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Revision of the Asian Lepturinae (Coleoptera : Cerambycidae) with special reference to the type specimens' inspection

Part Ⅳ

By

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In the first, we heartily congratulate the thirtieth anniversary of the foundation of our Osaka Jonan Women's Junior College. And we are very much gratitude to invite us to dedicate a research on the present memorital publication.

In the present paper, we wish to dedicate our report of the fourth paper of the heading title, treating *Pyrocalymma* Generic group of Lepturini. *Pyrocalymma* Thomson (1864) was once belonged to Erochemini, Cerambycinae, along with *Eroschema* Pascoe (1859), *Chaodalis* Pascoe (1865) by Lacordaire (1869), but recently Dr. Gressitt (1951) moved tribe Eroschemini to Lepturinae, and Dr. Svacha (1988) divided the tribe, *Eroschema* in Cerambycinae and *Pyrocalymma* and *Corennys* were belonged into Lepturinae, even though the structures of immature stages of *Pyrocalymma* was different to *Corennys*, and additionally agreed, *Formosopyrrhona*, *Corennys* and *Pyrocalymma* were belonged into Lepturinae for Dr. N. Ohbayashi's question, after

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his study of immature stages of Cerambycidae. Dr. A. Saito (1989) studied *Pachypidonia* was close to *Corennys*, after her female genital organ's study. We also agreed with their opinion by our wing venational study of these genera.

Pyrocalymma Generic Group now contatins the following 4 genera.

Pyrocalymma Thomson, 1864
Corennys Bates, 1884
Formosopyrrhona Hayashi, 1957
Pachypidonia Gressitt, 1935

1. Antennae in both sexes very short and slightly robust, third and fourth antennal joints weakly abbreviated than the others; prothorax somewhat transverse hexagonal, strongly constricted behind apex and weakly so before bisinuate base, disc with a shallow median impression; elytra parallel-sided, disc convex with or without shallow longitudinal costae ····· *Pachypidonia* Gressitt
– Antennae in ♂ longer, in ♀ shorter than near middle of elytra, third and the following joints dilated apically to triangularly dentate;prothorax broadened from apex to bisinuate base, hexgonal, constricted behind apex and before base, disc distinctly with median wide impression; elytra more or less broadened posteriorly, disc with many longitudinal costae ····· 2
2. Antennal joints 3rd to 10th strongly triangle in both sexes; elytra distinctly broadened posteriorly; with at least four pairs or more of longitudinal costae ····· *Pyrocalymma* Thomson
– Antennal joints 3rd to 10th slender in ♂ , and thickened, dilated apically in ♀ ····· 3
3. Elytra in ♂ nearly parallel-sided and in ♀ weakly broadened to apex; antennae in ♂ , scarcely as long as body and in ♀ distinctly shorter; 1st hind tarsal joint short, as long as or longer 2nd and 3rd united ····· ····· *Corennys* Bates
– Elytra in ♂ , nearly parallel-sided and in ♀ broadend or nearly parallel-sided posteriorly; antennae in ♂ , distinctly longer than body and in ♀ surpass middle of elytra; 1st hind tarsal joint long, twice as long as 2nd and 3rd united ····· *Formosopyrrhona* Hayashi

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Genus *Pyrocalymma* Thomson

Thomson, 1864, Systema Cerambicidarum,: 159 (Type species *P. pyrochroides* Thomson－Northern India); Lacordaire, 1869, Genera Coleopt., VIII: 516 (Part.); Gahan, 1906, Fauna Brit. India Col. 1: 88 (Part.):Aurivillius,1912,Col.Cat., 39: 288 (Part.);Plavilstshikov, 1932, Best.-Tab. eur. Col., 102: 116 (Part.); Plavilstshikov, 1940, Faune de l'URSS,XXII: 662(Part.); Pic, 1947, Misc. Ent., 43: 17 (Part.); Gressitt, 1995, Longic., II: 121 (Part.); Hayashi, 1960, Niponius, I(6): 23 (Part.)

Head short in front, constricted at a short distance behind eyes, forming a distinct neck, with rectangular temples; frons wide, clypeus transverse, antennal insertions produced and approached each other, with a median longitudinal furrow extending from clypeus to the concavity between antennal insertions; eyes finely faceted, distinctly emarginate, mentigerous process of gula distinct. Antennae shorter than body, arrived at apical part of elytra in male, and at middle of elytra in female; scape short and obconical, 3rd to tenth joints depressed and triangularly produced ectoapically. Prothorax nearly as long as width, narrowest at apex, constricted strongly at apex and weakly so before bisinuate base; weakly angulate and expanded at sides behind middle; disc convex, furnished with a broad shallow median longitudinal impression and a pair of lateral weak depressions before base. Elytra broad, gradually widened posteriorly and rounded at apex; disc furnished with four pairs of weakly raised longitudinal costae. Legs of moderate length, weakly thickened apically. Prosternal process slender; mesosternal process broadened apically, anterior coxae subangulately externally and open posteriorly.

The present genus contains two species at present.

Pyrocalymma pyrochroides Thomson, 1864 Darjeeling, N. India
Pyrocalymma thailandensis Hayashi et Villiers, 1994 Thailand

1. Head on top, pronotum and elytra red, with a velvety carmin red pubescence on red portions. Elytra about 2.8 times as long as the basal

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width (between shoulders) in ♀. length, 16−21mm., width, 3½−5mm. North East India, Burma, South West China, Tonkin ? .... *pyrochroides* Thomson

— Head black, with red clypeus, labrum, large part of genae, occiput and neck, pronotum and scutellum dark red, and elytra red, with a velvety cinnamon red pubescence. Elytra about 3.3 times in ♂, and 2.95 times as long as the basal width in ♀. length, 17−22mm., width, 5−6mm. Thailand..... *thailandensis* Hayashi et Villiers

Pyrocalymmna pyrochroides Thomson

Thomson, 1864, Syst. Ceramb.: 160 (Darjeeling, Sikkim); Lacordaire, 1869, Gen. Col., VIII: 516 ; Gahan, 1906, Fauna Brit. India, Col. I : 89, fig. 35 (Pedong, Sikkim; Manipur; Ruby Mines. Burma); Pic, 1903, Mat. Longic., 4(2): 28 (Mt. Mauson, Tonkin) ;Aurivillius, 1912, Col. Cat., 39: 288 ; Plavilstshikov, 1932, Best.-Tab. eur. Col., 102: 117 ; Heyrovsky, 1935, Ent. Nachrichtenblatt, 9 : 13 (Sikang, Yunnan, China); Plavilstshikov, 1940, Faune de l'URSS, 22: 663; Pic, 1946, Misc. Ent., 43 (1): 17 (var. *Dallieri* nov.); Gressitt, 1951, Longic., II: 121; Hayashi, 1960, Niponius, I(6): 24 ; Gressitt et Rondon, 1970, Pac. Ins. Monogr., 24:42; Hayashi, 1979, Ent. Rev. Japan, 3 (½): 85, pl. 1, fig.5 (Nepal); Jiang et Wu, Jl. SW Agr. Coll., 3 :4; Pu, 1981, Ins. Xizang, 1: 420 (Thibet); Pu, 1987,Agr. Ins. Spiders Plants Diseases & Weeds of Xiang, 2 : 92

Head on top. pronotum and elytra red, rather densely covered with a somewhat velvety pubescence of a bright carmin red colour; body beneath, legs and antennae black; head more or less black in front, at the sides and beneath. Antennae reach to the posterior third of the elytra in the ♂, barely to the middle in the ♀ , densely covered with short black pubescence; the joints from the third to the tenth flattened and triangular, projecting strongly at the apex on the anterior side. subequal to one another in length in the ♀, successively and very gradually longer in the ♂, each as broad as it is long or almost so in the ♀, and longer than broad in the ♂. Pronotum, owing to the arrangement of the pubescence, appears to have a broad shallow groove along the middle and a slight depression on each side near the base. Elytra

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furnished each with four narrow slightly raised longitudinal costae, the inner two more distinct than the other. Body beneath and legs minutely and densely punctulate, thinly clothed with blackish pubescence. First joint of hind tarsus narrower than the second or third, nearly as long as these two united.
Length 16－21 ; breadth (at shoulders) 3 ½－5 mm. (the best description of C.J. Gahan,1906)

Examined material: 1 female, Kathmandu(Godavari) (alt. 1600 m.), June 16, 1963, A. Hara leg. (National Science Mus.,Tokyo).
This female specimen was measured as the elytra about 2.8 times as long as basal width between shoulders.

Distribution: Nepal, N. India, Burma, SW China, N Vietnam.

Pyrocalymma thailandensis Hayashi et Villiers
(Pl. II, figs. 1 & 2)

Hayashi et Villiers, in Hayashi, 1994, Ent. Rev. Japan, 49(1): 62, pl.5, figs. 4 & 5 (Chiang Mai Prov., Thailand) 5 was mistake of ♂

Head black, with red clypeus, labrum, large part of genae, occiput and neck; labial palpi fulvous, maxillary palpi black; prothorax and scutellum dark red;elytra red; antennae black;ventral surface of body black, but gula, anterior center and prosternal process red; legs black, only remaining red small spots on pro- and mesocoxae. Body largely covered with fresh red depressed pubescence on reddish portions and with fulvous tomentose on antennae and legs, with no brush-like hairs on antennal joints.

Clypeus transverse; frons wide, angularly turned by a transverse furrow at upper portion on the furrow, antennal tubercles produced and approached each other. Antennae in male reaching posterior one-fifth of elytra, scape thickened and curved, 3rd to 10th triangular, strongly dilated ecto-apically and 11th emarginate at outer margin before apex; relative length of each joint as follows: - 6 : 1.5 : 4.8 : 5.5 : 6.5 : 6.3 : 6.2 : 6 : 6.3 : 6 : 8.3 (♂); in ♀ reaching half of elytral length. Prothorax broader than long, constricted behind apex and before base,

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subangularly expanded laterally before the middle, and bisinuate at base; disc convex with two pairs of elongate protuberances, 1st large, along the median line and 2nd oblique at side. Scutellum triangular. Elytra more than 3 times as long as the basal width (ratio: 24 : 7.5) in ♂, and 2.8 times in ♀, shallowly broadened posteriorly to apical quarter; disc furnished with each two pairs of strong inner and weak outer longitudinal costae; narrowed from apical quarter and rounded posteriorly to apex. (Original Description)

Length 17−22 mm; width 5−6 mm.

Examined specimens: 3 ♂♂, 1 ♀, Chiang Mai Prov., Thailand, May 1987, N. Koyama leg. (Hayashi & Nara collection).

Distribution: Thailand.

Genus *Corennys* Bates

Bates, 1884, Jl. Linn. Soc. London Zool., XVIII: 224 (Type species: *C. sericea* Bates - Japan); Aurivillius, 1912, Col. Cat., 39: 288; Plavilstshikov, 1932, Best.-Tab. eur. Col., 102: 116; Matsushita, 1933, Jl. Fac. Agr. Hokkaido Imp. Univ., 34 : 288; Plavilstshikov, 1940, Faune l'URSS, 22: 180, 662; Gressitt, 1951, Longic., 2: 122; Hayashi, 1960, Niponius, I (6): 24; N. Ohbayashi, 1992, Acta Coleopt. Jap., 2 : 4

= Subgenus *Pseudocorennys* Pic, 1951−'52, Misc. Ent., 47 : 41 (Type species : *Corennys* (*Pseudocorennys*) *diversicornis* (Pic) − Yunnan) **Syn. nov.**

Body subcylindrical; head slightly elongate before eyes, frons somewhat inclined, not vertical and transverse, genae developed behind eyes forming angular to rectangular, neck distinctly constricted, antennal insertions developed between eyes with a median longitudinal furrow among them. Antennae rather short, almost cylindrical and slender, arriving before elytral apex in ♂, and rather robust, only surpassing middle of elytra in ♀, ♂ 1st to 5th and ♀ 1st to 8th densely furnished with black hairs, and ♂ 6th to 11th and ♀ 9th to 11th cylindrical and others dilated. Prothorax distinctly in ♂ and slightly in

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♀ longer than wide, apex narrow, once broadened at middle and base bisinuate, constricted behind apex and before base;disc distinctly convex with median elongate oblong or deltoid impression, rarely with a pair of impression before base. Scutellum broad, triangular. Elytra ♂ narrow and subcylindrical, more than 3 times and ♀ broad, gradually widened apically, less than 3 times as long as the basal width, with completely dully impressed margins and rounded apices; disc furnished with three or more longitudinal costae, but central two or three ones distinct. Legs rather short, femora subclavate, 1st joint of hind tarsus longer than 2nd and 3rd united together. Prosternal process very narrow and their coxae elongate and exserted, middle acetabula broadly open externally, mesosterna not so convex and metepisterna posteriorly narrowed. Dorsal surface densely covered with beautiful silky reddish pubescence, variously impressed.

Remarks. Monsieur Maurice Pic (1951－'52) had criticized Dr. Gressitt's "Longicorn Beetles of China" for many species and genera chiefly his own described ones. In the paper, he established a Subgenus *Pseudocorennys* subgen. nov., stating that "specialement *Pyrocalymma diversicornis* Pic (espece Chine, non citee par Gressitt). Je constate que mon type possede une structure antennaire differente de celles attribuee par 1' auteur americain, aux genres *Corennys* Bates et *Pyrocalymma* Ths. Les articles 3 et suivants des antennes, chez mon espece, sont peu elargis et diversement longs tres pubescents, ayant une structure intermediaire entre les deux genres precites et devant rentrer dans un sous-genre nouveau de *Corennys* Bat., que je designe sous le nom de *Pseudocorennys*." However, we can not adopt his proposal by the below-mentioned reason.

The present genus now contains the following 7 species.

Corennys sericata Bates, 1884	Japan
Ephies? cardinalis Fairmaire, 1887	Yunnan
Pyrocalymma conspicua Gahan, 1906 ♀	Burma
= *Corennys* (*Pseudocorennys*) *diversicornis* Pic, 1947 ♂	Yunnan
Pyrocalymma notatipes. Pic, 1927	Tonkin
Corennys sanguinea Kano, 1933	Montane Taiwan

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Corennys taiwana Hayashi, 1962 — Taiwan
Corennys circellaris Holzschuh, 1992 — Sichuan, China

1. Femora entirely black 2
— Femora with reddish or fulvous brown markings on front pair 5
2. Antennae robust, rather strongly dilated apically on 3rd to 8th and densely tufted with black hairs, 9th to 11th cylindrical; scarcely surpass in ♂, and not reach to the middle of elytra in ♀; body covered with silky red to orange pubescence. 13.5—15mm. Burma,W. China ··· ..... *conspicua Gahan*
— Antennae slender, weakly dilated apically and not so densely tufted with black hairs 3
3. Prothorax as ½ width as elytra, disc with a broad oblong impression on middle, and bifoveolate on both sides before base, on which dark pubescence available; elytra subparalel,apex separately rounded; disc with three pairs of longitudinal costae; body densely covered with silky red pubescence in ♀. 15 mm. Yunnan,China .... *cardinalis* (Fairmaire)
— Prothorax wider than ½ of elytral width, pronotum with no bifoveolations besides median line before base 4
4. Temples well developed, rectangle; 1st antennal joint longer than 3rd; prothorax well inflated laterally behind middle, the width as broad as base in ♀; elytra furnished with 4 pairs of distinct costae; body covered with orange pubescence. 13.5—15mm. Montane Taiwan .... *sanguinea* Kano
— Temples arcuate, wider than rectangle; 1st antennal joint scarcely longer than 3rd; prothorax weakly inflated laterally behind middle, the width slightly wider than base in ♀; elytra furnished with 2 pairs of distinct costae; body covered with silky carmin red pubescence. 12—17 mm. Japan ..... *sericata* Bates
5. Prothorax as broad as the half width of elytra at base in ♂ and as long as the width between lateral inflations, and base; antennae slightly longer than body in ♂, slender, with scarce black hairs; elytral disc with 4 pairs of weak costae, on which finely punctate through out; body black, elytra reddish, covered with dense silky red pubescence. 10.8 mm. Sichuan, China.. ..... *circellaris* Holzschuh
— Prothorax wider than the half width of elytra at base in both sexes;

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antennae shorter than body. 6

6. Antennae rather broadened at 1st to 5th joints (♂), densely furnished with black hairs; prothorax slightly longer than broad, disc with distinct oblong impression at middle and distinct median furrow; elytra almost parallel-sided, but dilated laterally at apical one fourth, disc with weak elongate costae vanishing at apical one fourth; body black, elytra fulvous brown, with golden pubescence. 13 mm Tonkin ..... *notatipes* Pic

— Antennae slender (♂) and short and dilated apically from 1st to 5th, distinctly so from 1st to 7th, and with dense black hairs; prothorax fairly longer than broad, disc with deltoid impression and a black longitudinal furrow on middle; elytra almost parallel-sided, with completely dully impressed margins; disc with 2 pairs of weak costae; body largely black, elytra light orange yellow, covered with light yellow pubescence. 11.5—16 mm. Taiwan ..... *taiwana* Hayashi

Corennys sericata Bates
(Pl. II, figs. 3 & 4)

Bates, 1884, Jl. Linn. Soc. London Zool., XVIII; 225, pl.I,fig. 2 (Nanai, Chiuzenji, Ontaki(E), Japan); Aurivillius, 1912, Col. Cat., 139: 288; Plavilstshikov, 1932, Best.-Tab.eur.Col.II: 116; Matsushita, 1933, Jl. Fac. Agr. Hokkaido Imp. Univ., 34 (2): 230 (Hokkaido,Japan); Plavilstshikov, 1940, Faune l'URSS, 22: 662; Gressitt, 1945, Lingnan Sci.Jl., 21: 124 (E. Tomb,NE China); Gressitt, 1951, Longic., 2 : 122 (Key),123 ; Hayashi, 1960, Niponius, I96): 25,26, fig.25 (Male-genitalia); N. Ohbayashi, 1992,Acta Col.Japonica, 2 , fig. 10 (Wing venation)

Distribution: Japan (Hokkaido, Honshu, Shikoku, Kyushu); China.

Remarks: In *Corennys*-species, there are two types of fore femora, of entirely black or with reddish or fulvous brown marks. The former includes *C. sericata, cardinalis, conspicua* and *sanguinea*, and the latter includes *notatipes, taiwana* and *circellaris*. In Japan, *C. sericata* is found in temperate (*Fagus*) zone. And in Taiwan, *C. sanguinea* is found in high altitudes of montane districts, but *C. taiwana* is found lower

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altitudes than *sanguinea*. It is hoped to clear how have the other species of this genus any life and distribution ?

Corennys conspicua (Gahan)
(Pl. I, figs. 1 & 2)

Pyrocalymma conspicua Gahan, 1906, Fauna Brit. India Col; I: 89 (Ruby Mines, Burma); Aurivillius, 1912, Col. Cat., 39: 288; Plavilstshikov, 1932, Best.-Tab. eur. Col., 102 : 117;Gressitt, 1938, Lingnan Sci.Jl., 17: 47, pl. 4, fig. 10 (Moupin, Sicang); Gressitt, 1951, Longic., 2: 121; Hayashi, 1960, Niponius, I(6): 24; Pu, 1987, Agr,Ins.Spiders Plant Diseases & weeds of Xizang, 2 : 93 (Thibet); Pu, 1992, Ins. Hengduan Mt. Region, 1: 595 (Yunnan)

Corennys conspicua; Hayashi, 1963, Ins. Matsum., 25(2) : 132 (should be better transferred to *Corennys*); Chiang, 1963, Acta Ent. Sinica, 12(1): 61 (Yunnan); Jiang et Wu, 1981, Jl. SW Agr. Coll., 3: 4 ; Chiang, Pu et Hua, 1985, Econ. Ins. Fauna of China, Col. Ceramb., (III): 35, 38, pl. III, fig.34 (Shansi, Sichuan); Hayashi et Villiers, 1994, Ent. Rev.Japan,49(1); 62

Pyrocalymma diversicornis Pic, 1947, Misc. Ent., 43: 17 (Yunnan) male **Syn. nov.**

Corennys diversicornis Pic, 1951-'52, Misc. Ent., 47: 41; IIayashi, 1963, Ins. Matsum., 25 (2): 132

For the identifcation of *Corennys* – species, the structure of antennae is important. The most robust and relatively shorter antennae with the dense black hairs on 3rd to 7th or 8th joints are the most distinguishable points of *C. conspicua* Gahan, such as shown in the picture of type specimen (Pl. 1, fig. 1), while the picture of *C. diversicornis*'(Pic) (Pl. 1, fig.2) and in Pic's brief original description, the structure of antennae is clearly shown, "*P. diversicornis* mihi est complietment noir en dessous, avec le dessus plus corps orne d'une pubescence orangee;thorax peu large, antennes robustes et courtes, a articles 3 a 7 ou 8 differment epaissis, les-suivants obconiques ou cylindriques et longs". Therefore, *C. diversicornis* Pic is a synonym of this species.

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Materials examined: Type (♀) of *C. conspicua* Gahan (British Mus.); Type (♂) of *C. diversicornis* Pic (Paris Mus.) The latter type has the following labels: Tali Ht. Yunnan/ Type/ *diversicornis* Pic/ HOLOTYPE on red paper/ *Pyrocalymma diversicornis* Pic.

Distribution: Burma, S. W. China (Thibet, Yunnan, Sikang, Shansi, Sichuan).

Corennys cardinalis (Fairmaire) New Combination

Ephies? cardinalis Fairmaire, 1887, Ann. Soc. ent. Belg., 31; 131 (Yunnan); Aurivillius. 1912, Col. Cat., 39; 249; Boppe, 1921, Gen. Ins., 178: 105; Gressitt, 1951, Longic., 2: 120

? Corennys cardinalis: Hayashi et Villiers, 1989, Bull. Osaka Jonan Women's Jr. Coll., 24: 38

Distribution: Yunnan, China.

Corennys sanguinea Kano
(Pl. II, figs. 5 & 6)

Corennys sanguinea Kano, 1933, Kontyu, 6: 271, pl. 4, fig. 2 (Kumanotaire, 7400 ft., Arisan, Taiwan) (Nat. Sci. Mus. Tokyo) Types examined. ; Hayashi, 1960, Niponius,I(6): 26 (Independent sp., not subsp. of *sericata*,examining the types); Hayashi, 1963, Ins Matsum., 25(2): 131

Corennys sericata sanguinea: Gressitt, 1951, Longic., 2: 123, pl. 4, fig. 8 (Taiheizan, Hassenzan)

Materials examined: Types (♂&♀) of *C. sangunea* Kano (Nat. Sci. Mus. Tokyo); 1 ♂, 1 ♀, High altitudes of Taiwan, in Coll. Prof. Su-chen Chang (Hayashi Coll.); 1 ♂, Mt. Nan-hu-pei Shan,alt. 3,400m., Taiwan, June 17, 1961, S. Ueno leg.; 1 ♀, Mt.Shin Shan, West of Mt. Yu Shan, alt. 2300 m., Julu 3, 1961, S. Ueno leg. (Hayashi Coll.)

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Distribution: Montane Taiwan.

Corennys notatipes (Pic)
(Pl. I, figs. 3)

Pyrocalymma notatipes (Pic), 1927, Mel. Exot. Ent., 49: 26 (Chapa, Tonkin); Pic, 1947, Misc. Ent., 43: 17; Hayashi, 1960, Niponius, I (6): 24

Corennys notatipes: Hayashi, 1963, Ins. Matsum., 25(2): 131 (n. comb.)

Material examined: Type (♂) of *C. notatipes* Pic (Paris Museum). The type has the following labels:- ♂/ Tonkin Chapa/ 12 V, 1918/ Jeanvoine/Type/*notatipes* n. sp./LECTOTYPE, det. A.Villiers,1974.

Distribution: Tonkin, N. Vietnam.

Corennys taiwana Hayashi
(Pl. II, figs. 7 & 8)

Hayashi, 1963, Ins. Matsum., 25(2): 130, fig. B (Nat. Sci. Mus. Tokyo) (Puli, Taiwan)

Material examined: Types(♂ , ♀) of *C. taiwana* Hayashi (Nat. Sci. Mus., Tokyo; Hayashi Coll.); Nanshanchi, Nantou, 3-9 IV, 1971, 30 VI, 1971; 25 IV, 1989; Siling, Taoyuan, 3 V, 1989; Jihyuetan, Nantou, 19 IV, 1995; Kuantao Shan, Nantou, 28-29, IV, 1995; all in the mediate altitudes of Taiwan,

Distribution: Taiwan.

Corennys circellaris Holzschuh
(Pl. II, figs. 9)

Holzschuh, 1992, FBVA Berichte, 69:12, fig. 9 (Emei Shan, 2000－2500 m, Sichuan, China)♂

Distribution: Sichuan, China.

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Genus *Formosopyrrhona* Hayashi

Hayashi, 1957, Akitu, Kyoto, VI(2): 37 (Type species: *Corennys cinnabarina* Gressitt, 1951－Taiwan); Hayashi, 1960, Niponius, I(6): 22(Additonal description); Hayashi, 1974, Bull, Osaka Jonan Women's Jr. Coll., IX: 15 (Type species: *Pyrocalymma hozanensis* Matsushita, 1933－Taiwan); N. Ohbayashi, 1992, Acta Col. Japan, 2 : 5 (This genus has close relation to *Pyrrhona*)

The male slender and the female rather broad. Head abruptly constricted behind very dully angulate tempora; neck distinctly constricted; frons vertical, with a distinct median longitudinal furrow, prolonged posteriorly through vertex to occiput; short and semicircularly (♂) or broad and cressently (♀) impressed at the apex of frons, which is transversely impressed and separated from clypeus; occiput plane; mentigerous process of gula distinct, transverse; eyes finely faceted, emarginate. Antennae inserted just before eyes; nearly as long as body (♂) or reach the middle of elytra (♀), 3rd to 5th cylindrical, slightly thickened apically and gradually dilated to their apices, furnished with black tufts, 6th to 10th distinctly dilated to their apices and angulate ectoapically, and also weakly flattened; 11th cylindrical, annulately constricted preapically and pointed at apex; scape stout, curved and dilated posteriorly; 3rd and 4th distinctly short, each shorter than scape, and 5th subequal to 3rd and 4th united together. Prothorax about two-thirds as broad as its base at apex, expanded laterally at a little before middle; base weakly bisinuate, hind angles dull; disc convex, along median line, especially on the anterior half, with a smooth median black line. Scutellum triangular. Elytra elongate, slender, about three times (♂) or rather robust, more than 2.5 times (♀) as long as the basal width, and less than one half again as broad as pronotal base (♂) or a little broader (♀) than in male at humeri; weakly constricted before middle, then broadened apically and separately rounded at apex; sides subvertically reflexed; epipleures very narrow posteriorly behind middle (♂), or almost indistinct (♀); disc with very indistinct longitudinal costae. Legs slender, femora weakly clavate at the posterior halves; first hind tarsal joint longer than (♂) or as long as (♀) the all remaining joints united together.

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Prosternal process narrowed between the coxae, dilated at the apex; procoxae prominent, contiguous; acetabula angulate externally, closed behind; stridulatory plate with a broad and shining portion at middle, lacking a median line; mesosternal process open externally to epimera. Body furnished with recumbent sericeous carmin red hairs.

This genus contains the following 5 species at present.

Pyrocalymma hozanensis Matsushita, 1933	Taiwan
= *Corennys cinnabarina* Gressitt, 1951 **Syn. Nov.**	Taiwan
Pyrocalymma satoi Hayashi, 1957	Amami-Oshim, Japan
Formosopyrrhona semilaeticolor Hayashi, 1974	Taiwan
Pyrocalymma latipennis Pic, 1927	Yunnan, China
Formosopyrrhona taiwanensis Hayashi, 1969	Taiwan

1. Body length: 10.5−18 mm. Body in ♂ slender, in ♀ somewhat rubust 2
− Body length: 19−23 mm. Body robust and broad 4
2. 3rd antennal joint longer than 4th, both strongly abbreviated, antennae in ♂ longer than body, slender and dilated elongate triangularly from 5th to 10th, and in ♀ surpass the middle of elytra, dilated triangularly from 5th to 7th, and both tufted with black hairs on 3rd to 5th; elytra more than 3 times as long as the basal width, straightly widened posteriorly at margins; body above covered with beautiful silky red pubescence. 10.6−18 mm. Montane Taiwan··· *semilaeticolor* Hayashi
− 3rd antennal joint as long as 4th, both moderately abbreviated, antennae in ♂ longer than or as long as body, and in ♀ surpass or reach the middle of elytra; elytra constricted near middle. 3
3. 3rd antennal joint ½ as long as 5th, antennae in ♂ dilated elongate-triangularly at apex from 3rd to 10th and in ♀ from 5th to 8th triangularly dilated; prothorax moderately expanded medialy at sides, disc with a fine median longitudinal furrow, impressed oblongly at apical half; body above covered with beautiful silky red pubescence. 12.5−15.5 mm. Taiwan ..... *hozanensis* (Matsushita)
− 3rd antennal joint less than ½ as long as 5th, antennae in ♂ dilated triangularly apically from 5 th to 9 th; prothorax distinctly expanded medially at sides, disc with a distinct median longitudinal furrow,

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impressed rather narrowly impressed at apical half; body above covered with beautiful silky carmin red pubescens. 10.5－17 mm. Amami-Oshima, Japan ····· *satoi* (Hayashi)

4. Head, prothorax, scutellum, elytra, underside of front femora light red, the rests black, apices of abdominal segments narrowly red; body covered with cinnabar pubescence, 6th－11th antennal joints somewhat reddish; head narrow, angulate at temples; antennae rather robust, surpass the middle of elytra; prothorax strongly constricted behind apex and before bisinuate base, rather strongly inflated at sides of middle; disc convex, uneven, with the two pairs of elongate-oblong elevations on both sides of median line; elytra 2.5 times (♂) or 2.3 times (♀) as long as the basal width, fairly broader than prosternal base, gradually broadened apically; disc with 4 pairs of longitudinal costae. 22.5－23 mm. Yunnan, China ····· *latipennis* Pic

－ Body black, prothorax and elytra reddish cinnabar (♂) and hea scutellum also reddish cinnabar (♀), antennae and legs dark brown to black; covered with yellowish cinnabar pubescence; Head rather small with temples arcuate, wider than rectangle; antennae slender and long, slightly longer than (♂) and arrive at the base of apical quarter of elytra (♀); prothorax constricted behind narrower apex and before bisinuate base, disc convex, with a median impression and a pair of oblique impressions on latero-posterior portions; elytra (♂) 3 times or (♀) 2.6 times as long as the basal width, almost parallel-sided, conjointly rounded at apex; disc with 4 pairs of weak longitudinal costae. 19－23 mm. Taiwan ····· *taiwanensis* Hayashi

Formosopyrrhona hozanensis (Matsushita)
(Pl. III, figs. 12, 13)

Pyrocalymma hozanensis Matsushita, 1933, Jl. Fac. Agr. Hokkaido Imp. Univ., 34(2): 231 (Hozan, Taiwan) ♀ (Zool. Mus. Berlin); Gressitt, 1951, Longic., 2: 121

Formosopyrrhona hozanensis: Hayashi, 1960, Niponius, I(6): 23 (n. comb.)

Corennys cinnabarina Gressitt, 1951, Longic., 2: 122,pl.4, fig. 4 (Mt. Rara, N. Taiwan) ♂ (The author designated ♀, but it was mistake) Syn. nov.

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Formosopyrrhona cinnabarina: Hayashi, 1957, Akitu, Kyoto, VI(2): 38 ♂ ; Hayashi, 1960, Niponius, I(6): fig. 24 (male-genitalia)

As a result of the detailed examination of the structures of antennae of the species of this genus, the latter species is a synonym of *F. hozanensis* (Matsushita), because of the 3rd antennal joint as long as 4th and 1st, respectively and ½ of 5th, as the original description of Dr. Matsushita for *hozanensis* and Dr. Gressitt for *cinnabarina*, shown, and elytra constricted, etc. Additionally, Dr. Delkeskampf so kindly examined and reported to Hayashi the condition of the unique ♀ holotype of *hozanensis*, deposited Zool.Mus., Berlin.

Materials examined: 1 ♀ , Urai, Wulai, Taipei Hsien, 25 V, 1925, T. Kano leg. (Nat. Sci.Mus., Tokyo); 1 ♂ , Mt. Rara, Lalashan, Taipei Hsien, 2000 m., 30 V, 1934, S. Ariga leg.(Hayashi); 1 ♂ , Mt. Rara, Lalashan, 21-24 V, 1980, H. Makihara leg.; 1 ♀ , Lalashan, 4 V, 1982, A. Yamashita leg.; 1 ♂ , Lalashan, 8 V, 1990, H. Nara leg. (Nara), all in Taiwan

Distribution: Montane Taiwan.

Formosopyrrhona satoi (Hayashi)
(Pl. III, figs. 10−11)

Pyrocalymma satoi Hayashi, 1957, Ent. Rev. Japan, VIII(2): 45, fig. 1 (Amami-Oshima, Japan) ♀

Formosopyrrhona satoi: Hayashi, 1960, Niponius, I(6): 23 (n. comb.); Hayashi, 1961, Ent. Rev. Japan,XIII(2): 41; Ohbayashi, 1963, Icon. Ins. Japan Col. Nat. Ed.2: 284, pl. 142, fig. 10; Samuelson et Gressitt, 1965, Pacific. Ins., 7(1): 57; Hayashi, in Kojima et Hayashi, 1969, Ins. Life in Japan, I Longic. Beetles :1; 38, pl. 13, fig. 2, 2a

Materils examined: Type specimen ♀ , Amami-Oshima, northern end of Ryukyu Islands, Japan, 2 Apr., 1957, ♂. Sato leg.; 3 ♂♂, 1 ♀, Hatsuno, Amami-Oshima, 6 IV, 1963, H. Maruoka leg. (Hayashi).

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Distribution: Amami-Oshima, Okinawa, N. Ryukyu, Japan.

Formosopyrrhona semilaeticolor Hayashi
(Pl. III, figs. 14 & 15)

Hayashi, 1974, Bull. Osaka Jonan Women's Jr. Coll., IX: 13 (Taiwan, Sungkang, Nantou, Taiwan)

Materials examined: Holotype ♂, (Hayashi)／ & Paratype, ♀ (Matsuda), 1 ♂, Meifeng, Nantou, Taiwan, 1 VI, 1980, H. Makihara leg.; 1 ♀, Shihtyutou, Nantou, Taiwan 17 V. 1992, C. W. Lo leg. (Hayashi).

Distribution: Taiwan.

Formosopyrrhona latipennis (Pic)
(Pl. I, figs. 4)

Pyrocalymma latipennis Pic, 1927, Mel. Exot. Ent., 49: 26 (Tali, Haute Yunnan, China); Plavilstshikov, 1932, Best.-Tab.eur. Col., 102: 117 (foot note)
Pyrocalymma brevipennis (error for *latipennis*) + var. *prescutellaris* Pic, 1947, Misc. Ent., 43: 17 (China, Tonkin)
Corennys latipennis + v. *prescutellaris*: Pic. 1951-'52, Misc. Ent.,47: 41
Corennys brevipennis : Hayashi, 1963, Ins. Matsum., 25(2): 131

Materials examined: Type of *P. latipennis*, having the following 5 labels, Tali Haut Yunnan／ in Coll. Boppe／ Type ／ *Pyr. pyrochroides* v. *latipennis* mihi／ HOLOTYPE in red paper／. Type of *brevipennis*, having the following 4 labels, Tali, H. v. Yunnan／ Type ／ *brevipennis* Pic／ HOLOTYPE in red paper／.

Distribution: Yunnan, China.

Formosopyrrhona taiwanensis Hayashi
(Pl. IV, figs. 16 & 17)

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Hayashi, 1969, Ent. Rev. Japan, XXI (2): 61 (Taiwan)

Materials examined: Holotype ♂ (Kojima Coll., now in Osaka Natur. Sci. Mus); Allotype ♀ (Nat, Sci, Mus, Tokyo); Paratype. 1 ♀ (Shibata Coll.); 1 ♂ , Taiwan, no further data, 1969 - 1971; 1 ♂ , Guan Dao Xi, Taiwan, 14 IV, 1972, K. Yamano leg.; 1 ♂ , Nanshanchi, Nantou, Taiwan, 9 V, 1991, M. Hayashi leg.;1 ♂ , Kuantaoshan, Nantou, Taiwan, 14 - 15, V, 1993. Da Fu Cheng leg. (All in Hayashi Coll.).

Distribution: Montane Taiwan.

Genus *Pachypidonia* Gressitt

Pachypidonia Gressitt, 1935, Kontyu, Tokyo, IX: 166 (Type species: *P. crassicornis* Gressitt—Kamikochi, Honshu,Japan, in Lepturini) ; Nakane et Ohbayashi, 1957, Sci. Rep. Saikyo Univ. (Nat. Sci. & Liv. Sci.), 2 (4) A: 245; N. Ohbayashi, in Ohbayashi, Sato et Kojima,1992, Ill. Guide Ident. Longic. Beetles Japan, 92, 214 (fig. 5), 449

Leptura (*Vadonia*), Tamanuki, 1942, Fauna Nipponica, X. VIII, XV: Ceramb. 2 Lep.: 82

Broad, parallel-sided, slightly broader than depth; legs and antennae thick. Head practically as broad as long, very broad and tranverse basally, the posterior angles prominent; occiput exceedingly broad; eyes small, subtriangular, slightly constricted behind middle; swollen at each side and somewhat narrowly concave in middle; frons broader than long, wider at apex than base, a transverse groove apically; labrum narrower, less than twice as broad as long; last segment of maxillary palpi three times as long as broad, truncate apically;genae shorter than broad. Antennae two-thirds as long as the body, the basal segments strongly thickened apically, the fifth thickest next to scape, sixth and following subcylindrical, the apical ones less strongly thickened; scape large, slightly arched; second segment slightly longer than broad; third segment hardly twice as long as second, two-thirds as long as scape; fourth equal to third; fifth shorter

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than scape, subequal to the following five; last subequal to scape. Prothorax broader than long; middle portion swollen, broader than base; apex slightly narrower than base, slightly constricted as is base; sides somewhat prominent but not tuberculate. Scutellum triangular, longer than broad. Elytra nearly twice as long as head and prothorax united; nearly one-half again as broad prothorax at base, parallel-sided, subrectangular; suture and margin slightly raised; apices broadly rounded internally; dehiscent and slightly rounded internally; surface fairly heavily punctured. Fore coxae nearly as broad as long, squarish; mesosternal intercoxal process about three times as broad as prosternal process; metepisternum fairly straight sided and strongly narrowed posteriorly; abdomen broad middle three segments equal in length. Legs moderately short,femora rather broad and flattened; tibiae flattened and broadened apically; hind tarsi subequal to tibiae, the first segment slightly shorter than following united, second segment one-third as long as first, one-half as long as last and less than twice as long as third; claws long and fine. (Original description)

Remarks: When he established the present genus, Dr. J. L. Gressitt stated that, "this genus is a rather divergent one among the Lepturids, being distinguished from all others by the very thick antennae with the third and fourth segments hardly twice as long as thick, both considerably shorter than scape or fifth segment and no more than twice as long as second. It apparently has affinities with *Rhamnusium* and with *Pidonia*, which, however, belong to diffreent divisions of the Lepturini. It has more the appearance of the latter type, but the antennae are very different." Dr. M. Matsushita (1935) described the same species under the name of *Leptura* (*Vadonia*) *kochiana*. And Mr. K. Tamanuki also treated this according to Dr.M.Matsushita's idea, the prothorax strongly constricted but weakly so before base, on disc furnished with a shining median impression, and he stated these structures of prothorax is close to that of *Vadonia*. Recently Dr. N. Ohbayashi (1992) introduced the phylogenetical relation of *Pachypidonia*, citing Dr. A. Saito's (1989) female genitalias'study and a private communication relating larval structures of Dr. P. Svacha (1988). He did not decided crucial stand point, but he put *Pachypidonia* between *Formosopyrrhona* and *Corennys*. We also consider that *Pachypidonia* must be put in this

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Pyrocalymma Generic Group, by the combination of characters of quadrate head, relatively small, broad prothorax, but not broadened posteriorly to base, parallel-sided elytra and relatively short, but robust antennae, having third and fourth joints are abbreviated and more or less apically dilated, etc.

The present genus contains the following 2 species at present.

Leptura bodemeyeri Pic, 1934	Honshu, Japan
=*Leptura*(*Vadonia*) *kochiana* Matsushita, 1935	Shikoku, Japan
=*Pachypidonia crassicornis* Gressitt, 1935	N.Honshu, Japan
Pachypidonia rubrida Hayashi, 1971	Taiwan

1. Head nearly as broad as long, the width between median inflated sides of prothorax broader than basal width, elytra more than twice as long as the basal width; body bicolor, red and black, variable in sex and individual; head, prothorax red, fore legs partly red, and the rests becoming black. 14−17 mm. Japan ····· *bodemeyeri* (Pic)
− Head broader than long, the width between median inflated sides of prothorax as broad as basal width; elytra more than twice as long as the basal width; body pitchy reddish brown, covered with light red pubescence, eyes, third and the following antennal joints black; tibiae and tarsi dark reddish brown. 15−17 mm. Taiwan ···*rubrida* Hayashi

Pachypidonia bodemeyeri (Pic)
(Pl. IV, figs. 18 & 19)

Leptura bodemeyeri Pic, 1934, Echange, 50 (455): 17 (Kobe ?, Japan)
=*Leptura* (*Vadonia*) *kochiana* Matsushita, Sep., 1935, Trans. Nat. Hist. Soc. Formosa, 25(144): 308 (Nishitoyonaga Mura, Nagaoka Gori, Kochi, Shikoku, Japan) syn. ; Tamanuki,1942, Fauna Nipponica, X, VIII, XV: Ceramb. 2 Lep.: 82, fig. 112
=*Pachypidonia crassicornis* Gressitt, Oct., 1935, Kontyu, Tokyo, IX (4): 168 (Kamikochi,Honshu, Japan)

Materials examined: 1 ♂ , Sakanotani, Hyogo, Honshu, Japan, 31

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VII, 1991, A. Sohma leg, (Hayashi); 1 ♂, 1 ♀, Chitose City, Hokkaido, Japan, 1 VI, 1984; 1 ♂, Fukusada, Mt. Hyonosen, Hyogo, Honshu, Japan, 28 VII, 1989 (Nara).

Distribution: Japan (Hokkaido, Honshu, Shikoku, Kyushu).

Pachypidonia rubrida Hayashi
(Pl. IV, figs. 20 & 21)

Hayashi, 1971, Ent. Rev. Japan, XXIII(1): 4 (Sungkang, Nantou, Taiwan); Shimomura, 1983, Gekkan Mushi, 147: 31 (Sungkang, 1900 m, 4 VII, 1982, 1 ♂)

Materials examined: Holotype, ♀, Sungkang, Nantou, Taiwan, 24 VII, 1968, K. Yamamoto leg. (Yamamoto); paratype, 1 ex., Taiwan, no further data (Nat. Chung Hsing Univ., Taichung, Taiwan); 1 ♂, Wufeng, Hsinchu, Taiwan, 27 VI, 1989 (Nara).

Distribution: Montane Taiwan.

Correction

On the Genus *Ocalemia* Pascoe, appeared in 1989, Bull. Osaka Jonan Women's Jr. Coll., XXIV: 5 - 8, the mistake was found and it must be corrected as follows:-

The genus *Ocalemia* Pascoe is monotypic genus, only contains *O. vigilans* Pascoe. *Leptura clytina* Gahan, 1906 (p. 6 and p. 7 to 8) is canceled here. Text figure (p. 6, fig. 1 , 2) is also canceled.

Leptura clytina Gahan belongs to the Genus *Nanostrangalia* Nakane et Ohbayashi(1959).

Explanation of Plate I

1. Type of *Pyrocalymma conspicua* Gahan(1906) ♀ British Mus.

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2. Type of *Pyrocalymma diversicornis* Pic(1947)＝*Corennys conspicua* Gahan ♂ Paris Mus.
3. Type of *Pyrocalymma notatipes* Pic ♂ (1927) Paris Mus.
4. Type of *Pyrocalymma latipennis* Pic ♂ (1927) Paris Mus.
5. Type of *Pyrocalymma brevipennis* Pic ♀ (1947) Paris Mus.

Explanation of Plate II

1. *Pyrocalymma thailandensis* Hayashi et Villiers ♂ (1994)
2. 〃 ♀
3. *Corennys sericata* Bates ♂ (1884)
4. 〃 ♀
5. *Corennys sanguinea* Kano ♂ (1933)
6. 〃 ♀
7. *Corennys taiwana* Hayashi ♂ (1962)
8. 〃 ♀
9. *Corennys circellaris* Holzschuh ♂ (1992)

Explanation of Plate III

10. *Formosopyrrhona satoi* (Hayashi) ♂ (1957)
11. 〃 ♀
12. *Formosopyrrhona hozanensis* (Matsushita) ♂ (1933)
13. 〃 ♀
14. *Formosopyrrhona semilaeticolor* Hayashi ♂ (1974)
15. 〃 ♀

Exlpanation of Plate IV

16. *Formosopyrrhona taiwanensis* Hayashi ♂ (1969)
17. 〃 ♀
18. *Pachypidonia bodemeyeri* (Pic) ♂ (1934)
19. 〃 ♀
20. *Pachypidonia rubrida* Hayashi ♂ (1971)
21. Type of *Pachypidonia rubrida* Hayashi ♀ (1971) Yamamoto Coll.

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