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MORE STENINE BEETLES FROM THAILAND (COLEOPTERA, STAPHYLINIDAE)*

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ABSTRACT

An important volume of material which has come to light since the publication of "The stenine beetles of Thailand" (ROUGEMONT 1981, see references) has been studied. Taxonomic innovations include the descriptions of *Dianous siamensis* n. sp., *D. niger* n. sp., *D. hirsutus* n. sp., *Stenus lomholdti* n. sp., *S. ancorellus* n. sp., *S. succinifer* n. sp., *S. aestivalis* n. sp., *S. variipennis* n. sp., *S. aspericollis* n. sp., *S. cyanogaster* n. sp., *S. grandimatrix* n. sp., and *S. luteomaculatus* n sp., and the synonymy of one species. Several other taxa are recognised as new but are not described, and 29 further taxa are added to the list of Thai Steninae. The range of variability of several little-known species is studied, and the sexual characters of several known taxa are described or figured for the first time. A list is appended of all species of the subfamily known from Thailand but not reported in this paper.

INTRODUCTION

In 1981 the article 'The stenine beetles of Thailand', based on material collected by the author, recorded the occurrence of members of this subfamily in Thailand for the first time. Thirty-three taxa were listed, 10 of them described as new species, two of which are now synonymised, one by PUTHZ (in litt.) and one in this paper.

The new material studied here, comprising more than 800 specimens, is largely the result of the author's own collecting trips in January and March, 1982, but material from other sources has also contributed new data.

The most interesting of these collections was made by members of the 1981 Danish Expedition (Zoological Museum, Copenhagen). By concentrating their field work on the highest mountain tops (Doi Inthanon, the highest mountain in Thailand, and the summit of Doi Pui), a previously unexplored biotope in Thailand where Staphylinidae are concerned, they obtained montane species which were nearly all new

* 8th contribution to the knowledge of Steninae

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to Thailand, and several new to science. The data communicated by Dr. Puthz included previously unstudied material of the interesting collection from medium altitudes made by T.C. Maa in 1958, now in the Bishop Museum, Honolulu, and a few insects collected by Dr. Brignoli and Dr. Osella (Verona). The author was also able to examine five *Stenus* specimens among the many undetermined Staphylinidae in the collection of the Department of Agriculture, Bangkok.

This new material has added 48 taxa to the list of Thai Steninae, bringing the total to 77, a number expected to be at least doubled when the country has been more thoroughly prospected, for many species are now known from other parts of the Indo-Chinese sub-region which should certainly occur in Thailand. For this reason I do not propose to rewrite a key to the Thai species; such a key would soon follow my 1981 key into obsolescence. This task is being more usefully undertaken by Dr. Puthz in a series of works on separate phyletic groups covering the whole Oriental region.

Four of the new species are being described by Puthz in the context of a study of the *Stenus bispinus* group; all the other data are presented here, and a list of species now known from Thailand but not included in this study is given at the end, so that the paper may also provide a catalogue of all Thai Steninae. In conjunction with PUTHZ'S catalogue of the Steninae of Yunnan and Vietnam (1981), Supplement (in litt.), a catalogue of the Burmese species (ROUGEMONT, in preparation), and PUTHZ'S subgeneric revisions, the present paper contributes to a solid basis for the study of the Indo-Chinese fauna, which until recently has been very fragmentary.

MATERIALS AND METHODS

Field Work

The successful search for Steninae in the tropics depends entirely on identifying suitable habitats, which may be very restricted in area. Ten years of particular attention to these insects have given me an "eye" for the sometimes indefinable differences in humidity, shade, vegetation etc. which indicate a promising patch of ground; once this has been located, I find it most expedient to search the area armed only with an aspirator, or, if large quantities of vegetable debris are present, to combine this with the use of a sieve over a sheet. These methods account for instance for the 104 specimens belonging to 14 different taxa which I collected at Ban Hua Mo, Chiang Mai (= Chieng Mai) Province, in less than twenty minutes, or the 214 specimens belonging to 24 species, among many other Staphylinidae, which I obtained in a more leisurely afternoon at Mae Yao cascades near Chiang Rai (= Chieng Rai). Sweeping was also attempted in several localities, but without much success, although I have found it elsewhere an

easy way to obtain plant-climbing species (mostly *Hypostenus*). Here, again, suitable habitats must first be located : an accumulation of plant debris on a damp substrate under the plants to be swept seems to be a prerequisite. This detritus is likely to harbour a richer fauna than the plants, including many examples of the plant-climbers themselves.

Laboratory Work

Work was done on a stereoscopic microscope with a maximum magnification of 80X. The use of an eye-piece micrometer at that magnification gives units equal to 0.025 mm, which are those given for all insect measurements except total body length, which is given in mm.

Taxonomic Principles

Our present knowledge of tropical *Stenus* species groups has shown that the subgeneric divisions devised for the European fauna, based on the combinations of presence or absence of abdominal borders and lobes on the 4th tarsal segments, and of the relative length of tarsi, are artificial. The members of one phyletic group, represented in Thailand by *Stenus articulipenis* Rougemont and *S. aspericollis* n. sp., answer to the definitions of at least three different subgenera, and another, the *guttalis* group, is clearly more closely related to certain *Parastenus* species than to any other known *Hypostenus* group, although they belong by definition to the latter.

My friend Dr. PUTHZ (personal communication) has criticised my recent description of a new species with simple abdomen from China as a *Parastenus*. While he fully agrees with my view of the insect's true phylogeny, he rightly pointed out that unless we adhere to the accepted definitions of established subgenera, the already recondite science of stenine systematics might become quite incomprehensible to beginners or to specialists in other groups attempting to use our keys. In this paper therefore, and in the future, I will apply this principle, using inverted commas in those cases where the subgenus does not coincide with the insect's true phylogenetic position.

DATA AND ANALYSIS

Dianous latitarsis Bck.

Dianous latitarsis L. Benick 1942, *Ark. Zool.* 33A (17) : 42.
Dianous latitarsis Puthz 1981, *Ent. Abh. Mus. Tierk. Dresden* **44** (6) : 111.
Dianous latitarsis Puthz 1981, *Reichenbachia* **19** : 3.

2 ♂♂ & 1 ♀ : Chiang Mai Prov., Doi Inthanon N.P., main road 2200 m, 8. X. 81, Zool. Museum Copenhagen leg.

New to Thailand. The range of this species extends farther east than that of the very similar *D. gracilipes* Champ. It has been recorded from Sikkim and Yunnan.

Dianous (n. sp ?) prope ***latitarsis*** Bck.

1 ♀ : Chiang Mai Prov., Doi Pui, running on a dry boulder by a cascade, 25. I. 1982, G. de Rougemont. In the author's collection.

Although very close to the preceding species, this insect differs in the shape of the frons and pronotum and in colouration, being entirely blue, without the green suffusion on the elytra typical of *D. latitarsis* Bck. While I think it probable that it represents a new species, I think it inadvisable to describe it without reference to the diagnostic features of the male.

Dianous inaequalis Champ

Dianous inaequalis Champion 1919. *E.M.M.* 55 : 45.
Dianous inaequalis Puthz 1981, *Ent. Abh. Mus. Tierk. Dresden* 44 (6) : 99.
Dianous coeruleoguttatus Cameron 1927, *E.M.M.* 63 : 8.

1 ♂ : Chiang Mai Prov., Doi Inthanon N.P., main road, 2200 m. 7. X. 81, Zool. Mus. Copenhagen leg.

New to Thailand, but known from a wide Himalayan range, from the U.P. of India to Sichuan.

Dianous srivichaii Rougemont

Dianous srivichaii Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* 83 : 354.
Dianous spec. 7 Rougemont Puthz 1981, *Ent. Abh. Mus. Tierk. Dresden* 44 (6) : 122.
Dianous srivichaii Puthz (in litt.)

3 ♂♂ & 2 ♀♀ : Chiang Mai Prov., Doi Suthep, ca. 800 m, on mossy boulders in stream shaded by primary forest, 24. I. 1982; 3 ♂♂ : Doi Pui, 1250 m, same habitat, 14. III. 1982; 2 ♂♂ & 1 ♀ : Chiang Rai Prov., Ban Du Cascades, ca. 20 km N. of Chiang Rai, ca. 650 m, on boulders near the water-line in forest, 23. I. 1982; 9 ♂♂ & 6 ♀♀ : Nam Tok Mae Yao, N. of Chiang Rai, 13. III. 1982; all G. de Rougemont.

Described from one example from Doi Suthep and two from Vietnam, and since also recorded from S. China (PUTHZ, in litt.).

Dianous karen Rougemont

Dianous karen Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* 83 : 357.
1 ♀ : (S) Banna, 108 m, on wet cliff near waterfall, 5-7. V. 1958, T.C. Maa, n. 414 (Bishop Museum); 1 ♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13. III. 1982, G. de Rougemont. Described from a single male from Chiang Mai Prov.

Dianous siamensis n. sp.

♂ Holotype, 1 ♀ Paratype : Chiang Mai Prov., Doi Pui, 1250 m, stream bank in dense forest, 14. III. 1982, G. de Rougemont; 1 ♀ Paratype : Doi Suthep, ca. 600 m, stream bank in dense forest, 24. I. 1982, G. de Rougemont; 1 ♂ Paratype : Ibid. (Doi Sudep, near Chiengmai, N. Siam), 5. IV. 1941, A.M. Hemmingsen, Zool. Museum Copenhagen leg. Holotype in B.M.N.H., Paratypes in Zoological Museum Copenhagen and in my collection.

This distinctive new maculate species belongs to the second group (PUTHZ 1981B) of species with raised or bi-sulcate vertex, and resembles *D. cribrarius* Champ. more closely that it does any known spotted species.

Black, very shiny, without microsculpture; pubescence fairly dense, short, silvery; antennae fuscous, the basal segments, especially the second, somewhat lighter; palpi testaceous, progressively infuscate; basal halves of femora a clear yellow, sharply demarcated from the pitchy distal halves, the tarsi fuscous; each elytron with a large round light orange spot. Length : 4.4-6.0 mm.

Head narrower than the elytra (72 : 80), the eyes fairly small (diameter of eye seen from above : 31; length of temple : 18); the vertex is broad (average distance between eyes : 38), scarcely narrowed anteriorly, the median portion sharply raised between two deep, slightly convergent furrows which end posteriorly before the hind margin of eyes, leaving the posterior portion of head regularly convex. Punctuation of head fairly coarse, the punctures on vertex slightly larger than eye-facets, coarser on clypeus, very dense on clypeus and anterior part of vertex, sparser posteriorly where the raised portions are shiny, with only a few scattered punctures.

Pronotum glabrous, convex and elongate (60 : 56), its greatest breadth behind the middle, narrowed anteriorly and sinuate in posterior half, the surface uneven, the disc with an irregular depression on each side just behind the middle; the punctures are the same size as those of the head, but the interstices are much coarser, forming strong transverse rugae.

Elytra glabrous, large, convex and elongate (90 : 80), widest behind the middle, but only slightly narrowed anteriorly to the prominent humeral angles (75), and posteriorly; the punctuation is somewhat coarser and sparser than that of pronotum, the interstices only beginning to form slight confluent rugae on the sides of disc; each elytron with a large round yellow to light orange (Holotype) spot, its diameter more than 3/8 of the greatest length of the elytron, its centre 7/12 from the anterior border.

Abdomen long, narrow, subcylindrical, shiny, the borders fairly narrow; paratergites IV about as broad as the diameter of second antennal segment; punctuation

of tergites fine and dense, the punctures about the size of of eye-facets on tergite III, progressively finer to very fine and dense on tergites VI-VIII, sparser on tergite IX which bears a posterior membranous comb; tergite X impunctate, with a broad apico-median depression. Pubescence of all abdominal sclerites long and dense.

Legs long : length of metatibia : 86; length of metatarsi : 50; first tarsal segment longer than the two following together; tarsal segments : I : 17; II : 9; III : 6; IV : 10; V : 9; all fourth segments strongly bi-lobed.

Male : Sternites VI and VII with very shallow apical emarginations, the apico-median surfaces flattened and micro-punctate; sternite VIII with a triangular emargination to 1/3 of its length; sternite IX (Fig. 1B) with long acute apicolateral angles. Adeagus (Fig. 1A) with internal structures unclear, the anterior margin of the median lobe is broadly finely pubescent.

Female : somewhat broader and more robust than male; the valvifers correspond in shape to that of the male ninth sternite.

Dianous siamensis n. sp. has no known sister species. Its type of punctuation is similar to that of *D. cribrarius* Champ., and the broad apex of the median lobe also suggests kinship with that species. *D. siamensis* n. sp. is much smaller, however, and can be instantly recognised by the yellow basal halves of the femora and the large clear elytral spots. In PUTHZ'S key to the spotted *Dianous* of the world it runs to *D. psilopterus* Bck. from which it is easily distinguished by its sparse punctuation, not rugose and not forming vorticose whorls on the elytra, and by the absence of any coloured reflex. Only three other spotted *Dianous* spp. have sharply demarcated bicolorous legs : *D. cruentatus* Bck., *D. psilopterus* Bck. and *D. femoralis* Cam. From the first of these *D. siamensis* n. sp. differs by the conformation of the vertex, placing each of these species in different phyletic groups; from *D. femoralis* Cam. by its narrower elytra and larger elytral spots; from both as well as from all other known *Dianous* species by its coarse and sparse punctuation. The male sexual characters, in particular the unusual shape of the median lobe, further distinguish *D. siamensis* n. sp. from all other spotted species.

Dianous niger n. sp.

♂ Holotype, 1 ♂ & 1 ♀ Paratypes : Chiang Mai Prov., Doi Inthanon N.P., main road, 2200 m, 7 & 8.X.81, Zoll. Museum Copenhagen leg. Holotype and ♀ Paratype in coll. Mus. Copenhagen; ♂ Paratype in my collection.

This new species has the greater part of the vertex of head depressed, and so belongs to PUTHZ'S group 1. It appears to be most closely related to *D. viriditinctus* (Champ) but otherwise superficially resembles species of group 2, with smaller eyes and longer terminal brushes. In habitus, size and type of punctuation it most closely resembles *D. championi* Cam.

Black, including all appendages except the trochanters. which are paler, shiny, without evident microsculpture, the pubescence short, fine, whitish, longer on ventral surfaces; fore-body coarsely and rugosely punctate.

Head narrower than elytra (90 : 102), the eyes large, but not occupying the whole side of head as in the 'stenoid' species, the temples 1/3 the length of eyes (seen from above, in the same plane). Vertex broad (average distance between eyes : 56), depressed in anterior 2/3, the deepest part a broad foveate depression in anterior third, posteriorly with (apparently) traces of bilateral furrows, the surface slightly raised between and on either side of these; punctuation of vertex coarse, the diameter of punctures nearly as great as that of the base of third antennal segment, deep and close, becoming rugose laterally, coarse in the anterior median depression and on frons. Antennae moderately long, only just overlapping the posterior margin of pronotum when reflexed; antennal segments : I : 14; II : 10; III : 23; IV : 15; V : 13; VI : 11; VII : 12; VIII : 9; IX : 10; X : 9; XI : 12. The minute subulate fourth segments of maxillary palpi are quite evident, in contrast with many other species.

Pronotum slightly elongate (69 : 67), its greatest breadth about 1/3 from anterior margin, the sides strongly constricted, slightly sinuate in posterior half; the surface is uneven, with a deep transverse depression just behind the anterior margin, and more or less symmetrical shallow depressions on sides; punctuation coarse, deep and close, comparable with that of head, but the interstices tending to form transverse rugae, especially laterally.

Elytra subquadrate, ample, convex; punctures scarcely larger than those of head and pronotum, but appearing much coarser due to the very broad interstitial rugae. These are somewhat irregular, of the same basic pattern as in *D. championi* Cam. and other related species, mostly transverse and converging from the suture to the lateral-centre of disc, but do not form a vorticose rosette in the posterior half.

The abdomen is broad, moderately tapering; breadth of tergite III (measured from external edges of paratergites) : 74; breadth of tergite VII : 51; the tergites very finely and uniformly punctured, the interstices once to twice the diameter of punctures, which are much smaller than eye-facets; paratergites broad (paratergite IV : 7, or broader than terminal antennal segment), finely and densely punctured, with two to three longitudinal rows of punctures on each; tergites IX and X glabrous and impunctate excepting the terminal setae of tergite X, which has a pronounced apico-median declivity; terminal brushes long : 17.

Legs long, with all fourth tarsal segments simple; length of metatibia : 102; length of metatarsi : 64; first tarsal segment longer than the following three together (22 : 20); tarsal claws very long (17).

Male : sternites III to VI densely pubescent, without sexual characters, save a very shallow posterior emargination of sternite VI; sternite VII with a median depression extending to over half its length, terminating in a narrow, obtuse apical emargination. the punctuation and pubescence a little denser in the depression; sternite VIII with an equilateral triangular excision to 1/5 of its length; sternite IX with pronounced, acute apico-lateral angles, but not toothed. Aedeagus (Fig. 2) highly sclerotised and pigmented, the median lobe appearing pitchy when not cleared chemically, its apex acuminate and deflexed.

Female : the single specimen is somewhat broader and more robust than the males. The valvifers correspond in shape to that of the male ninth sternite.

In PUTHZ'S key to the unspotted *Dianous* of the world, *D. niger* n. sp. should be inserted after *D. viriditinctus* (Champ.), to which, judging by the sexual characters, it would appear to be most closely related. It can easily be distinguished from that species by its more robust build, coarser and more confluent elytral rugae, the raised postero-median part of the head, and especially by its deep black body, without any trace of a coloured reflex.

In the conformation of the head, and to a lesser degree by its general habitus, this species, like several Bornean species, is somewhat intermediate between the two main groups recognised by PUTHZ. Its apparent kinship with *D. viriditinctus* (Champ.) suggests that this is the result of convergent morphological evolution, and that this species does not represent a different phyletic group from the 'stenoid' species of group 1.

If not and endemic of the Thannon range, *D. niger* n. sp. must, like *D. latitarsis* Bck. and *D. inaequalis* Champ., be relicts in this country, restricted to favourable habitats in the high mountains in the Indo-Chinese subregion. None of these three species were found by me when I searched the same locality in March 1982.

Dianous meo Rougemont

Dianous meo Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 361.
Dianous spec. 6 Rougemont Puthz 1981, *Ent. Abh. Mus. Tierk. Dresden* **44** (6) : 105.

1 ♂ : Chiang Mai Prov., Doi Inthanon N.P., main road, 850–950 m, 10. X. 81, Zool. Mus. Copenhagen leg.; 3 ♂♂ & 4 ♀♀ : Doi Suthep, ca. 850 m, on boulders in stream in forest, 24.I.1982, G. de Rougemont; 1 ♂ : Doi Pui, 1250 m, 14.III. 1982, G. de Rougemont; 1 ♂ & 2 ♀♀ : Chiang Rai Prov., Ban Du Cascades, ca. 20 km N. of Chiang Rai, on boulders in stream, 23.I.1982, G. de Rougemont; 10 ♂♂ & 5 ♀♀ : Nam Tok Mae Yao, N. of Chiang Rai, 13.III.1982. G. de Rougemont.

Described from Doi Suthep and found in various localities of N. Thailand at medium altitudes. So far not known outside Thailand.

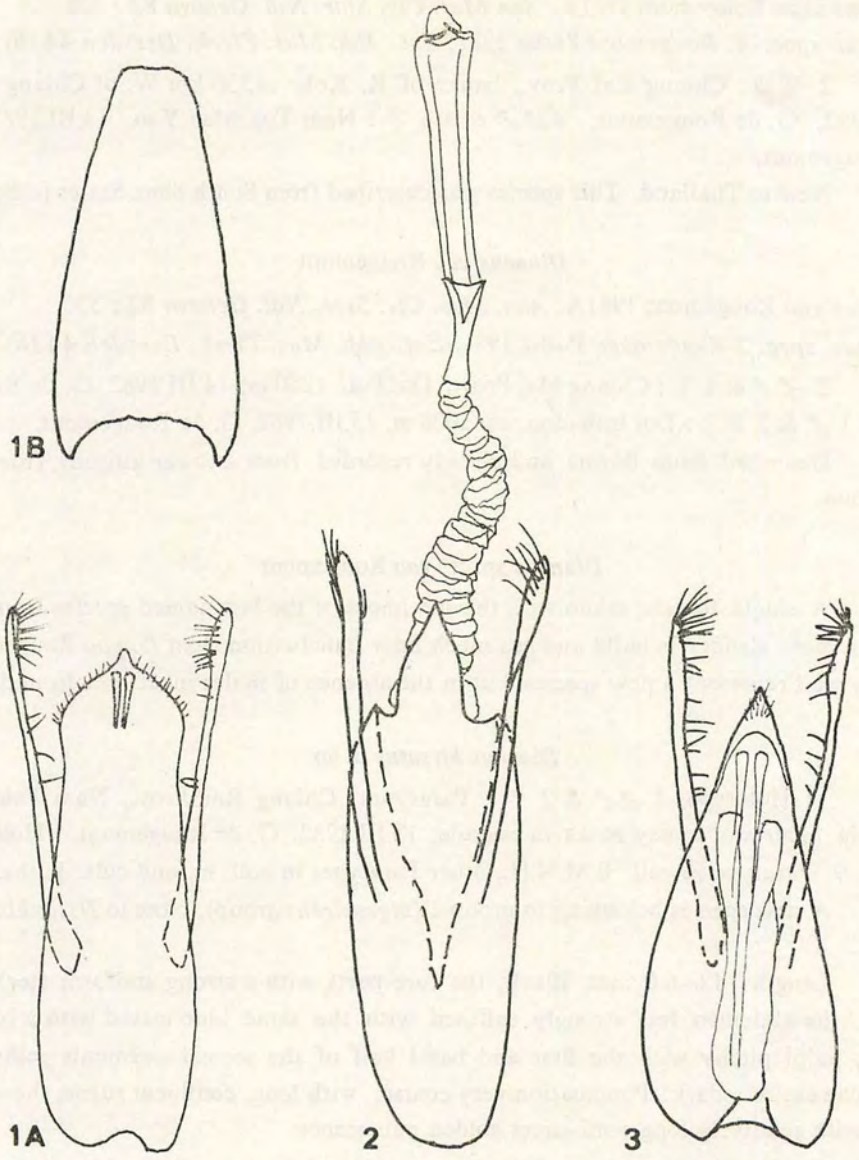

Figure 1. *Dianous siamensis* n.sp. A : aedeagus, ventral view; B : male ninth sternite.
Figure 2. *Dianous niger* n.sp. Aedeagus, dorsal view with inner sac everted.
Figure 3. *Dianous hirsutus* n.sp. Aedeagus, ventral view.

Dianous shan Rougemont

Dianous shan Rougemont 1981A, *Ann Mus. Civ. Stor. Nat. Genova* **83** : 328.
Dianous spec. 4 Rougemont Puthz 1981, *Ent. Abh. Mus. Tierk. Dresden* **44** (6) : 102.

2 ♀♀ : Chiang Rai Prov., banks of R. Kok, ca. 30 km W. of Chiang Rai, 22.I.1982, G. de Rougemont; 8 ♂♂ & 9 ♀♀ : Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

New to Thailand. This species was described from South Shan States in Burma.

Dianous yao Rougemont

Dianous yao Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 330.
Dianous spec. 5 Rougemont Puthz 1981, *Ent. Abh. Mus. Tierk. Dresden* **44** (6) : 105.

2 ♂♂ & 1 ♀ : Chiang Mai Prov., Doi Pui, 1250 m, 14.III.1982, G. de Rougemont; 1 ♂ & 3 ♀♀ : Doi Inthanon, ca. 2000 m, 15.III.1982, G. de Rougemont.

Described from Burma and already recorded, from a lower altitude, from Doi Inthanon.

Dianous sp. cf. *yao* Rougement

A single female, taken with the specimens of the last named species from Doi Pui, is more slender in build and has much finer punctuation than *D. yao* Rougemont. It may well represent a new species, but in the absence of males must remain undescribed.

Dianous hirsutus n. sp.

♂ Holotype, 2 ♂♂ & 2 ♀♀ Paratypes: Chiang Rai Prov., Nam Tok Mae Yao, in fissures of mossy rocks in cascade, 13.III.1982, G. de Rougemont. Holotype and 1 ♀ Paratype in coll. B.M.N.H.; other Paratypes in coll. m. and coll. Puthz.

A new species belonging to group 1 (*nigrovirens* group), close to *D. tonkinensis* Puthz.

Length: 4.6–6.0 mm. Black, the fore-parts with a strong uniform steel-blue reflex, the abdomen less strongly suffused with the same blue mixed with a bronze reflex; palpi pitchy with the first and basal half of the second segments yellowish; antennae entirely dark. Punctuation very coarse, with long, confluent rugae; the whole body with relatively long semi-erect golden pubescence.

Head as broad as elytra (81), the vertex broad (average distance between eyes: 54), broadly depressed even in the basal portion, the lateral portions slightly raised between the lateral margins and the median depression. Punctuation coarse, the punctures being nearly as large as the section of third antennal segment, rugose, tending to longitudinal confluence, and continued on neck.

Pronotum as long as its greatest breadth (64), convex, the surface very uneven, with a deep impression on each side behind the middle; punctures are as large as those of head, but the interstices are coarser and transversely confluent except in the centre of disc, where a few interstices are broader and confused. The pubescence is evident on the whole surface, as it is on the head.

Elytra subquadrate (length and breadth ca. 80), the humeral angles broad and prominent (68); the punctures are as coarse as those of the rest of fore-body, but the interstices are even coarser than than those of the pronotum, forming long confluent rugae, mostly transverse, but forming a primitive vorticose rosette near the posterior border. The pubescence is distinct on the whole surface, as on the rest of fore-body.

Abdomen elliptical, strongly bordered: paratergites IV are as broad as the basal antennal segment, and as densely punctured and pubescent as the tergites; the pubescence in the transverse basal depressions of each tergite is homogenous with that of sternites, that of the posterior convex portions of each tergite finer and darker, but dense; the punctuation of the median area of the first three visible sternites is coares and sparse; terminal tergites, like the rest of the body, without microsculpture; ninth sternite apico-laterally produced into finely denticulate lobes.

Legs long and densely pubescent; length of metatibia : 81; length of metatarsi : 73; first tarsal segment (32) longer than the three following together.

Male: sternites III–VI unaltered; sternite VII apically produced into two long prominent divergent keels, the surface between them, and especially the apical emargination, densely pubescent; sternite VIII with a deep acute emargination to about 1/5 of its length. Aedeagus (Fig. 3) simple, similar to that of *D. tonkinensis* Puthz and several other members of this group.

Female: sternite VII with an apico-median patch of fine and dense pubescence; sternite VIII produced, spade shaped; valvifers commensurate with the male ninth sternite.

It is difficult to fit this new species satisfactorily into PUTHZ'S key to the unspotted *Dianous* of the world. Because the head is about as broad as the elytra, not distinctly narrower than these, it runs in that key to *D. flavicoxatus* Bck., but differs by its colour (not suffused with coppery-purple), the punctuation of the head which is finer and slightly longitudinally confluent, the lighter legs, and by the secondary sexual characters of the abdomen. It seems to be phylogenetically closest to *D. tonkinensis* Puthz, but differs, as is clear from the key, by its coarser and longer interstitial rugae on the pronotum and especially on the elytra, but also by its greater size, larger head with deeper median depression extending to the base, by the conformation of sternites VII and VIII, the apical emargination of the latter being deeper and more acute, and by the

shape of the ninth sternite: in *D. hirsutus* n. sp. the denticulate apico-lateral angles are more prominent, the apical border more deeply emarginate. From all other *Dianous* species of group 1 this new species is distinguished by the denser and partially erect pubescence which covers the whole body.

The specimen (lacking elytra) ascribed to *D. tonkinensis* Puthz on page 359 of my article on the Thai Steninae (ROUGEMONT, 1981B) belongs to this species, so *D. tonkinensis* should now be removed from the list of Thai species.

Dianous lahu Rougemont

Dianous lahu Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 359.

A further female of this apparently rare species was found on Doi Pui (14.III. 1982, G. de Rougemont), not far from the locality on Doi Suthep.

Stenus (s. str. & Nestus) comes Fv.

Stenus comes Fauvel 1895, *Rev. d'Ent.* **14**: 207.

Stenus comes Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 364.

17 exx.: Chiang Mai Prov., Doi Pui, 1250 m, 14.III.1982, G. de Rougemont.

These specimens were found in similar conditions to those collected on Doi Inthanon. The species is otherwise only known from Burmese Tenasserim.

Stenus (s. str. & Nestus) lomholdti n. sp.

♂ Holotype, 2 ♂♂ & 3 ♀♀ Paratypes: Chiang Mai Prov., Doi Inthanon N.P., main road, 2200 m, 7 & 15.X.81, Zool. Museum Copenhagen leg. Holotype and 4 Paratypes in Zoological Museum Copenhagen; 1 ♂ Paratype in my collection.

This new species belongs to a small group of Oriental *Stenus s. str.* without abdominal keels, with long tarsi, and which are all strictly montane; it includes *S. tortuosus* Cam., *S. sikkimensis* Cam. and *S. tenebricosus* Puthz.

Length: 6–7 mm. Black with a faint bronze, and in parts, leaden reflex; moderately coarsely and very rugosely punctured, and micro-reticulate; all surfaces with dense, short, whitish pubescence. Appendages brown, the third segments of palpi, distal halves of antennae, knees and tarsi all infuscate.

Head much narrower than the elytra (83: 95), the broad vertex (average distance between eyes: 53) not very deeply depressed, clearly bi-sulcate, the furrows closer to each other than to the margins of eyes, anteriorly evanescent, the whole surface coarsely and very rugosely punctured; the diameter of punctures is about equal to that of the base of third antennal segment, the narrow interstices forming an even, rugose 'honeycomb' except on the median axis, which is very narrowly impunctate and micro-reticulate. Antennae short, reaching just beyond the middle of pronotum when re-

flexed, the seventh segment long and cylindrical like the preceding ones, the eighth segment globose like those of club, but much smaller.

Pronotum elongate (71:65), slightly narrowed anteriorly, strongly sinuate in posterior 2/5, the punctuation a little coarser than that of head, and the interstices unevenly swollen, forming vermiculate rugae.

Elytra subquadrate, a little transverse (93:95), the sides evenly rounded anteriorly (distance between humeral angles: 75), and posteriorly (80); the humeral angles are prominent, the wings fully developed. The punctuation, with vermiculate flattened rugae, is comparable with that of pronotum, but without microsculpture.

The broad abdomen is not strongly tapered: breadth of segment III (measured from outer edges of paratergites): 68; breadth of segment VII: 58; the paratergites are exceptionally broad: breadth of paratergite IV: 9 or equal to the length of second antennal segment, and coarsely and densely punctured; the third to fifth paratergites bear an average of three longitudinal rows of punctures. The tergites appear very convex between the flat reflexed borders, their punctuation finer, even on the third segment, than that of paratergites, and becoming progressively finer, with consequently denser pubescence, to segment VIII. Tergite IX glabrous and shiny although microreticulate, with a few pre-apical punctures; tergite X regularly punctured on whole surface, the punctures equal in size, but sparser than those of preceding segments, its apical border depressed in the centre.

Legs fairly long, the tarsi very long; length of metatibia: 90; length of metatarsi: 78; metatarsal segments: I:25; II: 14; III: 10; IV: 7; V:19.

Male: meso-and metatibia with a very small pre-apical spur. Metasternum and abdominal sternites III to V without sexual characters; sternite VI very slightly depressed and with a shallow apical emargination; sternite VII equally shallowly emarginate but more extensively and deeply depressed to well over half the length of sternite VIII with a shallow emargination about 1/10 the length of sternite; apico-lateral angles of sternite IX strongly produced into rounded denticulate lobes (Fig. 4B). Aedeagus: Fig. 4A.

Female: the paratergites are broader than those of the male, and more steeply reflexed. The valvifers are finely denticulate, corresponding in shape to the male ninth sternite.

This interesting new montane species most closely resembles *S. tenebricosus* Puthz described from Yunnan. It is most easily separated from that species by its overall finer punctuation, but especially that of abdominal tergites III to V, by its more distinctly bi-sulcate head, and paler appendages. From the other two species of this group, *S. tortuosus* Cam. and *S. sikkimensis* Cam., both from the Himalayan range, it can be distinguished by its smaller size, finer punctuation of fore-body, and less heavily infuscate legs.

Stenus (s. str. & Nestus) venator Fv.

Stenus venator Fauvel 1895, *Rev. d'Ent.* **14**: 208.

Stenus venator Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 332.

Stenus venator Puthz 1980, *Reichenbachia* **18** (3): 37.

1 ♂ & 2 ♀♀ : Chiang Mai Prov., Doi Inthanon, ca. 2000 m, 15.III.1982, G. de Rougemont.

New to Thailand. This species was hitherto known only from the mountains of S. Burma.

Stenus (s. str. & Nestus) megacephalus Cam.

Stenus megacephalus Cameron 1929, *J. Fed. Malay States Mus.* **14**: 448.

Stenus megacephalus Puthz 1980, *Reichenbachia* **18** (3): 38.

Stenus megacephalus Puthz (in litt.)

Stenus siamensis Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 363. New synonymy.

1 ♂ & 1 ♀ : Chiang Rai, 16. I. 1980, Osella; ♀ : Chiang Rai Prov., Ban Du Cascades, 23.I.1982, G. de Rougemont; 1 ♂ : Chiang Rai Prov., Ban Pong Nua, 14. III. 1982, G. de Rougemont; 5 ♂♂ & 5 ♀♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont; 1 ♂ & 1 ♀ : Chiang Mai Prov., Ban Hua Mo, 12. III. 1982, G. de Rougemont; 1 ♀ : Chiang Mai Prov., Mae Chiang, 10. I. 1980, Brignoli: 2 ♂♂ & 1 ♀ : Chiang Mai Prov., Fang, 500 m, 12–19.IV.1958, T.C. Maa; 1 ♂ & 5 ♀♀ : Chiang Dao, 5–11.IV.1958, T.C. Maa; 1 ♀; Chiang Mai, Doi Aneka, 9.IV.58, light trap; 1 ♀ : (S) Banna, Chawong nr. Nabon, 70 m. 6. IX. 1958, J.L. Gressit; 1 ♂ : (SE) Chanthaburi, Prew, 45 m, 25–30.IV.1958, T.C. Maa.

The discovery of males of this species, previously known only by the female type from Malaya, has shown that it is conspecific with *S. siamensis* Rougemont. The species is variable in size, punctuation, and in the breadth of the head, and can only be distinguished from the equally variable *S. diffidens* Cam. by the aedeagus, of which the apex of the median lobe is simple in *S. diffidens* Cam., and ends in a small knob in *S. megacephlus* Cam. (Fig. 7, ROUGEMONT 1981B). *S. diffidens* is not known South of Burma, where the ranges of the two species meet, so it is probable that all Thai examples of this group belong to *S. megacephalus*, which is also recorded by PUTHZ from Vietnam (including that designated as "spec. A" in his key (1980)).

Stenus (s. str. & Nestus) beesoni Cam.

S. tenus beesoni Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **I**: 346.

Stenus beesoni Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 366.

1 ♂ : Chiang Dao, 5–11.IV.1958, T.C. Maa; 27 exx: Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, Chiang Mai Prov. Doi Pui., 14.III.1982 and Ban Hua Mo, 12.III.1982, all G. de Rougemont.

This species is always found running on rocks near the water line of streams in shaded situations.

Stenus (s. str. & Netsus) mon Rougemont

2 ♂♂ & 4 ♀♀ : Kanchanaburi Prov., Ban Sai Yok, on R. Kwae Noi, 9.III. 1982, G. de Rougemont.

This is the type locality. My observations on the way in which this species alternates with *S. rugicollis* Kraatz in the same locality still holds true: the latter species (see below) was found to the exclusion of *S. mon* Rougemont on my previous visit to the Kwae Noi River.

Stenus (s. str. & Nestus) rugicollis Kr.

Stenus rugicollis Kraatz 1859, *Arch. Naturg.* **25** (1) : 162.
Stenus rugicollis Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 365.

5 ♂♂ & 6 ♀♀ : Kanchanaburi Prov., Ban Sai Yok, on R. Kwae Noi, 18.I. 1982, G. de Rougemont; 1 ♂ : Chiang Rai Prov., R. Kok, ca. 30 km W. of Chiang Rai, in dead leaves on sand and mud river bank, 12.III.1982, G. de Rougemont.

Stenus (s. str. & Nestus) louwerensi Cam.

Stenus louwerensi Cameron 1936, *Proc. R. ent. Soc. London* (B) **5** : 183.
Stenus louwerensi Puthz 1981, *Reichenbachia* **19** : 6.
Stenus louwerensi Puthz (in litt.)

1 ♀ : Chiang Rai Prov., R. Kok, ca. 30 km W. of Chiang Rai, in dead leaves on sand river bank, 12. III. 1982, G. de Rougemont.

New to Thailand. This species was described from Java, and recorded by PUTHZ (in litt.) from Vietnam and Laos.

Stenus (Hypostenus) monomerus Fv.

Stenus monomerus Fauvel 1895, *Rev. d'Ent.* **14** : 214.
Stenus monomerus Puthz 1969, *Bull. Inst. r. Sci. Nat. Belg.* **45** (9) : 24.

1 ♂ : Kanchanaburi Prov., Ban Sai Yok, on R. Kae Noi, 9.III.1982, G. de Rougemont; 6 ♂♂ & 5 ♀♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont; 1 ♀ : Chiang Rai, 16. I. 1980, Osella.

New to Thailand. This beetle was described from L. Fea's South Burma collections. Although well defined by the shape of the tenth tergite, the species is variable in size and in punctuation.

Stenus (Hypostenus) ancorellus n. sp.

♀ Holotype : Chiang Mai Prov., Doi Suthep, 24.I.1982, G. de Rougemont. In coll. B.M.N.H.

This species belongs to the Oriental *cursorius* group, and has that group's characteristic robust convex build. It is most closely related to *S. monomerus* Fv., but by the shape of the apomorphic process of the tenth tergite resembles the African species *S. ancoralis* Puthz.

L. : 4.3 mm. Black, the whole surface coarsely and rugosely punctate. Palpi testaceous; antennae rufous, the first segment (slightly) and club infuscate; legs rufous, the femora pitchy-brown.

Head narrower than elytra (65 : 77), the vertex broad (average distance between eyes : 37), bisulcate anteriorly, the median portion only slightly raised, the punctuation coarse (diameter of punctures greater than that of third antennal segment, smaller than that of second), rugose and even, leaving only narrow shiny impunctate areas behind frontal tubercules, the pubescence short, whitish, directed forewards. Antennae short, only extending to about the middle of pronotum when reflexed; first segment darkened, but not sharply differentiated in colour as in *S. cursorius* Bck.; antennal segments : I : 6; II : 6; III : 11; IV : 8; V : 8; VI : 6; VII : 5; VIII : 3.5; IX : 4; X : 5; XI : 6.

Pronotum elongate (57 : 54), strongly bordered, broadest at middle, as strongly constricted anteriorly as posteriorly, the punctuation slightly coarser and closer than that of head, the interstitial rugae transversely confluent on sides.

Elytra quadrate (maximum length and breadth : 78; length of suture : 60; distance between humeral angles : 65), convex, regularly punctured, the punctuation slightly coarser than that of pronotum, not transverse, the anterior and sutural margins prominent.

Abdomen slightly conical : Breadth of segment III : 61; breadth of segment VII : 42; the tergites are strongly constricted in their middle, the punctuation as strong and close as that of head, with short, whitish recumbant pubescence. Tergite X (Fig. 5A) with scattered setigerous punctures, apically produced into a characteristic small anchor-shaped process, the blades of which are slightly reflexed.

Legs robust, the tibia gradually thickened; length of metatibia : 62; length of metatarsi : 37; tarsal segments : I : 14; II : 6.5; III : 5; IV : 6; V : 9.

Male : unknown.

Female : valvifer (Fig. 5B) with strong, regular apical denticulation.

This new species is readily identified by the shape of the apical process of the tenth tergite alone, which resembles that of the African species *S. ancoralis* Puthz, but is proportionately smaller.

Stenus (Hypostenus) cursorius Bck.

Stenus cursorius L. Benick 1921, *Ent. Mitt.* **10** : 193.

Stenus cursorius Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 378.

6 exx. : Kanchanaburi Prov., Ban Sai Yok, on R. Kwae Noi, 9.III.1982, G. de Rougemont; 1 ♂ : Chiang Mai Prov., Doi Pui, 1250 m., 14.III.1982, G. de Rougemont 1 ♀ : Chiang Mai Prov., Ban Hua Mo, 12.III.1982, G. de Rougemont.

This widely distributed Oriental species has already been recorded from the first of the above localities.

Stenus (Hypostenus) basicornis Kr.

Stenus basicornis Kraatz 1859, *Arch. Naturg.* **25** (1): 163.

Stenus siwalikensis Cameron 1943, *Proc. R. ent. Soc. London.* (B) **12** : 2.

Stenus eberti Scheerpeltz 1976, *Khumbu Himal* **5** : 107.

Stenus basicornis Puthz 1981, *Reichenbachia* **19** : 7.

Stenus basicornis Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 353.

1 ♂ : Chiang Rai, 16. I. 1980, Osella; 1 ♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont; 3 ♀♀ : Chiang Mai Prov., Ban Hua Mo, 12. III.1982, G. de Rougemont; 14 ♂♂ & 16 ♀♀ : Chiang Mai Prov., Fang, 12–19. IV. 1958, T.C. Maa; 5 ♂♂ & 5 ♀♀ : Chiang Dao, 5–11.IV.1958, T.C. Maa; 1 o: (S) Banna, 5–10.IV.1958, T.C. Maa; 1 ♂ : Changwat Lamphun, Amphoe Sop Ab, 500–600 m, 21.IV.1939, Chakthong Thongyai (coll. Dept. of Agriculture, Bangkok).

This species is new to Thailand, but was provided for in my key to the Steninae of Thailand (Rougemont, 1981B : 353), as its occurrence here was to be expected : it has a wide distribution in South Asia.

Five other species, three of them new to science, belonging to the *bispinus* group have been discovered in Thailand since the publication of ROUGEMONT (1981B). These are being treated elsewhere by Puthz, but their names are given at the end of this paper in the list of other Steninae known from Thailand.

Stenus (Hypostenus) pulchrior Puthz

Stenus pulchrior Puthz 1971, *Mitt. Zool. Mus. Berlin* **47** : 47.

Stenus pulchrior Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 374.

Stenus pulchrior Puthz 1981, *Reichenbachia* **19** : 9.

3 ♂♂ : Kanchanaburi Prov., Ban Sai Yok, on R. Kwae Noi, running on exposed boulders in mid-stream, in shaded forest, 9.III.1982, G. de Rougemont; 1 ♀ : Chiang Rai Prov., Ban Du Cascades, 23.I.1982, G. de Rougemont; 1 ♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

Only known from Bengal, Yunnan and Thailand. All the Thai specimens have been found in the circumstances described above, very active in open shaded situations.

Stenus (Hypostenus) signifer Fv.

Stenus signifer Fauvel 1895, *Rev. d'Ent.* **14** : 213.

Stenus himalayicus Bernhauer 1915, *Coleopt. Rundsch.* **4** : 50.

Stenus signifer Puthz 1980, *Ent. Bl. Biol. Syst. Kaefer* **76** (1) : 37.

Stenus signifer Rougemont 1980, *Ent. Basil.* **5** : 182.

13 ♂♂ & 16 ♀♀ : Chiang Mai Prov., Ban Hua Mo, ca. 900 m, under boulders on stream bank, 24.I & 12. III.1982, G. de Rougemont.

This species is new to Thailand; it has a wide Himalayan range, from Nepal to Burma.

Among normal specimens in this series were found several showing varying degrees of melanism; in these the elytral spot is not reduced in size, but obscured, as are the appendages (the size and shape of the spot is very variable even among individuals of a single population, throughout its range). Two specimens have entirely dark legs and antennae, giving them a very atypical appearance.

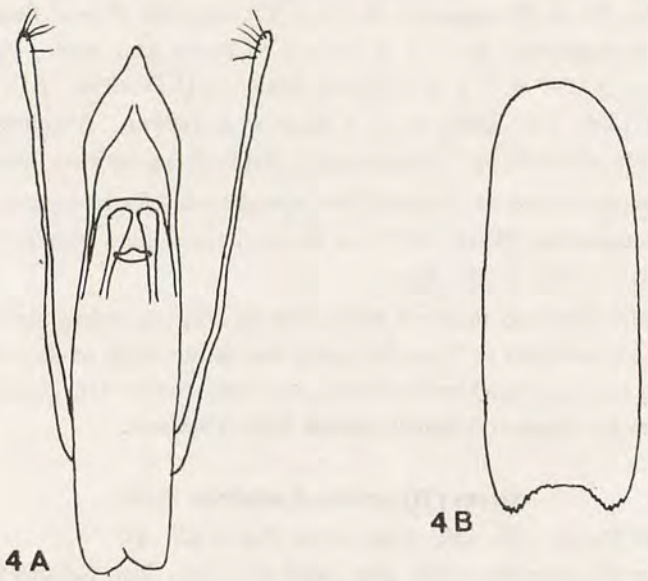

Figure 4. *Stenus lomholdti* n.sp. A : aedeagus, ventral view. B : male ninth sternite.

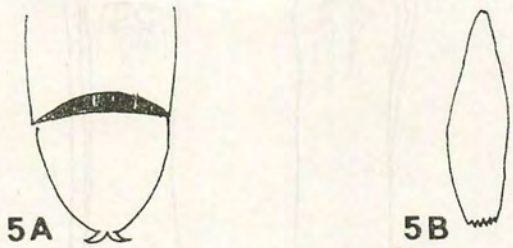

Figure 5. *Stenus ancorellus* n.sp. A : outline of ninth and tenth tergites; B : female valvifer

Figure 6. *Stenus sucinifer* n.sp. : female valvifer.

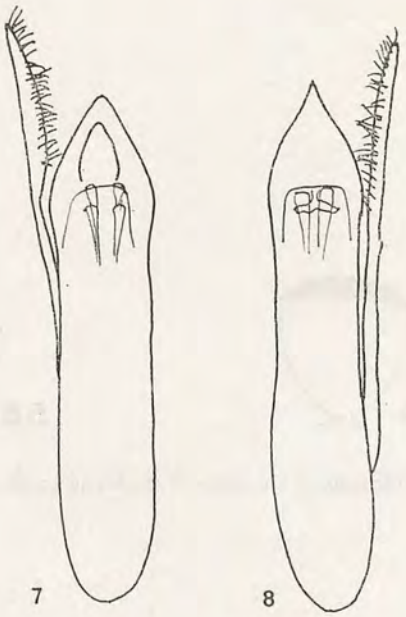

Figure 7. Aedeagus, ventral view, with one paramere omitted, of *Stenus flavovittatus pendleburyi* Cam. from Ban Hua Mo.

Figure 8. Same for *Stenus flavovittatus* ssp. from Doi Suthep.

Stenus (Hypostenus) pustulatus Bnh.

Stenus pustulatus Bernhauer 1914, *W.Z.B.* **64**: 95.
Stenus pustulatus Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 373.
Stenus adnexus L. Benick 1933, *Wien. ent. Ztg* **50**: 112.
Stenus pustulatus Hammond & Rougemont, *Sarawak Mus. J.* (in press).

This species was obtained in nearly every locality visited by the author in January and March 1982, singly or in small numbers in the montane localities, and in very large numbers on the lowland river banks: at Ban Sai Yok and Sri Satchanalai (Phitsanulok Prov.) Samples numbering over 100 individuals were taken from each locality. It was also plentiful on the banks of the Kok river, Chiang Rai Prov., although in less dense colonies. These and previous records show that it is undoubtedly the commonest member of the subfamily Steninae in Thailand.

Stenus (Hypostenus) succinifer n. sp.

♀ Holotype & 1 ♀ Paratype: Chiang Mai Prov., Doi Inthanon, ca, 2000 m, at roots of grasses by a stream, 15.III.1982, G. de Rougemont. Holotype in B.M.N.H.; Paratype in my collection.

This new species is very close to *S. pustulatus* Bnh.; a detailed comparison with that species is sufficient for its diagnosis.

Proportions of Holotype : Length: 6.4–7.0 mm. Breadth of head : 106; length of pronotum: 84; breadth of pronotum: 80; maximum length of elytra: 140; length of suture: 90; maximum breadth of elytra: 118; length of metatibia: 120; tarsal segments: I: 31; II: 12; III (including lobes) : 10; IV (including lobes): 13; V : 20.

The elytra each bear a fairly large round orange spot (diameter: 40, larger than the length of third antennal segment); the close, regular elytral punctuation is altered on the elytral spots, where the few punctures are larger, the interstices much broader and inflated, so that the spots are slightly raised, and translucent, amber-like (succinifer : amber-bearer).

S. succinifer n. sp. differs from the variable *S. pustulatus* Bnh. principally by its size, which is well outside the range of all known material of *S. pustulatus*. Critical measurements are:

	S. succinifer n. sp.	*S. pustulatus* Bnh.
Breadth of head:	106	82–94
Breadth of elytra:	114–118	82–104

The antennae of the new species are proportionately a little longer, overlapping the hind margin of pronotum by their last two segments; the median portion of the vertex is more prominent and more broadly impunctate and shiny; the sculpturation of the elytral spots is characteristic, the elytral punctuation of *S. pustulatus* Bnh. being homogenous, even on large-spotted examples.

Male: unknown.

Female: valvifer: Fig. 6.

Stenus (Hypostenus) fulvescens Mots.

Stenus fulvescens Motschulsky 1857, *Bull. Mosc.* **30**: 515.
Stenus fulvescens Cameron 1930, *Faun. Brit. Ind., Col. Staph.* I:
Stenus fulvescens Puthz 1968, *Notu. ent.* **48**: 202.
Stenus fulviventris Rougemont 1981B, *A,. Mus. Civ. Stor. Nat. Genova* **83**: 374.
Stenus fulvescens Puthz (in litt.)

5 ♂♂ & 8 ♀♀ : Kanchanaburi Prov., Ban Sai Yok, on R. Kwae Noi, in dead leaves by a stream in forest, 9.III.1982, G. de Rougemont; 1 ♀ : Chiang Rai Prov.,

Nam Tok Mae Yao, 13. III. 1982, G. de Rougemont; 1 ♂: Chiang Rai Prov., Ban Pong Nua, 14.III.1982, G. de Rougemont; 1 ♂: Chiang Mai Prov., Ban Hua Mo, 12. III.1982, G. de Rougemont.

Dr. PUTHZ, who has been able to examine the type of this species, has (in litt.) established its synonymy with *S. fulviventris* Rougemont. The basic colour pattern is always as described (1981), but specimens vary greatly in the degree of infuscation of the body; those from Ban Hua Mo and Ban Pong Nua are exceptionally dark, while the series from the Kwae river are paler than the types of *S. fuviventris*, some being entirely fulvous except for the disc of elytra and the median dorsal areas of abdominal tergites IV to VI. Segments VII to X however remain entirely pitchy-black in even the palest examples.

Stenus (Hypostenus) amoenus Bck.

Stenus amoenus L. Benick 1916, *Ent. Mitt.* **5**: 249.

Stenus amoenus Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 370.

1 ♀: Chiang Mai Prov., Ban Hua Mo, 12. III. 1982, G. de Rougemont; 1 o: Chiang Rai Prov., Nam Tok Mae Yao, 13. III. 1982, G. de Rougemont.

Already recorded from this area, as have female specimens which may belong to one or more different species.

Stenus (Hypostenus) flavovittatus pendleburyi Cam.

Stenus pendleburyi Cameron 1950, *Ann. Mag. nat. Hist.* **12**: (3): 9.

Stenus flavovittatus malaisei L. Benick Puthz 1967, *Dt. ent. Z. (N.F.)* **14**: 142.

Stenus flavovittatus pendleburyi Puthz (in litt.)

8 ♂♂ & 7 ♀♀: Chiang Mai Prov., Ban Hua Mo, by a stream in forest, 12. III. 1982, G. de Rougemont.

PUTHZ (in litt.) has revalidated this subspecies on the basis of specimens from several different localities in North Thailand in the Bishop Museum. A figure is given here (Fig. 7) of the aedeagus. This subspecies is known only from Thailand and Malaysia.

Stenus (Hypostenus) flavovittatus n. ssp.

1 ♂: Chiang Mai Prov., Doi Suthep, 24. I. 1982, G. de Rougemont. This specimen clearly belongs to a different taxon from *S. flavovittatus pendleburyi* Cam,: The 8th tergite is distinctly micro-reticulate. It most closely resembles *S. fl. obliteratus* Cam., but the apex of the median lobe is more acuminate than in all other members of this species (see Fig. 8). The discs of elytra are immaculate; only the humeral angle and the posterior margin of elytra are yellow.

Despite PUTHZ'S recent synonymies and rehabilitation of *S. fl. pendleburyi* Cam., this species complex is need of revision by examination of all available material.

It is possible that a single specimen from the same locality (Osella 10. I. 1980, in coll. Puthz) which lacks the abdomen also belongs to this rather than to the preceding subspecies.

Stenus (Hypostenus) cylindricollis Boh.

Stenus cylindricollis Boheman 1858, *Eugen. Resa* 34.
Stenus cylindricollis L. Benick. 1942, *Ark. Zool.* **33A** (17): 7.
Stenus montalbanensis Bernhauer 1912. *Philipp. J. Sci.* **7** (4): 249.
Stenus cylindricollis Puthz 1967. *Ark. Zool.* **19** (13): 293.

♂: Chiang Rai Prov., Ban Pong Nua, 14.III.1982, G. de Rougemont; 3 ♂♂ & 1 ♀: Chiang Mai Prov., Ban Hua Mo, 12.III.1982, G. de Rougemont.

New to Thailand; this species is known with certitude from Malaysia, Borneo and the Philippines. A figure is given of the aedeagus (Fig. 10) for comparison with the very similar small form of *S. angusticollis* Epp.

Stenus (Hypostenus) angusticollis Epp.

Stenus angusticollis Eppelsheim 1895, *Dtsch. ent. Z.* : 405.
Stenus angusticollis Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **1**: 371.
Stenus angusticollis Puthz 1976, *Dtsch. ent. Z.* (N.F.) **23**: 4.
Stenus angusticollis Rougemont 1981B. *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 370.
Stenus angusticollis Puthz 1981, *Reichenbachia* **19**: 8.
Stenus angusticollis Puthz (in litt.)

Two distinct forms (at least of the males) of this species occur in Thailand: the larger, typical form in which the apex of the median lobe of the aedeagus is sinuate, and a smaller, more slender one in which the sides of the apex of the median lobe are straight (Fig. 9). These forms are indicated below in the list of material from Thailand by "Typ." for the large form and "S" for the small one.

1 ♂ (Typ.): Chiang Mai, Doi Suthep, 12.I.1980, Osella.
I ♂ (S): „ „ „ „ 18.I.1980 „
1 ♂, 1 ♀ (Typ., S.),, „ „ „ 1278 m, 19. III-4.V.1958, T.C. Maa.
1 ♀ (Typ.) „ „ „ „ „ 28-31.III.1958, „
1 ♂ (Typ.), 4 ♀♀ (Typ. & intermediate): Chiang Dao 5-11.IV.1958, „
1 ♂ (Typ.), 1 ♂, 1 ♀ (S): Chiang Dao, in dead tree „ „ „ „
1 ♂ (Typ.): Chiang Mai, Doi Inthanon, Mae Klang, 26.XII.1979, Rougemont.
5 ♂♂, 8 ♀♀ (Typ.), 8 ♂♂, 5 ♀♀ (S): Chiang Mai, Ban Hua Hua Mo, 12.III.82, Rougemont.
1 ex. (S.), 3 ♀♀ (Typ.): Chiang Mai, Fang, 12-19.IV.1958, T.C. Maa.
1 ♀ (Typ.): SE, Chanthaburi, Prew, 45 m, 25-30.IV.1958. T.C. Maa.
1 ♀ (slightly smaller): Saraburi, Ban Muak Lek N.P., 6.VI.1965, P.D. Ashlock.

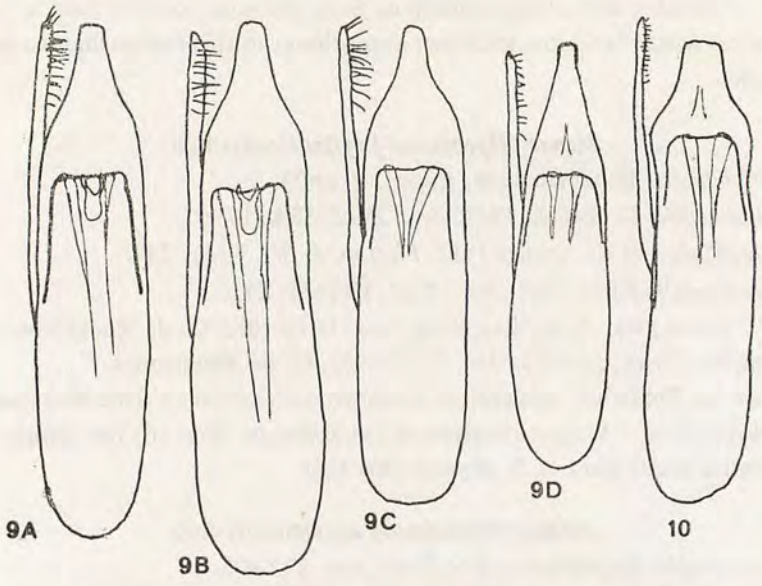

Figure 9. *Stenus angusticollis* Epp. : Aedeagus of mostly large forms. A : From Laimatak, Assam; B : Doi Suthep (Osella); C : Doi Inthanon; D : small form from Ban Hua Mo.
Figure 10. *Stenus cylindricollis* Boh. Aedeagus of specimen from Ban Hua Mo.

These two forms appear to be distinct species, in nearly all cases separable even on external appearance. For instance, the small form among the series from Ban Hua Mo, which was found in the company of many other *Stenus* species, was easily distinguished from specimens of the large form while sorting the material before dissection, but much more difficult to separate from those of *S. cylindricollis* Boh. Only the slightly finer and denser punctuation of the latter made it possible to separate the females.

Besides older material from Nepal, Assam and Burma, I have been able to examine more than 100 specimens which I have recently taken in six different localities in Burma : this study shows the typical form to be fairly constant in the shape of the aedeagus thoughout its range, which extends over most of S. Asia, from Nepal to Sumatra. The fact that both forms cohabit argues in favour of full specific status for the small form, and my capture of two males among typical specimens in North Shan State, Burma, provides further evidence in support of this view. Intermediate forms are all females; I do not at present consider this an objection to the systematic separation of the two forms, for these intermediates might well represent a new form, but as long as doubt remains about these, I deem it wiser to postpone the description of a new species until intermediate males are found will provide conclusive proof of the small form's taxonomic position.

Stenus (Hypostenus coelogaster) Champ.

Stenus coelogaster Champion 1924, *E.M.M.* **60**: 159.

1 ♂: Chiang Mai Prov., Doi Suthep, 28-31.III.1958, T.C. Maa; 1 ♀: 50 km W. of Tak, 900 m, 7–8.IV.1966, J. & J.H. Sedlacek; 1 ♀: Chiang Mai, Doi Aneka, 9.IV.1958, T.C. Maa; 2 ♂♂ & 1 ♀: Chiang Mai, 1200 m (=Doi Suthep), 11.IV.1966, J. Sedlacek; 1 ♀: Chiang Mai Prov., Doi Inthanon, 2300 m, 15.III.1982, G. de Rougemont.

New to Thailand; described from Burma.

Stenus ("Hypostenus") guttalis Fv.

Stenus guttalis Fauvel 1895, *Rev. d'Ent.* **14**: 212.

1 ♂ & 1 ♀: Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

New to Thailand; known only from Burma. Fig. 11B shows the aedeagus and Fig. 12B shows the ninth sternite, for comparison with other members of the group.

Stenus ("Hypostenus") bivulneratus Mots.

Stenus bivulneratus Motschulsky 1857, *Bull. Mosc.* **30** (2): 514.
Stenus ventricosus Fauvel 1904, *Rev. d'Ent.* **23**: 48.
Stenus bivulneratus Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **1**: 356.
Stenus rajpurianus Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **1**: 353.
Stenus birmanus Fauvel 1895, *Rev. d'Ent.* **14**: 213.
Stenus birmanus Puthz 1969, *Bull. Inst. r. Sci. nat. Belg.* **45** (9): 17.
Stenus bivuneratus Puthz 1980, *Bull. Mus. Civ. St. Nat. Verona* **7**: 300.

1 ♂: Chiang Mai Prov., Doi Suthep, 10.I.1980, Osella; 3 ♂♂ & 2 ♀♀: Chiang Rai Prov., Ban Pong Nua, 14.III.1982, G. de Rougemont; 3 ♂♂ & 2 ♀♀: Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

New to Thailand; known only from Burma, India and the Andaman Islands. Aedeagus: Fig. 11C; ninth sternite: Fig. 12C.

Stenus ("Hypostenus") aestivalis n. sp.

♂ Holotype: Chiang Mai Prov., Mae Sa Cascades, in seepage on rock face of river bank, 14.VIII.1980, G. de Rougemont; 7 ♂♂ & 2 ♀♀ Paratypes: Chiang Rai Prov., Ban Du Cascades, under stones in seepage on stream bank, ca. 600 m, 23. I.1982, G. de Rougemont; 6 ♂♂ & 6 ♀♀ Paratypes: Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

This new species bears a very close resemblance to *S. (Parastenus) dentellus* L. Benick, but the male sexual characters, including the presence of spurs on the metatibia, show that it belongs to the *guttalis* group.

Length : ca. 6 mm. Black, each elytron with an irregular, sometimes bilaterally asymmetrical, orange spot; fore-body very coarsely and rugosely punctured; abdomen relatively coarsely and closely punctate; the whole body distinctly microsculptured; fore-body glabrous, the abdomen with very short recumbant pubescence; palpi testaceous; antennae rufous, the basal segment lighter; legs testaceous, broadly but not strongly infuscate at knees.

Head slightly broader than the elytra (102 : 98), the eyes large; vertex strongly bisulcate, the median portion convex, the sides strongly reflexed, forming a slight overlapping rim over the bases of eyes, the whole surface except post-antennal tubercules regularly, coarsely and densely punctate, the diameter of punctures greater than that of third antennal segment, the interstices much narrower, but scarcely rugose, the punctuation not confluent.

Surface of pronotum uneven, with a deep median furrow, a transverse anterior depression, elsewhere irregular, the punctuation coarser than that of head, and more rugose. Elytra transverse (98 : 85), the suture short (64), their punctuation equal to that of pronotum, but the surface is even, excepting a juxtasutural depression which broadens anteriorly.

Abdomen cylindrical, extremely finely bordered, the punctuation much coarser than eye-facets, punctures being nearly as large as the bases of fourth antennal segments. Ninth sternite apico-laterally rounded and denticulate (Fig. 12D).

Male : sternites III to VII without sexual modifications, save progressively, very slightly finer and longer pubescence and punctuation of the apico-median areas of sternites VI and VII; sternite VIII with a narrow excision to a little less than a quarter of its length. Aedeagus (Fig. 11D) with a strongly sclerotised internal structure (shaded in drawing) characteristic of this group. Metatibia with a small internal pre-apical spur.

Female : sternite VII with finer and denser punctuation and pubescence in apico-median area; sternite VIII apically produced.

S. aestivalis n. sp. is indistinguishable in habitus from *S. (Para-) dentellus* Bck. and several members (see below) of the *guttalis* group. Apart from the aedeagus, which is distinctive in all these species, the most important distinguishing feature of this new species is the ninth sternite (or valvifers), which has blunt, finely denticulate apico-lateral angles, whereas all the other species of the *guttalis* group have ninth sternites furnished with a single stout apico-lateral tooth.

The species was named *aestivalis* before the discovery of the numerous Paratypes, because the type specimen was the only *Stenus* that I found on that trip, at the height of the monsoon, despite extensive searches in proven rich localities.

Stenus ("Hypostenus") iniquus Bck.

Stenus iniquus L. Benick 1931, *Wien. Ent. Z.* **48** : 138.

Stenus iniquus Puthz 1970, *Bull. Inst. r. Sci. nat. Belg.* **46** (18) : 13.

1 ♂ : Kanchanaburi Prov., Ban Sai Yok, on R. Kwae Noi, 9.III.1982, G. de Rougemont; 1 ♂ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont; 3 ♂♂ & 2 ♀ ♀ : Chiang Mai Prov., Ban Hua Mo, under wet detritus on rock face of stream bank, 12. III. 1982, G. de Rougemont.

New to Thailand. This species, which is also a member of the *guttalis* group, albeit immaculate, was described by Benick from "Java : Penang". I believe that there may be an error in labelling of these specimens, and that they probably come from the Island of Penang on the N.W. coast of peninsular Malaysia*. The aedeagus and ninth sternite are shown in Figs. 11E and 12E.

Stenus ("Hypostenus") variipennis n. sp.

♂ Holotype, 13 ♂♂ & 20 ♀ ♀ Paratypes : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982. G. de Rougemont; 1 ♀ ex. : Ibid.; 2 ♂♂ Paratypes : Chiang Mai Prov., Ban Hua Mo, 12.III.1982, G. de Rougemont. Holotype in B.M.N.H.; Paratypes in colls. B.M.N.H., Puthz and Rougemont.

Another new species belonging to the *guttalis* group, and very similar to *S. guttalis* Bck., *S. subguttalis* Puthz and *S. aestivalis* n. sp. The aedeagus shows that it is most closely related to the immaculate species *S. iniquus* Bck.

Two forms, macro and micropterous, easily identified by the size and shape of the elytra (Fig. 13, B and C), are represented in the long series of Types:

15 Paratypes : macropterous.

Holotype and 19 Paratypes (including the two examples from Ban Hua Mo) : macropterous.

The additional 10 females, not named as Paratypes, are macropterous insects which probably enter into the range of variability of the species, but because they show small differences in punctuation, microsculpture or the size of the apical tooth of the valvifers, can only doubtfully be ascribed to this species.

In view of the variability of proportions and the close similarity to other members of the group, a detailed description including measurements would not be of much diagnostic value, so the description is made by comparison with other species.

Length : 5.5–6.5 mm. Facies of the *guttalis* and *gestroi* groups. Black, each elytron with an obscure reddish spot; all appendages testaceous, the antennae progressively infuscate. Surface of pronotum and elytra very coarsely sculptured and uneven;

* I know of no place of this name in Java; the Javanese and Indonesian spelling of this name, meaning 'Areca palm', is *Pinang*.

head bi-sulcate, uniformly punctured, variable in its proportionate breadth to the elytra, but mostly broader than these, even in macropterous forms. Surface shiny, but with very feeble microsculpture. Ninth sternite (Fig. 12 F) with a short apico-lateral tooth.

Male : meso and metatibia with a very small pre-apical spur. Punctuation and pubescence of median portion of sternite VII gradually condensed apically; sternite VIII with a small, acute apical emargination. Aedeagus (Fig. 11 F) similar in build, including the internal structures, to that of *S. iniquus* Bck., but the apex is longer, and the parameres broader.

Female : the spermatheca (Fig. 13 A) is small and simple, but sclerotised.

The variability of this new species in proportions, and even in the density of punctuation, has also been found to exist in the other species mentioned here, all of which I have taken in localities other than those of the types. Therefore I have found the characters used by previous authors of no use in separating the species. A short key is given below of members of the *guttalis* group from mainland Asia, unfortunately relying mainly on the aedeagus, to aid identification of the new species.

1 (2) Ninth sternite and valvifers apico-laterally rounded and finely denticulate. Abdominal tergites 3 to 7 strongly micro-reticulate. Elytra spotted. Aedeagus: Fig. 11 D ..... *aestivalis* n. sp.
2 (1) Ninth sternite and valvifers with a distinct apico-lateral tooth 3
3 (6) Micro-reticulation of abdominal tergites 3 to 7 strong, the surface duller 4
4 (5) Elytra immaculate. Apico-lateral teeth of ninth sternite and valvifers shorter. Aedeagus : Fig. 11 E ..... *iniquus* Bck.
5 (4) Elytra maculate. Apico-lateral teeth of ninth sternite and valvifers longer. Aedeagus : Fig. 11 C ..... *bivulneratus* Mot.
6 (3) Micro-reticulation of abdominal tergites 3 to 7 indistinct, the surface more shiny. Maculate species 7
7 (10) Apico-lateral teeth of ninth sternite and valvifers longer 8
8 (9) Aedeagus : Fig. 11 B ..... *guttalis* Bck.
9 (8) Aedeagus: Fig. 11 A ..... *subguttalis* Puth
10 (7) Apico-lateral teeth of ninth sternite and valvifers shorter. Aedeagus: Fig. 11 F ..... *variipennis* n. sp.

Micropterous specimens are easily identified without reference to the characters given in the key from all other members of the *guttalis* group and also from similar *Parastenus* species such as *S. dentellus* Bck. and members of the *gestroi* group. Macropterous specimens most closely resemble *S. aestivalis* n. sp. in the sculpturation of the fore-body, which is coarser and more uneven than in the other species listed above. The males of both forms are also easily determined by the sexual characters, but individual females cannot yet be determined with certitude.

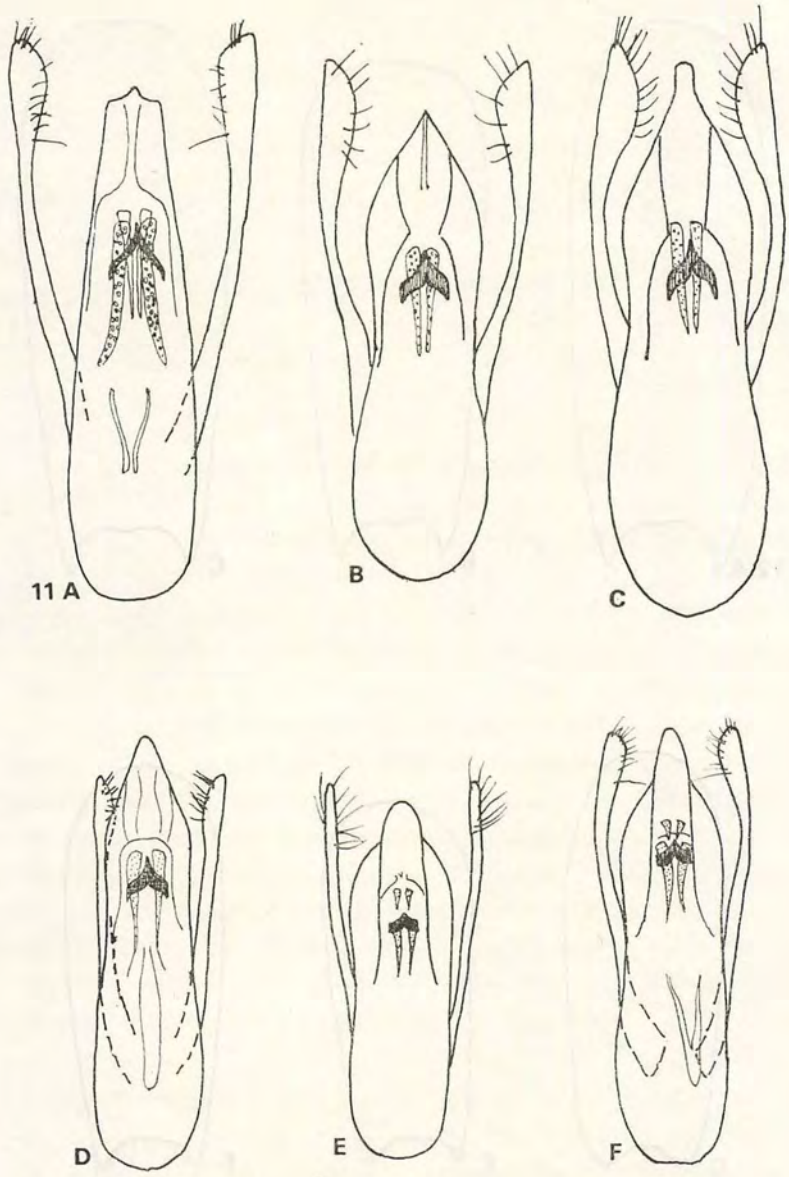

Figure 11. Aedeagus of members of the *guttalis* group. A : *Stenus subguttalis* Puthz, from Burma; B : *S. guttalis* Bck. from Mae Yao; C : *S. bivulneratus* Mots. from Mae Yao; D : *S. aestivalis* n. sp. (Holotype); E : *S. iniquus* Bck. from Ban Huo Mo; F : *S. variipennis* n.sp. (Holotype).

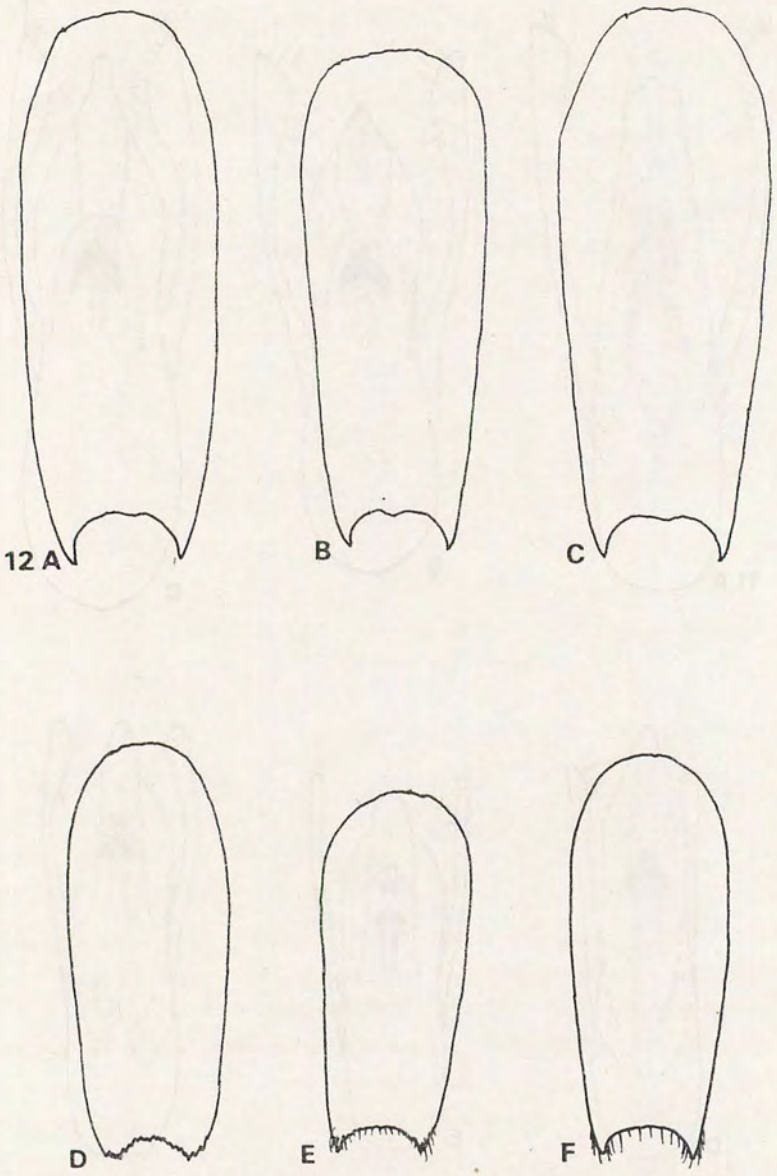

Figure 12. Male ninth sternite of members of the *guttalis* group. A : *Stenus subguttalis* Puthz; B : *S. guttalis* Bck.; C : *S. bivulneratus* Mots.; D : *S. aestivalis* n.sp.; E : *S. iniquus* Bck.; F : *S variipennis* n.sp.

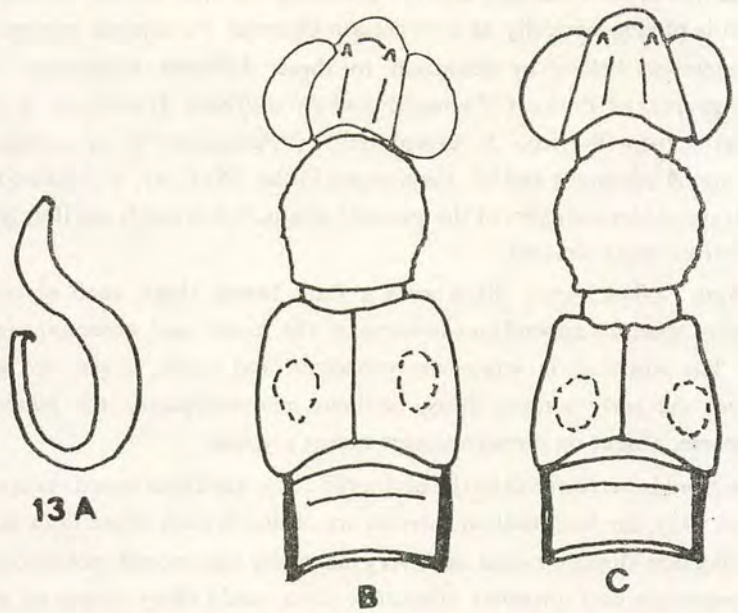

Figure 13. *Stenus variipennis* n.sp. A : Spermatheca; B : outline of fore-body of macropterous form; and C : of micropterous form.

Stenus ("Tesnus") articulipennis Rougemont

Stenus articulipennis Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 378.

1 ♂ : Chiang Mai Prov., Doi Inthanon, ca. 2000 m, 15.III.1982, G. de Rougemont; 8 ♂♂ & 9 ♀♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

These new males have shown that the 'articulated', broken median lobe of the aedeagus of the type specimen is an individual aberration. The lobe is entire, in shape exactly as figured, including the large pore which opens from the ventral surface to the dorsal wall in front of the normal ventral aperture, and the internal structures are also as described.

This species has not so far been found outside Thailand.

Stenus ("Tesnus") aspericollis n. sp.

♀ Holotype : Chiang Mai Prov., Doi Pui, 1300 m, sifted from dead leaves on stream bank in forest, 14.III.1982. G. de Rougemont; 1 ♀ Paratype : Chiang Mai Prov., Doi Inthanon, 2300 m, under dead leaves on rock face of stream bank in forest, 15.III.1982, G. de Rougemont. Holotype in B.M.N.H.; Paratype in my collection.

This new species belongs, like the preceding species, to the curious *perplexus* group which is phylogenetically akin to certain Oriental *Parastenus* groups, and whose individual members belong by definition to three different subgenera. The group includes *S. perplexus* Puthz ("*Tesnus*") and *S. altifrons* Hammond & Rougemont ("*Parastenus*") from Borneo, *S. kempi* Bnh. ("*Parastenus*"), *S. crenicollis* Epp. ("*Stenus s. str. & Nestus*") and *S. simplicipes* Puthz (*S. s. str. & Nestus*) from India. In habitus it resembles members of the *guttalis* group, but is much smaller, with proportionately coarser sculpturation.

Length : 4.0–4.3 mm. Black with a faint brassy tinge; each elytron with an obscure orange spot; all appendages testaceous, the knees and antennal clubs slightly darkened. The punctuation, rugose on pronotum and elytra, is very coarse; even on the abdomen, the body surface shiny, without microsculpture, the pubescence very short and sparse, absent on dorsal surfaces except clypeus.

The head is narrower than the elytra (77 : 82), the frons broad (average distance between eyes : 45); the longitudinal furrows are closer to each other than to the sides, the median portion slightly raised and very narrowly impunctate posteriorly, forming with the impunctate post-antennal tubercules three raised shiny bosses of about equal size. The sides of head slope upward in straight planes to the eyes. The punctuation is very coarse : the diameter of punctures is equal to that of the second antennal segment, and close, but not rugose, the interstices narrow, flattened and shiny. Antennae short, extending when reflexed to about 2/3 the length of pronotum.

Pronotum slightly transverse (56 : 54), broadest at the middle, its surface very uneven, with, among other depressions, a broad longitudinal median furrow; the anterior and posterior borders are reflexed in the middle; the punctuation is marginally coarser than that of the head, but very rugose; on the anterior third of the sides the interstices are so prominent that seen from above the sides appear crenulate. Elytra transverse (65 : 82), broadest in distal quarter, the humeral angles prominent but narrow (56), the suture short (46), so that the combined posterior border is deeply emarginate; the surface is uneven, the sculpturation a little less rugose than that of pronotum.

Abdomen cylindrical, immarginate, not strongly tapered, its punctuation very coarse, and scarcely finer on distal segments, average punctures being about as large as those of head, but a little sparser, although everywhere the interstices are much narrower than the diameter of punctures. Seventh tergite with a membranous apical fringe (the insect is fully winged); sternite IX (valvifers) with a stout apico-lateral tooth.

Legs moderate, covered with a very fine and short golden pubescence. Metatarsi nearly 2/3 the length of tibia (66 : 44); metatarsal segments : I : 15; II : 8; III : 5; IV : 4; V : 12; all tarsi simple.

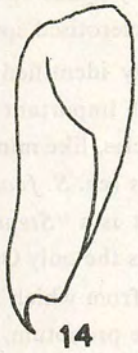

Figure 14. *Stenus cyanogaster* n.sp. : female valvifer.

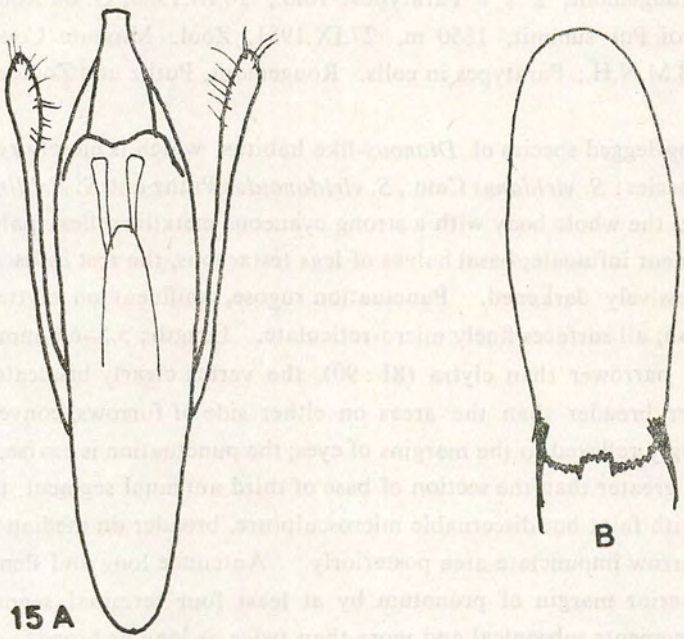

Figure 15. *Stenus aspericollis* n.sp. A : Aedeagus, ventral view; B : male ninth sternite.

Male: unknown.

Female: sternite VIII obtusely spade-shaped. Valvifer: Fig. 14, the apico-lateral tooth strongly reflexed. No sclerotised spermatheca was found.

S. aspericollis n. sp. is easily identified: members of the *perplexus* group, despite the erratic occurrence of such important characters as abdominal borders and tarsal lobes, share a same general facies, like miniature members of the *guttalis* group and some narrow-bordered *Parastenus* (eg. *S. feae* Fv.). One other species, *S. simpilcipes* Puthz, has elytral spots, but it is a "*Stenus s. str. & Nestus*," with abdominal borders. Thus *S. aspericollis* n. sp. is the only Oriental maculate "*Tesnus*". It is very close to *S. articulipenis* Rougemont, from which it differs, apart from the elytral spot, by its larger average size, more rugose pronotum, producing a lateral crenulate effect, and proportionately slightly shorter first tarsal segments.

Stenus (Parastenus) cyanogaster n. sp.

♂ Holotype, 1 ♂ & 1 ♀ Paratypes: Chiang Mai Prov., Doi Pui, 1250 m, resting on the under surface of a large boulder in sandy stream bed in forest, 25. I. 1982, G. de Rougemont; 2 ♀ ♀ Paratypes: Ibid., 14.III.1982, G. de Rougemont; 1 ♀ Paratype: Doi Pui summit, 1650 m, 27.IX.1981, Zool. Museum Copenhagen leg. Holotype in B.M.N.H.; Paratypes in colls. Rougemont, Puthz and Zoological Museum Copenhagen.

A long-legged species of *Dianous*-like habitus, which is closely related to only three other species: *S. viridanus* Cam., *S. viridanoides* Puthz and *S. viridimicans* Puthz.

Black, the whole body with a strong cyaneous metallic reflex; palpi testaceous, the third segment infuscate; basal halves of legs testaceous, the rest infuscate; antennae brown, progressively darkened. Punctuation rugose, confluent on elytra, the pubescence yellowish; all surfaces finely micro-reticulate. Length: 5.5–6.0 mm.

Head narrower than elytra (81 : 90). the vertex clearly bisulcate, the median portion rather broader than the areas on either side of furrows, convex, the lateral portions strongly reflexed to the margins of eyes; the punctuation is coarse, the diameter of punctures greater than the section of base of third antennal segment; the interstices are narrow, with faint but discernable microsculpture, broader on median axis, forming a variable, narrow impunctate area posteriorly. Antennae long and slender, overlapping the posterior margin of pronotum by at least four terminal segments, the two penultimate segments subconical and more than twice as long as broad.

Punctuation of pronotum coarser than that of head, cofused, the interstices forming short, irregular rugae; a median furrow of variable form and extent is present, but is not impunctate.

The ample elytra are subquadrate, scarcely elongate, the humeral angles prominent, the punctuation not coarser than that of pronotum, but more regular, the interstices forming series of long fine parallel confluent rugae on all but the anterior sutural angle.

Abdomen subcylindrical, feebly tapered, the borders moderate; the punctuation coarse but shallow, the interstices narrower than the diameter of punctures, and alutaceous. Ninth sternite: fig. 15 B.

Legs long, the metatarsi nearly as long as metatibia (87 : 80); tarsal segments: I : 40; II : 19; III : 9; IV (including lobes) : 11; V : 17; all fourth tarsi strongly bilobed.

Male: mesotibia with a small spur; metatibia with a minute, scarcely visible spur; sternites III to V with progressively larger impunctate apico-median areas; sternite VI depressed between slight apical keels, this area impunctate; sternite VII with closer, but not finer pubescence of apico-median area; sternite VIII narrowly excised to about 1/6 of its length; apico-lateral angles of sternite IX produced into long stout teeth. Aedeagus; Fig. 15 A.

Stenus cyanogaster n. sp. can at once be distinguished from the other members of this group by its colour (blue; as opposed to green), and by the aedeagus: the apex of the median lobe is broader than that of *S. viridanus* Cam., about as broad but less rounded than that of *S. viridimicans* Puthz, and narrower than in *S. viridanoides* Puthz. From *S. viridanus* Cam., to which it would appear to be closest, it can further be disinguished by the finer punctuation of elytra and slightly sparser punctuation of abominal tergites.

This new species forms a distinctive phyletic group with the other three species mentioned above. They are montane species which not only resemble *Dianous* species but live in *Dianous* habitats and appear to behave like those insects: I have found *S. viridanus* Cam. in three Himalayan countries in the company of *Dianous* species at seasons when no other *Stenus* spp. were active.

Stenus (Parastanus) pilicornis Fv.

Stenus pilicornis Fauvel 1895, *Rev. d'Ent.* **14 :** 208.
Stenus seriatipennis L. Benick 1929, *Dt. ent. Z.*: 96.
Stenus plumbellus L. Benick 1929, *Dt. ent. Z.* : 97.
Stenus jacobsoni Cameron 1930, *Tijdschr. Ent.* **73 :** 329.
Stenus limbatus L. Benick 1938, *Steein ent. Z.* **99 :** 25.
Stenus meracus L. Benick 1942, *Ark. Zool.* **33A** (17): 32.
Stenus cf. meracus Bck. Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83 :** 382.
Stenus pilicornis Puthz (in litt.)

1 ♂ : Chiang Mai Prov., Ban Hua Mo, 12.III.1982, G. de Rougemont.

As pointed out by PUTHZ (in litt.), the specimen from Doi Suthep which I compared to *S. meracus* must now be ascribed to this variable and widespread species, and Fauvel's name be added to the list of Thai species.

Stenus (Parastenus) virgula Fv.

Stenus virgula Fauvel 1895, *Rev. d'Ent.* **14**: 210.
Stenus virgula Puthz 1969, *Bull. Inst. r. Sci. nat. Belg.* **45** (9): 42.
Stenus virgula Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 339.

10 ♂♂ & 17 ♀♀ : Chiang Mai Prov., Doi Suthep N.P., Doi Pui summit, 1650 m, under planks near a leaking water tank, 27.IX.1981, Zool. Museum Copenhagen leg.; 1 ♂ : Doi Pui, 1300 m, 14.III.1982, G. de Rougemont; 2 oo : Doi Inthanon, 2300 m, under dead leaves in stream bed, 15.III.1982, G. de Rougemont; 1 ♂ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

New to Thailand. This species is otherwise known from Nepal through Burma to Taiwan. In Burma I have also taken it in numbers by sweeping.

Stenus (Parastenus) ninii Rougemont

Stenus ninii Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 339.
Stenus ninii Rougemont 1983, *Nouv. Rev. d'Ent.*

3 ♂♂ & 3 ♀♀ : Chiang Mai Prov., Doi Pui summit, with the last species, 27.IX.1981, Zool. Museum Copenhagen leg.; 1 ♂ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont: 1 ♂ : Bank of R. Kok, ca. 30 km W. of Chiang Rai, 12.III.1982, G. de Rougemont.

New to Thailand. This species which is very similar to *S. virgula* Fv. was described from a single individual from South Shan State in Burma, and I have taken a slightly different form at Canton in China. These Thai specimens are identical with the Type. Fig 16 shows the spermatheca.

Stenus (Parastenus) maculifer Cam.

Stenus maculifer Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **1**: 395.
Stenus maculifer Puthz 1968, *Dt. ent. Z.* (*N.F.*) **15**: 461.
Stenus facialis L. Benick 1940, *Mitt. Muench. ent. Ges.* **30**: 369.
Stenus cruentatus L. Benick 1942, *Ark. Zool.* **33A**: (17): 30.
Stenus maculifer Puthz 1981. *Ent. Blat. Syst. Biol. Kaefer* **76**: 144.
Stenus maculifer Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 338.
Stenus maculifer Puthz 1981, *Reichenbachia* **19**: 18.

1 ♂: Chiang Mai Prov., Chiang Dao, 5–11.IV.1958, T.C. Maa; 3 ♂♂ & 1 ♀: Chiang Mai Prov., Ban Hua Mo, 12.III.1982, G. de Rougemont.

New to Thailand. Widely distributed in the mountains of S.E. Asia.

Stenus (Parastenus) perroti Puthz

Stenus perroti Puthz 1981, *Ent. Bl. Biol. Syst. Kaefer* **76**: 157.
Stenus perroti Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 342.
Stenus perroti Puthz 1981, *Reichenbachia* **19**: 18.
Stenus perroti Puthz (in litt.)

3 ♂♂ & 2 ♀♀: Chiang Mai Prov., Doi Suthep N.P., Doi Pui summit, 1650 m, under planks by a leaking water tank, 27.IX.1981, Zool. Museum Copenhagen leg.; 1 ♀: Chiang Mai Prov., Ban Hua Mo, 12.III.1982, G. de Rougemont; 2 ♂♂ & 2 ♀♀: Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont; 3 ♂♂ & 2 ♀♀: Bank of R. Kok, ca. 30 km W. of Chiang Rai, 22.I & 12.III.1982, G. de Rougemont.

New to Thailand. This species is known from Burma, Vietnam and Hainan.

Stenus (Parastenus) grandimatrix n. sp.

♀ Holotype: Chiang Mai Prov.. Doi Pui, Phu Ping, under dead leaves at the edge of a pond, 24. I. 1982, G. de Rougemont. To be deposited in B.M.N.H.

This new species is close to *S. perroti* Puthz and *S. notatipennis* Puthz; as these three species are well differentiated from other spotted Oriental *Parastenus* species by the combination of size, relatively narrow abdominal borders and laterally denticulate ninth sternites, and can easily be run down in PUTHZ'S (1981) key to the spotted species diagnosis of the new species is limited here to comparison with the other two.

Length: 5.7 mm. Deep black, without a brassy tinge, each elytron with a small round orange spot; palpi testaceous; legs dark testaceous, the knees infuscate; antennae rufous, the club infuscate. Surface of fore-body uneven, rugose. Valvifers (ninth sternite): Fig. 17B.

Male: unknown.

Female: spermatheca (Fig. 17A) relatively large, simple.

At first sight the whole insect appears to be stouter, more robust than either *S. perroti* Puthz or *S. notatipennis* Puthz, but this is due solely to the pronotum, which is a little broader (70 : 68, cf. *perroti*: 69 : 66), and less constricted anteriorly, and to the colour, a deep black, lacking the brassy tinge of the other two species. Other measurements of body proportions are not significantly different.

The head (breadth: 88) is about the same width as that of *S. perroti*, broader than that of *S. notatipennis* (80) (compared with Paratypes of both species; this measurement has been inverted by mistake in PUTHZ' key: it is *S. perroti* that has the broader head). The median portion of head is more prominently raised than in either of the described species, and the punctuation of the whole body is somewhat coarser. The punctuation of elytra provides the most obvious character for separating *S. grandimatrix* n. sp. from the other two, as the interstitial rugae form a large vorticose rosette surrounding the red spot, whereas the punctuation is homogeneous in the other species.

Another difference in proportions lies in the tarsi, which are longer: Metatarsus: 70; first tarsal segment: 29; cf. 60 : 23 (*perroti*) and 60 : 24 (*notatipennis*).

The spermatheca (figured by Puthz in the case of the other species) is characteristic; it is relatively large and proportionately thicker. The valvifers (Fig. 17B) bear more teeth than in the other species, and the largest tooth, corresponding to the single apico-lateral tooth of many species, is less distinct, blunter.

Stenus (Parastenus) circumflexus Fv.

Stenus circumflexus Fauvel 1895, *Rev. d'Ent.* **14**: 211.

Stenus circumflexus Rougemont 1981B. *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 382.

1 ♂ & 2 ♀♀ : Chiang Mai Prov., Doi Suthep, 800 m, in wet vegetable detritus on stream bank in forest, 24.I.1982, G. de Rougemont; 1 ♂ : Doi Pui, Phu Ping, 1450 m, under dead leaves by a pond, 25.I.1982, G. de Rougemont.

Already recorded from the first of these localities.

Stenus (Parastenus) tenuimargo Cam.

Stenus tenuimargo Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **1**: 459.

Stenus tenuimargo Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 342.

Stenus tenuimargo Puthz 1981, *Reichenbachia* **19**: 16.

Stenus tenuimargo Puthz 1981, *Ent Bl. Biol. Syst. Kaefer* **76**: 148.

1 ♂ : Chiang Mai Prov., Doi Inthanon, 2300 m, 15.III.1982, G. de Rougemont.

New to Thailand. Previously known from Darjeeling, Burma, Yunnan and Vietnam.

Stenus (Parastenus) contaminatus Puthz

Stenus contaminatus Puthz 1981, *Ent. Bl. Biol. Syst. Kaefer* **76**: 158.

1 ♂ : Chiang Mai Prov., Doi Inthanon, 2300 m, in dead leaves on rock face of stream bank, 15.III.1982, G. de Rougemont.

New to Thailand. Only known by the single Type from Yunnan.

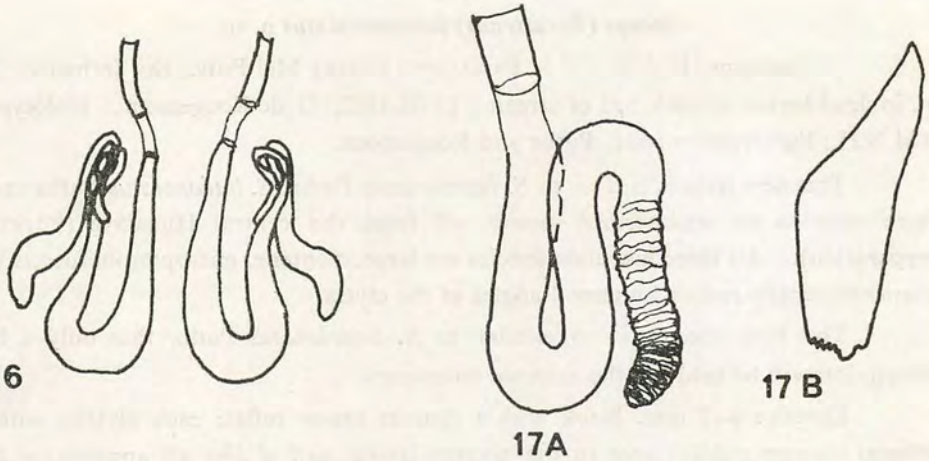

Figure 16. *Stenus ninii* Rougemont : spermatheca, seen from both sides of slide preparation.
Figure 17. *Stenus grandimatrix* n.sp. A : Spermatheca; B : valvifer.

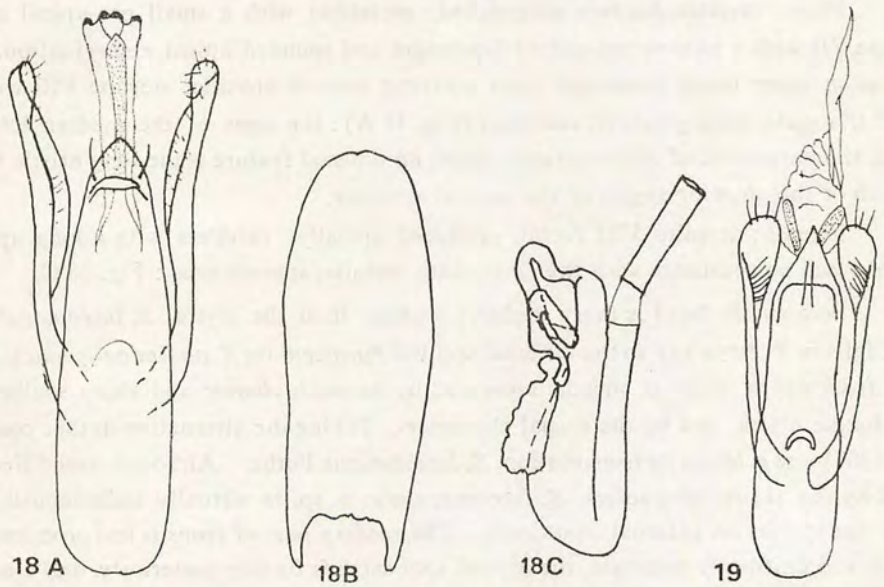

Figure 18. *Stenus luteomaculatus* n.sp. A : aedeagus, ventral view, with inner sack everted; note the pair of stout bristles on ventral face of median lobe in addition to the fine apical pubescence; B : male ninth sternite; C : spermatheca.
Figure 19. *Stenus subthoracicus* Puthz : aedeagus, ventral view, with inner sac everted.

Stenus (Parastenus) luteomaculatus n. sp.

♂ Holotype, 1 ♂ & 2 ♀ ♀ Paratypes : Chiang Mai Prov., Doi Inthanon, 2300 m, in dead leaves on rock bed of stream, 15.III.1982, G. de Rougemont. Holotype in B.M.N.H.; Paratypes in colls. Puthz and Rougemont.

This new species is close to *S. luteolunatus* Puthz, *S. luteonotatus* Puthz and to three other as yet undescribed species, all from the central Himalaya (PUTHZ, in preparation). All these maculate species are large, montane, micropterous insects with characteristically reduced humeral angles of the elytra.

The new species is so similar to *S. luteolunatus* Puthz that only a brief description will be made of the external characters.

Length : 6–7 mm. Black with a distinct brassy reflex; each elytron with an oblong, obscure reddish spot in the postero-lateral half of disc; all appendages dark testaceous. Surface of body shiny despite strong micro-reticulation.

Proportions of Holotype : breadth of head : 87; average distance between eyes : 54; length of pronotum : 79; breadth of pronotum : 66; maximum breadth of elytra : 85; distance between humeral angles : 75; breadth of paratergite IV at middle : 6; tarsal segments : I : 22; II : 12; III : 7; IV (including lobes; the base very short) : 10; V : 13.

Male : metatrochanters unmodified; metatibia with a small pre-apical spur; sternite VII with a narrow pre-apical depression and rounded apical emargination, the depression more finely pubescent than outlying area of sternite; sternite VIII with a broad triangular emargination; aedeagus (Fig. 18 A) : the apex of the median lobe is broad, the parameres of characteristic shape; an unusual feature is the long bristle born on each of the anterior angles of the ventral aperture.

Female : sternite VIII feebly produced apically; valvifers with a long apico-lateral tooth comensurate with the male ninth sternite; spermatheca : Fig. 18 C.

Because the head is (very slightly) broader than the elytra, *S. luteomaculatus* n. sp. falls in PUTHZ'S key to the Oriental spotted *Parasteni* on *S. abdiminalis maculosus* Bck., from which it can at once be separated by its much coarser and shiny sculpturation, longer elytra, and by the sexual characters. Taking the alternative in that couplet (53 : (30)) one is led to its true relation, *S. luteolunatus* Puthz. Although well differentiated by the sexual characters, *S. luteomaculatus* n. sp. is virtually indistinguishable from that species on external characters. The median part of frons is less prominently raised, and uniformly punctate, the elytral spot extends further posteriorly, and a notch in the posterior border of each elytron, where these fit over the outer edge of the second (real) tergite is deeper than in *S. luteolunatus*. The differences in sexual characters are however much clearer : the male metatrochanters are simple (armed with a sharp spine in *S. luteolunatus*); the metatibia bear a pre-apical spur, and the apical depression and

emargination of sternite VII are narrower in the new species. The differences between *S. luteomaculatus* n. sp. and *S. luteonotatus* Puthz lies chiefly in the punctuation of the abdomen, as described by Puthz in his comparison of that species with *S. luteolunatus* in the diagnosis. A comparison of this new species with the undescribed taxa from Nepal will be given by my colleague Dr. PUTHZ (in preparation).

Stenus (Parastenus) thoracicus Bck.

Stenus thoracicus L. Benick 1931, *Wien. ent. Zt.* **48** : 143.
Stenus thoracicus Puthz 1981, *Ent. Bl. Biol. Syst. Keafer* **76** : 151.
Stenus thoracicus Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 343.

1 ♀ : Chiang Mai Prov., Doi Suthep N.P., Doi Pui summit, 1650 m, under planks by a leaking water tank, 27.IX.1981, Zool. Museum Copenhagen leg.; 1 ♂ : Doi Suthep; 850 m, 24.I.1982, G. de Rougemont; 3 ♂♂ & 3 ♀♀ : Doi Pui, 1250 m. 14.III.1982, G. de Rougemont; 1 ♂ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III. 1982, G. de Rougemont.

New to Thailand. This species was hitherto only known by the female type collected by L. Fea in the Karen Hills of Burma and by a single male which I took at Taunggyi. The new material also includes 3 males and two females from Kalaw, S.S.S., Burma (19.III.1982, G. de Rougemont) and three other females from Anisakan, near Maymyo, Burma (19.I.1982, Rougemont). Taken together, these specimens comprise all the known material of *S. thoracicus* Bck.

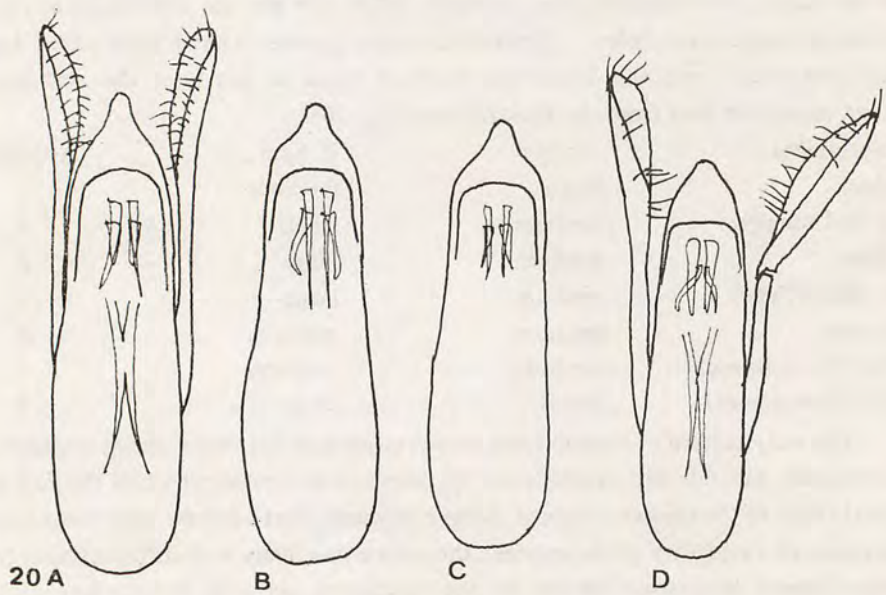

Figure 20. *Stenus thoracicus* Bck. : aedeagi of specimens from various locations. A : Taunggyi, S.S.S., Burma; B : Nam Tok Mae Yao; C : Doi Suthep; D : Doi Pui.

Figure 21. Spermatheca of *Stenus thoracicus* Bck. from Doi Pui.

The material shows considerable variation in body size, the size of elytral spots, and in the shape of the median lobe, but these differences are not correlated, as can be seen from the table given below. Gradation occurs between what I have called large, medium and small, and the distinction between types A and B of the aedeagus is arbitrary, as will be seen from the illustrations (Fig. 20).

Specimens :	Body :	E. spot :	Aedeagus :
Anisakan	large	medium	?
Kalaw & Taunggyi	medium	small	A
Mae Yao	medium	large	A
Karen Hills (Type)	medium	large	?
Doi Suthep	medium	medium	A
Doi Pui (Copenhagen)	medium	medium	?
Doi Pui (Rougemont)	small	large	B

The only pattern to emerge from these statistics is that body size decreases from north to south, but this will probably not be found to be consistent when the full geographical range of the species is known. I have no doubt that all these specimens belong in the range of variability of the species; they are collectively well differentiated from all other known *Parastenus* species by the characters given in PUTHZ'S key and by their general appearance.

Description of sexual characters : male : legs and abdominal tergites III-VI without modifications; sternite VII slightly depressed on the median axis, and finely and densely punctate and pubescent; sternite VIII with a small rounded emargination; aedeagi : Fig. 20. Female spermatheca : Fig. 21.

Stenus (Parastenus) subthoracicus Puthz

Stenus subthoracicus Puthz 1970, *Bull Inst. r. Sci. at. Belg.* **46** : 16.
Stenus subthoracicus Puthz 1981. *Ent. Bl. Biol. Syst. Kaefer* **76** : 151.

3 ♂♂ & 3 ♀♀ : Chiang Mai Prov., Doi Pui, 1300 m, 14.III.1982, G. de Rougemont.

New to Thailand. This species has not been seen since the single female Type collected by Fea in the Karen Hills was described by PUTHZ from undetermined material in the Fauvel collection. It does not closely resemble *S. thoracicus* in habitus, because the insect is micropterous with narrow shoulders.

Male : secondary sexual characters as in *S. thoracicus* Bck., but the depressed area of sternite VII is shorter, and the apical emargination of sternite VIII smaller and more rounded. Aedeagus : Fig. 19.

Female : the spermatheca is very long and convoluted, the coils of the median section gathered in a tight ball.

Stenus (Parastenus) abdominalis Fv.

Stenus abdominalis Fauvel 1895, *Rev. d'Ent.* **14** : 210.
Stenus abdominalis Puthz 1969, *Bull. Inst. r. Sci. nat. Belg.* **45** (9) : 32.
Stenus abdominalis Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 342.
Stenus abdominalis Puthz 1981, *Ent. Bl. Biol. Syst. Kaefer* **76** : 151.

4 ♂♂ & 6 ♀♀ : Chiang Mai Prov., Doi Pui summit. 1650 m, 27.IX.1981, under planks by a leaking water tank, Zool. Mus. Copenhagen leg.; 1 ♂ : Doi Pui, 1250 m, 14.III.1982, G. de Rougemont; 1 ♂ & 1 ♀ : Doi Inthanon, ca. 2000 m, 15. III.1982, G. de Rougemont; 1 ♀ : Chiang Rai Prov., Nam Tok Mae Yao, 13.III.1982, G. de Rougemont.

New to Thailand. This species was also described from the Karen Hills of Burma, and has since been found by me in two localities of South Shan State. It is represented in Indonesia by two subspecies, and a further undescribed (immaculate) form occurs in peninsular Malaysia (coll. Puthz).

My own specimens from Doi Inthanon and Doi Pui agree well with the nominate form from Burma, but the series collected by members of the Danish Expedition have slightly more ample elytra, lack the brassy tinge of the others, and more significantly, have a narrower apex of the median lobe of the aedeagus (see Fig. 22). This form probably represents a new subspecies or species; although both forms from Doi Pui were taken in different circumstances, it has yet to be shown that they are allopatric, and as little is yet known either of the range of variability of the nominate form or of its distribution, it seems preferable not to encumber stenine nomenclature with another taxon until more material is available.

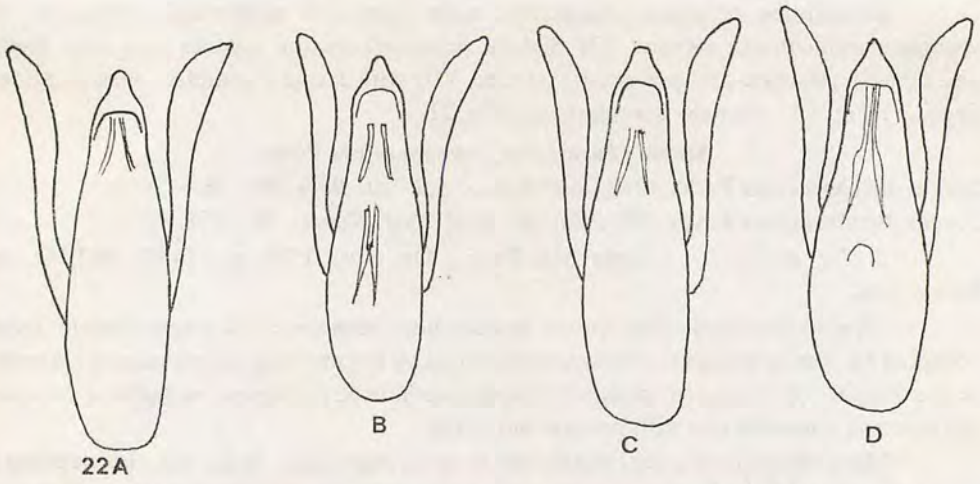

Figure 22. *Stenus abdominalis* Fv.: aedeagi. A: Taunggyi, Burma; B: Doi Inthanon; C: Doi Pui (Rougemont); D: Doi Pui (Copenhagen).

Stenus (Parastenus) biplagiatus Puthz

Stenus biplagiatus Puthz 1970, *Bull. Inst. r. Sci. nat. Belg.* **46** (18): 14.
Stenus biplagiatus Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 343.
Stenus biplagiatus Puthz 1981, *Ent. Bl. Biol. Syst. Kaefer* **76**: 153.

1 ♂: Chiang Mai Prov., Doi Pui, Phu Ping, 1550 m, under dead leaves by a pond, 25.I.1982, G. de Rougemont.

New to Thailand; only known otherwise from the neighbouring highlands of Burma.

Stenus (Parastenus) bicolon posticus Fv.

Stenus posticus Fauvel 1895, *Rev. d'Ent.* **14**: 209.
Stenus bicolon posticus Puthz 1969, *Bull. Inst. r. Sci. nat. Belg.* **45**: 38.
Stenus bicolon posticus Rougemont 1981A, *Ann. Mus. Civ. Stor. Nat. Genova* **83**: 343.
Stenus bicolon posticus Puthz 1981, *Ent. Bl. Biol. Syst. Kaefer* **76**: 153.
Stenus bicolon posticus Puthz (in litt.)

2 ♂♂ & 2 ♀♀: Chiang Mai Prov., Doi Inthanon, 2000 m, 15.III.1982, G. de Rougemont; 1 ♀: Doi Suthep, 28–31.III.1958, T.C. Maa.

New to Thailand. Known from Burma and Vietnam, and with doubt, from Taiwan and Malaysia.

Stenus (Parastenus) gestroi ssp.

Stenus gestroi Fauvel 1895, *Rev. d'Ent.* **14**:

1♂ & 1 ♀: Chiang Mai Prov., Doi Pui, 1250 m, 14.III.1982, G. de Rougemont.

Stenus gestroi and its subspecies, in which several other taxa (eg. *S. ridiculus* Scheerp.) should, for the sake of consistency, be assimilated, are widely distributed in S.E. Asia and are in need of revision. It is doubtful, considering the known variability

of species, that many of them can be separated on external characters. Fig. 23 shows the aedeagus of the male cited above, compared with a male from Kalaw in Burma; it will be seen that the apex of the median lobe is narrower, a more extreme difference than is shown by one of the Indonesian subspecies. The single female ascribed to *S. gestroi grandiculus* Bck. (ROUGEMONT 1981B) should provisionally be referred to this new taxon, and *grandiculus* removed from the list of Thai species.

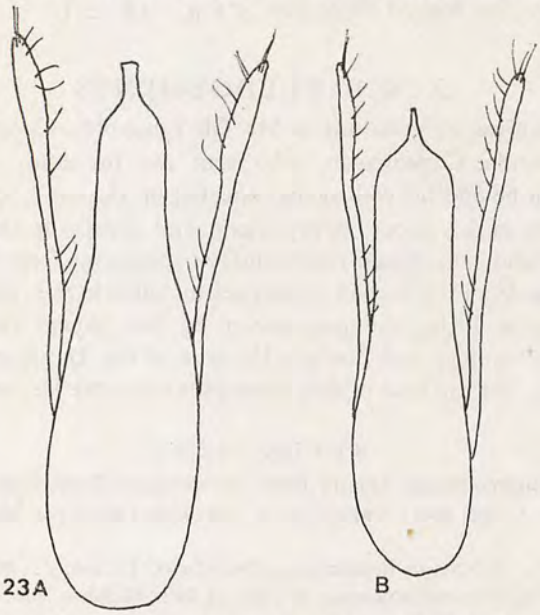

Figure 23. Aedeagi, ventral view. A : *Stenus gestroi gestroi* Fv. from Kalaw, Burma; B : *Stenus gestroi* ssp. from Doi Pui.

Other Species of Steninae Recorded from Thailand

Dianous luteolunatus Puthz 1980, *Reichenbachia* **18** : 3.

Stenus (Hypostenus) puthzianus Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 367.

Stenus (Hypostenus) cf. amoenus Bck. Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 373.

Stenus (Hypostenus) alumoenus Rougemont 1981B, *Ann. Mus. Civ. Stor. Nat. Genova* **83** : 371.

Stenus (Hypostenus) flavidulus paederinus Champion 1924, *E.M.M.* **9** : 160.

Stenus (Hypostenus) piliferus Motschulsky 1857, *Bull. Mosc.* **30** : 515.

Stenus (Hypostenus) tuberculicollis Cameron 1930, *Faun. Brit. Ind., Col. Staph.* **1** : 361.

Stenus (Hypostenus) gibberosicollis Puthz (in litt.).

Stenus (Hypostenus) acutipes L. Benick

Stenus (Hypostenus) currax Sharp 1874, *Trans. ent. Soc. London* **88.**

Stenus (Hypostenus) bispinus Motschulsky 1857, *Bull. Mosc.* **30** : 514.
Stenus (Hypostenus) miriventris Puthz (in litt.).
Stenus (Hypostenus) miser Puthz (in litt.).
Stenus (Hypostenus) chakthongi Puthz (in litt.).
Stenus (Hypostenus) wasmanni Fauvel 1895, *Rev, d'Ent* **14** : 214.
Stenus (Parastenus) kempi Bernhauer 1926, *Ent. Mitt.* **16** : 132.
Stenus (Parastenus) feae Fauvel 1895, *Rev. d'Ent.* **14** : 211.

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