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Inventory Studies on the Subfamily Pselaphinae (Coleoptera, Staphylinidae) of Myanmar Part 4: A List of Collected Species in Tanintharyi Region in February 2020

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Abstract As the result of the third survey of our co-operative inventory project by FRI, Myanmar and NMNS, Japan conducted in Tanintharyi Region in Feb. 2020, 23 pselaphine species of 20 genera were recognized. Fourteen species of which are first recorded in the research project. A list of pselaphine species recognized in the three surveys (2017, 2018, 2020) in this project are also given.

Key words: Pselaphinae, Staphylinidae, Pselaphinae, fauna, Myanmar.

Introduction

During the biological inventory by the Forest Research Institute (FRI), Yezin, Myanmar and the National Museum of Nature and Science (NMNS), Tsukuba, Japan from 2016 to 2020. The third survey of Pselaphine beetles were conducted in February 2020. In this survey, 107 pselaphine beetles were collected in Tanintharyi Region by the first author.

This paper presents the list of these pselaphine specimens identified into 23 species belonging to 20 genera (some of which could not be identified). In the survey of Feb. 2020, no new recorded species from Myanmar was not discovered. At the second part of this paper, a list of species recognized from Tanintharyi Region in the cooperative project is added.

Materials and Methods

In the former part of the survey conducted in Feb. 2020, many pselaphines were collected in the northern part of Tanintharyi Region (Figs. 1B, 2A). Most of the pselaphine specimens in this study were collected by the following methods: portable light trap in Nakase system (**NLT**: Figs. 2B–C), flight intercept traps (**FIT**: Fig. 2D–E), and hand sifting of leaf litter (**SLL**: Fig. 2F). The NLTs each with a fluorescent tube 4W in the system of Dr. Yuta Nakase were used for collecting pselaphines by Nomura (see Nomura, 2010, 2013). They were fixed or hooked on a tree and lighted in evening and they were collected in the next morning. After that, many pselaphine specimens were picked up in the sorting of collected materials. These NLTs were separately settled and collected on the high position (ca. 4 m above the ground: **HP**) and the low position (ca. 1 m above the ground: **LP**). Otherwise, some specimens were picked up from flight intercept traps

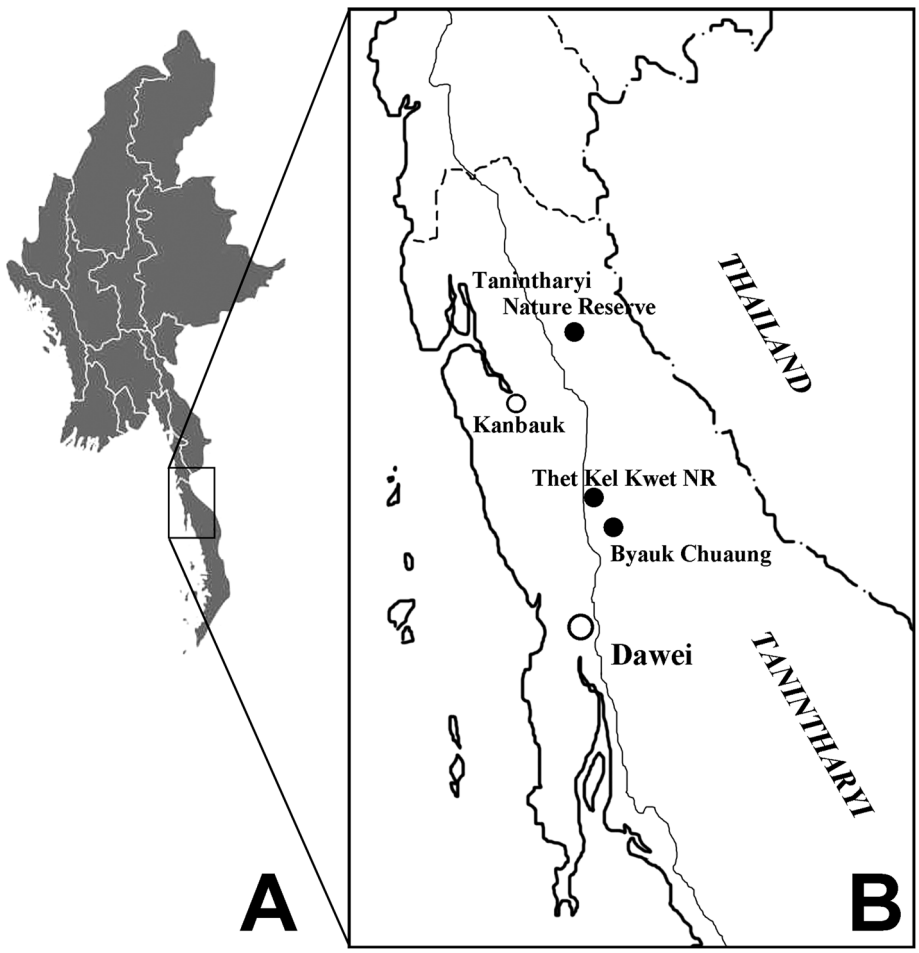

Fig. 1. Map of collecting sites of Pselaphines in Tanintharyi Region in Feb. 2020. A. Position of Tanintharyi Region in Myanmar; B. Enlarged map of Tanintharyi Region.

after set in a bush for four to five days (**FIT**). And the other some were collected by hand sifting leaf litter (**SLL**). Collected specimens are tentatively preserved in the collection of the National Museum of Nature and Science, Tokyo, Japan (NMNS).

For the SEM observation (Figs. 4, 5), all specimens were air dried, uncoated, and illustrated with an SEM fit with a digital microscope system (KEYENCE VHX-2000 + VHX-D510) under AV 0.9-2.0 kv. Collected specimens are tentatively preserved in collection of the department of Zoology, National Museum of Nature and Science (NMNS), Tsukuba, Japan.

Results

1) A List of Pselaphine Specimens Collected from Tanintharyi Region in Feb. 2020

All collecting data of the records shown below are abbreviated as follows. See the foregoing part for the collecting methods abbreviated as NLT-HP/LP, FIT, and SLL.

〈**NLT-HP/LP: Nakase system light trap at high position /low position**〉

12-13HP: Pt. D4, at high position (5 m above the ground), by Nakase system light trap, Tanyntaryi Nature Reserve, Tanintharyi Region, N14°44′22″, E98°11′42″, alt. ca. 100 m, 12–13. ii. 2018.

Fig. 2. Habitats and collecting methods of Pselaphines in Tanintharyi Region in Feb. 2020. A. A landscape of Tanintharyi Nature Reserve (TNR); B. Setting condition of Nakase system light trap (NLT) at high position (HP) in TNR; C. ditto, at low position (LP); D. Setting condition of a flight intercept trap (FIT); E. ditto, enlarged collecting pocket; F. A snapshot of sifting leaf litter (SLL) by Nomura in Byauk Chaung.

〈**FIT: flight intercept trap**〉

12-16FIT: Pt. D4, Tanintharyi Nature Reserve, by flight intercept trap, Tanintharyi Region, N14°44′24″, E98°11′43″, ca. 100 m alt., 12–16. ii. 2020, S. Nomura leg.

13-16FIT: Pt. D3, Tanintharyi Nature Reserve, by flight intercept trap, Tanintharyi Region, N14°44′15″, E98°11′17″, ca. 30 m alt., 13–16. ii. 2020, S. Nomura leg.

〈**SLL: sifting leaf litter**〉

12SLL: Pt. D4, Tanintharyi Nature Reserve, by sifting leaf litter, Tanintharyi Region, N

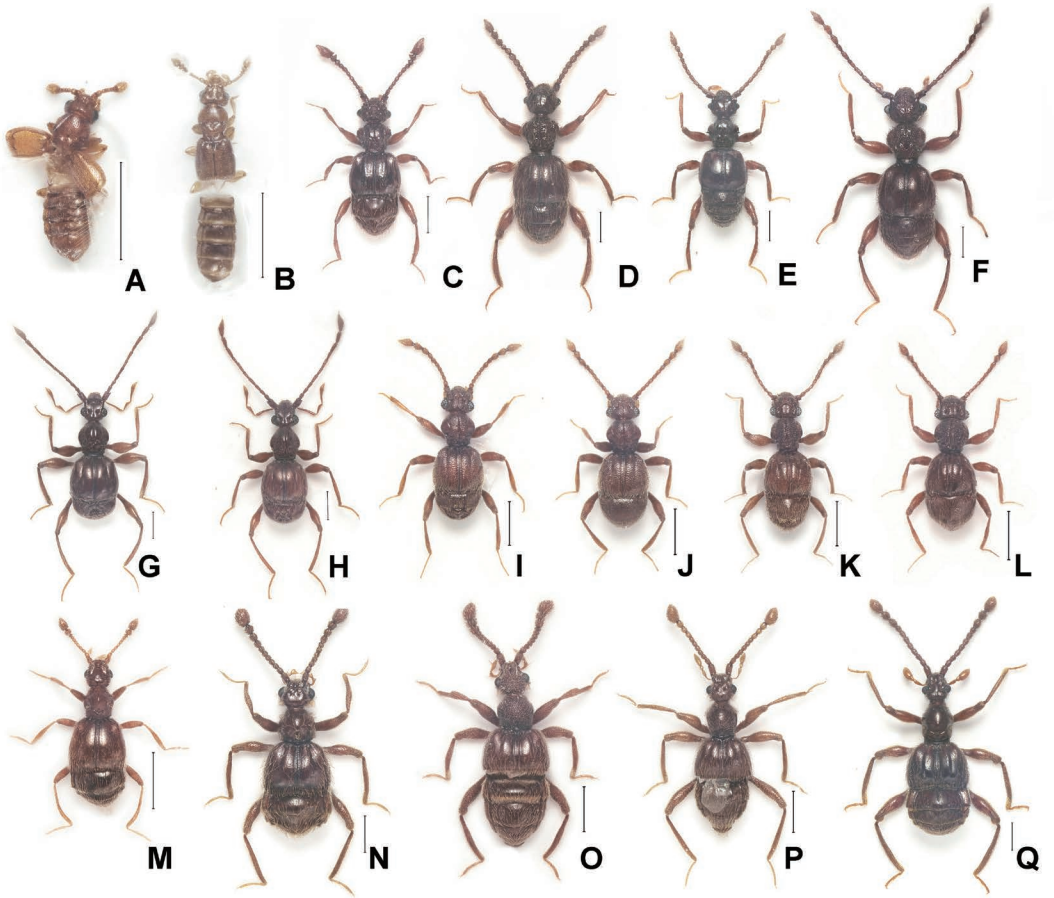

Fig. 3. Pselaphine species recognized in Tanintharyi Region in Feb. 2020. A. Bythinoplectina gen. sp. 6; B. *Pseudoplectus?* sp. 1; C. *Tribasodites denticornis* Nomura et Aung, 2020; D. *T.* sp. 3; E. *T.* sp. 4; F. *Smetanabatrus alesi* Nomura et Aung, 2020; G. *Cratna* sp. 1; H. *C.* sp. 2; I. *Batriscenaulax* sp. 1, male; J. ditto, female; K. *Arthromelodes* sp. 2, male; L. ditto, female; M. Batrisina gen. sp. 1; N. *Tmesiphorus* sp. 2; O. *Raphitreodes dentimanus* (Raffray, 1890); P. *Saltisedes* sp. 1; Q. *Horniella* sp. 1.

14°44′24″, E98°11′43″, ca. 100 m alt., 12. ii. 2020, S. Nomura leg.

14SLL: Thet Kel Kwet Nature Reserve, by sifting leaf litter, 30 km N from Dawei, Tanintharyi Region, N14°23′16.3″, E98°11′03.5″, 41 m alt., 14. ii. 2020, S. Nomura leg.

15SLL: Byauk Chaung, by sifting leaf litter, Tanintharyi Region, N14°19′45.9″, E98°14′41.1″, 69 m alt., 15. ii. 2020, S. Nomura leg.

In the following list, newly recognized species in this cooperative project is indicated by *-mark.

Supertribe Euplectitae

1. Bythinoplectina, gen. et sp. undet. 1* (Fig. 3A)

Specimen examined. 1 ex., 13-16FIT.

Remarks. This bythinoplectine species was not classified into genus. It is characterized by the following features: 1) body very small (ca. 1.0 mm in length), antennae, legs short; 2) genal concavities where maxillary palpi stowed indistinct; 3) maxillary palpi each short, palpomere 4 thickened, with cylindrical expansion on external side, hemispherical nodule on expansion; antennae each short, elongate, 8-segmented, antennomere 8 largest, ovoid, with annular sulcus in middle.

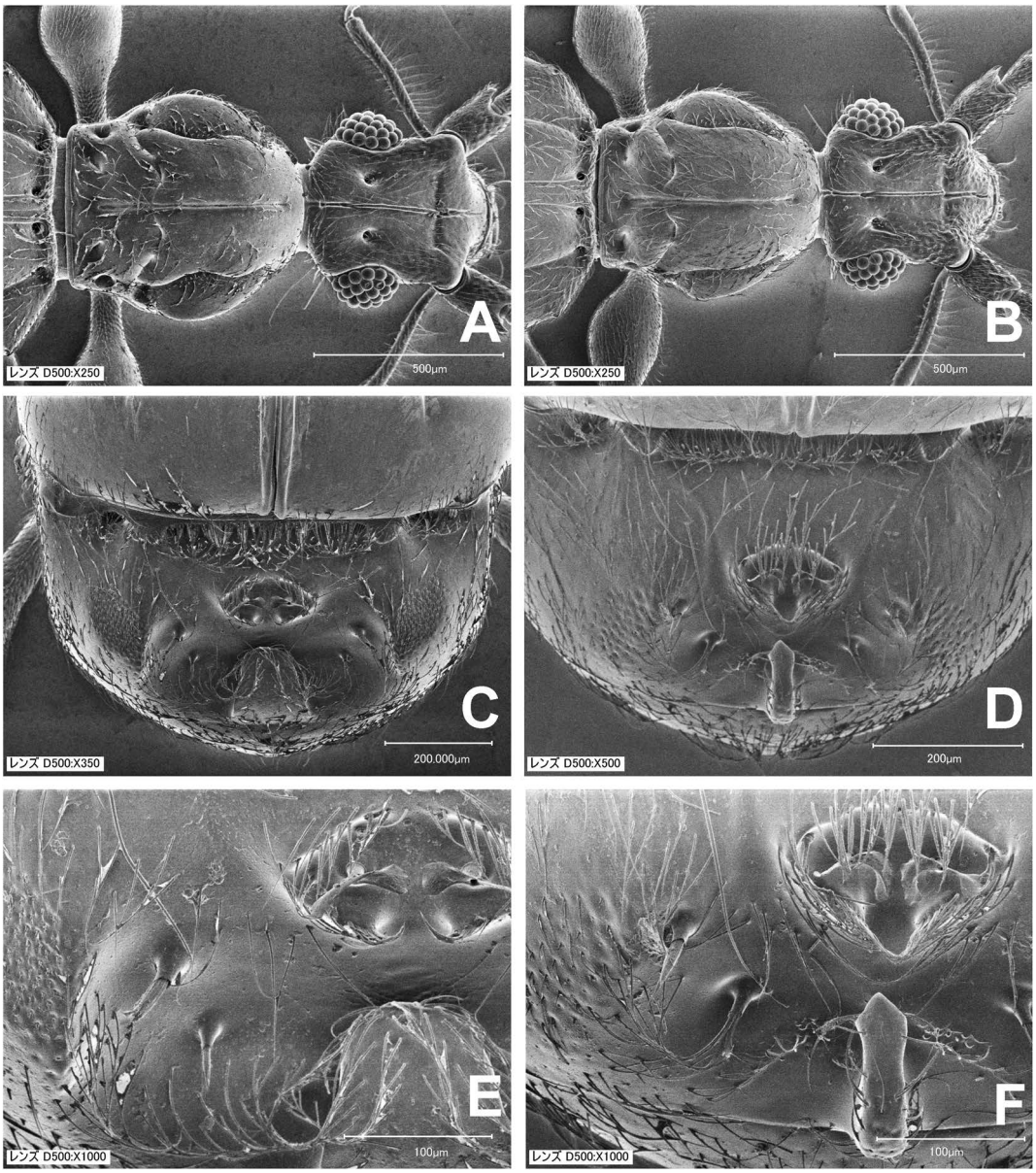

Fig. 4. SEM photos of *Cratna* species collected in Tanintharyi Region. A, C, E. *Cratna* sp. 1; B, D, F. *C.* sp. 2. A, B. head and pronotum in dorsal view; C, D, abdominal tergite IV in dorsal view; E, F. male sexual patch enlarged.

2. *Pseudoplectus?* sp. 1* (Fig. 3B)

Specimen examined. 1 ex., 13-16FIT.

Remarks. The genus *Pseudoplectus* belonging to the subtribe Panaphantina of the tribe Trichonychini is characterized by the very small and elongate body, and the last abdominal sternite divided into three plates (two in genera of Euplectini).

Supertribe Batrisitae

3. *Amana* sp. 1

Specimen examined. 1 ex., 12-16FIT.

Remarks. This species is already recorded

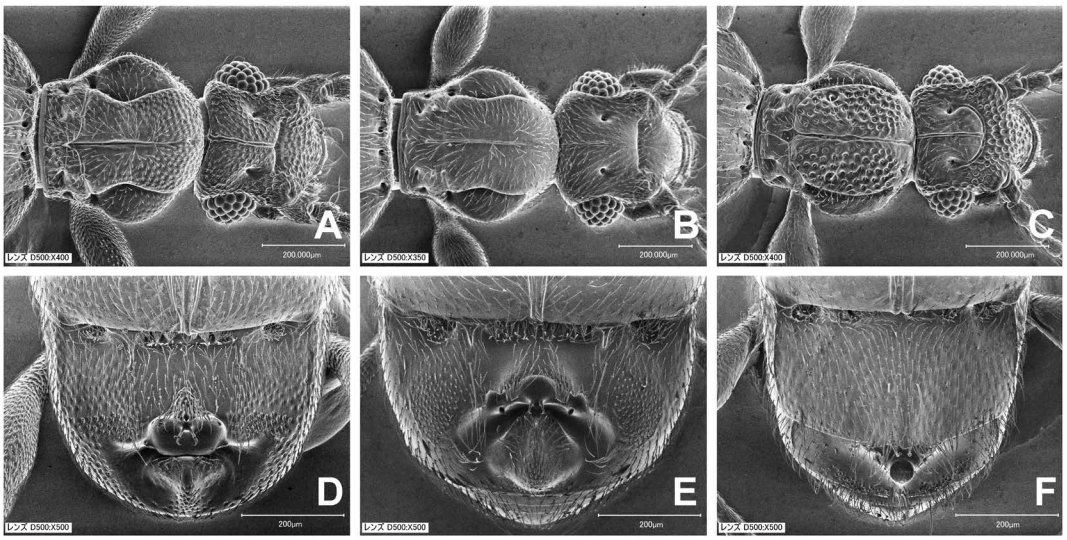

Fig. 5. SEM photos of *Batriscenaulax* and *Arthromelodes* species collected in Tanintharyi Region. A, D. *Batriscenaulax* sp. 1; B, E. *Arthromelodes* sp. 1; C, F. *A*. sp. 2. A–C. head and pronotum in dorsal view; D–F. abdominal tergite IV in dorsal view.

from Tanintharyi Region as shown in the checklist at the second part of the present paper.

4. *Batricrator myanmaricus* Nomura et Aung, 2020

Specimen examined. 1 ex., 15SLL.

Remarks. This species was already collected from Tanintharyi Nature Reserve as shown in the list of pselaphines collected in 2018 (Nomura and Aung, 2021). It was described by Nomura and Aung (2020c) from Myanmar (Tanintharyi Region) and western to southern Thailand. This species has been recorded as "*Batricrator* sp. 1" before the description.

5. *Tribasodites denticornis* Nomura et Aung, 2020* (Fig. 3C)

Specimen examined. 1 ex., 12SLL.

Remarks. This species was described by Nomura and Aung (2020c) together with *Batricrator myanmaricus* and *Smetanabatrus alesi* shown below.

6. *Tribasodites* sp. 3* (Fig. 3D)

Specimen examined. 1 ex., 14SLL.

Remarks. Sexual character of the male of this species is represented in the antennomere 5 to 6 and the very large mucro at the apex of the mid tibia.

7. *Tribasodites* sp. 4* (Fig. 3E)

Specimens examined. 1 ex., 12-16FIT; 7 exs., 14SLL.

Remarks. Sexual character of the male of this species in indistinct. The species is characterized by the pronotum with the very large and acute spines on the lateral and dorsal sides in both sexes.

8. *Smetanabatrus alesi* Nomura et Aung, 2020* (Fig. 3F)

Specimens examined. 1 ex., 14SLL; 1 ex., 15SLL.

Remarks. This species is characterized by the large and stout body, the broadened palpomere 4 of the maxillary palpus, the laterally rounded pronotum, and the abdominal sternite V with a pair of short processes in the male.

9. *Cratna* sp. 1* (Figs. 3G, 4A, C, E)

Specimen examined. 1 ex., 14SLL.

Remarks. The genus *Cratna* has been

already known from Tanintharyi Region with two species, which are both lacking male sexual patch. In the present survey, additional two species of this genus both having large male sexual patch were discovered. This species (*C.* sp. 1) is characterized by the broad and trapezoidal posterior nodule in posteromedian part of the sexual patch on the abdominal tergite IV (Figs. 4C, E).

10. *Cratna* sp. 2* (Figs. 3H, 4B, D, F)

Specimen examined. 1 ex., 15SLL.

Remarks. This species is very similar to *C.* sp. 1 in having the large male sexual patch on the abdominal tergite IV, but is separable by the very narrow, arrow-headed posterior nodule of the sexual patch (Figs. 4D, F).

11. *Batriscenaulax* sp. 1*(Figs. 3I, J, 5A, D)

Specimens examined. 55 exs., 14SLL; 2 exs., 15SLL.

Remarks. The genus *Bartiscenaulax* is defined by the following characters: 1) fore tibia with small trichome near apex in male, 2) abdominal tergite IV with large sexual patch including pair of setiferous patches in male. This undescribed species is characterized by the body covered with sparse and coarse punctures in both sexes.

12. *Arthromelodes* sp. 1 (Figs. 5B, E)

Specimens examined. 3 exs., 12SLL; 4 exs., 15SLL.

Remarks. This species is already collected in 2018. It is characterized by the abdominal tergite IV weakly flattened on dorsal side, bearing the large sexual patch in the male.

13. *Arthromelodes* sp. 2* (Figs. 3K, L, 5C, F)

Specimens examined. 15 exs., 14SLL.

Remarks. This species is very characteristic in the middle-sized body, the densely and coarsely punctate head and pronotum (Fig. 5C), the posteromedially elevated abdominal tergite IV in the male, and the tergite V with a small and well-projected nodule in the anteromedian part in the male (Fig. 5F).

14. Batrisina, gen. et sp. undet. 2* (Fig. 3M)

Specimen examined. 1 ex., 13-16FIT.

Remarks. This species is difficult to be identified even in genus level. It is characterized by the small-sized body, the short antennae and legs, the small eyes and the laterally narrowed prosternum.

Supertribe Goniaceritae

15. *Harmophorus gibbioides* Motschulsky, 1851

Specimen examined. 1 ex., 12-16FIT.

Remarks. This species was also recorded in the surveys of 2017 and 2018. It is a common species in light traps and FITs.

16. *Reichanbachia* sp. 2

Specimen examined. 1 ex., 15SLL.

Remarks. This species is characterized by the small-sized body, the thickened distal three antennal segments in the male.

17. *Batraxis raffrayi* (Blattný, 1925)

Specimen examined. 1 ex., 13-16FIT.

Remarks. This is also a common species collected by light trap.

18. *Comatopselaphus* sp. 1

Specimen examined. 1 ex., 14SLL.

Remarks. This species was recorded also in the survey of 2017.

19. *Atychodea quadrifoveolata* (Motschulsky, 1851)

Specimen examined. 1 ex., 12SLL.

Remarks. This tychine species is characterized by the middle-sized thick body densely covered with long pubescence and by the broadened elytra and abdomen.

Supertribe Pselaphitae

20. *Tmesiphorus* sp. 2* (Fig. 3N)

Specimen examined. 1 ex., 12SLL.

Remarks. This species is the second species of this genus from Tanintharyi Region. It is char-

acterized by the thick and stout body, and the predominantly large and subglobose antennomere 11.

21. *Raphitreodes dentimanus* (Raffray, 1890)* (Fig. 3O)

Specimen examined. 1 ex., 12-16FIT.

Remarks. This species is recorded by the present study from Tanintharyi Region for the first time. It is already recorded from Myanmar, Vietnam and Singapore (Nomura and Aung, 2020).

22. *Saltisedes* sp. 1* (Fig. 3P)

Specimen examined. 1 ex., 12-13HP

Remarks. The genus *Saltisedes* is recorded by the present study from Myanmar for the first time. It is similar to the genotype species, *S. brunneus* known from Japan, but easily separated by the normally convex pronotum on dorsal side.

23. *Ctenisoschema coomani* (Jeannel, 1957)

Specimen examined. 1 ex. 12-13HP.

Remarks. This is a common species collected by light trap in Tanintharyi Region. It is very characteristic in the very long and slender antenna clearly bent in the antennomere 9 in the male.

24. *Horniella* sp. 1* (Fig. 3Q)

Specimen examined. 1 ex., 12SLL.

Remarks. The genus *Horniella* is recorded from Myanmar for the first time. It is characterized by the very thick and stout body, and the very large and ovoid palpomere 4.

2) A List of Pselaphine Species Recognized in Tanintharyi Region Throughout the First to Third Surveys in the Cooperative Project

All pselaphine species recognized from Tanintharyi Region in three surveys conducted in 2017–2020 are present as follows. The collected year and the number of specimens in parenthesis of each species are supplemented.

Supertribe Euplectitae
Tribe Bythinoplectini
Subtribe Bythinoplectina
1. Bythinoplectina gen. sp. 1 2017(2), 2018(1)
2. B. sp. 2 2018(2)
3. B. sp. 3 2018(1)
4. B. sp. 4 2018(1)
5. B. sp. 5 2018(1)
6. B. sp. 6 2020(1)

Tribe Euplectini
7. *Euplectus* sp. 1 2017(1), 2018(2)
8. *Leptoplectus?* sp. 1 2018(1)

Tribe Trichonychini
Subtribe Panaphantina
9. *Pseudoplectus?* sp. 1 2020(1)
10. *Bibloplectus?* sp. 1 2018(1)
11. *Euplectodina hipposideros* (Schaufuss, 1877) 2017(1)

Subrtribe Trimiina
12. *Philotrimium abdominale* Blattný, 1925 2018(3)

Supertribe Batrisitae
Tribe Batrisini
Subtribe Batrisina
13. *Anama* sp. 1 2017(1), 2018(2), 2020(1)
14. *A.* sp. 2 2018(2)
15. *Mnia* sp. 1 2017(7), 2018(2)
16. *Batricrator myanmaricus* Nomura et Aung, 2020 2018(7), 2020(1)
17. *Tribasodes* sp. 1 2017(14)
18. *Tribasodites denticornis* Nomura et Aung, 2020 2020 (1)
19. *T.* sp. 1 2018(6)
20. *T.* sp. 2 2018(2)
21. *T.* sp. 3 2020(1)
22. *T.* sp. 4 2020(8)
23. *Coryphomodes* sp. 1 2018(43)
24. *C.* sp. 2 2018(21)
25. *Smetanabatrus alesi* Nomura et Aung, 2020 2018(3), 2020(2)
26. Batrisina, gen. sp. 1 2018(1)
27. *Trichonomorphus ursinus* Raffray, 1890 2018(4)
28. *Intestinalius* sp. 1 2018(3)
29. *Oxyomera?* sp. 1 2018(2)
30. *Trisinus* sp. 1 2017(2)
31. *T.* sp. 2 2018(2)

32. *Cratna abdominalis* Raffray, 1912 2018(1)
33. *C. venusta* Blattný, 1925 2017(1), 2018(1)
34. *C.* sp. 1 2020(1)
35. *C.* sp. 2 2020(1)
36. *Batrisiella* sp. 1 2017(10), 2018(11)
37. *Trisiniotus nitidulus* (Motschulsky, 1851) 2017(13), 2018(15)
38. *Plocamarthrus championi* Jeannel, 1960 2017(1)
39. *Physomerinus femoratus* (Motschulsky, 1851) 2017(1), 2018(1)
40. *Batriscenaulax* sp. 1 2020(57)
41. *Arthromelodes reichenbachi* (Motschulsky, 1851) 2017(1), 2018(1)
42. *A.* sp. 1 2018(1), 2020(7)
43. *A.* sp. 2 2020(15)
44. Batrisina, gen. sp. 2 2020(1)

Supertribe Goniaceritae
Tribe Proterini
45. *Pareuplectops coomani* Jeannel, 1957 2018(27)
46. *P. tenasserimi* (Blattný, 1925) 2018(68)
Tribe Arnyllini
47. *Harmophorus gibbioides* (Blattný, 1925) 2017(2), 2018(3), 2020(1)
Tribe Brachyglutini
48. *Trissemus* sp. 1 2017(36)
49. *T.* sp. 2 2017(7)
50. *T.* sp. 3 2017(41)
51. *T.* sp. 4 2017(20)
52. *T.* sp. 5 2017(2)
53. *Reichenbachella budha* (Raffray, 1891) 2017(7)
54. *Reichenbachia* sp. 1 2017(20)
55. *R.* sp. 2 2017(2), 2020(1)
56. *R.* sp. 3 2017(1), 2018(8)
57. *R.* sp. 4 2017(1)
58. *Rybaxis* sp. 1 2017(6)
59. *Comatopselaphus* sp. 1 2017(3), 2020(1)
60. *Atenisodus* sp. 1 2017(1), 2018(14)
61. *Eupines sphaerica* (Motschulsky, 1851) 2017(1)
62. *Batraxis raffrayana* (Blattný, 1925) 2017(1), 2020(1)
63. *B.* sp. 1 2018(206)
Tribe Iniocyphini
Subtribe Natypleurina
64. *Sunorfa* sp. 1 2018(2)
65. *Morana* sp. 1 2018(1)
66. *Natypleurus* sp. 1 2017(1)
67. Natypleurina, gen. sp. 1 2018(3)
Tribe Tychini
68. *Atychodea quadrifoveolata* (Motschulsky, 1851) 2018(2), 2020(1)
Tribe Cyathigerini
69. *Plagiophorus paradoxus* Motschulsky, 1851 2018(6)
70. *P.* sp. 1 2017(2)
71. *P.* sp. 2 2017(2)
72. *P.* sp. 3 2017(1)
73. *P.* sp. 4 2018(2)
74. *P.* sp. 5 2018(1)

Supertribe Pselaphitae
Tribe Pselaphini
75. *Pselaphus multangulus* Schaufuss, 1877 2017(1)
Tribe Hybocephalini
76. *Stipesa* sp. 1 2018(3)
Tribe Tmesiphorini
77. *Tmesiphorus* sp. 1 2017(2)
78. *T.* sp. 2 2020(1)
79. *Raphitreodes dentimanus* (Raffray, 1890) 2020(1)
80. *Pseudophanias* sp. 1 2017(1), 2018(2)
81. *P.* sp. 2 2017(28), 2018(21)
82. *Ancystrocerus* sp. 1 2018(1)
83. *Saltisedes* sp. 1 2020(1)
Tribe Ctenistini
84. *Ctenisoschema coomani* (Jeannel, 1957) 2017(1), 2018(2), 2020(1)
85. *Ctenistes* sp. 1 2017(5), 2018(1)
86. *Sognorus birmanensis* (Motschulsky, 1851) 2017(2)
Tribe Odontalgini
87. *Odontalgus vestitus* Schaufuss, 1886 2017(2)
Tribe Tyrini
Subtribe Tyrina
88. *Megatyrus masumotoi* Nomura *et al.*, 2010 2018(3)

89. *Horniella* sp. 1 2020(1)
Subtribe Centrophthalmina
90. *Centrophthalmus helferi* Blattný, 1925 2017 (3), 2018(1)
91. *C. pilosus* Blattný, 1925 2017(5)
92. *C.* sp. 1 2017(2)
93. *C.* sp. 2 2017(2)

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