NOTES ON DISTRIBUTION AND TAXONOMY OF SOME FAR EASTERN STAPHYLINIDAE (COLEOPTERA)

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The structure of the male genitalia of *Syntomium japonicum* Watanabe et Shibata, 1960 and *S. marusiki* Ryabukhin, 1992 is discussed and illustrated; a key for identification of both species is given; new data on distribution of *S. marusiki* in the Russian Far East are provided. The presence of *Lathrobium ishiharai* Hayashi, 1994 in continental China is confirmed; *L. ursinum* Ryvkin, 2011 stat. nov. is a species propria, not a subspecies of the former; both species form a particular species group diagnosed for the first time. *Lathrobium oharai* Watanabe, 2004 is first recorded for Asiatic mainland, Sakhalin, Kunashir, and Iturup. The aedeagi of all the named *Lathrobium* species are illustrated anew.

Key words: Syntomium, Lathrobium, Russia, China, Japan, fauna.

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INTRODUCTION

The present article contains some results of my studies of the Far Eastern Staphylinidae. Certain new data obtained from both collection materials and my own field trips, as well as two papers published recently by my colleagues, forced me to prepare this work. Firstly, the redescription of *Syntomium japonicum* Watanabe et Shibata, 1960 (Watanabe & Shibata 2013) raised the question of identity of the *Syntomium* specimens from East Asiatic mainland. Secondly, after Assing (2013) has doubted the subspecific status of *Lathrobium ishiharai ursinum* Ryvkin, 2011, this problem should be resolved. And thirdly, the new data on the distribution of *L. oharai*

Watanabe, 2004, which has been originally described only from the Urup Island, make it possible to outline its range. Since some more *Lathrobium* (s.str.) species with dark-colored elytra have been found recently in the Russian Far East, including *L. oharai* Watanabe, 2004, the aedeagi of the aforenamed *Lathrobium* species are illustrated anew.

ABBREVIATIONS

HT: holotype.

PT, PTT: paratype, paratypes.

AR: Collection of A.B.Ryvkin, Moscow, Russia

AVSh: Collection of A.V.Shavrin, Daugavpils, Latvia

VA: Collection of V.Assing, Hannover, Germany ZMMU: Zoological Museum of Moscow University, Russia (A.A.Gusakov).

SYSTEMATIC RESULTS

Genus Syntomium Curtis, 1828

Syntomium japonicum Watanabe et Shibata, 1960

(Figs. 4–5)

japonicum Watanabe & Shibata, 1960: 103 *japonicum*; Watanabe & Shibata, 2013: 221

(For other important references on *S. japonicum* see Watanabe & Shibata, 2013: 221)

Material. JAPAN: 1 female (AR): Mt. Hinodeyama, Hinode-machi, Nishitama, Tokyo. 18.09.2011. Y.Shibata leg.—1 male (AR): same locality and collector. 10.07.2012.

Remarks. In the detailed and informative redescription undertaken by the authors of the species last year (Watanabe & Shibata, 2013), the general shape of the aedeagus was provided in three good figures. Unfortunately, the figures are somewhat generalized and the structure of endophallus has not been shown there. In addition, no comparison with the second Far Eastern species of the genus, Syntomium marusiki Ryabukhin, 1992, has been made in the Comparative notes section; only westpalaearctic S. aeneum (P.Müller, 1821) has been mentioned there. I am very glad that comprehensive information and the liberal gift of the aforecited specimens of S. japonicum received by me from Dr. Yasutoshi Shibata enables me to fill up the gap in the knowledge of these matters

The lanceolate median lobe is moderately incurved dorsally, about as long as parameres, with an indistinct preapical keel on the dorsal side. The endophallus is represented by the paired medial longitudinal bands conjoined distally, with feebly sclerotized scattered internal denticles and fringe of rather dense but vague cilia; a long thin flagellum, coiled in a



Fig.1–5. — Male genitalia of *Syntomium* spp. 1–3. *S. marusiki* Ryabukhin, 1992 (1: Ust'-Urgal, 2–3: Levaya Bureya River): aedeagus (1–2: laterally, 3: ventrally). 4–5. *S. japonicum* Watanabe et Shibata, 1960 (Tokyo): aedeagus (4: ventrally, 5: laterally). Scale = 0.1 mm.

spiral within the phallobase, lies in its distal part between the longitudinal bands.

External differences from *Syntomium marusiki* Ryabukhin, 1992 are given in the key below.

The species is known only for Japan excluding Hokkaido and Ryukyu islands till now (Watanabe & Shibata, 2013).

Syntomium marusiki Ryabukhin, 1992 (Figs. 1–3)

marusiki Ryabukhin, 1992: 147 marusiki; Ryabukhin, 1999: 35 marusiki; Herman, 2001: 1332

Material. RUSSIA: AMUR AREA: 1 female (AR): Selemdzhinskiy District, Byssa River basin NW of "Tyoplyi Klyuch" spa, 300 m a.s.l., mosses and litter in afforested tussocks at depression: Carex spp., Poaceae Polytrichum commune, Salix spp., spp., Alnus sp., Rosa sp., Spiraea spp., etc. 21.06.2007. E.M. Veselova & A.B. Ryvkin leg.—Khabarovsk Territory: 1 male (AR): Verkhnebureinskiy District, left side of Olga River valley 3 km up-stream of Sofiysk, 880 m a.s.l., mosses, leaf litter & plant debris on gentle slope near rill amid mari with hummocks of Sphagnum spp., Carex ? globularis, C. spp., Poaceae gen. spp., Ledum sp., Vaccinium uliginosum, V. vitis-idaea, Polytrichum sp., Hypnum sp., Hylocomium splendens,



Fig. 6–9. — Collecting localities of *Lathrobium oharai* Watanabe, 2004 in Bastak Nature Reserve. 6–7. Near 202 m bald mountain. 8–9. Kirga River basin.

Pleurozium schreberi, Ptilium crista-castrensis, Betula spp., etc. 19.08.2008. A.B.Ryvkin leg.— 1 male (AR): Verkhnebureinskiy District, Ust'-Urgal Nature Park (project), right side of Bureya River below bald mountain 488 m, 260 m a.s.l., leaf litter and mosses on steep rocky slope with Acer ukurunduense, Betula platyphylla, Alnus sp., Abies nephrolepis, etc., and mari (Larix gmelinii, Ledum palustre, Sphagnum spp., etc.) on terrace above flood-plain. 07.08.2009. A.B.Ryvkin leg.—2 males (AR): Verkhnebureinskiy District, Bureinskiy Nature Reserve, right side of Levaya Bureya River upstream of Imganakh River mouth, 750-850 m a.s.l., SW slope of mountain: moss and litter in spruce forest with Abies nephrolepis, Larix gmelinii, Rhododendron dauricum, Pyrola sp., Rosa sp., Swida alba, Vaccinium vitis-idaea, Oxalis acetosella, Maianthemum bifolium, Linnaea borealis, Poaceae gen. spp., Carex spp., ferns, Hylocomium splendens, Pleurozium schreberi, Ptilium crista-castrensis, etc. along slope stream. 30.06.2011. A.B.Ryvkin leg.

Remarks. Originally described based on seven specimens from two localities in the Magadan Area. Terra typica: "Magadan Area, 35 km northward of Magadan, Snezhnaya Dolina settlement"; Herman (2001) has provided a confused transliteration of the original (Cyrillic) text. The species is also recorded for Tordoki-Yani Mountain in the Sikhote-Alin Mountain Ridge (Ryabukhin, 1999). When being described, this species was compared neither with *S. japonicum* nor with nearctic *S. confragosum* Mäklin, 1852 known from Alaska, British Columbia, Alberta, and Quebec (Campbell & Davies, 1991). The figures of the aedeagus are too sketchy and seem indistinguishable from those of *S. japonicum*.

The specimens I have on hand (see above) correspond well with the original description of *S. marusiki*; that makes it possible to redescribe its aedeagus which is of basically the same structure that in the preceding species but has some peculiarities of definitely specific rank. The median lobe is long and narrow, more

strongly incurved to the dorsal side, uniformly narrowed distally, short roundly truncated at the very apex, without any keels on the dorsal side; the parameres a bit longer than the median lobe. The endophallus with the longitudinal bands more distant from one another along nearly the whole of their length, with internal structures membranous, less evident, without distinct denticles or spikes; the flagellum is of the similar shape as in *S. japonicum*.

The pronounced similarity in the structure of aedeagi between *S. marusiki* and *S. japonicum* along with their common distinction from *S. aeneum* indicates a close phylogenetic relationship of both Far Eastern *Syntomium* species in spite of the obvious external differences among them provided in the key below.

Key to the east palaearctic species of the genus *Syntomium* Curtis, 1828

Japan (Honshu, Shikoku, Kyushu)

– Antennae entirely dark, with middle segments only a bit lighter than the rest (in mature specimens). Pronotum with paired deep impressions at basal part of the disk. Puncturation of forebody smaller and much coarser, irregular, evidently, partly rugosely confluent. Aedeagus as in Figs. 1-3, with median lobe narrower, nearly uniformly narrowed to the apex where short roundly truncated. 2.2–2.9 mm (the last value for the specimen with abdomen extended).......marusiki Ryabukhin, 1992

Russian Far East (Magadan Area, Amur Area, Khabarovsk Territory)

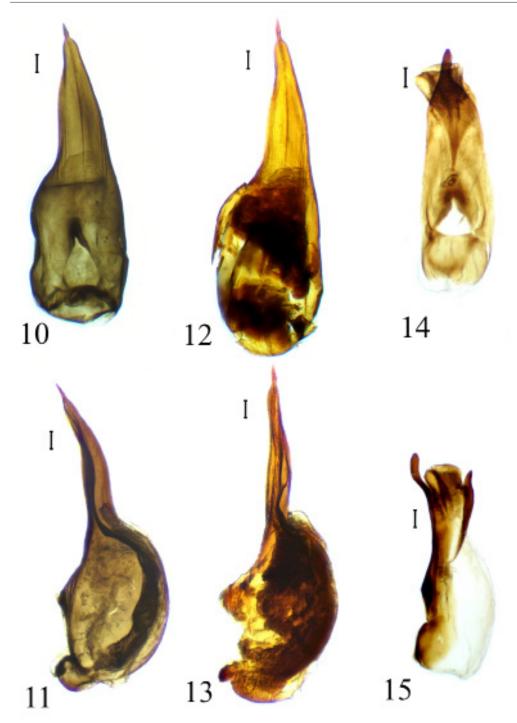


Fig. 10–15. — Male genitalia of *Lathrobium* spp. 10–11. *L. ursinum* Ryvkin, 2011 (HT): aedeagus (10: from the basal opening, 11: laterally). 12–13. *L. ishiharai* Hayashi, 1994 (Beijing): aedeagus (12: from the basal opening, 13: laterally). 14–15. *L. oharai* Watanabe, 2004 (Kirga River basin): aedeagus (14: from the basal opening, 15: laterally). Scale = 0.1 mm.

Genus Lathrobium Gravenhorst, 1802

Subgenus Lathrobium s.str.

Lathrobium (s.str.) *oharai* Watanabe, 2004 (Figs. 6–9, 14–15)

oharai Watanabe, 2004: 41

Material. RUSSIA: SAKHALIN AREA: 1 male (AR): Kurile Islands, Kunashir Island, near Tret'yakovo, in litter at rill bank. 18-21.07.1990. S.A.Kurbatov leg.—1 female (AR): Kurile Islands, Kunashir Island, Tret'yakovo. 11.07.1985. V.V.Belov leg.—1 female (AR): Kurile Islands, Kunashir Island, near Mendeleyevo. 02.07.1991. S.A.Kurbatov leg.—1 male (AR): Kurile Islands, Kunashir Island, 14 km SW of Yuzhno-Kurilsk, N slope of Mendeleveva Volkano, Kislvi Spring (right confluent of Lesnaya River) near mouth, swampy spruce forest with Carex, Lysichiton, Sphagnum hillocks. 04.08.1994. K.Yu.Eskov leg.—1 male (AR): Kurile Islands, Iturup Island, Burevestnik, Betula shrub with bamboo undergrowth, litter. 23.09-08.10.1992. S.I.Golovatch leg.—7 males, 1 female (AR): Kurile Islands, Iturup Island, Gornoye nr. Burevestnik, 150 m a.s.l., Betula forest with bamboo thichet as undergrowth, litter. 05.10.1992. S.I.Golovatch leg.—1 male (AR): Kurile Islands, Iturup Island, nr Goryachiye Klyuchi, Betula sp., Acer, Rubus etc. forest with bamboo thichet as undergrowth, litter. 06.10.1992. S.I.Golovatch leg.—1 male (AR): South of Sakhalin Island, Korsakovskiy District, 16 km SE of Novikovo, Yazevka River mouth. 05.06.1990. K.V.Makarov leg.—1 male (AR): South of Sakhalin Island, Korsakovskiy District, 18 km SE of Novikovo, Yevstafiy Cape, ejected algae. 06.06.1990. K.V.Makarov leg.—Khabarovsk TERRITORY: 1 (AR): Verkhnebureinskiy District, Ust'-Urgal Nature Park (project), island on Bureya River, 7 km up-stream of Ust'-Urgal, forest with Picea ajanensis & Abies nephrolepis, in leaf litter. 05.09.2009. L.A.Trilikauskas leg.[immature specimen].—Jewish Autonomous Area: 4 males, 2 females (AR): Bastak Nature Reserve, middle reaches of Bastak River near 202 m

bald mountain, 120 m a.s.l., mosses and leaf litter in flood-plain alder forest with sedge and gramineous tussocks, Filipendula palmata, Smilacina davurica, Sphagnum squarrosum, Polytrichum commune, P. sp., ferns, Equisetum sylvaticum, etc. 09.06.2013. A.B.Ryvkin leg. (see Figs. 6-7).—1 male (AR): Bastak Nature Reserve, Kirga River basin, N 48°59.044' E 132°52.692', 160 m a.s.l., mosses and leaf litter among Carex spp. near forest road. 14.09.2014. A.B.Ryvkin leg.—1 male, 2 females (AR): Bastak Nature Reserve, Kirga River basin, N 48°59.128' E 132°52.604', 155 m a.s.l., mosses and leaf litter in larch forest with Ledum palustre, Betula divaricata, Sphagnum spp., tussocks of Carex spp., etc. 14.09.2014. A.B.Ryvkin leg.— 2 females (AR): Bastak Nature Reserve, Kirga River basin, N 48°59.128' E 132°52.604'—N 48°59.115' E 132°52.552', 155–158 m a.s.l., mosses and leaf litter in sparse birch & larch forest with Ledum palustre, Betula divaricata, Sphagnum spp., tussocks of Carex spp., etc. 15.09.2014. A.B.Ryvkin leg. (see Figs. 8-9).

Remarks. This species was described from four specimens collected at Urup Island, Southern Kuriles, as "a new relative" of *Lathrobium japonicum* Bernhauer, 1907. Since *L. japonicum* having broadly emarginated and impressed 8th male abdominal sternite can be with confidence referred to the widely distributed *brunnipes* group, *L. oharai*, with its otherwise modified male terminalia and broad rounded 8th abdominal sternite of the female, is not related with the named group. I prefer to leave the question of belonging the species to a definite group open until a satisfactory system of the groups would be established.

The new material above proves that the species is rather widely distributed both over islands and in the mainland territory of NE Asiatic Russia. Volker Assing has recently sent me a nice photo of aedeagus of unidentified *Lathrobium* specimen from Hokkaido, Japan, which undoubtedly belongs to *L. oharai*; the label data of the specimen will be pubished by Dr. Assing in the nearest time (Assing, in press). It seems significant that the specimens both

from island populations and those inhabiting mainland territory have only small rudiments of the wings; however no variability has been indicated by me in the shape of aedeagi of the specimens from different parts of the species range.

Based on the material collected by me, I can suppose that the species inhabits wet mosses and leaf litter in valley forests of the middle stages of mesotrophic and eutrophic hydroseries in plant succession systems (see Figs. 6–9).

The ishiharai group

Since *Lathrobium* (s. str.) *ishiharai* Hayashi, 1994 and *L*. (s. str.) *ursinum* Ryvkin, 2011 stat. nov. constitute a distinct species group, this group is to be diagnosed below.

Diagnosis. Fairly large, body length of the known species 7.5 to 9.6 mm (the last value for the specimens with abdomen extended)). Elytra moderately long, moderately and uniformly dilated posteriorly behind rounded but developed humeri; the known species with wings normally developed; posterior margin of the abdominal tergite 7 with evident white fringe. Abdomen, excluding the apical segments, nearly parallel-sided.

Male. Posterior margin of the abdominal sternite 8 nearly straight, slightly sinuate at most, with neither conspicuous emarginations nor impressions; underside of the sternite punctured (and pubescent) somewhat denser medioposteriorly; no conspicuous spiculiferous and setaceous structures are developed; aedeagus with lateal sclerotized lobes of the phallobase extended to the side opposite to the basal opening; endophallus entirely membranous, without visible armature, excluding a small ring-shaped structure; operculum very small, rudimentary, extremely feebly sclerotized.

Female. Abdominal sternite 8 with broad rounded posterior margin.

Differ from other *Lathrobium* species by the combination of the characters of aedeagus (extended lateral lobes of the phallobase, entirely membranous endophallus, rudimentary operculum) and the mail terminalia without conspicuous emarginations and impressions.

Taxa included. *Lathrobium* (s. str.) *ishiharai* Hayashi, 1994 and *L*. (s. str.) *ursinum* Ryvkin, 2011 stat. nov.

Remarks. I can find no relations between the ishiharai group and other Lathrobii. The attempts (Hayashi, 1994) to regard the nominate species as similar either with the heterogeneous pollens group or with L. dignum Sharp, 1874 systematic position of which requires a clarification seem to be inconsistent. Neither presence or absence of wings (especially for island territories) nor coloration of elytra may be used as sufficient characters in this case since these characters can be varying radically even within an only Lathrobium species. An analysis of relations with the monticola group (sensu Watanabe, 2000 et al.) would require a thorough revision of this group probably including its redefinition. Some resemblance to the *sibiricum* group in the structure of endophallus is not supported by other characters and is definitely a case of parallelism. Thus, we must hope that intermediate forms will be found to ascertain the phylogenetic relationships of the group.

Lathrobium (s.str.) *ishiharai* Hayashi, 1994 (Figs. 12–13)

ishiharai Hayashi, 1994: 145 ishiharai; Ryvkin, 2011: 157 (remarks) ishiharai ishiharai; Assing, 2013a: 1637 ishiharai; Assing, 2013b: 1645

Material. CHINA: 1 male (VA): Beijing, Xishia. IX.1992. G. de Rougemont.

Remarks. This remarkable species was originally described from more than fifty specimens most of which were collected from environs of Osaka (Honshu, Japan). Recently,

Assing (2013b) recorded ten specimens of L. *ishiharai* from China (vicinity of Beijing); the author reported in that paper that the sexual characters of the males in the Chinese material were similar to those of illustrated by Hayashi (1994) from the Japanese type series.

I have studied a male specimen borrowed from Dr. Assing. It really conforms to the figures and description by Hayashi (1994), excluding lighter coloration (the specimen seems immature), somewhat shorter elytra, and less developed sclerotized preapical nodule in aedeagus; but the general shape of the aedeagus definitely confirmes that the Chinese series belongs to *L. ishiharai*.

Lathrobium (s.str.) ursinum Ryvkin, 2011 stat. nov.

(Figs. 10-11)

ishiharai ursinum Ryvkin, 2011: 155 ishiharai ursinum; Assing, 2013b: 1645 (remarks)

Material. RUSSIA: 1 male-HT(ZMMU): Amur Area.—1 male, 1 female-PTT(AR): Amur Area.—1 male, 1 female-PTT(AVSh): Maritime Province.—1 female (AR): Maritime Prov. [For the detailes see the original description].

Remarks. In 2011, I described from the Russian Far East a new taxon which was supposed to be a subspecies of *L. ishiharai*: *L. ishiharai* ursinum. The decision concerning its taxonomic status had evident reasons: though all the male specimens of *L. ishiharai* ursinum captured from three geographical points had aedeagi of identical shape which differed obviously from that which was figured in the original description of *L. ishiharai*, both taxa appeared to be very similar; and insular isolation of the latter made the subspecific status the most appropriate one until another concept would be supported by any new data.

Assing (2013b), when providing new data

on the presence of L. ishiharai in China (see above), supposed that the subspecific status of L. ishiharai ursinum was doubtful ("Consequently. zoogeographic evidence would suggest that the subspecific status of L. ishiharai ursinum is doubtful."). Unfortunately this author has disclosed neither what status he would suggest as more suitable for the taxon nor which "zoogeographic evidence" his idea is based on. Meanwhile, the Chinese material forces me indeed to revise the rank of the taxon under consideration. The new material confirms that the stable difference in the shape of the aedeagus between the specimens from the Russian Far East and the populations from Japan and China (compare Figs. 10-11 and 12-13) are caused not by the interpopulational variability in conditions of insular isolation, as it could be supposed before, but by the real specific status of both L. ishiharai and L. ursinum. Moreover. one can believe that the boundary between these taxa coincides with the boundary between the Manchurian and Japan-Chinese biogeographical provinces (Razumovskiy, 1980), at least in the continental part. Therefore, L. ursinum is to be regarded as species propria.

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