAE Lepeletier

5. ***Cremastogaster (Orthocrema) walshi* Forel*

6. ***Cremastogaster (Acrocoelia) rothneyi* Mayr*

7. *Monomorium (Xeromyrmex) salomonis indicum* Forel*

8. *Monomorium (Parholcomymex) gracillimum* Jerdon var. *mayri* Forel*

5. Subfamily DOLICHODERINAE Forel

9. *Tapinoma (Micromyrma) melanocephalum* Fabricius*

6. Subfamily FORMICINAE Latreille

10. *Camponotus (Tanaemyrmex) compressus* Fabricius*

11. *Camponotus (Tanaemyrmex) invidus* Forel*

12. *Camponotus (Tanaemyrmex) taylori* Forel*

13. ***Camponotus (Tanaemyrmex) variegatus* Smith*

14. ***Camponotus (Tanaemyrmex) carin* Emery*

15. ***Camponotus dichrous* Forel*

16. *Polyrhachis (Myrmhopla) simplex* Mayr*

Subfamily DORYLINAE Leach

Tribe **Dorylini** ForelGenus **Dorylus** Fabricius1. **Dorylus (Tyhlopone) labiatus** Shuckard

1940. *Dorylus (Tyhlopone) labiatus* Shuckard *Ann. Mag. Nat. Hist.*, **5** : 319.

Material examined : Anantpura, 9 exs., 4.xi.2000; (under moist log), Lahpur Dam, 30 exs., 6.xi.2000 (tree trunk), Coll. N.S.R.

Diagnostic characters : Length Worker maj. 6-8 mm. Worker min. 3.5 mm. Worker: Castaneous yellow, polished, smooth, shining and blind. Head rectangular, longer than its breadth; broader in front than posteriorly. No longitudinally impressed line on the head. Mandibles with two teeth. Antennae - Worker maj. 11 and worker min. 10 jointed. Alitrunk rectangular, depressed, slightly constricted at the promesonotal suture. Petiole one jointed and the node longer than its breadth.

Distribution : India : Rajasthan, Gujarat, Maharashtra, Chandigarh, Karnataka, Punjab, Delhi, West Bengal, Orissa, Sikkim, Manipur, Uttar Pradesh and Himachal Pradesh. Elsewhere: Myanmar, Countries East of Bay of Bengal.

Subfamily PONERINAE Lepeletier

Tribe ODONTOMACHINI Mayr

Genus **Anochetus** Mayr2. **Anochetus taylori** Forel

1900. *Anochetus taylori* Forel, *J. Bombay nat. Hist. Soc.*, **xiii** : 60 & 63.

Material examined : Ranthambhore, 3 exs., 30.xi.1999 (understone), Coll. R.S.

Diagnostic characters : Length-Worker - 4.8 mm., Head, alitrunk and abdomen covered with scattered erect pale hairs. Head irregularly rectangular, posteriorly constricted, mandibles placed very close together in the middle of the front of the head. Mandibles tridentate at apex, the intermediate tooth very small. Antennal carinae short, wide apart covering the base of the antennae. Antenna 12 - jointed, filiform. Alitrunk broad and convex in front, rounded and slightly compressed posteriorly, the pronotum constricted into neck anteriorly. Petiole one jointed and the node smooth, thick, convex in front, flat almost concave posteriorly. Abdomen elongate, massive.

Distribution : Rajasthan, Gujarat, Maharashtra, Western India, Karnataka, Tamil Nadu, Orissa.

Tribe **Odontomachini** MayrGenus **Anochetus** Mayr3. **Anochetus yerburyi** Forel

1900. *Anochetus yerburyi* Forel, *J. Bombay nat. Hist. Soc.*, **xiii** : 59-62.

Material examined : Malik Talab, 2 exs., 3.xi.2000 (Under moist log), Coll. N.S.R.

Diagnostic characters : Length Worker 4-4.5 mm. Worker : Head with mandibles, antennae and legs testaceous yellow, alitrunk and abdomen light shining castaneous red. Head smooth convex in front the front fan shaped area faintly longitudinally striate, posteriorly not so deeply emarginate. Mandibles placed very close together in the middle of the front of the head. Mandibles tridentate at apex, the intermediate tooth very small. Antennae 12 jointed. Alitrunk somewhat coarsely longitudinally rugose in front, the meso and metanotum punctate. Petiole one jointed and flat, only slightly convex in front, above the margin is subacute and rounded. Abdomen smooth and shining with the base punctured.

Distribution : Rajasthan and Karnataka.

Elsewhere : Sri Lanka.

Subfamily PSEUDOMYRMECINAE Emery

Tribe PSEUDOMYRMECINI Forel

Genus *Tetraponera* Smith

4. *Tetraponera (Tetraponera) rufonigra* Jerdon

1852. *Tetraponera (Tetraponera) rufonigra* Jerdon, (*Eciton rufonigrum*), *Madr. Jour. Lit. Sc.*, 12 : 111.

Material examined : Fakiri Talab, 3 exs., 30.viii.2001. (Under stone), Coll. N.S.R. and R.S.

Diagnostic Characters : Length Worker-12 m.m. Worker : Head, 2nd joint of petiole black, the mandibles, antennae, thorax and 1st joint of the petiole more or less red. Head rectangular, a little longer than broad and slightly narrow in front than posteriorly. Mandibles with six teeth. Clypeus transverse narrow, raised in the middle which is slightly produced giving the anterior margin a bisinuate appearance. Antennae short and stout, 12 segmented. Ocelli present. Alitrunk elongate, the pronotum broad its anterior lateral angles dentate, a medial small longitudinal tubercle at its posterior margin, promesonotal suture arched to the front, mesonotum small flat, a deep emargination at the meso-metanotal suture. Metanotum longer than the pro and meso together. Petiole two jointed elongate, the 1st node oval with a long petiole, 2nd node conical with a short petiole. Abdomen small, oval, acute at apex, sting exerted.

Distribution : Rajasthan, Gujarat, Tripura, Chandigarh, Karnataka, Tamil Nadu, Kerala, Punjab, Haryana, Uttar Pradesh, Himachal Pradesh, Meghalaya, West Bengal, Orissa and manipur.

Elsewhere : Myanmar, Sri Lanka, China, Singapore, Indonesia, Cambodia, Java and Sumatra.

Subfamily MYRMICINAE Lepeletier

Tribe CREMASTOGASTERINI Emery

Genus *Cremastogaster* Lund

5. *Cremastogaster (Orthocrema) walshi* Forel

1902. *Cremastogaster (Orthocrema) walshi* Forel, *Rev. Suisse Zool.* **10** : 15.

Material examined : Galai sagar Dam, 8 exs., 7.xii.1999 (under stone), Coll. R.S. Malik Talab, 23 exs., 8.xi.2000 (under stone) Coll. N.S.R.

Diagnostic Characters : Length Worker : 3-3.5 m.m. Worker : Dark piceous, smooth and shining, the basal portion of the metanotum longitudinally striate pilosity fairly abundant and pale yellowish in colour. Head rectangular, slightly longer than broad. Mandibles longitudinally striate with 4 teeth. Antennae short and thick, the scape not extending to the posterior margin of the head, the club formed of the apical three joints, but somewhat indistinct. Alitrunk raised in front and a little compressed pro-mesonotal suture obsolete, meso-mesonotal suture deep. Basal portion of metanotum sculptured, metanotal spines very short, triangular, not divergent. Petiole two jointed 1st joint slightly broadened, flat anteriorly and narrowed posteriorly, 2nd joint with a rounded, slightly raised node divided longitudinally by a broad groove. Abdomen short and broad.

Distribution : India : Rajasthan, Chandigarh, Punjab, Haryana, Uttar Pradesh, Meghalaya, Orissa, Sikim, Himachal Pradesh and West Bengal.

Tribe *Cremastogasterini* Emery

Genus *Cremastogaster* Lund

6. *Cremastogaster (Acrocoelia) rothneyi* Mayr

1878. *Cremastogaster (Acrocoelia) rothneyi* Mayr, *Verh. zool.-bot. Ges. Wein*, **28** : 681.

Material examined : Raj Bagh Talab, 10 exs., 8.xi.2000 (under log), Coll. N.S.R. Fakiri Talab, 6 exs., 30.iii.2001 (under log), Atal sagar, 15 exs., 31.iii.2001 (under stone), Coll. N.S.R. and R.S.

Diagnostic Characters : Length Worker : 3-3.5 m.m. Worker : Rufo-feruginous, abdomen fuscous brown to black, pilosity fairly abundant. Head longitudinally striate a little longer than broad. Mandibles finely striate with 4 teeth. Antennae slender but short, the scape not quite reaching the top of the head, the club of the flagellum formed of apical three joints. Alitrunk pronotum flat above, rounded anteriorly, mesonotum slightly, concave meso-metanotal suture very distinct, basal portion of the metanotum transversely rectangular, longitudinally striate, metanotal spines very thick at base, apex directed backwards and inwards. Petiole two-jointed 1st joint broad, flat above; broader in front than posteriorly, the sides rounded, 2nd joint seen from above trituberculate on upper side, the tubercles rounded, the anterior one small, the other two larger side by side, subequal, abdomen broadly cordate.

Distribution: India: Maharashtra, Gujarat, Tamil Nadu, Sikkim, West Bengal, Punjab, Haryana, Himachal Pradesh, Meghalaya, Uttar Pradesh and Orissa.

Tribe **Solenopsidini** Forel

Genus **Monomorium** Mayr

7. **Monomorium (Xeromyrmex) salomonis indicum** Forel

1902. *Monomorium salomonis* Linn. race *indicum* Forel, *Rev. Suisse Zool.*, **10** : 213.

Material examined : Atal sagar, 8 exs., 31.iii.2001 (under stone), Fakiri Talab, 2 exs., 30.viii.2001 (under stone), Katholi Chowki, Many exs., 2.iv.2001 (under dry dung), Coll. N.S.R. & R.S.

Diagnostic Characters : Length Worker : 3-3.5 m.m. Worker : Ferruginous red with abdomen dark brown. Head opaque almost as broad as long, broader anteriorly than posteriorly. Mandibles narrow with three or four teeth, when closed partially concealed under the projecting margin of the clypeus. Antennae moderately long, the scape not quite reaching the posterior margin of the clypeus. Alitrunk anteriorly rounded, moderately broad, the meso-metanotal suture distinct, the basal portion of the metanotum broadening posteriorly. Petiole two jointed the nodes seen from above equal, rounded and petiolate anteriorly. Abdomen oval.

Distribution : India : Rajasthan, Maharashtra, Gujarat, Chandigarh, Karnataka, Punjab, West Bengal, Andhra Pradesh and Tamil Nadu.

Elsewhere : Myanmar.

Tribe **Solenopsidini** Forel

Genus **Monomorium** Mayr

8. **Monomorium (Parholcomymex) gracillimum var. mayri** Forel

1902. *Monomorium (Parholcomymex) gracillimum* var. *mayri* Forel, *Rev. Suisse Zool.*, **10** : 209.

Material examined : Dhudhal Mal Ka Darra. 20 exs., 1.iv.2001 (ground), Coll. N.S.R. & R.S.

Diagnostic Characters : Worker : Length 2.5-3m.m. Worker : Dark brown with the mandibles, antennae and legs pale yellow in colour. Abdomen with a patch of yellow at the base. Head convex smooth and shining, a little longer than broad, the posterior lateral angle rounded. Mandibles with the masticatory margin very oblique armed with four teeth. Antennae short, slender the scape falling short of the top by one fourth of its length. Alitrunk narrower than the head, emarginate at the meso-metanotal suture, the mesonotum convex, narrower anteriorly slightly convex, apical portion, obliquely truncate. Petiole two jointed 1st node conical rounded above, higher than the 2nd and anteriorly petiolate, 2nd node subglobose not broader than the 1st node. Abdomen oval.

Distribution : Rajasthan, Gujarat, Tamil Nadu, Kerala.

Elsewhere : Sri Lanka, North Africa, Arabia, Myanmar.

Subfamily DOLICHODERINAE Forel

Tribe **Tapinomini** Emery

Genus **Tapinoma** Forster

9. **Tapinoma (Micromyrma) melanocephalum** Fabricius

1793. *Tapinoma (Micromyrma) melanocephalum* Fabricius, *Ent. Syst.*, 2 : 353. (*Formica melanocephala*).

Material examined : Anatpura, 1 ex. 4.xi.2000 (under moist log), Coll. N.S.R. Dhudhal Mal Ka Darra, 15 exs., 1.iv.2001 (ground), Coll. N.S.R. & R.S.

Diagnostic Characters : Length Worker : 1.5-2.0 m.m. Worker : Head and alitrunk dark brown in colour, abdomen yellowish white. Head longer than broad, oval, not emarginate, rounded posteriorly. Mandibles triangular broad with the masticatory margin equal to the other margin and armed with minute teeth. Clypeus evenly convex, broader than high, its anterior margin slightly arched. Antennae thick, the scape extending beyond the top of the head. The joints of the flagellum longer than broad. Alitrunk viewed from the side not emarginate, the pro-meso and meso-metanotal sutures distinct slightly constricted at the latter suture. Petiole one jointed with a distinct node. Base of the abdomen overhanging the pedicel.

Distribution : India : Rajasthan, Gujarat, Maharashtra, Chandigarh, Karnataka, Tamil Nadu, Meghalaya, Tripura, West Bengal and Orissa.

Elsewhere : Spread through tropics of both the hemispheres, South America.

Subfamily FORMICINAE Latreille

Tribe **Camponotini** Forel

Genus **Camponotus** Mayr

10. **Camponotus (Tanaemyrmex) compressus** Fabricius

1892. *Camponotus maculatus* Fabricius race *compressus*, Forel, *J. Bombay nat. Hist. Soc.*, 7 : 239 & 240.

1925. *Camponotus (Tanaemyrmex) compressus* Emery, *C. Gen. Insect. Fasc.* 183 : 98.

Material examined : Lahpur dam, 3 exs., 6.xi.2000 (tree turnk), Coll. R.S., Mansarovar, 1 ex., 31.iii.2001 (ground), Coll. N.S.R. & R.S.

Diagnostic Characters : Length Worker : maj. 11-13 m.m. Worker : Black, opaque, Head sub-triangular, very broad posteriorly. Mandibles triangular with seven teeth. Clypeus medially vertically carinate. Alitrunk narrower than head, anteriorly produced into a collar viewed from side forming a arch, petiole one jointed, node of the petiole oval, transverse convex in front, flat posteriorly. Tibia of the legs prismatic. Abdomen broad and massive.

Distribution : India : Rajasthan, Gujarat, Maharashtra, Shillong, Andamans, Chandigarh, Karnataka, Tamil Nadu, Assam, West Bengal, Meghalaya, Punjab, Orissa, Tripura, Sikkim, and Manipur.

Elsewhere : Sri Lanka, Myanmar, Russia, Arabia, Africa, Borneo, Phillipines, Malayan subregion and Nepal.

Tribe **Camponotini** Forel

Genus **Camponotus** Mayr

11. **Camponotus (Tanaemyrmex) invidus** Forel

1892. *Camponotus (Tanaemyrmex) invidus* Forel *J. Bombay nat. Hist. Soc.*, 7 : 235, fig. 2, Worker, Soldier.

Material examined : Lohpur Dam, 1 ex., 6.xi.2000 (tree trunk), Coll. N.S.R., Mansarovar, 10 exs., 8.xii.1999 (under stone), Coll. R.S.

Diagnostic Characters : Length worker : 5-6 m.m. Worker : Head, alitrunk and abdomen entirely pale yellow with sparse erect yellowish pubescent. Head more or less elongate, sides of the head straight not convex. Mandibles with 6 teeth; clypeus comparatively broad. Antennae 12 segmented, comparatively long and thick. Alitrunk convex anteriorly, strongly laterally compressed posteriorly, with the pro-meso and metanotum more strongly curved. Legs stout, tibia cylindrical. Petiole one jointed, node low, convex in front, flat posteriorly, abdomen comparatively long and massive.

Distribution : India : Rajasthan, Orissa, Sikkim, West Bengal, Himachal Pradesh, Uttaranchal, Delhi, Andaman and Nicobar Islands.

Tribe **Camponotini** Forel

Genus **Camponotus** Mayr

12. **Camponotus (Tanaemyrmex) taylori** Forel

1892. *Camponotus maculatus*, Fabricius race *taylori* Forel, *J. Bombay nat. Hist. Soc.*, 7 : 229 & 241, Worker.

Material examined : Raj Bagh Talab, 4 exs., 8.xi.2000 (Under log), Coll. N.S.R.

Diagnostic Characters : Length : Worker maj. 7-8 m.m. Worker : Castaneous brown in colour. Head subtriangular, mandibles with 7 teeth. Antennae 12 jointed scape of antennae cylindrical. Median lobe of clypeus with its anterior margin transverse. Alitrunk very broad and short viewed from side forming a regular arch. Tibia cylindrical and without spines. Abdomen short and broad. Petiole one jointed, node of petiole oval, transverse, convex in front, flat posteriorly.

Distribution : India : Rajasthan, Maharashtra, Western India, Kerala, Tamil Nadu, Orissa, Sikkim, N.W. Himalayas and West Bengal.

Elsewhere : Sri Lanka, Myanmar and China.

Tribe **Camponotini** ForelGenus **Camponotus** Mayr13. **Camponotus (Tanaemyrmex) variegatus** Smith

1858. *Camponotus variegatus* Smith (*Formica*) Cat., VI : 19 Worker, Female.

Material examined : Malik Talab, 3 exs., 3.xi.2000 (Under stone), Coll. N.S.R.

Diagnostic Characters : Length : Worker maj. 9-10 m.m. Worker : Yellowish red without lusture. Head subtriangular, rather elongate, the posterior lateral angles not prominent, mandibles with 6 teeth. Scape of antennae cylindrical. Median lobe of clypeus with its anterior margin transverse. Alitrunk narrow rather compressed, seen from side forming a regular arch. Tibia cylindrical and without spines beneath. Petiole one jointed, the node of petiole small but remarkably thick, very convex in front, flat posteriorly, abdomen broadly oval.

Distribution : India : Rajasthan and Tamil Nadu.

Elsewhere : Sri Lanka, Java, Myanmar and Singapore.

Tribe **Camponotini** ForelGenus **Camponotus** Mayr14. **Camponotus dichrous** Forel

1897. *Camponotus dichrous* Forel, Bull. Soc. Vaud. Sc. Nat., 16 : 63, Worker.

Material examined : Lahpur Dam, 4 exs., 8.xi.2000 (ground), Coll. N.S.R.

Diagnostic Characters : Worker : 9-11 m.m. Worker : Head and 3rd and following segments of the abdomen pitch black, basal two segments yellow, the alitrunk brown. Head triangular much broader posteriorly than in front, the lateral occipital angles very prominent, mandibles with teeth, clypeus carinate with a median anteriorly produced rectangular lobe. Scape of antennae cylindrical. Tibia compressed and spined beneath. Alitrunk anteriorly narrowed into a collar, seen from side forming a regular arch. Petiole one jointed and node of petiole convex in front, flat posteriorly. Abdomen oval not broader than the head.

Distribution : India : Rajasthan, Punjab, Uttar Pradesh, Himalaya and West Bengal.

Tribe **Camponotini** ForelGenus **Camponotus** Mayr15. **Camponotus (Tanaemyrmex) carin** Emery

1889. *Camponotus (Tanaemyrmex) carin* Emery, Ann. Mus. Civ. Stor. Nat. Genova, 3(7) : 512, Worker.

Material examined : Bagdha, 2 exs., 12.x.2003; Sawai madhopur, 2 exs., 14.x.2003, Coll. S.K.

Diagnostic Characters : Length Worker maj. : 11-12 m.m. Worker : Head and scape of antennae black, alitrunk and abdomen dark fuscous brown. Head elongate, broader in front narrower oval, the posterior occiput transverse but the occipital angles not prominent, mandibles with six teeth. Clypeus rather narrow, vertically carinate down the middle, median lobe slightly produced. Alitrunk seen from side forming a regular arch. Pronotum remarkable long, narrowed anteriorly forming a neck, about twice as long as broad. Petiole one jointed and the node of the petiole very thick at base, low and conical. Abdomen narrow, oval.

Distribution : India : Rajasthan, Maharashtra and Mumbai.

Elsewhere : Myanmar, Tennasserim and China.

Tribe **Camponotini** Forel

Genus **Polyrhachis** Smith

16. **Polyrhachis (Myrmhopla) simplex** Mayr

1862. *Polyrhachis (Myrmhopla) simplex* Mayr, *Verh. Zool. -bot., Ges. Wien*, **13** : 682, Worker.

Material examined : Lahpur Dam, 2 exs., 1.xii.1999 (Under stone), Coll. R.S.; Bagdha, 1 ex, 12.x.2003, Coll. S.K.

Diagnostic Characters : Length Worker : 4.5-7 m.m. Worker : Black head and thorax punctured, granulate, abdomen opaque, pubescence almost entirely absent. Head broadly oval clypeus with a distinct medial vertical carina, the anterior margin incised in the middle, antennal carinae wide apart. Alitrunk narrower than the head, compressed posteriorly, pronotum and mesonotum longer than broad pronotal spines very short and thick, directed obliquely outwards, metanotal spines erect, slightly divergent, the apex slightly bent outwards, legs stout tibia without hairs. Petiole one jointed and the node of the petiole broader than long, biconvex, with two spines on the upper lateral angles and two obtuse teeth in the middle between them, abdomen short, very convex above, globose.

Distribution : India : Rajasthan, Gujarat, Chandigarh and Tamil Nadu.

SUMMARY

The manuscript deals with sixteen ant species distributed under eight genera and six subfamilies viz. Ponerinae, Dorylinae, Dolichoderinae, Formicinae, Pseudomyrmecinae and Myrmicinae of Family Formicidae of Order Hymenoptera. All the sixteen species are new records from Ranthambhore National Park.

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