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On the systematics and distribution of *Porocallus* SHARP, 1888

(Coleoptera: Staphylinidae, Aleocharinae, Oxypodini)

With 12 figures and 1 map

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Summary

The holotype and additional material of *Porocallus insignis* SHARP, 1888 are revised. Both the genus and the species are redescribed and illustrated. The previously assumed position of *Porocallus* SHARP in the Oxypodini is confirmed. It is regarded as a distinct genus and separated from the externally similar Western Palaearctic genus *Ilyobates* KRAATZ, 1856. *Porocallus* currently includes only a single species, the type species *P. insignis*, which is apparently widespread in the Eastern Palaearctic region and which is for the first time recorded from various regions outside Japan: China (Sichuan, Shaanxi), North Korea, and the Russian Far East. The distribution of the species is mapped.

Keywords

Coleoptera - Staphylinidae - Aleocharinae - Oxypodini - *Porocallus* - *Ilyobates* - Eastern Palaearctic region - taxonomy - redescription - distribution

Zusammenfassung

Der Holotypus und weiteres Material von *Porocallus insignis* SHARP, 1888 werden revidiert. Sowohl die Gattung als auch die Art werden redeskribiert; die Mundteile und die primären und sekundären Sexualmerkmale werden abgebildet. Eine Untersuchung wesentlicher morphologischer Merkmale ergab, dass die Gattung zu Recht der Tribus Oxypodini zugeordnet wurde. *Porocallus* wird als distinkte Gattung bestätigt und von der äußerlich ähnlichen westpaläarktischen Gattung *Ilyobates* KRAATZ, 1856 unterschieden. Die einzige bisher bekannte Art, die Typusart *P. insignis*, ist in der Ostpaläarktis offenbar weit verbreitet und wird erstmals von verschiedenen Regionen außerhalb Japans nachgewiesen: aus China (Sichuan, Shaanxi), Nordkorea sowie dem Russischen Fernen Osten. Die bisher bekannten Funde werden anhand einer Verbreitungskarte illustriert.

1. Introduction and taxonomic history

*Porocallus* was described by SHARP (1888) to include a new species from Japan, the type species *P. insignis*. Due to the conspicuously dilated maxillary palpi, he placed the genus near *Callicerus* GRAVENHORST, though noting that the „anterior tarsi ... appear to me to be five-jointed“ (SHARP, 1888). Its doubtful systematic position may be one explanation why *Porocallus* was not considered by BERNHAUER (1902). Apparently based on the original description and (with doubt) assuming the protarsi to be five-jointed, FENYES

(1920) attributed the genus to the Oxypodini, a view also adopted by BERNHAUER & SCHEERPELTZ (1926). Since then, the systematic position of *Porocallus* has not been reconsidered or confirmed, nor has the holotype been examined, nor have any new species been described.

It was only after the recent publication of a revision of the oxypodine genus *Ityobates* KRAATZ (ASSING, 1999) that M. Maruyama, Sapporo, initiated the present study by informing me that he had examined material of *Porocalles* from Japan and that he suspected the genus to be congeneric with *Ityobates*.

## 2. Material

The holotype and additional material from the following institutions and private collections were examined:

BMNH	The Natural History Museum, London (M. BRENDILL)
DEI	Deutsches Entomologisches Institut, Eberswalde (L. ZERCHE)
MNHUB	Museum für Naturkunde der Humboldt-Universität, Berlin (M. UHLIG)
ISEA	Institute of Systematics and Evolution of Animals, PAS, Krakow (G. PA NIK)
cAss	author's private collection
cMar	private collection M. MARUYAMA, Sapporo
cNao	private collection S.-I. Naomi, Chiba (via M. MARUYAMA)
cSch	private collection M. SCHÜLKE, Berlin

## 3. The genus *Porocallus* SHARP

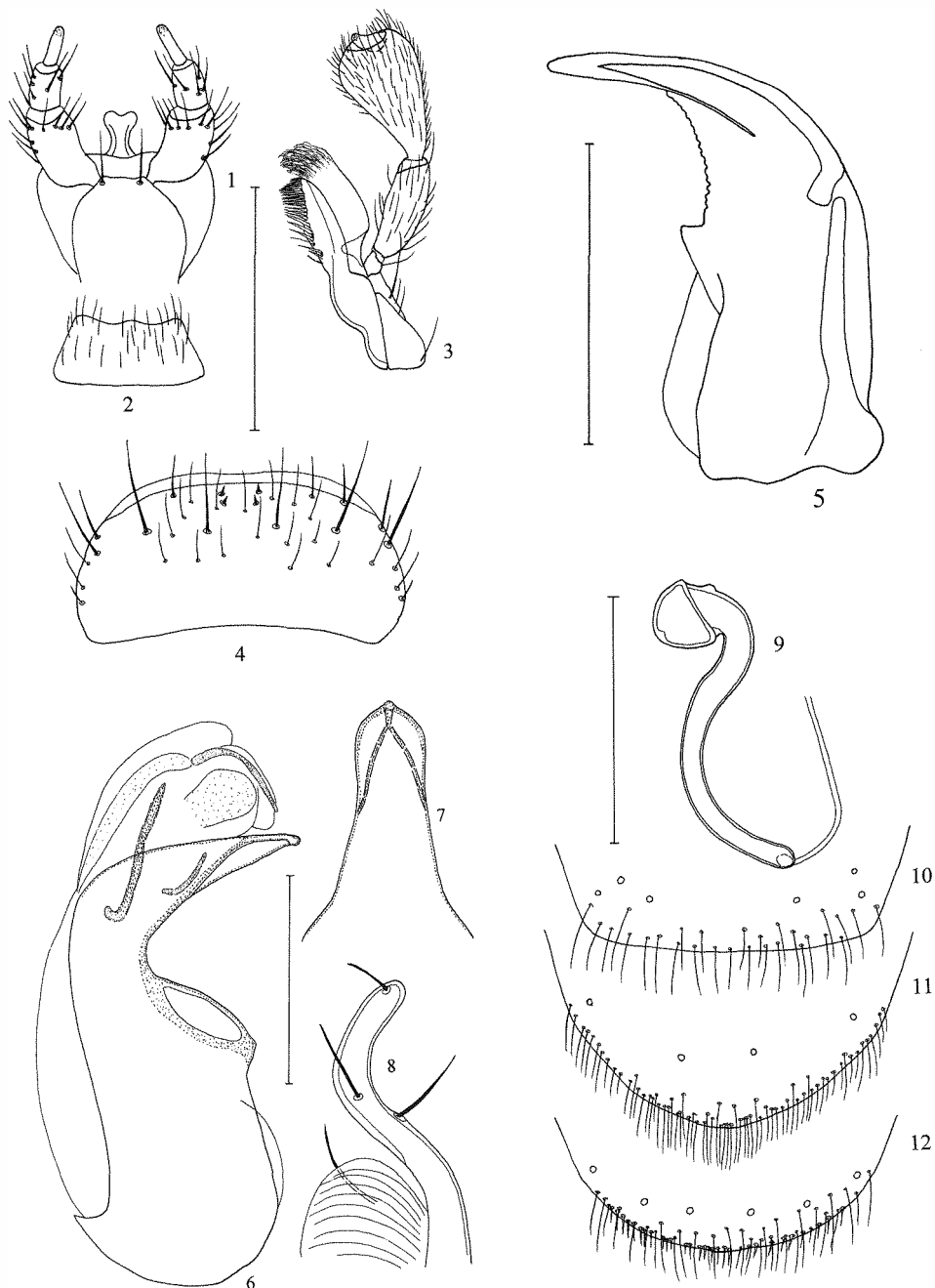
### 3.1. Redescription

Species of moderately large size. Forebody with conspicuously dense, coarse, and predominantly areolate puncturation.

Head transverse, slightly narrower than pronotum; postgenae behind the rather large eyes smoothly convex in dorsal view; posteriorly margined, but not constricted; genae distinctly carinate; pubescence directed anterad along median line and on genae, and diagonally antero-mediad in lateral dorsal area.

Antennae relatively massive and long (indeed somewhat resembling those in *Callicerus* GRAVENHORST and *Ityobates* KRAATZ), antennomere I conspicuously large, distinctly broader than the following antennomeres, dorso-apically excavate and emarginate (similar to *Amarochara* THOMSON); antennomere III approximately as wide as and longer than II; antennomere IV - X at least weakly oblong, coniform, gradually increasing in width apically; antennomere XI without sexual dimorphism and without apical constriction, approximately as long as the combined length of the two preceding joints; whole antenna with dense, fine and short pubescence.

Maxillary palpi four-jointed; third joint highly distinctive, strongly dilated apically and flattened laterally; terminal joint short and stout, partly concealed in the terminal excavation of third joint (Fig. 3). Labial palpi three-jointed, relatively short; ligula apically dilated, only weakly concave in the middle, not distinctly bifid (Fig. 1); mentum with sinuate anterior margin and numerous setae of approximately equal length (Fig. 2). Mandibles apically long and acute, right mandible with distinct tooth and finely serrate in dorsal molar region (Fig. 5); shape and chaetotaxy of labrum as in Fig. 4, its anterior margin narrowly membranous.



**Figs 1-12:** *Porocallus insignis* SHARP: labium (1); mentum (2); maxilla (3); labrum (4); right mandible (5); median lobe of aedeagus in lateral view (6); ventral process of median lobe in antero-ventral view (7); apical lobe of paramere (8); spermatheca (9); posterior margin G tergum VIII (10); posterior margin of G sternum VIII (11); posterior margin of E sternum VIII (12); long setae omitted in 10-12. Scales: 1, 4, 5, 8: 0.2 mm; 2, 3, 6, 7, 9-12: 0.4 mm.

Pronotum moderately transverse, maximal width a short distance anterior to middle; lateral margin weakly concave near posterior angles, the latter obtuse, but well-defined. Pubescence short,  $\pm$  decumbent to weakly erect, directed cephalad in anterior 1/4 to 1/3 and caudad in posterior 2/3 to 3/4 of midline, and predominantly transverse in lateral parts. Hypomera in lateral view distinctly visible; prosternum strongly projecting ventrad and with pronounced median carina.

Elytra well-developed, wider than pronotum, posterior margin near posterior angles strongly sinuate; pubescence distinctly longer than that of pronotum, directed  $\pm$  caudad; scutellum visible, coarsely punctate and sculptured,  $\pm$  mat; hind wings fully developed. Mesosternum without median carina, mesosternal process long and acute, reaching about halfway between mesocoxae; mesocoxal cavities posteriorly and laterally delimited from metasternum by distinct carina; metasternum without median carina; metepisterna visible in lateral view.

Legs long and slender, tibiae without spines on external faces; first metatarsomere very long, approximately as long as the combined length of the three following metatarsomeres or even longer. Tarsal formula: 5, 5, 5.

Abdomen subparallel; terga III - V with pronounced, tergum VI at most with very shallow transverse impression anteriorly, these impressions punctate, but without median carina; tergal surfaces with relatively sparse puncturation, shining and without appreciable microsculpture. Tergum VIII posteriorly  $\pm$  truncate, at hind margin with long thin setae (Fig. 10); tergum X without distinct sexual dimorphism, densely pubescent also in central posterior area, anteriorly with dense and short stout setae, in central posterior area with longer, sparser and more slender setae; sternum VIII with sexual dimorphism: in  $\sigma$   $\pm$  pointed or strongly convex posteriorly, hind margin with thin and long setae (Fig. 11); in  $\varphi$  posteriorly moderately convex, hind margin with row of short modified setae, without micropubescence (Fig. 12).

$\sigma$ : aedeagus with median lobe strongly arched in lateral view; ventral process apically of characteristic morphology, not incised; internal structures weakly sclerotized (Figs 6-7); apical lobe of paramere relatively long, contorted, and with 4 long setae (Fig. 8).

$\varphi$ : spermatheca with bulbous capsule and long, slender, uncoiled duct (somewhat resembling the condition in *Haploglossa* KRAATZ) (Fig. 9).

### 3.2. Systematics

As can be concluded from the description of the morphology in the previous section, *Porocallus* is correctly attributed to the Oxypodini. As a comprehensive phylogenetic study of the Palearctic genera of this tribe has never been attempted, the phylogenetic affiliations of *Porocallus* within the Oxypodini are doubtful, particularly since there is no obvious adelphotaxon. The Western Palearctic genus *Ilyobates*, with which it shares a certain external resemblance (similar size, dense puncturation, massive antennae), is a very unlikely candidate for many reasons. *Porocallus* is characterized by several presumed autapomorphies, especially the conspicuously dense and areolate puncturation of the forebody, the morphology of the antennae, particularly of antennomere I, the highly distinctive morphology of the maxillary palpi, the extremely long first metatarsomere, and the shape of the ventral process of the median lobe. In addition, it is separated from *Ilyobates* by numerous further characters: the pubescence pattern of the head and pronotum, the morphology of the mouthparts (i. e. the short and apically undivided

ligula, the different shape and chaetotaxy of the labrum, the presence of a distinct tooth and a distinctly serrate molar ridge of the right mandible), the different shape of the pronotum, the absence of a carina on the mesosternum, the absence of a distinct anterior impression on the abdominal tergum VI, the denser pubescence in the central area of tergum X, the completely different morphology of the median lobe of the aedeagus (especially of the ventral process and of the structures in the internal sac), the shape and chaetotaxy of the apical lobe of the paramere, and the different morphology of the spermatheca.

### 3.3. Distribution

*Porocallus* currently includes only a single species, which is apparently widespread in the Eastern Palaearctic region. For details see the section on distribution below *P. insignis*.

### 3.4. *Porocallus insignis* SHARP, 1888

*Porocallus insignis* SHARP, 1888: 287; type species by monotypy.

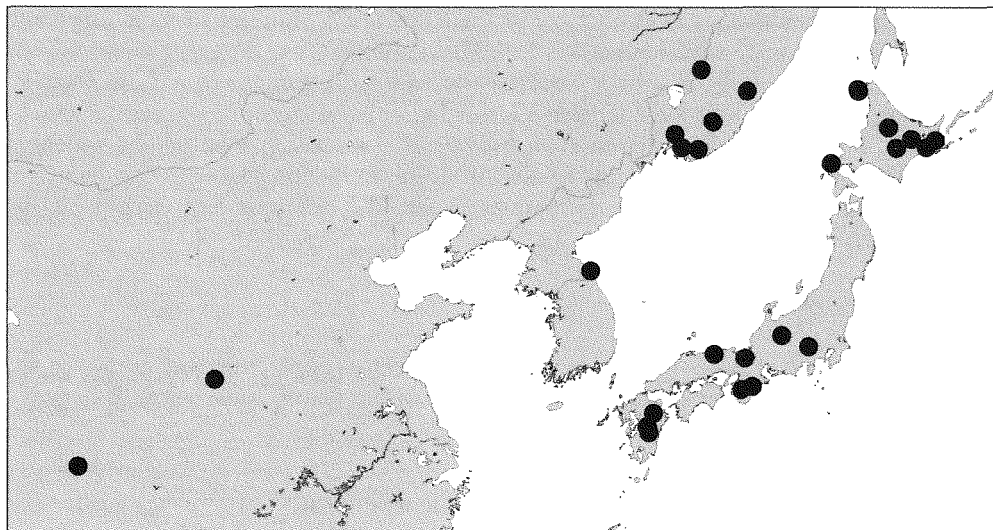
#### Type examined

Holotype ♀: *Porocallus insignis* Type D.S. Yuyama 11.5.81 [handwritten on mounting label] / Type / Yuyama. 10.V.-14.V.81 / Japan. G. Lewis 1910-320 (BMNH).

#### Additional material examined

**Japan: Hokkaido:** 1♂, 1♀, Kushiro, Tōhro lakeside, 27.&28.VII.1986, leg. Nomura (cNao, cAss); 1♀, Mt. Rishiridake, 25.VI.1986, leg. Nomura (cNao); 2♂♂, Saroma-cho, Kimuanepu, 10.VII.1985, leg. Nomura (cNao); 1♂, 1♀, Shiribeshi, Mt. Kariba, 14.VI.1986, leg. Nomura (cNao); 1♂, Rikumanbetsu, 21.VI.1997, leg. Yasuda (cMar); 1♀, Kamishunbetsu, 20.VII.1977, leg. Naomi (cAss); 1♂, Kamikawa-cho, Ishikari river, 20.VI.1995, leg. Yasuda (cMar); 1♂, Mts. Daisetsuzan, Lake Taisetsu, 21.VI.1991, leg. Yasuda (cMar); 1♀, Rishiri Is., Himenuma, 26.VI.1986, leg. Nomura (cNao). **Honshu:** 1♀, Kyotofu, Sasari Pass, 26.V.1985, leg. Nomura (cNao); 1♂, Yamanashi pref., Daibosatsu pass, 9.VI.1979, leg. Tao (cNao); 1♂, 1♀, Wakayama pref., Mt. Gomanodan, 22.-23.VI.1981, leg. Naomi (cNao); 1♀, Nara pref., Ohdaigahara, 30.V.1985, leg. Nomura (cNao); 2♀♀, Gifu pref., Hirayu, 7.-9.VI.1980, leg. Naomi (cNao); 1♂, Tottori, Koku-fucho, Sugano, 7.VI.1984, leg. Nomura (cNao). **Kyushu:** 1♂, Oita pref., Kuju, Mt. Kurodake, 3.IX.1982, leg. Nomura (cNao); 1♂, same locality, 15.IX.1985, leg. Nomura (cNao); 1♀, Kumamoto pref., Mt. Ichifusa, 1.-2.VIII.1988, leg. Naomi (cNao); 1♂, Kumamoto pref., Mt. Kunimi, 20.V.1973, leg. Naomi (cNao); 3♂♂, Kumamoto pref., Mt. Shiratori [„Mt. Hakuchō“], 14.V.1983, leg. Goto (cNao, cAss); 1♂, same locality, 25.V.1981, leg. Goto (cAss).

**Russian Federation: Primorskiy Kray:** 1G, Ussuri, Lazo env., Lazowka valley, 28.V.1993, leg. Sundukov (MNHUB); 1E, Rajon Partisansk, Poworotnaja valley, 14.VI.1993, leg. Sundukov (cAss); 1G, Ussurijsky Reserve, Komarovo-Zapovednoe, 43°38'48N, 132°20'40E, 21.-27.V.1999, leg. Sundukov (cSch); 1G, Sikhote-Alinsky Reserve, Kordon, Kabany, taiga, 45°08'16N, 135°52'40E, 650-900m, 30.VI.-4.VII.1999, leg. Sundukov (cAss); 1, Sikhote-Alin, Biological Station 35 km SE Chuguyevka, 44°05N, 134°12E, 650m, 31.V.1993, leg. Zerche et al. (DEI); 1 ex., same data, but 1.VI.1993, leg. Zerche, (DEI); 1, 1, ex., 70 km E Vladivostik, 43°11N, 132°41E, 250m, 5.VI.1993, leg. Zerche (DEI).



Map 1: Distribution of *Porocallus insignis* SHARP based on revised records.

**North Korea:** 1 ♀, Samil-pho, Kangwon prov. [„Sam-il-oho Lacus“], 19.VI.1974 (ISEA).

**China:** 1 ♂, Shaanxi, Qin Ling Shan, 34°27'N, 110°06'E, Hua Shan Mt. N Valley, 118 km E Xian, 1300-1400m, sifted, 18./20.VIII.1995, leg. Schülke (cSch); 1 ♂, Sichuan, Wenjiang distr., Dujiangyan Co., Qingcheng Shan, 56 km NW Chengdu, 30°54'N, 103°33'E, 975m, field margin, 18.VI.1999, leg. Wrase (cAss).

### Redescription (see also redescription of genus)

4.7 - 6.4 mm. Coloration slightly variable; head, pronotum and most of abdomen blackish, elytra usually  $\pm$  ferrugineous, with the anterior margin, the surroundings of the scutellum, and the anterior 3/4 of the lateral margins  $\pm$  extensively blackened; more rarely, the elytra are completely ferrugineous or completely blackish; antennae usually ferrugineous, occasionally antennomeres III - X  $\pm$  infusate; the narrow hind margins of the abdominal terga, abdominal apex, legs and mouthparts  $\pm$  yellowish brown to ferrugineous.

Head mat due to very dense areolate puncturation, with the interstices reduced to narrow ridges; eyes slightly longer than postgenae.

Pronotum ca. 1.2x as wide as head and 1.15 - 1.23x as wide as long; maximal width in (or a short distance anterior to) the middle; with similar puncturation as head, punctures in posterior median area usually  $\pm$  rugosely confluent.

Elytra distinctly wider than and at suture approximately as long as pronotum; somewhat more shining than head and pronotum, especially in posterior area, due to less dense puncturation. Hind wings fully developed. Legs long and slender, metatarsi ca. 0.7x the length of metatibiae.

Abdomen shining, without appreciable microsculpture; puncturation much finer and sparser than on forebody, not areolate; punctures coarser and denser in anterior transverse impressions (terga III - V) and anterior areas (terga VI - VII) than in posterior areas of terga.

♂: posterior margin of sternum VIII strongly convex to obtusely pointed (Fig. 11); median lobe of aedeagus and apical lobe of paramere as in Figs 6-8.

♀: posterior margin of sternum VIII moderately convex, occasionally with weak obtuse angle in the middle (Fig. 12); spermatheca as in Fig. 9.

### Intraspecific variation

Apart from the coloration especially of the elytra (see the preceding section), and the relative length of the metatarsi and the first metatarsomere, intraspecific variation is not pronounced and within the usual range in Aleocharinae.

### Distribution and bionomics

*P. insignis*, which was previously known only from several Japanese localities (Nakane et al., 1963; Naomi, 1989, Sharp, 1888), is apparently widespread in the Eastern Palaearctic region. It is here for the first time recorded from various regions outside Japan: China (Shaanxi, Sichuan), North Korea, and the Russian Far East (Map 1). Little is known about the ecology of the species. Apparently, many records are from mountainous regions, but not from particularly high altitudes. According to MARUYAMA (pers. comm.) and the few data available from the labels attached to the examined specimens, most specimens were sifted or caught with pitfall traps. The revised specimens were collected during the period from May through September.

### Acknowledgements

I am much indebted to all the colleagues indicated section 2, who contributed to the present study by arranging loans of the holotype and additional material, respectively. Special thanks are due to Munetoshi Maruyama, who assisted in identifying several Japanese localities and who, through the material he made available to me and through his valuable comments, contributed considerably to the present paper.

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