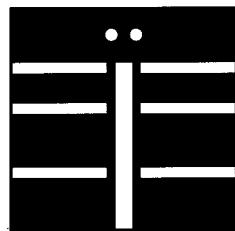


Review and bibliography of the ants of the Seychelles (Hymeno- ptera: Formicidae)



JAZ

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For the first time the literature on Formicidae collected on the Seychelle Islands is reviewed. The systematics of the species is updated. New findings and observations on the ecology of the species made by the author are added. The ant community is discussed in relation to biogeography and ecology. 55 ant species of 26 genera are reported from the Seychelles.

Synthèse et bibliographie sur les fourmis des Seychelles (Hymenoptera: Formicidae). — Pour la première fois la littérature sur les Formicidae recueillis aux Seychelles fait l'object d'une revue critique. La systématique des espèces est mise à jour. L'auteur ajoute de nouvelles découvertes et de nouvelles observations sur l'écologie des espèces. La communauté des fourmis est discutée dans ses rapports biogéographiques et écologiques. 55 espèces de 26 genres ont été observées aux Seychelles.

Key words: Seychelles, biogeography, distribution, island ecology, Formicidae, review.

INTRODUCTION

The Seychelles consist of 92 islands (including islets and atolls) distributed over an ocean area of 390 000 km² and together cover a land mass of about 400 km² (Därr, 1991). They can be arranged into 6 groups (from west to east): Aldabra Is., Farquhar Is., Amirante Is., Inner Seychelles, Ile Plate and Coetivy Is. Table 1 shows those islands, where ants have been collected so far. Summed up, collections have been made until today on 30 islands belonging to 5 of the 6 island groups. No collections exist from Ile Plate and even many of the other larger islands have remained unstudied until today. The last summary of the ant fauna of the Malagasy Region was given by Wheeler (1922). The many nomenclatural changes after this publication together with several new findings, make it useful to compile an updated list. A problem in identifying localities is that several islands have identical names (e. g. "St. Pierre" in the Farquhar Group and north of Praslin; Ile aux Vaches southwest of Mahé and west of Denis; Round Island northeast of Mahé and southeast of Praslin). Furthermore several localities on different islands have identical names (e. g. "Anse Fourmi" exists at many different localities). Most places have both English and French names (e. g., Beacon Island = Ile Sèche). The collections on "St. Pierre" by Mühlenberg *et al.* (1979) and some old collections on the outer island groups exemplify a further problem in that some islands carry the same name as the island group as such. I counted Mühlenberg's findings (see question mark) to the Farquhar Islands, the findings from the outer island groups to the island with the identical name.

No large collections have been made for the past 70 years. Most studies on ants concentrated on the pest status of introduced species like *Anoplolepis longipes* (Haines & Haines, 1974ff) and *Technomyrmex albipes* (Dupont, 1914ff). Several

Table 1. — Islands of the Seychelles where ants have been collected.

Aldabra Is. (AL)	
Aldabra	
South Island	
Amirante Is. (AM)	
D'Arros (Darros)	
Désroches	
Coetivy (C)	
Coetivy	
Farquhar Is. (F)	
Farquhar	
Providence	
St. Pierre	
Inner Seychelles (S)	
Albatross	
Anonyme Island (Ile Anonyme)	
Aride	
Bird	
Cerf (Ile aux Cerfs)	
Chauve Souris	
Cousin	
Cousine	
Denis	
Félicité	
Frégate (Frigaté)	
Grande Soeur	
La Digue	
L'Islette	
Long Island (Ile Longue)	
Mahé	
Marianne (Marie Anne)	
Praslin	
Petite Soeur	
Round (Ile Ronde) (northeast of Mahé)	
Silhouette	
St. Pierre Islet	

of these papers are governmental reports, which were never published, but are accessible at the National Archives in Victoria (Mahé). The only recent studies published in the last decades on ant communities of the Seychelles are Haines & Haines (1978a) and Mühlenberg *et al.* (1977). Haines & Haines listed the genera *Conomyrma* and *Myrmecina*, which had never been collected in the Malagasy Region or in Africa before, and their collection is not available via the Seychelles

National Museum in Victoria nor The Natural History Museum in London. Mühlenberg *et al.* reported on their collections on several small islands, but did not discuss other findings.

My own collections and observations were made in March and April 1993 on L'Islette (W Mahé), Mahé, Praslin and St. Pierre Islette (NE Praslin). On L'Islette and St. Pierre Islette these are the first collections ever made.

CHECKLIST

In the 19th and early 20th century many myrmecologists described an enormous amount of infraspecific ant taxa. Many modern revisions show that these are not subspecies but mere synonyms. Nevertheless this has to be proven in every single case by comparing type material, which was not possible during this study. According to article 45 f+g of the International Code of Zoological Nomenclature (Ride *et al.* 1985), all infraspecific names of a trinomen, as races (r.), stirps (st.) in general, and varieties (var.), when applied directly to a species-rank name before 1961, have to be treated as subspecies. Therefore only the term which was originally used is listed here, not those used by subsequent authors. According to the Code, all names added to a trinomen (infrasubspecific names) are unavailable names. The following list has to be understood in this sense; following revisions will have to prove the validity of the listed subspecies. Only such taxa which are reported from the Seychelles are listed in the taxonomic synopsis of the nominal taxon. In the case that only a subspecies other than the nominal one is recorded from the Seychelles, it is listed alone, if additional references exist only on species level, these are treated as belonging to the nominal subspecies. The species are listed in alphabetical order within the subfamilies.

Distributional specifications are given in detail only for the Seychelles, otherwise only those continents are listed where they also exist.

PONERINAE

Amblyopone besucheti Baroni Urbani

Amblyopone besucheti Baroni Urbani, 1978: 49.

Distribution. - Endemic species of the Seychelles. SEYCHELLES: S: La Digue.

Ecology. - Unknown. Usually species of this genus are hypogaeic. Most species live in moist, forested areas. They nest in rotten wood, leaf litter or in the soil under stones or logs. *Amblyopone* species feed mainly on arthropods, some are specialized on chilopods (Brown, 1960).

Anochetus madagascarensis Forel

Anochetus africanus var. *madagascarensis* Forel, 1887: 382.

Anochetus madagascarensis Forel; Brown, 1978: 557 [raised to species].

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: S: Mahé [H. M. Scott; the species determination of this single male specimen is provided with a question mark (Forel, 1912) and is not mentioned in the genus review (Brown, 1978); Haines & Haines (1978a) found *Anochetus* at Union Vale without determining it to species level].

Ecology. - Unknown. Predominantly the genus comprises predaceous tropical forest species. Arboreal as well as ground living species do occur (Brown, 1978).

Pachycondyla melanaria macra (Emery) comb. n.

Ponera melanaria var. *macra* Emery, 1894a: 68.
Euponera (*Mesoponera*) *melanaria* var. *macra* Emery,
Emery, 1911: 81; Wheeler, 1922: 1009.
[According to Barry Bolton, The Natural History Mu-

seum, London, (pers. comm, 1994), the species has to be transferred to the genus *Pachycondyla*.

Distribution. - Species: Asia, Australia; subspecies endemic of the Seychelles.; SEYCHELLES: S: Mahé [type locality of the subspecies, C. Alluaud].

Ecology. - Unknown. The species of this genus are usually foraging on the ground for dead insects or sugary substances. The species use a broad range of habitats from village settlements and agricultural land to savannahs and forests (Bolton, 1973; Collingwood, 1985; Torres, 1984).

Hypoponera johannae (Forel) comb. n.

Ponera johannae Forel, 1891: 220.

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: S: La Digue [C. Alluaud].

Ecology. - Mamet (1954) observed "this very slow species" on the Mascarene Islands removing seeds.

Hypoponera ragusai (Emery)

Ponera ragusai Emery, 1894b: 28.

Ponera ragusae Emery; Emery, 1911: 91; Wheeler, 1922: 1010 [unjustified emendation, the species is named after Enrico Ragusa].

Hypoponera ragusai Emery; Baroni Urbani, 1971: 18.

Distribution. - Africa, Asia Minor, Europa, Malagasy Region; SEYCHELLES: S: Albatross [M. Mühlenberg], Mahé [H. M. Scott]. [Mühlenberg *et al.* (1977) cited their findings as "*Hypoponera* sp. (*ragusai* Emery?)"].

Ecology. - Small hypogaeic species.

Hypoponera sp. indet.

Distribution. - Africa, America, Asia, Australia, Europe, Malagasy Region; SEYCHELLES: S: Mahé (Union Vale [I. H. & J. B. Haines]).

Ecology. - The genus comprises 133 described species (Bolton, 1995) including a number of wide-ranging tramp species. They usually have small nests (< 100 workers) and are carnivorous. Nests are found in fallen twigs, rotten logs, compressed leaflitter or hard packed earth (Bolton, 1973); under rocks or other covering subjects (Cockendolpher & Francke, 1990).

Leptogenys maxillosa (Smith)

Ponera maxillosa Smith, 1858: 93.

Leptogenys maxillosa Smith; Roger, 1861: 43.

Formica vinsonella Dufour, 1864: 210 [syn. Bolton, 1975: 254].

Leptogenys maxillosa var. *vinsonella* (Dufour); Emery, 1894a: 68; Emery, 1911: 99; Forel, 1912: 159

Distribution. - Africa, America, Asia, Malagasy Region; SEYCHELLES: AM: ?Eagle [J. S. Gardiner]; C: Coetivy [J. S. Gardiner]; S: ? [A. Brauer; J. S. Gardiner], Bird [V. Fitzgerald], Denis [H. M. Scott], Grande Soeur [M. Mühlenberg], Mahé [C. Alluaud].

Ecology. - Tropical tramp species; according to Dufour (1864) it is harmful (not specified in which way) to sugar cane plantations on Reunion.

Odontomachus troglodytes Santschi

Odontomachus haematodus var. *troglodytes* Santschi, 1914: 58.

Odontomachus haematoxides (Linnaeus) sensu Forel, 1909: 54.

Odontomachus haematoxodus (Linnaeus, 1758: 582) sensu several authors [see Brown, 1976: 169; *O. haematoxodus* is a Neotropical species.]

Odontomachus simillimus Smith, 1858: 80 sensu several authors [see Brown, 1976: 165 and Wilson, 1959: 499; *O. simillimus* is an Indo-Australian species.]

Odontomachus troglodytes Santschi; Brown, 1976: 106 [raised to species].

Distribution. - Africa, Malagasy Region; SEYCHELLES: S: Albatross [M. Mühlenberg]; Aride [M. Mühlenberg; J. Rowley & S. Warman]; Bird [J. Steinbacher]; Chauve Souris [M. Mühlenberg]; Cousin [M. Mühlenberg]; Cousine [M. Mühlenberg]; Grande Soeur [M. Mühlenberg]; L'Islette [W. H. O. Dorow]; Mahé ([I. H. & J. B.

Haines; H. M. Scott], Union Vale [I. H. & J. B. Haines]); Petite Soeur [M. Mühlenberg]; Praslin (Anse Volbert, old coast road [W. H. O. Dorow], Pte. Zanguilles peninsula [W. H. O. Dorow], Vallée de Mai, on trail [W. H. O. Dorow]).

Ecology. - Widespread and common in Africa in second growth forest, open woodland and the more moist types of savanna (Brown, 1976: 169); Rowley & Warman (1979) reported that the species is widely distributed and abundant on Aride. It is a common species on L'Islette, Mahé and Praslin (pers. obs.); I found nests at the base of palm trees in sandy soil and in the ground below a stone. *Odontomachus* specimens were observed on bare sandy soil and granite rocks as well as in areas densely covered with fern vegetation. A worker carrying a living alate female was collected on sandy soil (L'Islette at 10.00 a. m. on 18.03.1993). The species is active during day and nighttime.

Platythyrea parallela (Smith)

Ponera parallela Smith, 1859: 143.
Platythyrea wroughtoni seychellensis Forel, 1912: 159;
 Wheeler, 1922: 1007 [syn. Brown, 1975: 9].
Platythyrea parallela (Smith); Donisthorpe, 1932: 454.

Distribution. - Asia, Australia; SEYCHELLES: S: Praslin [H. M. Scott].

Ecology. - Unknown. *Platythyrea* species usually nest in small colonies in cavities in standing or fallen trees. They are predaceous, many species especially on termites (Brown, 1975). Wilson (1958) found the species on New Guinea in leaf litter and rotting logs, one worker was carrying a moth larva.

Prionopelta descarpentriesi Santschi

Prionopelta descarpentriesi Santschi, 1924: 195 [not in key Brown (1960), see there p. 219].

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: S: Petite Soeur [M. Mühlenberg].

Ecology. - Recorded in Madagascar from the debris of a nest of *Pheidole megacephala* (Santschi, 1924). Hölldobler & Wilson (1990) report on *P. amabilis*, one of the 13 species of that genus, which is a primitive cryptobiotic rain forest ant nesting in logs and other fragments of rotting wood on the forest floor of Costa Rica.

PSEUDOMYRMECINAE

Tetraponera rufonigra (Jerdon)

Eciton rufonigrum Jerdon, 1851: 111.
Sina rufonigra (Jerdon); Roger, 1863: 25.
Tetraponera rufonigra (Jerdon); Wheeler, 1922: 1015.

Distribution. - Asia; SEYCHELLES: S: Silhouette [H. M. Scott].

Ecology. - Forel (1912) reported "running on a stretch of bare granite between stretches of fern and scrub". Probably introduced.

MYRMICINAE

Cardiocondyla emeryi Forel

Cardiocondyla emeryi Forel, 1881: 5.
Cardiocondyla emeryi var. *rasalamae* Forel, 1891: 161
 [syn. Bolton, 1982: 312].

Distribution. - Africa, America, Asia Minor, Europe (Madeira), Malagasy Region; SEYCHELLES: AL: South Island [B. Cogan & A. M. Hutson]; S: Albatross [M. Mühlenberg], Anonyme Island [H. M. Scott], Grande Soeur [M. Mühlenberg], Mahé ([C. Alluaud], 305 m [H. M. Scott], Union Vale [I. H. & J. B. Haines]); Petite Soeur [M. Mühlenberg; U. Müller], Silhouette (458 m [H. M. Scott]).

Ecology. - Tramp species.

Crematogaster gibba Emery

Crematogaster gibba Emery, 1894a: 70
Crematogaster (Acrocoelia) gibba Emery; Emery, 1922:
 147 [Acrocoelia is an objective synonym of *Crematogaster*, as they have the same type species].

Distribution. - Endemic species of the SEYCHELLES: S: ? [A. Brauer], Mahé [H. M. Scott], Praslin [type locality, C. Alluaud].

Ecology. - Unknown. The large cosmopolitan genus comprises 427 species (Bolton, 1995). They normally form populous colonies and use a wide range of nesting sites (in the ground, under stones, in logs, in cavities of living plants, or build carton nests attached to branches or tree trunks) (Wheeler, 1922).

Crematogaster rasoherinae Forel

Cremastogaster (sic) *rasoherinae* Forel, 1891: 194.
Crematogaster (*Orthocrema*) *rasoherinae* Forel; Emery, 1922: 131.

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: S: Mahé (from sea level up to 305 m [H. M. Scott]); on top of Morne Blanc (667 m), (W. H. O. Dorow); Silhouette (Mare aux Cochons, Pointe Étienne [H. M. Scott]).

Ecology. - Forel (1912) mentioned an ergatogyne specimen. I observed one dealate female and about 10 workers running on a leaf of *Erythroxylum sechellarum* in the afternoon of 18.03. 1993. Nearby I saw a single forager on flowering *Dianella ensifolia*.

Monomorium destructor (Jerdon)

Atta destructor Jerdon, 1851: 105.
Myrmica gracillima Smith, 1861b: 34 [syn. Bolton, 1987: 324].
Monomorium gracillimum (Smith); Mayr, 1862: 753.
Monomorium destructor (Jerdon); Dalla Torre, 1893: 66.
 [review of the genus *Monomorium* in Bolton (1987)].

Distribution. - Africa, America, Asia, Australia, Europe, Malagasy Region; SEYCHELLES: S: Fregate [M. Mühlberg; U. Müller], Mahé (Union Vale [I. H. & J. B. Haines]).

Ecology. - Tramp species, often in buildings (Bolton, 1987); see also Krombein *et al.* (1979).

Monomorium floricola (Jerdon)

Atta floricola Jerdon, 1851: 107.
Monomorium floricola (Jerdon); Dalla Torre, 1893: 66.

Distribution. - Africa, America, Asia, Malagasy Region; SEYCHELLES: AL: Aldabra [A. Voeltzkow], South I. [B. Cogan & A. Hutson]; S: Albatross [M. Mühlberg], Aride [J. Rowley & S. Warman], Chauve Souris [M. Mühlberg], Cousin [G. M. Bathe; M. Mühlberg], Grande Soeur [M. Mühlberg], Mahé (Union Vale [I. H. & J. B. Haines]), Petite Soeur [M. Mühlberg; U. Müller].

Ecology. - Pantropical tramp species; sometimes a household pest (Bolton, 1987); Rowley & Warman (1979) reported: "All over Aride: forages over vegetation. Common in *Rothmannia* flowers."

Monomorium fossulatum Emery

Monomorium fossulatum Emery, 1894: 465.
Monomorium fossulatum sechellense Emery, 1894a: 69
 [syn. Wilson & Taylor, 1967a: 65].

Distribution. - Asia, Australia; SEYCHELLES: S: Marianne [type locality of subspecies, C. Alluaud], Silhouette (Mareaux Cochons, 305 m [H. M. Scott]).

Ecology. - *M. fossulatum* is a tramp species; see remarks on the *M.-fossulatum*-species-group in Bolton (1987: 420).

Monomorium pharaonis (Linnaeus)

Formica pharaonis Linnaeus, 1758: 580.
Monomorium pharaonis (Linnaeus); Mayr, 1862: 752.

Distribution. - Africa, America, Asia, Australia, Europe; SEYCHELLES: F: Providence [J. S. Gardiner]; S: Cerf [J. S. Gardiner].

Ecology. - Tramp species; see Krombein *et al.* (1979).

***Monomorium* sp. indet.**

Distribution. - Africa, America, Asia, Australia, Europe; SEYCHELLES: S: Albatross [M. Mühlenberg], Felicité [female collected by H. M. Scott], Grande Soeur [M. Mühlenberg], Petite Soeur [M. Mühlenberg].

Ecology. - See species above and Bolton (1987).

***Myrmecina* sp. indet.**

[possibly misidentification; genus unknown from African and Malagasy Region].

Distribution. - America, Asia, Australia, Europe; SEYCHELLES: S: Mahé (Union Vale [I. H. & J. B. Haines]).

Ecology. - Usually living in small colonies in the ground.

***Pheidole braueri* Forel**

Pheidole braueri Forel, 1897: 204.

Distribution. - Endemic species of the SEYCHELLES: ? [type locality, A. Brauer].

Ecology. - Unknown.

***Pheidole flavens farquharensis* Forel**

Pheidole flavens var. *farquharensis* Forel, 1907a: 91.

Distribution. - America; SEYCHELLES: F: Farquhar [type locality of subspecies, J. S. Gardiner]. This subspecies is the only representative of the species outside America. From the Seychelles only a female is reported (Emery, 1922: 107).

Ecology. - Unknown in the subspecies. According to Culver (1974) *Pheidole flavens* belongs to the forest litter community in Puerto Rico, where it is widespread but uncommon.

***Pheidole megacephala megacephala* (Fabricius)**

Formica megacephala Fabricius, 1793: 361.
Pheidole megacephala (Fabricius); Roger, 1863: 30.

Distribution. - Africa, America, Asia, Australia, Europe; SEYCHELLES: AM: ? [J. S. Gardiner], Desroches [J. S. Gardiner]; C: Coetivy [J. S. Gardiner]; F: Farquhar [J. S. Gardiner].

Ecology. - Pantropical tramp species of African origin; sometimes a household pest; Mamet (1954) observed the species tending the Coccoid *Icerya seychellarum* on casuarina trees on the Mascarene Islands. Fowler *et al.* (1994) report that this introduced species reduced the native ant fauna of a city in northern Brazil.

***Pheidole megacephala scabrior* Forel**

Pheidole megacephala var. *scabrior* Forel, 1891: 178.
Pheidole megacephala pusilla var. *scabrior* Forel; Emery, 1922: 86 [unavailable name].

Distribution. - Subspecies endemic of the Malagasy region; SEYCHELLES: S: La Digue [C. Alluaud], Mahé [C. Alluaud], Marianne [C. Alluaud], Praslin [C. Alluaud], Round (near Mahé [C. Alluaud]).

Ecology. - very common on the Seychelles (Emery, 1894a).

***Pheidole picata* Forel**

Pheidole megacephala var. *picata* Forel, 1891: 178.
Pheidole picata Forel; Emery, 1915: 245 [raised to species].

Distribution. - Africa, Malagasy Region; SEYCHELLES: AL: Aldabra [A. Voeltzkow]; S: ? [A. Brauer].

Ecology. - Unknown.

Pheidole punctulata Mayr

Pheidole punctulata Mayr, 1866a: 899.
Pheidole megacephala r. *punctulata* Mayr; Forel, 1891: 179; 1899: 187.
Pheidole punctulata Mayr; Forel, 1907b: 81.
Pheidole megacephala punctulata Mayr; Emery, 1915: 235+241; Wheeler, 1922: 1019.
Pheidole punctulata Mayr; Scott, 1932: 171; Santschi, 1935: 256 [stat. rest.].

Distribution. - Africa, Malagasy Region; SEYCHELLES: AL: Aldabra [J. C. F. Fryer; A. Voeltzkow]; AM: ? [J. S. Gardiner], Desroches [J. S. Gardiner]; C: Coetivy [J. S. Gardiner]; F: Farquhar [J. S. Gardiner]; S: Aride [M. Mühlenberg; J. Rowley & S. Warman], Bird [J. C. F. Fryer], Grande Soeur [M. Mühlenberg], La Digue [C. Alluaud], Long Island [H. M. Scott], Mahé ([C. Alluaud; H. M. Scott]; Union Vale [I. H. & J. B. Haines]), Marianne [C. Alluaud], Praslin [C. Alluaud], Round (near Mahé [C. Alluaud; H. M. Scott]), Silhouette [H. M. Scott].

Ecology. - The species nested on Mahé and on Long Island near Mahé in a decayed log, on Round Island near Mahé in a broken stone, on Silhouette in a dry fallen branch of a tree situated near the coast. Several myrmecophilous guests were found in the nests of this species (Scott, 1932): Zygentoma: *Atelura nana*, *Lepisma intermedia*; Coleoptera: *Lewisium seychellianum* (Corylophidae), *Scaphosoma achardianum* (Scaphidiidae), *Eidoreus minutus* (Erotylidae), *Alphitobius crenatus* and *Palorus mahenus* (both Tenebrionidae). The species is widely distributed on Aride (Rowley & Warman, 1979).

Pheidole voeltzkowii Forel

Pheidole voeltzkowii Forel, 1894b: 227 [incorrect original spelling].

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: AL: Aldabra [A. Voeltzkow].

Ecology. - Unknown.

Solenopsis seychellensis Forel

Solenopsis seychellensis Forel, 1909: 55.

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: S: Mahé (305-610 m [H. M. Scott]), Silhouette (305-610 m [H. M. Scott]).

Ecology. - Unknown of the species. The cosmopolitan genus comprises 181 species (Bolton, 1995), including the well known fire ants. Hypogaeic as well as epigaeic species occur. Some species feed as cleptobionts in the nests of other ants, others are preying on arthropods or are harvesting seeds (Wheeler, 1922).

Strumigenys emmae (Emery)

Epitritus emmae Emery, 1890: 70.
Quadristruma emmae (Emery); Brown, 1949b: 48.
Strumigenys emmae (Emery); Baroni Urbani & Andrade, 1994: 12 [generic synonymy].

Distribution. - Africa, Asia; SEYCHELLES: AL: Aldabra (Grande Terre [V. Spaul]); S: Grande Soeur [M. Mühlenberg], Petite Soeur [M. Mühlenberg; U. Müller]; ?: Pt. Hodoul [V. Spaul], Picard [V. Spaul].

Ecology. - Tramp species (Bolton, 1983: 400). According to Brown (1949a) in other countries most specimens were taken with the sieve and Berlese funnel near the sea, in both forested and agricultural areas. Details about the collecting sites on the Seychelles are unknown.

Strumigenys godeffroyii Mayr

Strumigenys godeffroyii Mayr, 1866b: 516
[Bolton (1983) excluded this species from his review of the afrotropical species of the genus *Strumigenys*].

Distribution. - Asia, Australia; SEYCHELLES: ? [A. Brauer].

Ecology. - Tramp species (Wilson & Taylor, 1967b). Mamet (1954) reported from the Mascarene Islands: "nesting in a porous stone; a very slow species".

According to Brown (1949a: 17) "this species ... will probably be found on any really tropical shore in the central and western part of the Pacific". The specimen from the Seychelles is not available from the main museum collections (Bolton, pers. com.).

Strumigenys rogeri Emery

Strumigenys rogeri Emery, 1890: 68.

Distribution. - Africa, America, Asia, Europe; SEYCHELLES: Cousin [G. M. Bathe].

Ecology. - Tramp species, probably of West African origin; nests normally in rotten wood (Bolton, 1983: 387ff).

Strumigenys scotti Forel

Strumigenys scotti Forel, 1912: 159.

Distribution. - Africa; SEYCHELLES: S: Silhouette (Mare aux Cochons, 305 m [type locality, H. M. Scott]).

Ecology. - Probably afrotropical species of limited tramping ability (Bolton, 1983).

Terataner scotti (Forel)

Atopomyrmex scotti Forel, 1912: 160.

Terataner scotti (Forel); Emery, 1912: 103.

Distribution. - Endemic species of the SEYCHELLES: S: Praslin [type locality, H. M. Scott], Silhouette (plateau de la Mare aux Cochons, 305 m [H. M. Scott], forest, 610 m [H. M. Scott]).

Ecology. - Unknown. *Terataner* species are strictly arboreal, nesting in the trunks or branches of living trees (Bolton, 1973).

Tetramorium bicarinatum (Nylander)

Myrmica bicarinata Nylander, 1846b: 1061.
Tetramorium guineense Fabricius, 1793: 357 *sensu* Mayr, 1862: 740 and all subsequent authors [misidentification, see Bolton, 1977: 94].

Tetramorium bicarinatum (Nylander); Bolton, 1977: 94.
 [revisions of the genus *Tetramorium* in Bolton (1976, 1977, 1979, 1985)].

Distribution. - America, Asia, Australia, Europe, Malagasy Region; SEYCHELLES: S: Fregate [M. Mühlberg; U. Müller], Grande Soeur [M. Mühlberg], Petite Soeur [M. Mühlberg].

Ecology. - Tramp species.

Tetramorium lanuginosum Mayr

Tetramorium lanuginosum Mayr, 1870: 972+976.
Tetramorium obesum st. *striatidens* Emery, 1889: 501
 [syn. Bolton, 1976: 350].
Triglyphothrix striatidens var. *felix* Forel, 1912: 160
 [syn. Bolton, 1976: 350].
Triglyphothrix striatidens (Emery); Bolton, 1976: 350
 [syn. with *Triglyphothrix lanuginosa*].
Triglyphothrix lanuginosa Mayr; Bolton, 1985 [generic synonymy].

Distribution. - America, Asia, Australia, Malagasy Region; SEYCHELLES: AL: Aldabra (South Island [B. Cogan & A. Hutson]); S: Aride [J. Rowley & S. Warman], Felicité [H. M. Scott], Mahé (Union Vale [I. H. & J. B. Haines]), Silhouette (Mare aux Cochons [H. M. Scott]).

Ecology. - Tramp species; one single specimen collected on Aride in 1975, but none in 1978 (Rowley & Warman, 1979).

Tetramorium quadrispinosum Emery

Tetramorium quadrispinosum Emery, 1886: 362.
Tetramorium blochmannii var. *montanum* Forel, 1891: 153 [syn. Bolton, 1979: 155].
Tetramorium blochmanni (sic) *montanum* Forel; Emery, 1922: 282.
Tetramorium quadrispinosum st. *montanum* Forel; Santschi, 1918: 122; Emery, 1922: 282.

Distribution. - Africa, Malagasy Region; SEYCHELLES: AL: Aldabra [J. C. F. Fryer].

Ecology. - fairly common on Aldabra (Bolton, 1979: 155).

Tetramorium simillimum (Smith)

Myrmica simillima Smith, 1851: 118.
Tetramorium simillimum (Smith); Mayr, 1861: 15+61..

Distribution. - America, Asia, Australia, Europe, Malagasy Region; SEYCHELLES: AM: D'Arros [J. S. Gardiner]; S: Albatross [M. Mühlenberg; U. Müller], Aride [J. Rowley & S. Warman], Grande Soeur [M. Mühlenberg; U. Müller], Mahé (Union Vale [I. H. & J. B. Haines]), Petite Soeur [M. Mühlenberg].

Ecology. - Pantropical tramp species of African origin (Bolton, 1977: 131); found on sugar cane fields in the Mascarene Islands (Mamet, 1954); widely distributed on Aride (Rowley & Warman, 1979)

Vollenhovia laevithorax alluaudi Emery

Vollenhovia laevithorax alluaudi Emery, 1894a: 68.
Vollenhovia oblonga alluaudi Emery; Emery, 1922: 164.
Vollenhovia laevithorax alluaudi Emery; Ettershank, 1966: 149 [stat. rest.].

Distribution. - Species: Asia; subspecies endemic of the Seychelles (in contrast to Ettershank (1966), Emery (1922) listed also "Borneo, Engano"): SEYCHELLES: S: Mahé [H. M. Scott], Praslin [type locality, C. Alluaud], Silhouette (Mare aux Cochons, above 305 m [J. S. Gardiner; H. M. Scott]).

Ecology. - The species of this genus usually nest in hollow twigs or other woody cavities. They are insectivorous (Ettershank, 1966: 149). The specimens on Silhouette were nesting in a tree trunk. The colony had alate females in September (Forel, 1912). On Mahé the species was found nesting in a rotten tree stump together with the myrmecophilous beetle *Batrisedes caudatus* of the family Pselaphidae (Scott, 1932).

Vollenhovia piroskae Forel

Vollenhovia piroskae Forel, 1912: 162.

Distribution. - Asia; SEYCHELLES: S: Silhouette (Pointe Étienne in the plain close to the coast [type locality, H. M. Scott]).

Ecology. - Males were collected (no further details given) at 17.09.1908 (Forel, 1912).

DOLICHODERINAE

***Dorymyrmex* sp. indet. (*Conomyrma* auct.)**

[possibly misidentification for *Dorymyrmex* is a New World genus, see Hölldobler & Wilson 1990: 17].

Distribution. - America; SEYCHELLES: S: Mahé (Union Vale [I. H. & J. B. Haines]).

Ecology. - Haines & Haines did not report anything about the specimen collected on the Seychelles. Several papers deal with the American species (see Trager, 1988). They show high degrees of endemism, specialized habitat preferences and varied population structure. The species occur in sandhills, roadsides, fields, pastures, lawns, xeric woodlands, scrub vegetation (Trager, 1988). Several *Dorymyrmex* species build crater nests in the ground, others nest under rocks, grass tufts, plants or even in cracks of a sidewalk (Cockendolpher & Francke, 1990). The species prey on small arthropods and some are discussed therefore as agents of biological control (Trager, 1988), some are tending trophobionts (Cockendolpher & Francke, 1990).

***Tapinoma melanocephalum* (Fabricius)**

Formica melanocephala Fabricius, 1793: 353.
Tapinoma melanocephalum (Fabricius); Mayr, 1862: 651.
Taphoma (sic) *melanocephalum* Fabricius; Rowley & Warman, 1979.

Distribution. - Worldwide; SEYCHELLES: S: ? [A. Brauer; A. Voeltzkow],

Albatross [M. Mühlenberg], Aride [J. Rowley & S. Warman], Cousin [M. Mühlenberg], Cousine [M. Mühlenberg], Grande Soeur [M. Mühlenberg], L'Islette [W. H. O. Dorow], Mahé (Union Vale [I. H. & J. B. Haines]), Petite Soeur [M. Mühlenberg], Praslin (Anse Volbert [W. H. O. Dorow], Grand Anse, Maison des Palmes [W. H. O. Dorow]), Silhouette (Mare aux Cochons, 305 m [H. M. Scott]).

Ecology. - Tropical tramp species; collected on the Mascarene Islands on sugar cane (Mamet, 1954). I collected the species on seagrass on the beach of Anse Volbert, in bungalows at Grand Anse and L'Islette and on a coconut tree at the beach of L'Islette. Fowler *et al.* (1994) reported that this introduced species reduces the native ant fauna in Banana plantations in Southeastern Brazil. It occurred also in native vegetation of some islands but not in tea and cocoa plantations or the native forest of the mainland. Exclusive competition occurs with *Paratrechina longicornis*.

Technomyrmex albipes (Smith)

Formica (Tapinoma) albipes Smith, 1861a: 38.
Technomyrmex albipes (Smith); Emery, 1888: 392.

Distribution. - Africa, Asia, Australia, Malagasy Region; SEYCHELLES: F: ?St. Pierre [M. Mühlenberg]; S: ? [A. Brauer], Albatross [M. Mühlenberg], Anonyme Island [H. M. Scott], Aride [M. Mühlenberg; J. Rowley & S. Warman], Chauve Souris [M. Mühlenberg], Cousin [M. Mühlenberg], Cousine [M. Mühlenberg], Fregate [M. Mühlenberg], Grande Soeur [M. Mühlenberg], Mahé (Cascade Estate [H. M. Scott], Glacis, Les Mamelles [A. Brauer], Union Vale [I. H. & J. B. Haines]), Petite Soeur [M. Mühlenberg], Praslin [M. Mühlenberg], Silhouette (Mare aux Cochons and Mont Pot-à-eau, 305-458 m [H. M. Scott]).

Ecology. - Spread over the whole of the Old World tropics; frequently imported

with plants (Bingham, 1903); introduced into the Seychelles in the 18th or early 19th century (Dupont, 1937); widely distributed on Aride (Rowley & Warman, 1979).

Technomyrmex foreli Emery

Technomyrmex albipes foreli Emery, 1893: 249.
Technomyrmex foreli Emery; Santschi, 1930: 70 [raised to species].

Distribution. - Africa, Malagasy Region; SEYCHELLES: F: Farquhar [J. S. Gardiner], S: Long Island [H. M. Scott], Mahé [I. H. & J. B. Haines], Silhouette (Mare aux Cochons and Mont Pot-à-Eau, 305-458 m [H. M. Scott]).

Ecology. - Unknown.

Technomyrmex mayri difficilis Forel

Technomyrmex mayri r. *difficilis* Forel, 1892: 242.

Distribution. - Subspecies endemic of the Malagasy Region; SEYCHELLES: S: ? (cited in Forel, 1909: 55 without further details on collector or site).

Ecology. - Unknown.

Technomyrmex mayri mayri Forel

Technomyrmex mayri Forel, 1891: 99.

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: S: Mahé (Union Vale [I. H. & J. B. Haines]).

Ecology. - Unknown.

Technomyrmex sp. indet.

Distribution. - Africa, Asia, Australia, Malagasy Region; SEYCHELLES: S: Grande Soeur [M. Mühlenberg], Petite Soeur [M. Mühlenberg].

Ecology. - Nothing is reported on the biology of these specimens, which had not been determined to species level. The

genus comprises 59 described species (Bolton, 1995). Members of this genus are common arboreal ants in many tropical areas and bear the common name „black tree ant“. They tend trophobionts and collect dead insects (pers. obs.).

FORMICINAE

Anoplolepis longipes (Jerdon)

Formica longipes Jerdon, 1851: 122.

Anoplolepis longipes (Jerdon); Emery, 1925: 17.
[in several ecological papers referred to as "Crazy Ant" or "Red Ant"].

Distribution. - Africa, Asia, America, Australia; SEYCHELLES: S: Mahé (whole of the northeastern part of the island north of the line Northolme-Victoria (areas of heavy infestation see below) [I. H. & J. B. Haines], Anse Louis [I. H. & J. B. Haines], Bel Air/St. Louis [I. H. & J. B. Haines], Bel Eau [I. H. & J. B. Haines], Bel Ombre [I. H. & J. B. Haines], Brillant [I. H. & J. B. Haines], Cascade [I. H. & J. B. Haines], Glacis [I. H. & J. B. Haines], Grand Anse Beach [I. H. & J. B. Haines], Hermitage [I. H. & J. B. Haines], La Louise [I. H. & J. B. Haines], La Misère [I. H. & J. B. Haines], Les Canelles [I. H. & J. B. Haines], Les Mamelles [I. H. & J. B. Haines], Lime Plantation Grand Anse [I. H. & J. B. Haines], Maldives [I. H. & J. B. Haines], Mare Anglais [I. H. & J. B. Haines], Pointe La Rue [I. H. & J. B. Haines], Port Glaud ([I. H. & J. B. Haines], coastal road between Port Glaud and L'Islette [W. H. O. Dorow]), Union Vale [I. H. & J. B. Haines], Val D'Endor [I. H. & J. B. Haines], Victoria ([I. H. & J. B. Haines], Botanical Garden, entrance [W. H. O. Dorow]), Sauzier Waterfall [W. H. O. Dorow])), Praslin ([I. H. & J. B. Haines], Anse Petite Cour, La Reserve Hotel [W. H. O. Dorow]).

Ecology. - Tropical tramp species introduced in 1962 on Mahé, in 1975 on Praslin (Haines & Haines, 1978a, Lewis *et al.* 1976); living in several habitats ranging from such without ground cover vegetation to densely vegetated areas;

nesting on the ground and in trees; polygynous up to more than 300 queens; 2500-36000 workers per nest; sexual stages throughout the year, main production shortly before or after the rainy season (from November to March), but no real seasonality; colony foundation mainly by colony fission; nutrition: trophobiotic and carnivorous (dead or living invertebrates including insects, spiders, earthworms, molluscs and dead or injured vertebrates - I. H. & J. B. Haines (1994) observed the species bringing in several native ant species), diurnal foragers; strong interactions with other invertebrates, especially ants, whose numbers are markedly reduced (Haines & Haines, 1978a-d, Mahoune pers. com., 1993). Like many other trophobiotic ants the species shows beneficial and harmful aspects which can be of economic importance (see Haines, 1975ff for control of the species); colony area radius about 100 m (Haines & Haines, 1979a, b). I collected the species at roadside trees (with many lichens on the trunk) close to the seashore of Mahé's westcoast; running on a waterpipeline through wet grassland near the Sauzier waterfall; on the entrance roads and nearby vegetation of the botanical garden in Victoria; on the road and on palmtrees of the La Reserve Hotel at Anse Petite Cour on Praslin. These sites demonstrate the broadness of the ecological niche of the species.

Brachymyrmex cordemoyi Forel

Brachymyrmex patagonicus var. *cordemoyi* Forel, 1895: 49.

Brachymyrmex cordemoyi Forel; Emery, 1905: 178.

Distribution. - America; SEYCHELLES: S: Albatross [M. Mühlberg], Aride [M. Mühlberg], Chauve Souris [M. Mühlberg], Cousin [M. Mühlberg], Fregate [M. Mühlberg], Grande Soeur [M. Mühlberg], L'Islette [W. H. O. Dorow], Mahé (Cascade Estate [H. M. Scott], tea factory south of Morne Blanc [W. H. O. Dorow]), Petite Soeur [M.

Mühlenberg], Praslin (Grand Anse, coastal road [W. H. O. Dorow], Pte. Zanguilles peninsula [W. H. O. Dorow]), Silhouette (Mare aux Cochons [H. M. Scott]).

Ecology. - Introduced species; nesting in dead tree stumps and in rotting tree trunks on the Mascarene Islands, where they were also observed visiting pumpkin flowers; on these islands also collected in tobacco fields and on sugar cane (Mamet, 1954). I found the species on bare sandy ground below a tree, on a lawn at the roadside, foraging on herbs and small (50 cm high) palm trees and nesting below a coconut shell in wasteland close to the coast.

Camponotus (Myrmamblys) thomasseti Forel

Camponotus thomasseti Forel, 1912: 166.
Camponotus (Myrmamblys) thomasseti Forel; Forel, 1914: 272.
 [listed under species *incertae sedis* by Wheeler, 1922: 1054; not in Emery, 1925].

Distribution. - Endemic species of the SEYCHELLES: S: Mahé (Cascade Estate, about 300 m [type locality, H. M. Scott]), Silhouette (forest near Mare aux Cochons [H. M. Scott]).

Ecology. - Probably nesting in stem cavities (Forel, 1912).

Camponotus (Myrmotrema) auropubens aldabrensis Forel

Camponotus foraminosus r. *aldabrensis* Forel, 1897: 203.
Camponotus (Myrmotrema) auropubens aldabrensis Forel; Emery, 1925: 131.

Distribution. - Species: Africa, Malagasy Region; subspecies endemic of the Malagasy Region; SEYCHELLES: AL: Aldabra [type locality of subspecies, A. Voeltzkow; J. C. F. Fryer].

Ecology. - Unknown.

Camponotus (Myrmotrema) grandidieri Forel

Camponotus grandidieri Forel, 1886b: CIII.
Camponotus foraminosus r. *grandidieri* Forel; Forel, 1899: 187.
Camponotus foraminosus-grandidieri (sic) Forel; Forel, 1907a: 94.
Camponotus (Myrmotrema) grandidieri Forel, 1879: 115; Emery, 1925: 132 [nomen nudum].

Distribution. - Africa, Malagasy Region; SEYCHELLES: AL: Aldabra [A. Voeltzkow]; F: Farquhar [J. S. Gardiner], St. Pierre [M. Mühlenberg]; S: ? [A. Brauer; H. M. Scott], Albatross [M. Mühlenberg], Aride [M. Mühlenberg; J. Rowley & S. Warman], Chauve Souris [M. Mühlenberg], Cousine [M. Mühlenberg], Fregate [M. Mühlenberg], Mahé ([C. Alluaud; I. H. & J. B. Haines], Cascade Estate 244-305 m [H. M. Scott], Chateau Margot, 488 m [J. S. Gardiner], Union Vale [I. H. & J. B. Haines]), Petite Soeur [M. Mühlenberg], Praslin [M. Mühlenberg], Silhouette (lowland, Pot-à-eau, 458 m [H. M. Scott]).

Ecology. - Males and females were collected in December and January (Forel, 1912), on February 11, 1947 the sexual stages were observed at the Mascarene Islands, being attracted by light (Mamet, 1954). The species was found on the Seychelles (detailed locality not given) nesting in a rotten tree stump. It was observed in damp forests as well as in cultivated places. A myrmecophilous beetle (*Thesiastes cordicollis*, Pselaphidae) was found in the nest (Scott, 1932).

Camponotus (Myrmotrema) olivieri fryeri Santschi

Camponotus (Myrmotrema) foraminosus aldabrensis var. *fryeri* Forel, 1912: 166 [unavailable name].
Camponotus (Myrmotrema) olivieri stirps *fryeri* (sic) Santschi, 1915: 270 [first available name].

Distribution. - Species: Africa; subspecies endemic of the Seychelles. SEYCHELLES: AL: Aldabra [type locality of subspecies, J. C. F. Fryer].

Ecology. - Unknown of the subspecies. Ackonor (1981) found the species in Ghanaian cocoa farms with various shade regimes, but mainly in those with continuous shade. *Camponotus olivieri* coexisted with *Cataulacus guineensis* but was slightly negatively associated with that species. *C. olivieri* nested in dry, black pods, cherelles and in rotten twigs of the cocoa trees. Its small colonies were nocturnal and workers were only scarcely seen foraging.

Camponotus (Tanaemyrmex) hova Forel

Camponotus sylvaticus r. *maculatus* var. *variegatus* (partim) Forel, 1879: 65.
Camponotus rubripes r. *maculatus* var. *hova* Forel, 1886: 150 [unavailable name].
Camponotus maculatus *hova* Forel; Forel, 1891: 35.
Camponotus hova Forel; Emery, 1920: 5.
Camponotus (Tanaemyrmex) hova Forel; Emery, 1925: 85.

[Three subspecies are reported from the Seychelles, which are listed below. Their taxonomical rank has to be evaluated in further studies].

Distribution. - Madagascar; SEYCHELLES; AL: Aldabra (Collingwood, 1985). S: Mahé (L'Islette [W. H. O. DOROW]).

Ecology. - I found the species on a coconut tree and on seaweed at the beach.

Camponotus (Tanaemyrmex) hova *boivini* Forel

Camponotus maculatus r. *boivini* Forel, 1891: 34.
Camponotus (Myrmoturba) maculatus *boivini* Forel; Wheeler, 1922: 1040.
Camponotus (Tanaemyrmex) hova *boivini* Forel; Emery, 1925: 86.

Distribution. - Species: Africa, Malagasy Region; subspecies: endemic of the Malagasy Region; SEYCHELLES: S: Mahé (488–549 m [J. S. Gardiner]).

Ecology. - Unknown.

Camponotus (Tanaemyrmex) hova *fulvus* Emery

Camponotus maculatus *fulvus* Emery, 1894a: 72.
Camponotus maculatus r. *fulvus* var. *octonotatus* Forel, 1897: 202 [unavailable name].

Camponotus (Myrmoturba) maculatus *fulvus* Emery; Wheeler, 1922: 1040.

Camponotus (Myrmoturba) maculatus *fulvus* var. *octonotatus* Forel; Wheeler, 1922: 1040 [unavailable name].

Camponotus (Tanaemyrmex) hova *fulva* var. *fulvo-octonotata* Forel; Emery, 1925: 86 [wrong citation].

Camponotus (Tanaemyrmex) hova *fulva* var. *octonotata* Forel; Emery, 1925: 86 [unavailable name].

Camponotus *fulvus* Emery, 1894a: 72 sensu Mühlenberg et al., 1977.

Distribution. - Subspecies: endemic of the Malagasy Region; SEYCHELLES: S: ? [type locality of *Camponotus maculatus* r. *fulvus* var. *octonotatus*, A. Brauer], Mahé ([H. M. Scott], 488–549 m [J. S. Gardiner]), Praslin [type locality of *C. h. fulva*, C. Alluaud; J. S. Gardiner; H. M. Scott], Silhouette [H. M. Scott].

Ecology. - From lowland up to 610 m on Silhouette (Scott, 1932).

Camponotus (Tanaemyrmex) hova *mixtellus* Dalla Torre^(1, 2)

Camponotus maculatus r. *radamae* var. *mixtellus* Forel, 1891: 33 [unavailable name]⁽¹⁾.

Camponotus radamae var. *mixtellus* Dalla Torre, 1893: 249 [first available use of the name]⁽²⁾.

Camponotus maculatus *radamae* var. *mixtella* Forel; Forel, 1912: 165 [unavailable name]⁽¹⁾.

Camponotus (Myrmoturba) maculatus *radamae* var. *mixtellus* Forel; Wheeler, 1922: 1041 [unavailable name]⁽¹⁾.

Camponotus (Tanaemyrmex) hova var. *mixtella* Forel; Emery, 1925: 85.

Distribution. - Subspecies: endemic of the Malagasy Region; SEYCHELLES: AL: Aldabra [J. C. F. Fryer; H. M. Scott; A. Voeltzkow].

(1) "mixtellus" in *Camponotus maculatus* r. *radamae* var. *mixtellus* is an infrasubspecific name. According to § 10(c) of the International Code of Zoological Nomenclature, "An infrasubspecific name ... becomes available when the name is used for a species or subspecies..." Until it is used in that sense it is an "unavailable name".

(2) Dalla Torre (1893) used the name "mixtellus" for the first time on subspecies level. According to § 50(c)(i) "...if an infrasubspecific name ... is used for a species or subspecies, its author is the one who first so uses it". Dalla Torre is the correct author. In this connection it is without any relevance that Dalla Torre himself added Forel's name to "mixtellus". He could not know the rules which were only established many years later.

Ecology. - Unknown.

Camponotus (Tanaemyrmex) maculatus-gouldi-group

Camponotus (Tanaemyrmex) maculatus-gouldi-group Emery, 1925: 84.

Camponotus (Tanaemyrmex) maculatus-group Emery sensu Haines & Haines, 1978a: 635.

Distribution. - Mahé ([I. H. & J. B. Haines], Union Vale [I.H.&J.B.Haines]).

Ecology. - See species above.

***Paratrechina bourbonica bourbonica* (Forel)**

Prenolepis nodifera r. *bourbonica* Forel, 1886a: 210.

Prenolepis bourbonica r. *bengalensis* Forel, 1894a: 406+408 [syn. Wilson & Taylor, 1967a: 88].

Prenolepis bengalensis Forel; Bingham, 1903: 326.

Paratrechina (Nylanderia) bourbonica bengalensis (Forel); Emery, 1925: 219.

Distribution. - Asia; Malagasy Region; SEYCHELLES: C: Coetivy [J.S. Gardiner]; F: St. Pierre [M. Mühlenberg]; S: Albatross [M. Mühlenberg], Aride [M. Mühlenberg], Chauve Souris [M. Mühlenberg], Cousin [M. Mühlenberg], Cousine [M. Mühlenberg], Fregate [M. Mühlenberg], Grande Soeur [M. Mühlenberg], La Digue [C. Alluaud], Mahé [C. Alluaud] (Cascade Estate [H. M. Scott], Petite Soeur [M. Mühlenberg], Praslin [M. Mühlenberg], ?Round [C. Alluaud].

Ecology. - Tramp species; males and females were collected in December and January (Forel, 1912). Brown (1959) found the species in the Solomon Islands in coconut plantations.

***Paratrechina bourbonica farquharensis* (Forel)**

Prenolepis bourbonica var. *farquharensis* Forel, 1907a: 92.

Paratrechina (Nylanderia) bourbonica var. *farquharensis* (Forel); Emery, 1925: 219.

Distribution. - Subspecies: endemic of the SEYCHELLES: F: Farquhar [type locality, J. S. Gardiner].

Ecology. - Unknown.

***Paratrechina madagascariensis sechellensis* (Emery)**

Prenolepis madagascariensis var. *sechellensis* Emery, 1894a: 71.

Paratrechina (Nylanderia) ellisi madagascarensis var. *sechellensi* (sic) (Emery); Emery, 1925: 219 [unavailable name].

Distribution. - Species: endemic of the Malagasy Region; subspecies: endemic of the SEYCHELLES: S: Mahé [type locality of subspecies, C. Alluaud].

Ecology. - Unknown.

***Paratrechina mixta* (Forel)**

Prenolepis mixta Forel, 1897: 203.

Paratrechina (Nylanderia) mixta (Forel); Emery, 1925: 219.

Distribution. - Endemic species of the SEYCHELLES: S: ? [type locality, A. Brauer], Mahé [H. M. Scott], Praslin [H. M. Scott], Silhouette (forest above 610 m [H. M. Scott]).

Ecology. - Males and females were collected in August and September (Forel, 1912).

***Paratrechina steinheili* (Forel)**

Prenolepis steinheili Forel, 1893: 342.

Paratrechina (Nylanderia) steinheili (Forel); Emery, 1925: 223.

Distribution. - America; SEYCHELLES: AL: Aldabra [J. C. F. Fryer].

Ecology. - Species probably introduced from Central America (Emery, 1925: 223); biological data only from outside the Seychelles: Forel (1893) reported *P. steinheili* from the Antilles, where it is common, mainly in open places below 152 m, but also found in second growth and in shady places in forests up to 366 m; nest below a stone (even below coral blocks in thickets near the sea) or a log, under the bark of rotten logs, in a rotten stump or at

the roots of grass on a rock; sexual stages in nests at 31.10. and 13.11., 3 females without workers under a log at 20.11.; colony size about 300 workers. Jeanne (1979) reported the species from Costa Rica as well from forest microhabitats (ground, twigs) and field microhabitats (twigs, leaves) as from buildings. Torres (1984a+b) found the species in Puerto Rico where it lived insectivorous in forests but mainly from liquid food in agricultural land and grassland. In contrary to Jeanne's findings, *P. steinheili* did not forage on trees but was found mostly in the first 2.54 cm of forest litter. The species is predominantly nocturnal.

Paratrechina vividula (Nylander)

Formica vividula Nylander, 1846a: 900.
Prenolepis vividula (Nylander); Mayr, 1861: 52.
Paratrechina (Nylanderia) vividula (Nylander); Emery, 1925: 223.

Distribution. - Africa, America, Asia, Europe; SEYCHELLES: S: Mahé ([I. H. & J. B. Haines], Union Vale [I. H. & J. B. Haines]).

Ecology. - Mamet (1954) observed the species on the Mascarene Islands visiting pumpkin flowers. After Traeger (1984) *P. vividula* is a species of open, disturbed habitats and raises sexuals at any time of the year in warmer regions. Also the nuptial flights take place at any warm day when humidity is high.

Paratrechina longicornis (Latreille)

Formica longicornis Latreille, 1802: 113.
Prenolepis longicornis (Latreille); Roger, 1863: 10; Fo-
 rel, 1894a: 406.
Paratrechina (Paratrechina) longicornis (Latreille);
 Emery, 1925: 217.

Distribution. - Africa, America, Asia; SEYCHELLES: AL: Aldabra [J. C. F. Fryer; A. Voeltzkow]; C: Coetivy [J. S. Gardiner]; S: Aride [M. Mühlenberg; J. Rowley & S. Warman], Chauve Souris [M. Mühlenberg], Cousin [M. Mühlenberg], Cousine [M. Mühlenberg], Fregate [M. Mühlen-

berg], Grande Soeur [M. Mühlenberg], Mahé (Union Vale [I. H. & J. B. Haines]).

Ecology. - Tramp species; often a household pest; distributed over all of Aride (Rowley & Warman, 1979); according to Traeger (1984) the species raises sexuals at any time of the year in warmer regions. The nuptial flights take place on warm, humid evenings and are abortive. They tolerate nesting sites with relatively low humidity. Wilson & Taylor (1967a) reported that *P. longicornis* lives also in tropical cities and penetrates rain forests in areas with depauperate native ant faunas. The diet comprises insects and honeydew produced by homopterans. Fowler *et al.* (1994) reported that this introduced species reduces the native ant fauna in Banana plantations in South-eastern Brazil. It occurred also in native vegetation of some islands but not in tea and cocoa plantations nor the native forest of the mainland. Exclusive competition occurs with *Tapinoma melanocephalum*.

Paratrechina sp. indet.

Distribution. - Worldwide; SEYCHELLES: S: Fregate [M. Mühlenberg], Grande Soeur [M. Mühlenberg], Petite Soeur [M. Mühlenberg]

Ecology. - See species above.

Plagiolepis (Plagiolepis) alluaudi Emery

Plagiolepis alluaudi Emery, 1894a: 71.
Plagiolepis (Plagiolepis) alluaudi Emery, 1925:
 19.

Distribution. - Africa, Asia, Europe; Malagasy Region; SEYCHELLES: F: Farquhar [J. S. Gardiner]; S: Felicité [H. M. Scott], Mahé (La Misère [type locality, C. Alluaud]), Silhouette (Mare aux Cochons [H. M. Scott]).

Ecology. - Tramp species.

Plagiolepis (Plagiolepis) exigua Forel

Plagiolepis exigua Forel, 1894a: 415+417.

Plagiolepis (Plagiolepis) exigua Forel; Emery, 1925: 20.
Plagiolepis exigua (sic) Forel; Mühlenberg et al., 1977;
Rowley & Warman, 1979.

Distribution. - Africa, Asia, Australia; SEYCHELLES: S: Aride [J. Rowley & S. Warman], Grande Soeur [M. Mühlenberg], Mahé (Union Vale [I. H. & J. B. Haines]), Petite Soeur [M. Mühlenberg]. [Mühlenberg et al. cited their findings as "Plagiolepis sp. (near exigua Forel)".]

Ecology. - One single specimen collected on Aride in 1975, but none in 1978 (Rowley & Warman, 1979).

Plagiolepis (Plagiolepis) madecassa Forel

Plagiolepis pygmaea r. *madecassa* Forel, 1892: 241.

Plagiolepis madecassa Forel; Forel, 1892: 519.

Plagiolepis madecassa (sic) Forel; Forel, 1899: 187.

Plagiolepis (Plagiolepis) madecassa Forel; Emery, 1925: 20].

Plagiolepis madecassae (sic) Forel; Rowley & Warman, 1979.

Distribution. - Endemic species of the Malagasy Region; SEYCHELLES: AL: Aldabra [A. Voeltzkow]; AM: Desroches [J. S. Gardiner]; S: Anonyme Island [H. M. Scott], Aride [J. Rowley & S. Warman], Felicité [H. M. Scott], Mahé ([C. Alluaud; I. H. & J. B. Haines], Union Vale [I. H. & J. B. Haines]), Praslin [H. M. Scott], Silhouette (lowland and Mare aux Cochons [H. M. Scott]).

Ecology. - Distributed over all of Aride (Rowley & Warman, 1979).

Prenolepis sp. indet.

{probably misidentification of *Paratrechina*, see Emery, 1925: 217ff}.

Distribution. - America, Asia; SEYCHELLES: S: La Digue [C. Alluaud].

Ecology. - See *Paratrechina* species above; two apterous females were

mentioned by Emery (1894a) without further details.

BIOGEOGRAPHY

Scott (1932: 366) pointed out that the ant fauna of the Seychelles comprises cosmopolitan species as well as elements of the African, Oriental and Malagasy Region.

The actual list of ants from the Seychelles gives at species level the following picture (*Dorymyrmex* and *Myrmecina* excluded): 6 species are endemic of the Seychelles, another 9 endemic of the Malagasy region. 17 species also occur in one additional zoogeographic region (to the Malagasy Region), i. e. 10 species in the Ethiopian Region, 4 in the Oriental Region and 3 in the Neotropical Region. Another 23 species occur in more than one additional zoogeographical region. Most of these latter ants are typical "tramp species" (Hölldobler & Wilson, 1990), which show the following characteristics:

- distributed widely by human commerce,
- living in close association with man,
- polygynous,
- preadapted for patchy but persistent and species poor-habitats within manmade environments.

About 50 % of the fauna of the Seychelles consists of ant species with very good tramping abilities. These species, together with some African-Malagasy elements (*Odontomachus*, *Camponotus*), provide the dominant ant fauna. None of the endemic elements of the Malagasy fauna could establish itself as a dominant species.

A good picture of the tramping abilities of some ant species is obtained when we compare the far distant island faunas of the Seychelles and the French and Venezuelan Islands in the Caribbean. Jaffe & Lattke (1994) reported 34 genera with 88 species from the latter area. 26 genera with 55 species are known from the

Seychelles. The Seychelles share 71.4 % of their ant genera with the Caribbean Islands, the latter 58.8 % with the Seychelles. Although Jaffe & Lattke (1994) could not determine 45 of the 88 species to species level, the Caribbean ant fauna shares 8 species with that of the Seychelles (*Monomorium destructor*, *M. floricola*, *Pheidole megacephala*, *Quadrirstruma emmae*, *Tetramorium bicarinatum*, *T. simillimum*, *Tapinoma melanocephalum* and *Paratrechina longicornis*).

Scott (1932) found that endemic species were "nearly all from the mountain forests". Ward (1990) reported the same fact from Mauritius. But today many of the non-endemic forms have invaded this habitat up to the highest parts and show marked tendencies of speciation on the Seychelles, which in most cases is still at or below the subspecies level. According to my own observations the same happens in the islands of Southeast Asia. Of the 14 species of the endemic Malagasy fauna recent studies only mention *Anochetus ?madagascariensis*, *Prionopelta descarpentriesi*, *Technomyrmex mayri* and *Plagiolepis madecassa*. In addition, I found *Crematogaster rasoherinae* on the very top of Morne Blanc (Mahé). At present eight of these endemic species are exclusively recorded from one island, six from two islands, one from three islands and solely *Plagiolepis madecassa* could establish itself on eight different islands, with a strong population at least on Aride. Further investigations are necessary to allow statements on the present situation of the endemic fauna. According to my observations on Mahé, Praslin and some nearby smaller islands, the original ant fauna seems to be strongly reduced and mainly restricted to the mountain areas, as Scott (1932) already pointed out. The present state of investigations does not allow direct comparison of the different islands, for too few collections have been made and recent collections are missing. Nevertheless it is obvious that those islands

with big differences of altitude and with a big set of different habitats including more or less undisturbed original ones (e. g. Mahé, Praslin and Silhouette), show the greatest diversity of ants and inhabit most of the native species.

The protection of the native fauna is very difficult. Specific control programs seem to work only for a few introduced species, e. g. *Anoplolepis longipes*, that is: large species with large colonies, at the start of the colonization of new areas. Control (biological or chemical) of already established populations is nearly impossible due to the hidden nests and the enormous toxic tolerance of many ant species. Also the specificity of the agents can never be fully investigated and therefore can have fatal influences on other parts of the fauna. From my point of view, two things should be done: 1. Protection and systematic promotion of the native plant communities. 2. Research on the ecology of the ant species (native and introduced ones) to determine how they react to the abiotic and biotic aspects of their environment. In this respect the programs for protection of the native flora by the Seychelles government are very promising. Entomological research programs should be added to evaluate whether the protection of the plant communities is sufficient for the preservation of the fauna, or additional management activities are recommendable.

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