The Ant Genus *Camponotus* Mayr (Hymenoptera: Formicidae) in Japan

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**Abstract.** Six new species of the genus *Camponotus* Mayr are described from Japan: *C. kaguya*, *C. monju*, *C. bishamon*, *C. daitoensis*, *C. yambaru*, *C. shohki*. *Camponotus albosparatus* BINGHAM and *C. friedae* FOREL are recorded for the first time from Japan. A key to the Japanese species of this genus is also presented.

**Introduction**

The genus *Camponotus* MAYR includes around 600 described species (BOLTON, 1995a). It is widely distributed from the tropics to cool temperate areas of the globe. Nesting habits vary from subterranean to arboreal. Foraging workers are often found on the ground. Many species vary widely in size, and there is often considerable intraspecific geographical variation.

Among 23 species mentioned by TERAYAMA et al. (1991), 16 had scientific names. In this paper I describe the remaining 4 of 5 and newly discovered 2 species as new, and add two species, *C. albosparatus* BINGHAM and *C. friedae* FOREL, to the Japanese Fauna. Measurements and indices used in the paper followed those in TERAYAMA & SATOH (1990a). The holotypes are preserved in the collection of the Museum of Nature and Human Activities, Sanda, Hyogo, Japan.

**Genus Camponotus Mayr**

[Japanese name: Oo-ari-zoku]


Type species: *Formica ligniperda* LATREILLE, 1802.

For full synonymy see BOLTON (1995b).

**Diagnosis.** Medium to large ants: total length of workers ranging from 2.5 mm to over 20 mm (over 4 mm long in most species). Antenna 12-segmented. Eye large; ocelli absent. Antennal insertion well separated from posterior margin of clypeus. Palpal formula 6 : 4. Dorsal outline
of mesosoma roundly convex in profile in Japanese species. Petiole a thick scale without spines or teeth. All but two known *Camponotus* species (all Japanese species) lack metapleural glands.

**On the subgenera of *Camponotus***

*Camponotus* has been divided into many subgenera, most of which are obscure in definition and not clearly distinguishable, so that most taxonomists are inclined to ignore them. The following *Camponotus* subgenera are tentatively recognized in Japan:

1) Subgenus *Camponotus*

[Japanese name: Oo-ari-azoku]

Worker caste polymorphic. Large ants: total length of major workers usually over 10 mm, and of minor workers over 8 mm. Mandible with 4 or 5 teeth. Anterior margin of clypeus straight; either not produced forwards or very slightly produced.


2) Subgenus *Tanaemyrmex*

[Japanese name: Ameiro-oo-ari-azoku]

Worker caste polymorphic. Medium to large ants. Mandible with 6 or 7 teeth (a few species with 5 teeth in minor worker). Anterior margin of clypeus strongly produced and angular with a straight median border.

Japanese species: *C. albosparatus* BINGHAM, *C. deestivus* WHEELER, *C. friedae* FOREL, *C. haguya* sp. nov., *C. monju* sp. nov.

3) Subgenus *Paramyrmamblys*

[Japanese name: Mikado-oo-ari-azoku]

Worker caste polymorphic. Large ants: total length of major workers over 10 mm, and of minor workers over 7 mm. Mandible with 4 or 5 teeth. Anterior margin of clypeus not strongly produced, and with a median notch (which is sometimes obscure in small workers).

Japanese species: *C. kiisiuensis* SANTSCHI, *C. amamianus* TERAYAMA.

4) Subgenus *Myrmentoma*

[Japanese name: Kusa-oo-ari-azoku]

Worker caste polymorphic. Small ants: total length of workers not exceeding 7 mm in majors. Anterior margin of clypeus medially concave. Scape relatively long, more than 1.1 times as long as the head width in major workers. Short erect hairs with pointed apices present on gena, clypeus and mandible.

Japanese species: *C. keihtoi* FOREL, *C. quadrinotatus* FOREL, *C.*
nipponensis SANTSCHI.

5) Subgenus Myrmamblys
   [Japanese name: Umematsu-oo-ari-azoku]
   Worker caste distinctly dimorphic. Small ants: total length of major
   workers not exceeding 7 mm. Anterior clypeal border not concave. Scape
   of major workers short, as long as the head width or shorter. Short
   erect hairs with truncated apices present on gena, clypeus and mandible
   in major workers and females.
   Japanese species: C. bishamon sp. nov., C. daitoensis sp. nov., C. itoi
   FOREL, C. nawai ITO, C. ogasawarenensis TERAYAMA & SATOH, C. vitiosus
   Fr. SMITH, C. yamaokai TERAYAMA & SATOH, C. yambaru sp. nov.

6) Subgenus Colobopsis
   [Japanese name: Hirazu-oo-ari-azoku]
   Worker caste distinctly dimorphic. Anterior portion of head trunc-
   cated in major workers and females.
   Japanese species: C. nipponicus WHEELER, C. shohki sp. nov.

On Camponotus (Myrmamblys) nigronitidus AZUMA

This species is described by AZUMA in 1951 based on a worker speci-
men. The short original description suggests that this species well re-
sembles, and may be conspecific with C. vitiosus Fr. SMITH. However,
since the type material was lost in fire on 6 Aug. 1945 (ONOYAMA, 1982),
I have no measures to conclude about the status of this species.

Species excluded from the Japanese Fauna

The following six species are excluded in this paper in the same as
“A list of the ants of Japan (1988)” since no reliable recent record is
available from Japan.

   C. caryae brunni FOREL, C. haberei FOREL, C. ligniperdus LINNAEUS,
   C. marginatus LATREILLE, C. siemsseni FOREL, C. mitis var. dulcis
   DALLA TORRE (= C. variegatus var. dulcis EMBER).

Key to the Japanese species of Camponorus
   (worker)

1 Heads of major workers with an anterior, flat truncated portion. In
   minor workers, the fore femur remarkably broad, and the pos-
   terior corner of the propodeum approximately right-angled in
   profile ........................................................................................................... 2
   — Heads of major workers without a truncated anterior portion. In
minor workers, the fore femur always less broad, if expanded
at all; posterior corner of propodeum obtusely angled in profile
(with a few exception) ........................................... 3

2 In full face view, the upper, short part of the clypeus produced
anteriorly on each side to form a small median process
........................................... C. (Colobopsis) nipponicus WHEELER

— In full face view, the upper, short part of clypeus with nearly
straight anterior margin, not produced on each side, the median
process very small .................................. C. (Colobopsis) shohki sp. nov.

3 Body yellow to yellowish brown (head slightly darker in majors)
........................................... C. (Myrmamblys) yambaru sp. nov.

— Body color not wholly yellow to yellowish brown ................. 4

4 Mesothorax and propodeum red to yellow .......................... 5

— Mesothorax and propodeum dark brown to black ................. 13

5 First and 2nd gastric segments wholly reddish brown
........................................... C. (Tanaemymrex) haguya sp. nov.

— First and 2nd gastric segments not wholly reddish brown
................................................................. 6

6 Second gastric tergite with a pair of pale-coloured spots or a pale
band ................................................................... 7

— Second to 5th gastric tergites concolorous, without spots or bands
................................................................. 9

7 First to 3rd or 4th gastric tergites each with a pair of pale spots
or a wide pale band ........................................ C. (Myrmamblys) ogasawarensis TERAYAMA & SATOH

— First and 2nd gastric tergites each with a pair of yellow spots (those
on 1st tergite often fused together); such markings absent from
3rd and 4th tergites ........................................... 8

8 Anterior margin of clypeus almost straight or weakly convex, not
produced ........................................ C. (Myrmamblys) daitoensis sp nov.

— Clypeus produced medially ........................................ C. (Tanaemymrex) albosparsus BINGHAM

9 Clypeus produced anteriorly; the advanced portion with straight an-
terior margin; mandible with 6 or 7 teeth .............................. 10

— Clypeus produced at most only slightly; mandible with 4 or 5 teeth
................................................................. 11

10 Pronotum with more than 3 standing hairs; head and gaster also
with many standing hairs ........................................ C. (Tanaemymrex) monju sp. nov.

— Pronotum generally lacking standing hairs
........................................... C. (Tanaemymrex) devestivus WHEELER

11 Mesosoma and legs reddish brown; a smaller species, total length
less than 7 mm ................. C. (Myrmamblys) daitoensis sp. nov.
— Mesonotum and propodeum reddish, and legs blackish; a larger species, total length more than 10 mm ........................................ 12
12 Prothorax black, contrastingly strikingly with the reddish mesonotum ...... *C. (Camponotus) hemichlaena* YASUMATSU & BROWN
— Both prothorax and mesothorax reddish in color ........................................ 13
— *C. (Camponotus) obscuripes* MAYR
— Mesosoma dorsally with 20 or more standing hairs ......................... 14
— Mesosoma dorsally with 15 or fewer standing hairs ..................... 16
14 Propodeal declivity abruptly declivitous; head black, mesosoma brown, and gaster blackish brown ........................................ 14
— *C. (Tanaemyrmex) friedae* FOREL
— Propodeal declivity moderately declivitous; body largely concolorous black ......................................................... 15
15 A larger species, total length 7 mm or more; in profile the dorsal mesosomal outline from mesonotum to propodeum evenly arched, without a depression ........................................ 15
— *C. (Camponotus) yessensis* YASUMATSU & BROWN
— A smaller species, total length less than 7 mm, even in the major workers; in profile the dorsal outline of propodeum more or less depressed ...... *C. (Myrmentoma) nipponensis* SANTSCHI
16 Larger species; body length exceeding 10 mm in majors or 7 mm in minors ................................................................. 16
— Smaller species; body length less than 7 mm, even in majors .... 21
17 Anterior margin of clypeus incised or emarginate ......................... 18
— Anterior margin of clypeus without incision or emargination .... 19
18 Body black, legs brown to yellowish brown; in profile posterior edge of propodeum more or less angulate ........................................ 18
— *C. (Paramyrmamblys) kiuiusuiensis* SANTSCH
— Body shiny pitch-black, legs reddish brown to black; in profile posterior edge of propodeum rounded ........................................ 19
— *C. (Paramyrmamblys) amamianus* TERAYAMA
19 Anterior margin of clypeus not produced medially; gastral tergites with sparse pubescences and somewhat lustrous ........................................ 20
— *C. (Camponotus) sachalinensis* FOREL
— Anterior margin of clypeus produced medially; gastral tergites with denser pubescences and less lustrous ........................................ 20
20 Short fine hairs (pubescence) on 2nd gastral tergite sparse, arranged in rows that do not overlap; these hairs 1.5-2 times as long as the mean distance separating them ........................................ 20
— *C. (Camponotus) sp. 6* [sense TERAYAMA et al., 1991]
— Short fine hairs on 2nd gastral tergite more dense, arranged in rows that overlap each other; these hairs each 4-6 times as long as the mean distance separating them
C. (Camponotus) japonicus Mayr

21 Anterior margin of clypeus medially incised or emarginate; antennal scape of majors long, more than 1.1 times as long as the head width; size variation among workers continuous, without distinct dimorphism ........................................ 22

— Anterior margin of clypeus entire; antennal scape of majors shorter, less than 1.0 times as long as the head width; workers distinctly dimorphic ........................................ 23

22 Mesosomal dorsum and petiole without standing hairs; fore femur strongly expanded; metanotal depression distinct; gaster with out maculation ................................ C. (Myrmentoma) keihitoi Forel

— Mesosomal dorsum and petiole with standing hairs; fore femur not strongly expanded; metanotal depression absent; 1st and 2nd gastral tergites each with a pair of yellowish or whitish markings ................................ C. (Myrmentoma) quadrinotatus Forel

23 Dorsal profile of pro- and mesonotum flat; posterodorsal margin of propodeum angulate, the slope of its posterior face relatively steep ........................................... C. (Myrmamblys) itoi Forel

— Dorsal profile of pro- and mesonotum arched; posterodorsal margin of propodeum more rounded, inclination of posterior face less steep .............................................. 24

24 Petiole relatively thick; gaster black, without pale markings on 1st and 2nd tergites .......................................................... 25

— Petiole relatively thin; 1st and 2nd gastral tergites usually each with a pair of pale marks .................................................. 26

25 In profile, propodeum with a dorsal depression; petiole in profile an inverted U-shape, symmetrical with respect to the axis dividing it into anterior and posterior halves

. C. (Myrmamblys) vitiosus Fr. Smith (= C. tokioensis Forel)

— In profile, propodeum with an almost straight dorsal outline; petiole in profile asymmetrical, with the upper edge of the anterior margin lower than that of the posterior margin ............................................. C. (Myrmamblys) bishamon sp. nov.

26 Eye strongly protruding; petiole of minors in profile relatively thin; petiole of majors seen from above relatively thin

. . . . . . . ........................................ C. (Myrmamblys) yamaokai Terayama & Satoh

— Eye relatively weakly protrusive; petiole of minors in profile relatively thick; petiole of majors seen from above relatively thick

. . . . . . . ........................................ C. (Myrmamblys) nawai Ito
Camponotus (Tanaemyrmex) albosparsus BINGHAM
[Japanese name: Aka-yotsuboshi-oo-ari]
(Figs. 1-5)

Camponotus taylori var. albosparsus BINGHAM, 1903, The fauna of
British India, including Ceylon and Burma. Hym. 2: 354
[C. maculatus r. taylori var. albosparsus FOREL, 1894, unavailable
name, BOLTON, 1995b].
Nat., 42: 84.
Camponotus taylori albosparsus: WHEELER, 1913, Rec. Ind. Mus., 8:
237.
Camponotus (Tanaemyrmex) barbatus albosparsus: EMMER, 1925, In
of Japanese Ants (II): 42.

Diagnosis. Total length of workers around 4.7 mm. Head dark to
blackish brown; mesosoma, petiole and legs brown; gaster black, 1st
and 2nd gastral tergites each with a pair of yellow spots (often merging

Figs. 1-5. Camponotus albosparsus BINGHAM — 1, Body in profile, major; 2,
head in full face view, minor; 3, ditto, major; 4, 5, gaster in dorsal view,
minor.
on the 1st tergite). Anterior margin of clypeus straight. Mandible with 6 teeth. Scape short: 1.2-1.3 times the head width in minor workers, and just exceeding the posterior border of head in majors. Petiole relatively high, with an inverted V-shaped scale in profile. Head and mesosoma with relatively abundant erect hairs.


**Remarks.** *Camponotus* sp. [Aka-yotsuboshi-oo-ari in Japanese] in TERAYAMA et al. (1991) is conspecific with *C. albosparsus* BINGHAM, which is widely distributed from Taiwan, through southern China, Hong Kong, to India. This species nests in the soil and under stone of forest margins and grasslands. Foraging workers are found on the ground.

**Distribution.** Nansei Is. (Sakishima Is.); Taiwan, southern China, India.

*Camponotus (Tanaemyrmex) friedae* FOREL

[Japanese name: Miyako-oo-ari]

(Figs. 6-13)


**Diagnosis.** Polymorphic species; total length around 5 mm in minor
workers, and 7-9 mm in major workers. Head black; mesosoma, antenna, and legs brown; gaster blackish brown. In major workers: mandible with 6 teeth (5 in smaller individuals); clypeus produced anteriorly; anterior margin of clypeus without a median notch; scape exceeding posterior margin of head by 1/5 its length; pro- and mesonotal dorsum straight and anterior end of mesonotal dorsum forming a dull angle in profile; propodeal declivity abruptly declivitous; dorsum of mesosoma with more than 20 long erect hairs; similar hairs also present on vertex.
of head, petiolar dorsum, and gaster. In minor workers: mandible with 5 teeth; clypeus produced anteriorly; scape exceeding posterior margin of head by 1/3 its length; pro- and mesonotal dorsum almost straight; propodeal declivity abruptly declivitous; mesosoma with more than 20 long erect hairs.


**Remarks.** According to the original description of Forel (1912a), var. *amius* (*amia* in his paper) differs from the nominate species in having the much weakly shining body surface and the smaller major worker in size. However, direct comparison between *C. freidae* syntypes and *C. freidae* var. *amius* syntypes, I have concluded that the former is not significantly different the latter in morphology. Syntype major worker of *C. friedae* var. *amius* is a relatively smaller individual within major workers. This species nests in the soil and under stone of forests, forest margins, and grasslands.

**Distribution.** Nansei Is. (Amami-oshima I., Miyako Is.); Taiwan; southern China.

*Camponotus (Tanaemyrmex) kaguya* sp. nov.

[Japanese name: Yumise-oo-ari]

(Figs. 14-20)


**Diagnosis.** Large and polymorphic species: total length of major workers around 9-12 mm, and minor workers 5-7 mm. Head blackish brown; mesosoma, petiole, legs and 1st and 2nd gastric tergites reddish brown; 3rd to 5th gastric tergites black. Anterior margin of clypeus relatively weakly produced; slightly convex medially. Mandible with 6
teeth. Scape of minor workers long: 1.4-1.5 times head width. Mesosomal dorsum strongly convex, sloping from anterior portion of pronotum to posterior portion of propodeum. Posterodorsal corner of propodeum rounded, not angulate.

**Description of holotype (Major worker).** HL 2.50 mm; HW 2.60 mm; SL 2.35 mm; CI 104; SI 90; WL 3.50 mm; PW 1.70 mm; PSL 0.35 mm; PH 1.00 mm; DPW 0.63 mm; TL 10.2 mm

Head slightly wider than long, with straight posterior margin in full face view. Clypeus relatively weakly produced medially, with weakly convex anterior margin. Mandible strong, with 6 teeth. Eye 0.55 mm long. Antennal scape 0.9 times head width; 2nd antennal segment 2.9 times as long as wide; 3rd segment 1.8 times as long as wide.

Mesosomal dorsum strongly convex, sloping from anterior portion of pronotum to posterior portion of propodeum. Posterodorsal corner of propodeum rounded, not angulate. Petiole relatively thin and high; upper half of scale reversed V-shaped in profile; dorsal margin in forntal view strongly convex.

Dorsa of head and mesosoma with abundant long erect hairs; the same hairs also present on gaster.

Head blackish brown; mesosoma, petiole, legs and 1st and 2nd gstral tergites reddish brown; 3rd to 5th gstral tergites black; antennal scape blackish brown; funiculus dark brown.

**Minor worker.** HL 1.35 mm; HW 1.10 mm; SL 1.60 mm; CI 81; SI 145; WL 2.00 mm; PW 0.95 mm; PSL 0.25 mm; PH 0.60 mm; DPW 0.35 mm; TL 5.5 mm (A paratype from the same nest as holotype measured).

Head longer than wide, with subparallel sides and gently convex posterior margin in full face view. Clypeus produced medially, with even convex anterior margin. Mandible with 6 acute teeth. Antenna long; scape 1.5 times head length; 2nd segment 2.8 times as long as wide; 3rd segment 2.0 times as long as wide. Eye about 0.40 mm long.

Dorsal outline of mesosoma strongly convex in profile, arching from anterior end of pronotum to posterior end of propodeum; posterodorsal corner of propodeum rounded, not angulate.

Petiole relatively thick, anterior and posterior margins of scale weakly convex, scale in frontal view tapered to acutely angulate apex.

Erect or suberect hairs present on dorsa of head and gaster; mesosomal dorsum with more than 15 hairs; 2 pairs of erect hairs present on petiolar scale.

Head blackish brown; antenna, clypeus and mandible brown; mesosoma and petiole reddish brown; 1st and 2nd gstral segments reddish brown and the rest blackish brown; coxae and trochanters reddish brown; femora, tibiae, and tarsi brown.
Figs. 14-20. Camponotus kaguya sp. nov. — 14, Head in full face view, major; 15, body in profile, major; 16, clypeus and mandibles, major; 17 petiolar scale in frontal view, major; 18, ditto, minor; 19, anterior margin of clypeus, minor; 20, mesosoma and petiole in profile, minor.


Remarks. This species is found in grasslands and nests in the soil.


Camponotus (Tanaemyrmex) monju sp. nov.

[japanese name: Kebuka-ameiro-oo-ari]

(Figs. 21-23)


Diagnosis. Total length of workers around 7-11 mm. Head and gaster dark brown to blackish brown; mesosoma, petiole and legs brown to dark brown. Head slender; antennal scape long. Head and
gaster with abundant erect or suberect hairs; dorsa of pronotum and mesonotum with 6-14 and 2-6 erect hairs, respectively; propodeal dorsum with more than 6 erect hairs; anterior surface of fore coxa with 4-6 erect hairs.

**Description of holotype** *(Minor worker).* HL 2.30 mm; HW 1.30 mm; SL 3.35 mm; CI 177; SI 258; WL 3.80 mm; PW 1.20 mm; PSL 0.40 mm; PH 0.76 mm; DPW 0.48 mm; TL 8.8 mm.

Head slender, 1.8 times as long as wide, widest at anterior end of head capsule in full face view; side of head behind eye convergent posteriorly. Mandible with 6 teeth. Clypeus with a median longitudinal carina; median projection of anterior clypeal margin rectangular, with straight anterior margin. Antenna remarkably long, scape 1.5 times head length and exceeding posterior margin of head by 3/5 its length; 2nd segment 4.5 times as long as wide; 3rd segment 4.7 times as long as wide. Eye moderately convex, 0.54 mm in maximum diameter.

Mesosoma slender, with weakly convex pro- and mesonotal dorsum and almost straight propodeal dorsum in profile; posterodorsal margin of propodeum bluntly angulate. Petiole row and relatively thick, with weakly convex anterior and posterior margins; dorsal margin of scale in frontal view convex.

Head and gaster with abundant erect or suberect hairs; dorsum of pronotum with 6, mesonotum with 4, and propodeum with 8 erect hairs; anterior surface of fore coxa with 5 long erect hairs and several short

Figs. 21-23. *Camponotus monju* sp. nov. — 21, Body in profile, major; 22, head in full face view, minor; 23, ditto, major.
hairs.

Head and gaster dark brown to blackish brown; mesosoma, petiole and legs brown.

**Major worker.** HL 3.30 mm; HW 2.53 mm; SL 3.00 mm; CI 130; SI 119; WL 4.10 mm; PW 1.70 mm; PSL 0.50 mm; PH 1.10 mm DPW 0.65 mm; TL 11.0 mm (A paratype from the same nest as holotype measured).

Head long, with subparallel sides and even convex posterior margin in full face view. Mandible with 6 teeth. Antenna long; scape 0.9 times head length, exceeding posterior margin of head by 1/3 its length

Mesosoma with convex dorsal margin. Petiolar node thick and row, with weakly convex anterior and posterior margins in profile; dorsum carinate; dorsal margin in frontal view strongly convex.

Head with abundant suberect hairs; dorsa of pronotum and mesosotum each with more than 10 long erect hairs; dorsum of propodeum with several long erect hairs; gaster with abundant long erect or suberect hairs.

Color as in minor worker.


**Remarks.** This species resembles *C. devestivus* WHEELE R FROM Japan, *C. pseudoirritans* WU & WANG FROM southern China, and *C. mitis* FR. SMITH FROM southern China, Sri Lanka, and India. However, it is distinguished from *C. devestivus* by the much more abundant erect hairs on the head and dorsum of pro- and mesonotum, and from *C. pseudoirritans* and *C. mitis* by the rectangular head in major workers.

**Distribution.** Kyushu (Unzen), Nansei Is.; Taiwan.
Camponotus (Myrmamblys) bishamon sp. nov.
[Japanese name: Hosou-unematsu-oo-ari]
(Figs. 24-30)


Camponotus (Myrmamblys) sp.: TERAYAMA & SATOH, 1990, *Bull. Bio-
geogr. Soc. Japan.*, 45 : 120.


**Diagnosis.** Total length of major workers around 5.5-5.5 mm, and minor workers around 4.4-4.5 mm. Body black excepting pronotum dark brown. This species resembles *C. vitiosus*, but is distinguished by the straight or very weakly concave dorsal margin of its propodeum and the thin and asymmetrical shape of its petiolar scale (the anterior margin of the petiolar scale is shorter than the posterior margin in profile).

**Description of holotype (Major worker).** HL 1.61 mm; HW 1.55 mm; SL 1.00 mm; CI 96; SI 64; WL 1.75 mm; PW 1.03 mm; PSL 0.63 mm; PH 0.19 mm; DPW 0.48 mm; TL 5.3 mm.

Head almost as long as wide, with subparallel sides and almost straight posterior margin in full face view. Mandible with 5 teeth. Anterior margin of clypeus slightly convex. Eye flat, 0.33 mm in maximum diameter. Antennal scape exceeding the posterior margin by about 1/5 of its length.

Mesosoma in profile with slightly convex pro- and mesonotal dorsum and straight propodeal dorsum; posterodorsal corner forming a blunt angle. Petiolar scale relatively thin and high, turned forward, posterior margin higher than anterior margin in profile; scale in dorsal view 0.4 times as long as wide.

Lower half of head and mandible with short erect hairs; pronotal and mesonotal dorsa each with a pair of erect hairs; propodeum with several erect hairs; petiolar scale with 4-5 pairs of erect hairs; gaster with suberect hairs which are moderately spaced.

Body black excepting pronotum dark brown; mandible and legs blackish brown.

**Minor worker.** HL 1.10 mm; HW 0.95 mm; SL 1.00 mm; CI 87; SI 150; WL 1.45 mm; PW 0.70 mm; PSL 0.13 mm; PH 0.45 mm; DPW 0.25 mm; TL 4.5 mm (A paratype from the same nest as holotype measured).

Head oval, with convex posterior margin in full face view; posterolateral corner rounded, not angulate. Mandible with 5 teeth.
Figs. 24-30. Camponotus bishamon sp. nov. — 24, Head in full face view, major; 25, body in profile, major; 26, head in full face view, minor; 27, body in profile, minor; 28, *ditto*, minor; 29, petiolar scale in dorsal view, major; 30, *ditto*, minor.

Anterior margin of clypeus convex. Antennal scape exceeding the posterior margin by about 1/3 of its length. Eye weakly prominent, 0.25 mm in maximum diameter.

Mesosoma in profile with slightly convex pro- and mesonotal dorsum and straight propodeal dorsum; propodeum relatively long; posterodorsal margin not angulate. Petiolar scale relatively thick, truned forward, posterior margin higher than anterior margin in profile; scale in dorsal view 0.4 times as long as wide.

Pronotal dorsum without hair; mesonotal dorsum with a pair of hairs; propodeal dorsum with several hairs.

Head, mesothorax, propodeum, petiole and gaster black; pronotum, antenna, and legs dark brown.


**Remarks.** This species resembles *C. vitiosus* Fr. SMITH from the Japanese mainland and Korea, and *C. jejuensis* KIM & KIM from Cheju Island, Korea. However, it is separated from the latters by the straight or very weakly concave dorsal margin of its propodeum in minors and majors (distinctly concave in *C. vitiosus* and *C. jejuensis*), and the thin
and asymmetrical shape of its petiolar scale in majors (thick in *jejunsis*; thick and almost symmetrical in *vitosus*). *C. bishamon* is an arboreal species commonly found in the Nansei Islands.

**Distribution.** Nansei Is.

*Camponotus (Myrmamblys) daitoensis* sp. nov.

[Japanese name: Daito-oo-ari]

(Figs. 31-34)

**Diagnosis.** Total length around 4 mm in minor workers, and 5.5-6 mm in major workers. In major workers: head, mesosoma, and legs reddish brown; 1st gastral tergite yellowish brown excepting posterior margin blackish brown to black; 2nd to terminal segments blackish brown to black (2nd tergite with a pair of small yellow spots in a few individuals). Dorsum of mesosoma moderately convex in profile; pronotal dorsum with several relatively short erect hairs; mesonotal dorsum with 4-6; propodeum with more than 10 erect hairs; petiolar scale thin and high. In minor workers: head, mesosoma, and legs light yellowish brown; coloration of gaster as in major worker.

**Description of holotype (Major worker).** HL 1.60 mm; HW 1.60 mm; SL 1.28 mm; CI 100; SI 80; WL 1.90 mm; PW 1.00 mm; PSL 0.23 mm; PH 0.63 mm; DPW 0.50 mm; TL 6.3 mm.

Head as long as wide, with almost straight posterior margin in full face view; posterodorsal corner forming a blunt angle. Mandible with 5 teeth. Anterior margin of clypeus straight, without a median notch. Antennal scape exceeding posterior margin of head by 1/5 its length in full face view. Eye 0.35 mm in maximum diameter.

Dorsum of pronotum moderately convex in profile; mesonatal and propodeal dorsum largely straight; posterodorsal corner of propodeum bluntly angulate. Petiolar scale thin and high; in dorsal view 0.5 times as long as wide.

Pronotal dorsum with several relatively short erect hairs; mesonatal dorsum with 4-6; propodeum with more than 10 erect hairs; gastric tergites each with 2 rows of erect hairs; short suberect hairs abundant on lower 1/3 of head.

Head, mesosoma, and legs reddish brown; 1st gastral tergite yellowish brown excepting posterior margin blackish brown to black; 2nd to terminal segments blackish brown to black.

**Minor worker.** HL 1.10 mm; HW 0.95 mm; SL 1.30 mm; CI 86; SI 137; WL 1.55 mm; PW 0.75 mm; PSL 0.18 mm; PH 0.51 mm; DPW 0.40 mm; TL 4.2 mm (A paratype from the same nest as holotype
measured).

Head oval, slightly longer than wide, with convex posterior margin in full face view; posterodorsal corner rounded, not angulate. Mandible with 5 teeth. Anterior margin of clypeus weakly convex. Antennal scape exceeding posterior margin of head by \(1/3\) its length in full face view. Eye 0.30 mm in maximum diameter.

Dorsal outline of mesosoma moderately convex; posterodorsal corner of propodeum bluntly angulate in profile. Petiolar scale thin and high.

Pronotal dorsum without hairs; mesonotal dorsum with a pair of erect hairs; propodeum with about 12 erect hairs; gastral tergites each with 2 rows of erect hairs.

Head, mesosoma, and legs light yellowish brown; coloration of gaster as in major worker.


Paratypes. 10 major workers, 17 minor workers, same data as holotype.

Remarks. This is an arboreal species which nests in dead twigs on trees. Coloration of 2nd gastral tergite varies from uniform black to with a pair of small yellow spots.

Distribution. Nansei Is. (Minami-daito-jima Is.).
Camponotus (Myrmamblys) yambaru sp. nov.
[Japanese name: Usuki-oo-ari]
(Figs. 35-41)

Camponotus (Myrmamblys) sp. 7: TERAYAMA & KIHARA, 1994,
Distribution maps of Japanese ants: 40.

Diagnosis. Total length around 3.5 mm in minor workers, and 5 mm in major workers. Body color yellowish brown. In major workers: head somewhat darker than mesosoma and gaster. Propodeal declivity abruptly declivitous; dorsum of pro- and mesonotum each with 2-4 erect hairs; propodeum with about 10 erect hairs; petiolar scale thin, with hairs dorsally.

Description of holotype (Major worker). HL 1.43 mm; HW 1.35 mm; SL 0.90 mm; CI 95; SI 67; WL 1.65 mm; PW 0.93 mm; PSL 0.18 mm; PH 0.68 mm; DPW 0.58 mm; TL 5.5 mm.

Head slightly longer than wide, with subparallel sides and weakly convex posterior margin in full face view. Mandible strong, with 6 teeth; basalmost tooth small. Anterior margin of clypeus almost straight, without a median notch. Antennal scape short, just reaching the posterior margin of head. Eye 0.30 mm in maximum diameter.

Mesosoma relatively short; pro- and mesonotal dorsum almost straight in profile; dorsum of pronotum flat, 0.57 times as long as wide in dorsal view; propodeal declivity abruptly declivitous. Petiolar scale

Figs. 35-41. Camponotus yambaru sp. nov. — 35, Head in full face view, minor; 36, body in profile, minor; 37, head in full face view, major; 38, mesosoma and petiole in profile, major; 39, mandible, major; 40, *ditto*, minor; 41, petiolar scale in dorsal view, major.
thin and high, with convex anterodorsal margin and straight posterior margin in profile; scale in dorsal view 0.3 times as long as wide, with weakly convex anterior margin.

Dorsum of pro- and mesonotum each with 2-4 erect hairs; propodeum with about 10 erect hairs; petiolar scale with several erect hairs dorsally; gaster with relatively short erect hairs.

Body yellowish brown; head somewhat darker than mesosoma and gaster; antenna and legs yellowish brown.

Minor worker. HL 0.90 mm; HW 0.90 mm; SL 0.85 mm; CI 100; SI 94; WL 1.15 mm; PW 0.65 mm; PSL 0.15 mm; PH 0.40 mm; DPW 0.35 mm; TL 3.8 mm (A paratype from the same nest as holotype measured).

Head round, with convex dorsal margin in full face view; posterodorsal corner rounded, not forming an angle. Mandible with 5 teeth. Anterior margin of clypeus convex. Antennal scape exceeding posterior margin of head by 1/3 its length; Eye 0.20 mm in maximum diameter.

Mesosoma short, pro- and mesonotal dorsum flat in profile; propodeal declivity abruptly declivitous. Petiolar scale relatively thin and high.

Pronotal dorsum without erect hairs; mesonotal dorsum with a pair of erect hairs; propodeum about 10 erect hairs; petiolar scale with erect hairs dorsally; gastral tergites each with short erect hairs.

Body including head yellowish brown; antenna and legs yellowish brown.


Paratypes. 24 major workers, 40 minor workers, same data as holotype.

Remarks. This is an arboreal species which nests in dead twigs on trees and bamboos.

Distribution. Northern part of Okinawa Island.

Camponotus (Colobopsis) shohki sp. nov.
[Japanese name: Aka-hirazu-oo-ari]
(Figs. 42-49)


Diagnosis. Total length around 2.5-3 mm in minor workers and around 4.5-5 mm in major workers. Head and mesosoma yellowish
brown to blackish brown; gaster black. Major worker: head length exceeding 1.10 mm; anterior margin of head, with a pair of blunt projections in full face view.

**Description of holotype (Major worker).** HL 1.18 mm; HW 1.05 mm; SL 0.60 mm; CI 89; SI 57; WL 1.20 mm; PW 0.73 mm; PSL 0.14 mm; PH 0.48 mm; DPW 0.45 mm; TL 4.5 mm.

Head 1.12 times as long as wide, with parallel sides and slightly convex posterior margin in full face view; anterior margin truncated, with a pair of blunt projection. Mandible with 5 developed teeth. Antennal scape short, 0.6 times head width. Eye flat, 0.30 mm in maximum diameter.

Pro- and mesonotal dorsum straight; posterodorsal corner of propodeum forming a distinct angle; propodeal declivity abruptly declivitous. Petiolar scale thin and high, with convex anterior margin and concave posterior margin in profile; tip acutely angulated; in frontal view dorsal margin concave; scale in dorsal view thin, with concave anterior and posterior margins.

Gaster massive and long, ca. 2.0 times mesosomal length.

Head without hairs excepting a pair of erect hairs on vertex; mandible scattered with hairs; mesosomal dorsum and petiole without erect hairs; gaster scattered with short erect hairs

Head, mesosoma, and petiole yellowish brown and somewhat red-

Figs. 42-49. *Camponotus shohki* sp. nov. — 42, Head in full face view, major; 43, body in profile, major; 44, head in full face view, minor; 45, body in profile, minor; 46, petiolar scale in posterior view, major; 47, *ditto*, minor; 48, petiole in dorsal view, major; 49, *ditto*, minor.
dish; gaster black.

**Minor worker.** HL 0.76 mm; HW 0.68 mm; SL 0.60 mm; CI 89; SI 89; WL 0.70 mm; PW 0.48 mm; PSL 0.10 mm; PH 0.38 mm; DPW 0.29 mm; TL 2.8 mm (A paratype from the same nest as holotype measured).

Head oval, with gently convex sides and convex posterior margin in full face view; posterodorsal corner not forming a distinct angle. Mandible with moderately convex outer margin and 5 teeth. Anterior margin of clypeus convex. Antennal scape distinctly exceeding posterior margin of head in full face view. Eye 0.23 mm in maximum diameter.

Dorsal outline of mesosoma convex in profile; posterodorsal corner of propodeum forming a right angle; propodeal dorsum thin in dorsal view; propodeal declivity abruptly declivitous. Propodeal scale thin and high, with an acutely angulated tip; scale in frontal view with slightly concave dorsal margin.

Mandible and clypeus with several hairs; vertex with a pair of erect hairs; dorsum of mesosoma and petiole without hairs; gaster with sparse short erect hairs.

Head and mesosoma yellowish brown; gaster blackish brown.

**Holotype.** Major worker, Yonaguni-jima, Okinawa Pref., 10. VIII. 1979, M. TERAYAMA leg.


**Remarks.** This species is distinguished from *C. nipponicus* WHEELER by the much longer head of its major workers (head length exceeding 1.10 mm, versus 1.00-1.05 mm in *C. nipponicus*), and the shape of the anterior margin of the head, with a pair of blunt projections in frontal view. An arboreal species.

**Distribution.** Nansei Is. (Tokuno-shima I. and southwards).

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References


