

Studies on Scolytidae XVIII
Bark Beetles of Tribe Polygraphini in Japan
(Coleoptera, Scolytidae)

by

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Summary : 17 species of the Japanese Polygraphini are recognised. New synonymy for one species is included (*Polygraphus proximus*=*P. miser*). 8 lectotypes are designated for *P. gracilis*, *P. jezoensis*, *P. kisoensis*, *P. meakaensis*, *P. nigrielytris*, *P. shariensis*, *P. squamulatus*, and *P. granulatus* (= *uchimappensis*). A key to all Japanese species, notes on geographical distribution, and host plants are included.

The tribe Polygraphini is in the Palaearctic Region, Nearctic Region, Oriental Region, Ethiopian Region, and Madagasy Region, and contains only single genus *Polygraphus* ERICHSON in Japan.

Adults are readily distinguished from other bark beetles by the following combination of characters. Frons with two small tubercles at least in male. Antennal funicles 5- to 6-segmented; clubs solid, without suture. Eyes biparted to upper and under sides. Pronotum roundly emarginated in anterior margin as in case of *Dendroctonus*; constricted towards apex in lateral margins. Scutellum not or scarcely visible from above. Elytra closely covered with scale-like setae, except *P. ssiori*; with basal margin straight or scarcely arched, but weakly elevated and distinctly crenulate; striae not or weakly impressed; interstriae not elevated. 3rd tarsal segment simple, not bilobed.

All Japanese species are bark beetles, with a moderately polygamous or sometimes monogamous social organization. The species generally are host specific, limiting their attack to some genera of trees. *Polygraphus nigrielytris*, *P. parvulus*, *P. shariensis*, and *P. ssiori* attack broad leaved trees; the remainder feed in coniferous trees, such as *Abies*, *Picea*, *Larix*, *Tsuga*, or *Pinus*. Economically, the bark beetles of the tribe are very important and contain some destructive species, such as *Polygraphus proximus*, *P. jezoensis*, and *P. horyuensis*, which are more destructive to our fir, spruce, and larch forests than any other bark beetles. They are usually secondary enemies but on occasion, the frequency varying with the species and conditions for rapid breeding, they increase to large numbers so that they attack standing green trees and become important primary enemies.

The first Japanese species of *Polygraphus* were described as *Polygraphus oblongus*, *P. proximus*, and *P. miser* by BLANDFORD (1894). NIJIMA (1909) described *P. ssiori*, *P. jezoensis*, and *P. gracilis* as new to science, with a key to their species. He (1913) described new species, *P. nigrielytris* from Hokkaido. EGGERS (1926) described *P. sachalinensis* and *P. laticollis* from Sakhalin and Hokkaido as new species. *P. meakaensis* was described as new species by NIJIMA (1935). In

1941, NIIJIMA described five new species, *P. granulatus* (nec. EGGERS), *P. shariensis*, *P. squamulatus*, *P. kisoensis*, and *P. fulvipennis* from Hokkaido or Honshu. In the same time, *P. laticollis* was synonymized with *P. proximus* and he added *P. subopacus* to *Polygraphus*-fauna of Japan. MURAYAMA (1954) gave Gunma, Honshu as the new locality of a Korean species, *P. horyurensis*, He (1956) described two new species, *P. magnus* and *P. parvulus*, with a key to the identification of Japanese species. In the same paper, he gave *P. uchimappensis* for *P. granulatus* NIIJIMA as a homonym of EGGERS' *P. granulatus*. SCHEDL (1954) made two synonyms *P. proximus* = *P. oblongus* and *P. subopacus* = *P. sachalinensis* in his "Bestimmungstabellen der palaearktischen Borkenkäfer VII". In the same paper, *P. polygraphus* was recorded from Hokkaido by SCHEDL.

This study is based on an examination of 2,919 specimens. The specimens used in this study and the lectotypes are deposited in the Forestry and Forest Products Research Institute. I wish to offer my sincere thanks to Dr. R. T. THOMPSON for examining the BLANDFORD's types in the British Museum.

Genus *Polygraphus* ERICHSON

Polygraphus ERICHSON, 1836, Arch. Naturg., 2 : 57; THOMSON, 1859, Skandinaviens Coleoptera, 1 : 146; EICHHOFF, 1864, Berl. ent. Z., 8 : 32, 45; THOMSON, 1865, Skandinaviens Coleoptera, 7 : 356; CHAPUIS, 1873, Synopsis des Scolytides, p. 256; LINDEMANN, 1875, Bull. Soc. Nat. Mosc., 1875 : 242; LECONTE, 1876, Proc. Amer. Philos. Soc., 15 : 354; EICHHOFF, 1881, Die europäischen Borkenkäfer, p. 122; BLANDFORD, 1894, Trans. Ent. Soc. London, 1894 : 74; REITTER, 1894, Bestimmungstabelle der Borkenkäfer, p. 58; BARBEY, 1901, Les scolytides de l'Europe centrale, p. 55; TREDL, 1907, Ent. Blätt., 3 : 11; NIIJIMA, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3 : 131; HAGEDORN, 1910, Coleopterorum Catalogus, 4 : 37; HAGEDORN, 1910, Genera Insectorum, 111 : 76; REITTER, 1913, Bestimmungstabelle der Borkenkäfer, p. 54; HOPKINS, 1915, U. S. Dept. Agr., Bur. Ent. Tech. Ser., 17(2) : 222; SWAINE, 1918, Canadian bark beetles, 2 : 55; ESCHERICH, 1923, Die Forstinsekten mitteleuropas, 2 : 481; SPESIVTSEFF, 1925, Svensk Insektenfauna : Scolytidae, p. 166; MURAYAMA, 1930, Jour. Chōsen Nat. Hist. Soc., 11 : 16; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; DODGE, 1938, Univ. Minnesota Tech. Bull., 132 : 24; NIIJIMA, 1941, Ins. Mats., 15 : 123; KURENZOV, 1941, Короеды Дальнего Востока СССР, p. 137; BEAL & MASSEY, 1945, Duke Univ. School For., 10 : 72; BALACHOWSKY, 1949, Faune de France, 50 : 141; STARK, 1952, Фауна СССР, 31 : 219; MURAYAMA, 1953, Trans. Shikoku Ent. Soc., 3 : 152; NUNBERG, 1954, Klucze do oznaczania owadów Polski, 19 (99~100) : 23; SCHEDL, 1954, Mitt. Münh. ent. Gessell. e. V., 44/45 : 3; PFEFFER, 1955, Fauna ČSR, 6 : 140; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 275; KRIVOLUTZKAJA, 1958, Короеды Острова Сахалина, p. 124; TSAI & YIN, 1965, Act. Zool. Sinica, 2 (4) : 323, 335.

Type-species : —*Hylesinus pubescens* FABRICIUS

Key to Japanese species

1. Antennal funicles 6-segmented. 2
- Antennal funicles 5-segmented. 10
2. Antennal clubs ending in round apex, not pointed; frontal margin of antennal clubs gently rounded. 3
- Antennal clubs pointed at apex; in some species frontal margin of antennal clubs dis-

- tinctly sinuate. 6
3. Pronotum covered with dark yellowish scales. Body length 3.6 mm. On *Illicium religiosum*.
..... *Polygraphus magnus* MURAYAMA*
- Pronotum covered with scales and hairs. On coniferous trees. 4
4. Elytral striae impressed; 1st striae widely and distinctly impressed basally. Declivity
with 2nd interstriae weakly impressed, with uniserial row of tubercles in both sexes;
sutural interstriae weakly elevated. Scales on posterior half of elytra as long as wide.
Body length 2.5~2.8 mm. *Polygraphus meakaensis* NIJIMA
- Elytral striae faint but distinguishable throughout. Declivity with 2nd interstriae weakly
impressed, in male without row of tubercles; sutural interstriae weakly elevated. Scales
on posterior half of elytra not or slightly longer than wide. 5
5. Elytra black, reddish brown on posterior half in mature specimens. Body length 2.4~3.8
mm. *Polygraphus oblongus* BLANDFORD
- Elytra yellowish brown. Body length 2.6 mm. *Polygraphus fulvipennis* NIJIMA
6. Pronotum covered with hairs on most parts and scales on basal area. Posterior half of
elytra without row of tubercles. Body length 2.3~2.9 mm.
..... *Polygraphus horyurensis* MURAYAMA
- Pronotum covered with hairs and scales intermixed. Elytra with a row of fine or distinct
tubercles. 7
7. Body stout, about 2.17 times as long as wide. Elytra short, about 1.44 times as long as
wide, 2nd interstriae of declivity without a row of tubercles. Elytra with distinct tubercles
Body length 2.4 mm. *Polygraphus squamuratus* NIJIMA
- Body slender, more than 2.28 times as long as wide. Elytra long, 1.50~1.56 times as long
as wide. 8
8. Elytra reddish brown; interstriae finely rough, covered with distinct tubercles. Declivity
with tubercles on 1st and 3rd interstriae in male, with tubercles on 1st to 3rd in female.
Body length 2.4~3.2 mm. *Polygraphus jezoensis* NIJIMA
- Elytra blackish brown to black, except reddish brown basal area in mature specimens;
interstriae not or slightly rough, with a row of fine indistinct tubercles. 9
9. Scales on elytra wide, as wide as or wider than long. Declivity with a row of fine tuber-
cles on interstriae. Body length 2.8 mm. On *Sorbus*. *Polygraphus nigrielytris* NIJIMA
- Scales on elytra narrow, longer than wide. Declivity without tubercles. Body usually
small (2.2~3.0 mm). On *Abies* and *Picea*. *Polygraphus gracilis* NIJIMA
10. Elytra covered with numerous scales, weakly shining. Pronotum distinctly punctured.
..... 11
- Elytra not covered with scales nor hairs, except under area of declivity sparsely covered
with scales. Body strongly shining. Pronotum minutely punctured in middle. Body
length 2.9~4.0 mm. *Polygraphus ssiori* NIJIMA
11. Pronotum rather sparsely covered with hairs only. 12
- Pronotum closely covered scales or scales and hairs; in *P. shariensis*, most parts of pro-
notum covered with hairs, but intermixed scales on basal area. 13
12. Body large (3.0~3.4 mm), stout, about 2.21 times as long as wide. Fore tibiae with short
triangular spines. In female frons sparsely setigerous, without tufts of hairs. On *Abies*.

* According to the original description.

- *Polygraphus uchimappensis* MURAYAMA
- Body small (1.7~2.2 mm), slender, about 2.45 times as long as wide. Fore tibiae with long elongate triangular spines on apical outside. In female frons with two tufts of curled dense golden hairs. On *Prunus*..... *Polygraphus parvulus* MURAYAMA
13. Pronotum covered with scales and hairs.14
- Pronotum covered with scales only.15
14. Body stout, about 2.16 times as long as wide. Elytra short, about 1.53 times as long as wide; interstriae with uniserial row of tubercles. Pronotum evenly covered with scales and hairs. Antennal clubs sharply pointed at apex, constricted before middle in upper margin. Body length 2.2~3.0 mm. *Polygraphus polygraphus* (LINNÉ)
- Body slender, about 2.37 times as long as wide. Elytra long, about 1.64 times as long as wide; interstriae without tubercle in posterior two-thirds of elytral length. Pronotum covered with hairs on most parts and scales on basal area. Antennal clubs not constricted, ending in round apex. Body length 2.6~3.0 mm. *Polygraphus shariensis* NIJIMA
15. Body large (2.3~2.6 mm), stout, about 2.15 times as long as wide. Antennal clubs pointed at apex. Elytra about 1.47 (♂) times as long as wide; 1st striae weakly impressed. Ground scales on elytra less dense..... *Polygraphus kisoensis* NIJIMA
- Body small (1.5~2.4 mm), slender, about 2.35 times as long as wide. Antennal clubs ending in round apex. Elytra about 1.53 (♂) or 1.67 (♀) times as long as wide; 1st striae distinctly impressed. Ground scales on elytra very dense.
- *Polygraphus subopacus* THOMSON

***Polygraphus fulvipennis* NIJIMA**

Polygraphus fulvipennis NIJIMA, 1941, Ins. Mats., 15 : 131; INOUE, 1953, A detailed book of the forest insect control, 2 : 169; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguchi Univ., 5 : 165; MURAYAMA, 1956, *ibid.*, 7 : 282; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 116; KABE, 1960, On the hosts and habits of the scolytid and playpodid beetles in Japan, p. 29.

This species is closely allied to *P. proximus*, but may be distinguished by the yellowish brown elytra.

I do not know of any specimens collected in Japan except the type specimens which are preserved in the NIJIMA's Collection.

Type locality : —Yatsugatake.

Host : —*Abies mariesii* MAST. and *A. veitchii* LINDL.

Gallery : —Unknown.

Distribution : —Japan (Honshu).

Japanese name : —Yatsugatake-kikuimushi.

***Polygraphus gracilis* NIJIMA**

Polygraphus gracilis NIJIMA, 1909, Jour. Coll. Agr., Tohoku Imp. Univ. Sapporo, 3 : 136; HAGEDORN, 1910, Genera Insectorum, 111 : 78; KÔNO & TAMANUKI 1919, Ist. Mats., 13 : 92; SCHEDL, 1932, Catalogus Coleopterorum regionis Palaearcticae, F. 1636; KÔNO, 1938, Hokkaido Sanrin Kaihō, 4 : 273; KÔNO, 1938, Ins. Mats., 12 : 64; NIJIMA, 1941, *ibid.*, 15 : 130; KURENZOV, 1941, Короеды Дальнего Востока СССР, p. 133; STARK, 1952, Фауна СССР, 31 : 221; INOUE, 1953, A detailed

book of the forest insect control, 2:165; SCHEDL, 1954, Mitt. Ent. Gesell. e. V., 44/45:23; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7:286; KRIVOLUTZKAJA, 1956, Rev. d'Ent. l'URSS, 35:830; KRIVOLUTZKAJA, 1958, Короеды Острова Сахалина, p.125; КАВЕ, 1959, Nipponsan Kikuimushirui Shokkon Zusetsu, p.116; КАВЕ, 1960, On the hosts and habits of scolytid and platypodid beetles in Japan, p.29.

The type specimens have a row of very fine tubercles on the elytral interstriae. The females have row of tubercles on the 1st to 3rd interstriae of the declivity, but the males lack tubercles on the 2nd interstriae.

There are two females labelled as "*Mihonai, Todomatsu, 15th, Aug. 05, Tomimoto*" and "*Polygraphus gracilis Nij. (VII-1-002), nach Y. Nijima*" and one male labelled as "*Mihonai, 15, VIII, 1905, Tomimoto*" and "*Polygraphus gracilis Nij. (VII-1-004), nach Y. Nijima*" is preserved in the NIJIMA's Collection. A male specimen is chosen as lectotype.

Type localities: —Mihonai and Teshio.

Hosts: —*Abies sachaliensis* FR. SCHM., *Picea glehnii* MAST., and *P. jezoensis* CARR.

Gallery: —Radiate tunnels.

Distribution: —Japan (Hokkaido), Sakhalin, and Siberia.

55 specimens beside types from the following localities were examined. Hokkaido: Asyoro, and Kanayama.

Japanese name: —Akaezo-kikuimushi.

Polygraphus horyurensis MURAYAMA

Polygraphus horyurensis MURAYAMA, 1937, Tenthredo, 1:368; MURAYAMA, 1940, Ann. Zool. Japon., 19:233; NIJIMA, 1941, Ins. Mats., 15:127; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5:165, 200; SCHEDL, 1954, Mitt. Münch. Ent. Gesell., e. V., 44/45:14; KRIVOLUTZKAJA, 1958, Короеды Острова Сахалина, p.132; КАВЕ, 1959, Nipponsan Kikuimushirui Shokkon Zusetsu, p.117; КАВЕ, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p.30; MURAYAMA, 1965, Scolytid beetles from Niigata Prefecture, 2:20.

This species is closely allied to *P. kisoensis*, but may be distinguished by the longer body (about 2.25 times as long as wide), by 5-segmented antennal funicles, having setae on the most parts of the pronotum, and by having less distinct tubercles and narrower scales on the interstriae.

Type locality: —Horyuri in Korea.

Hosts: —*Abies mariesii* MAST., *Larix leptolepis* GORD, *Pinus pumila* REGEL, and *P. pentaphylla* MAYS var. *Himekomatsu* MAKINO.

Gallery: —Single longitudinal tunnels.

Distribution: —Japan (Hokkaido and Honshu), Sakhalin, China (North East, Taiwan), and Korea.

537 specimens from the following localities were examined. Hokkaido: Nakahyotsu. Aomori: Mt. Hakkoda. Iwate: Hachimantai. Gunma: Konseitoge, Kumanotaira, Sasagamine, and Kirizumi. Fukushima: Mt. Hiuchi. Yamanashi: Mt. Fuji. Nagano: Nakakaruzawa, Karuzawa, Takanishi, and Nobeyama. Sakhalin. China: Yushan.

Japanese name: —Horiuri-kikuimushi (Chôsen-kikuimushi).

***Polygraphus jezoensis* NIJIMA**

Polygraphus jezoensis NIJIMA, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3 : 135; NIJIMA, 1910, Trans. Sapporo Nat. Hist. Soc., 3 : 1; HAGEDORN, 1910, Genera Insectorum, 111 : 78; NIJIMA, 1913, Trans. Sapporo Nat. Hist. Soc., 5 : 5; EGGERS, 1926, Ent. Blätt., 22 : 135; NIJIMA, 1930, Karafuto Sanrin Kaiho, 1930 : 8; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; KÔNO, 1938, Hokkaido Sanrin Kaihō, 1938 : 3; KÔNO & TAMANUKI, 1939, Ins. Mats., 13 : 92; NIJIMA, 1941, *ibid.*, 15 : 128, KURENZOV, 1941, Короеды Дальнего Востока СССР, p. 132; STARK, 1952, Фауна СССР, 31 : 224; INOUE, 1953, A detailed book of the forest insect control, 164; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 18; KABE, 1955, Studies on the galleries of the bark beetles and ambrosia beetles in Japan, p. 56; KRIVOLUTZKAJA, 1955, Rev. d'Ent. l'URSS, 35 : 830; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 284; KRIVOLUTZKAJA, 1958, Короеды Осторова Сахалина, p. 125; NISHIGUCHI, 1959, Jour. Jap. For. Soc., 41 : 271; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 118, KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 30; NISHIGUCHI, 1960, Jour. Jap. For. Soc., 42 : 65.

Polygraphus proximus : MURAYAMA, 1930, Jour. Chōsen Nat. Hist. Soc., 11 : 17.

There are 4 female types labelled as “*Tomakomai, Ezo, Nuisima*”, “*Type*” in a red label, and “*Polygraphus jezoensis Nij. (VII-1-020) nach Y. Nijima*” in the NIJIMA's Collection. They are not in good condition. One female specimen is chosen as lectotype.

Type localities : —Tayoroma, Onupunai, and Tomakomai.

Host : —*Picea excelsa* LK., *P. glehnii* MAST., *P. polita* CARR., *P. jezoensis* CARR., and *Pinus silvestris* L.

Gallery : —Double longitudinal tunnels.

Distribution : —Japan (Hokkaido and Honshu), Sakhalin, Kamtchatka, and Siberia.

241 specimens beside types from the following localities were examined. Hokkaido : Nigorikawa, Tokushunbetsu, Sounkyo, Yamabe, Kagura, Tomakomai, and Kanayama, Tokyo : Mitake. Yamanashi : Mt. Fuji. Siberia.

Japanese name : —Ezo-kikuimushi.

***Polygraphus kisoensis* NIJIMA**

Polygraphus kisoensis NIJIMA, 1941, Ins. Mats., 15 : 131; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5 : 105, 200; MURAYAMA, 1955, *ibid.*, 6 : 104; KABE, 1955, Studies on the galleries of bark beetles and ambrosia beetles from Japan, p. 63; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 284; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 120; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 30; NOBUCHI, 1966, Bull. Gov. For. Exp. Sta., 185 : 16.

There are 7 specimens labelled as “*Polygraphus kisoensis Nij. (VII-1-115, 119) nach Y. Nijima*” in the NIJIMA's Collection. A male type specimen (VII-119) is designated as lectotype.

Type locality : —Kiso Kais. Wald.

Hosts : —*Picea* sp., *Larix leptolepis* GORD., *Pinus densiflora* SEIB. et ZUCC., and *P. pumila* REGEL.

Gallery : —Radiate tunnels.

Distribution : —Japan (Honshu).

7 specimens beside types from the following localities were examined. Iwate : Hachimantai.
Gunma : Usui.

Japanese name : —Kiso-kikuimushi.

***Polygraphus magnus* MURAYAMA**

Polygraphus magnus MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 282, 290; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 122; KABE, 1960, On the hosts and habits of the Scolytid and Platypodid beetles in Japan, p. 31

Type locality : —Nishimata, Kochi.

Host : —*Illicium religiosum* SIEB. et ZUCC.

Gallery : —Unknown.

Distribution : —Japan (Shikoku).

I have not seen any specimen.

Japanese name : —Ôyotsume-kikuimushi.

***Polygraphus meakaensis* NIJIMA**

Polygraphus meakaensis NIJIMA, 1935, Hokkaido Ringyo Kaihō, 33 (1) : 2; NIJIMA, 1941, Ins. Mats., 15 : 126; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 289; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 120; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 31; NOBUCHI, 1966, Bull. Gov. For. Exp. Sta., 185 : 17.

Three male specimens are in the type series and labelled as “Type” in a red label, “Mt. Akan, 13, VIII, 1934, Haimatsu, Niijima”, and “*Polygraphus meakaensis* Nij. (VII-1-113) nach Y. Niijima”, in NIJIMA’s Collection. The male type is chosen as lectotype.

Type locality : —Mt. Meakan.

Host : —*Pinus pumila* REGEL.

Gallery : —Irregular longitudinal tunnels.

Distribution : —Japan (Hokkaido, Honshu).

36 specimens beside types from the following locality were examined. Nagano : Takinishi.

Japanese name : —Meakan-kikuimushi.

***Polygraphus nigrielytris* NIJIMA**

Polygraphus nigrielytris NIJIMA, 1913, Trans. Sapporo Nat. Hist. Soc., 5 : 2; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; NIJIMA, 1941, Ins. Mats., 15 : 132; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5 : 166, 200; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 14; KABE, 1955, Studies on the galleries of bark beetles and ambrosia beetles in Japan, p. 91; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 285; KRIVOLUTZKAJA, 1958, Короеды Осторова Сахалина p. 130; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 122; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 32; KURENZOV, 1961, Rev. d’Ent. l’URSS, 40 : 599; KRIVOLUTZKAJA, 1965, Фауна Короедов Южных Курильских Островов, p. 230.

This species is somewhat allied to *P. shariensis*, but may be distinguished by 6-segmented antennal funicles, by the pointed apex of the antennal clubs, and by the absence of tubercles in the middle of the elytra. Two males labelled as “*Yagishiri, Niijima, 11, VIII, 1933*”, “*Nanakamado*”, “*Type*” in a red card, and “*Polygraphus nigrielytris Nij. (VII-1-102), nach Y. Niijima*” are preserved in the NIIJIMA's Collection. One male is chosen as lectotype.

Type locality : —Teshio.

Hosts : —*Sorbus commixta* Hedl.

Gallery : —Forked tunnels.

Distribution : —Japan (Hokkaido and Honshu), Sakhalin, and Kamtchatka.

A specimen beside types from Somakaku, Iwate was examined.

Japanese name : —Nanakamado-kikuimushi.

Polygraphus parvulus MURAYAMA

Polygraphus parvulus MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 283, 291; KABE, 1959, Nipponan Kikuimushirui Shokkon Zusetu, p. 126; KABE, 1960, On the hosts and habits of scolytid and platypodid beetles in Japan, p. 33; MURAYAMA, 1961, Pub. Ent. Lab. Univ. Osaka Pref., 6 : 96; MURAYAMA, 1965, Scolytid beetles from Niigata Prefecture, 2 : 21.

The both sexes have two small tubercles on the frons. However, the female has long curled dense hairs on the upper part of the frons. The upper division of the eyes is connected with the lower division at the posterior borders. The fore tibiae have two large spines at apical outside such as *P. ssiori*.

Type localities : —Fukuoka City and Hebitani (Kochi Pref.).

Hosts : —*Zelkova serrata* (THUNB.) MAKINO, *Prunus yedoensis* MATSUM., and *P. sp.* (Cherry).

Gallery : —Unknown.

Distribution : —Japan (Honshu, Shikoku, and Kyushu).

140 specimens from following localities were examined. Gunma : Oneyama. Tokyo : Asakawa, Mt. Takao, and Setagaya. Fukuoka : Wakasugi and Takarabe. Kagoshima : Tsuruta. Japanese name : —Hime-yotsume-kikuimushi (Fukuoka-kikuimushi).

Polygraphus polygraphus (LINNÉ)

Dermestes polygraphus LINNÉ, 1758, Syst. nat. ed. X, II : 562.

Polygraphus polygraphus, EICHHOFF, 1881, Die europäischen Borkenkäfer, p. 122; REITTER, 1894, Bestimmungstabelle der Borkenkäfer, p. 58; BARBEY, 1901, Les scolytides de l'Europe centrale, p. 54; HAGEDORN, 1910, Coleopterorum Catalogus, 4 : 38; HAGEDORN, 1910, Genera Insectorum, 111 : 77; REITTER, 1913, Bestimmungstabelle der Borkenkäfer, p. 56; SPESSIVTSEFF, 1922, Bestimmungstabelle über svenska Barkborrar, p. 15; SPESSIVTSEFF, 1925, Svensk Insektenfauna, Coleoptera, Rhynchophora 3 : 167; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; BALACHOWSKY, 1949, Faune de France, 50 : 145; STARK, 1952, Фауна СССР, 31 : 224; DUFFY, 1953, Handbooks for the identification of British insects, 5 (15) : 4; NUNBERG, 1954, Klucze do oznaczania owadów Polski, 19 (99~100) : 25; SCHEDL, 1954, Mitt. münch. ent. Gesell. e. V., 44/45 : 15; SCHMITSCHKEK, 1955, Schlüssel zur Bestimmung der wichtigsten forstlich schädlichen Käfer, p. 79; PETERSON, 1955, Danmarks fauna, Barkbiller, p. 148; KRIVOLUTZKAJA, 1958, Короеды Островов Сахалина, p. 127; SCHEDL, 1967, Kontyû, 35 : 120.

This species was recorded from Sapporo, Hokkaido by SCHEDL (1954), but I do not know of any specimen collected in Japan.

Type locality : —Europe.

Host : —Unknown in Japan.

Gallery : —Radiate tunnels.

Distribution : —Japan (Hokkaido), Sakhalin, Siberia, and Europe.

46 specimens from Siberia and Europe were examined.

Japanese name : —Yotsume-kikuimushi.

***Polygraphus proximus* BLANDFORD**

Polygraphus proximus BLANDFORD, 1894, Trans. Ent. Soc. London, 1894 : 75; HAGEDORN, 1904, Bull. Mus. Hist. Nat. Paris, 10 : 122; NIJIMA, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3 : 133; NIJIMA, 1910, Trans. Sapporo Nat. Hist. Soc., 3 : 1; HAGEDORN, 1910, Coleopterorum Catalogus, 4 : 38; HAGEDORN, 1910, Genera Insectorum, 111 : 77; NIJIMA, 1913, Forest entomology, p. 138; EGGERS, 1927, Ent. Blätt., 23 : 121; NIJIMA, 1930, Karafuto Sanrinkaiho, 1930 : 8; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; MURAYAMA, 1934, Ann. Zool. Japon., 14 : 298; KŌNO & TAMANUKI, 1939, Ins. Mats., 13 : 90; STARK, 1952, Фауна СССР 31 : 227; NIJIMA, 1941, Ins. Mats., 15 : 123; KURENZOV, 1941, Короеды Дальнего Востока СССР, p. 134; INOUE, 1953, A detailed book of the forest insect control, 2 : 162; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5 : 166, 200; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 5 : 11; KABE, 1955, Studies on the galleries of bark beetles and ambrosia beetles in Japan, p. 55; KRIVOLUTZKAJA, 1956, Rev. d'Ent. l'URSS, 35 : 837; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 287; KRIVOLUTZKAJA, 1958, Короеды Осторова Сахалина, p. 127; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zuzetsu, p. 126; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 32; MURAYAMA, 1961, Pub. Ent. Lab. Univ. Osaka Pref., 6 : 96; TSAI & YIN, 1965, Acta Zool. Sinica 2 (4) : 328; NOBUCHI, 1966, Bull. Gov. For. Exp. Sta., 185 : 17.

Polygraphus oblongus BLANDFORD, 1894, Trans. Ent. Soc. London, 1894 : 75; HAGEDORN, 1904, Bull. Mus. Hist. Nat. Paris, 10 : 122; HAGEDORN, 1910, Coleopterorum Catalogus, 4 : 38; HAGEDORN, 1910, Genera Insectorum, 111 : 77; NIJIMA, 1910, Trans. Sapporo Nat. Hist. Soc., 3 : 7; 1913, Forest entomology, p. 138; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; NIJIMA, 1941, Ins. Mats., 15 : 125; MURAYAMA, 1949, Matsumushi, 3 : 101; MURAYAMA, 1953, Trans. Shikoku Ent. Soc., 3 : 152; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5 : 166, 200; KABE, 1955, Studies on the galleries of bark beetles and ambrosia beetles in Japan, p. 54; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 287; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zuzetsu, p. 124; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 32; MURAYAMA, 1961, Publ. Ent. Lab. Univ. Osaka Pref., 6 : 95; MURAYAMA, 1965, Scolytid-beetles from Niigata Prefecture, 2 : 21.

Polygraphus miser BLANDFORD, 1894, Trans. Ent. Soc. London, 1894 : 76; HAGEDORN, 1910, Coleopterorum Catalogus, 4 : 38; HAGEDORN, 1910, Genera Insectorum, 111 : 77; MURAYAMA, 1930, Jour. Chōsen Nat. Hist. Soc., 11 : 16, 30; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; MURAYAMA, 1937, Tenthredo, 1 : 375; NIJIMA, 1941, Ins. Mats., 15 : 130; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1954, Bull. Fac.

Agr. Yamaguti Univ., 5 : 166; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 24; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 286; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 120; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 31.

Polygraphus laticollis EGGERS, 1926, Ent. Blätt., 22 : 135; NIJIMA, 1941, Ins. Mats., 15 : 124; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1626; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 11.

The types of *P. oblongus*, *P. proximus*, and *P. miser* were examined and found to represent the same species. *P. oblongus* and *P. miser* should be placed in junior synonymy. The female of this species have a row of tubercles on the declivital interstriae, except the 2nd interstriae. This species is very destructive to fir forest in Hokkaido and northern Honshu.

Type localities : —Sapporo for *P. proximus*, Chiuzenji and Subashiri for *P. oblongus*, Nikko for *P. miser*.

Host trees : —*Abies firma* SIEB. et ZUCC., *A. holophylla* MAXIM., *A. homolepis* SIEB. et ZUCC., *A. mariesii* Mast., *A. sachaliensis* FR. SCHM., *A. veitchii* LINDL., *Picea glehnii* Mast., *P. jezoensis* Carr., *Larix dahurica* ZUROZ, *Pinus densiflora* SIEB. et ZUCC., *P. koraiensis* SIEB. et ZUCC., and *Tsuga sieboldii* Carr.

Gallery : —Single transverse or double transverse tunnels.

Distribution : —Japan (Hokkaido, Honshu, Shikoku, and Kyushu), Sakhalin, Siberia, Korea, and China.

1,697 specimens from following localities were examined. Hokkaido : Rishiri, Otoineppu, Takinoue, Nigorikawa, Nishiokkope, Mt. Rausu, Shiretoko, Sounkyo, Tomuraushi, Taisetsu, Tenmakuzawa, Aizankei, Tobetsu, and Zyozankei. Aomori : Hakkoda. Iwate : Hachimantai and Mt. Hayachine. Fukushima : Mt. Hiuchi. Gunma : Shirotoke, Konseitoge, Marunuma, and Sugenuma. Tochigi : Okunikko. Saitama : Karisakatoge, Tochimoto, and Okusenba. Tokyo : Mt. Takao and Asakawa. Yamanashi : Mt. Fuji, Hirogawara, Mt. Kinpu, and Mt. Kaikoma. Nagano : Hoppōnsen, Mt. Nyugasa, Utsukushigahara, Nakabusa, Tokugotoge, Takanishi, Mt. Asama, Karuizawa, and Kitazawatoge. Kyoto : Kibune and Seryodani. Fukuoka : Hikosan. Kagoshima : Yakushima and Kirishima.

Japanese name : —Todomatsuno-kikuimushi (Momino-kikuimushi for *P. oblongus*, Shirabeno-kikuimushi and Shirabeno-kuro-kikuimushi for *P. miser*).

Polygraphus shariensis NIJIMA

Polygraphus shariensis NIJIMA, 1941, Ins. Mats., 15 : 127; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 288; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 126.

This species is commonly found in alder and maple trees. Two male and three female specimens are in the type series and labelled as “Shari, 6, 23, 1923, Nijima”, “Type” in a red label, and “*Polygraphus shariensis* Nij., (VII-1-105), nach Y. Nijima” in the NIJIMA’s Collection. The female type is chosen as the lectotype.

Type locality : —Kitami

Host trees; *Alnus* spp., *Prunus ssiori* FR. SCHM., *Sorbus commixta* HEDL., *Acer caudatum ukurunduense* (Trautv. et Mey.) Kitam., and *Acer* sp.

Distribution : —Japan (Hokkaido and Honshu).

190 specimens beside types from the following localities were examined. Hokkaido : Nigori-kawa. Aomori : Hakkoda. Akita : Obonai. Gunma : Fujimitoge, Konseitoge, and Marunuma. Yamanashi : Mt. Fuji. Nagano : Tokugotoge, Mt. Yari, and Kamikochi.

Japanese name : —Shari-kikuimushi.

***Polygraphus squamulatus* NIJIMA**

Polygraphus squamulatus NIJIMA, 1941, Ins. Mats., 15 : 129; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 283; KRIVOLUTZKAJA, 1958, Короеды Осторова Сахалина, p. 132; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 128.

There are two male specimens labelled as ‘*Sachalin, VII, 1935, Nijima*’, “*Type*” in a red label, and “*Polygraphus squamulatus Nij. (VII-1-122), nach Y. Nijima*” in NIJIMA’s Collection. One male is designated as lectotype. I do not know of any specimens in Japan except the type specimens.

Type localities : —Chinnai and Hokkaido.

Host tree : —*Picea jezoensis* CARR.

Gallery : —Multiple longitudinal tunnels.

Distribution : —Japan (Hokkaido) and Sakhalin.

Japanese name : —Chinnai-kikuimushi.

***Polygraphus ssiori* NIJIMA**

Polygraphus ssiori NIJIMA, 1909, Jour. Coll. Agr. Tohoku Imp. Univ., 3 : 132; NIJIMA, 1910, Trans. Sapporo Nat. Hist. Soc., 3 : 3, 7; HAGEDORN, 1910, Genera Insectorum, 111 : 78; NIJIMA, 1913, Forest Entomology, p. 137; SCHEDL, Catalogus Coleopterorum regionis palaearticae, F. 1636; NIJIMA, 1941, Ins. Mats., 15 : 128; MURAYAMA, 1949, Matsumushi, 3 : 101; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; MURAYAMA, 1953, Trans. Shikoku Ent. Soc., 3 : 152; MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5 : 166; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 6; KABE, 1955, Studies on the galleries of bark beetles and ambrosia beetles in Japan, p. 89; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 281; KABE, 1959, Nipponzan Kikuimushirui Shokkon Zusetsu, p. 128; KABE, 1960, On the hosts and habits of the scolytid and platypodid beetles in Japan, p. 33.

Polygraphus sciori; KRIVOLUTZKAJA, 1965, Фауна Короедов Южных Курильских Островов, p. 2.

This species is easily recognized from other Japanese species of the genus by its large and strongly shining body, which is not usually covered with scales nor hairs except the under area of the elytral declivity, and by the absence of tubercles behind the basal are of the elytra. The both sexes have two small tubercles on frons. However, the female have longer and closer setae on the frons. In the males the antennal clubs are very large as in *P. proximus* and the apical three tibial teeth are very large and sharply pointed.

Type localities : —Tomakomai and Sapporo.

Host trees : —*Fagus crenata* BLUME, *Quercus mongolica* FISCH. var. *grosserrata* REHD. et WILS., *Hamamelis japonica* SIEB. et ZUCC., *Prunus Ssiori* FR. SCHM., *P. sargentii* REHD. subsp. *jamasakura* (SIEB.) OHWI, and *P. pseudocerasus* LINDL.

Gallery : —Radiate tunnels.

Distribution : —Japan. (Hokkaido, Honshu, Shikoku, and Kyushu) and Sakhalin.

46 specimens beside types from the following localities were examined. Saitama : Ohmiya. Tokyo : Sugunami, Setagaya, and Mikurajima. Kagoshima : Tsuruta.

Japanese name : —Sakurano-kikuimushi.

***Polygraphus subopacus* THOMSON**

Polygraphus subopacus THOMSON, 1871, Opusc. Ent., 4 : 393; THOMSON, 1886, Bull. Soc. Ent. France, 1886 : 11; REITTER, 1886, Bestimmungstabelle der Borkenkäfer, p. 58; TRÉDL, 1907, Ent. Blätt., 3 : 11; HAGEDORN, 1910, Coleopterorum Catalogus, 4 : 39; HAGEDORN, 1910, Genera Insectorum, 111 : 78; REITTER, 1913, Bestimmungstabelle der Borkenkäfer, p. 56; SPESIVTSEFF, 1922, Medd. fraan Statens Skogsförsöksanstalt, 19 : 466; SAALAS, 1923, Die Fichtenkäfer Finnlands 2 : 515; MURAYAMA, 1930, Jour. Chôsen Nat. Hist. Soc., 11 : 16, 30; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1636; MURAYAMA, 1937, Tenthredo, 1 : 375; NIJIMA, 1941, Ins. Mats., 15 : 128; KURENZOV, 1941, Короеды Дальнего Востока СССР, p. 136; BALACHOWSKY, 1949, Faune de France, 50 : 149; STARK, 1952, Фауна СССР, 31 : 222; INOUE, 1953, A detailed book of the forest insect control, 2 : 167; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 21; PFEFFER, 1955, Fauna ČSR, 6 : 144; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 285; KRIVOLUTZKAJA, 1958, Короеды Осторова Сахалина, p. 129; КАБЕ, 1959, Nipponsan kikuimushirui Shokkon Zusetsu, p. 128; SOKANOVSKY, 1960, Rev. d'Ent. l'URSS, 39 : 676; KURENZOV, 1961, *ibid.*, 40 : 599; NOBUCHI, 1966, Bull. Gov. For. Exp. Sta., 185 : 17; TSAI & YIN, 1965, Acta Zool. Sinica, 2 : 326; SCHEDL, 1967, Kontyû, 35 : 120.

Polygraphus sachalinensis EGGERS, 1926, Ent. Blätt., 22 : 135; NIJIMA, 1930, Karafuto Sanrin Kaihō 1930 : 8; KÔNO & TAMANUKI, 1939, Ins. Mats., 13 : 92; SCHEDL, 1932, Catalogus Coleopterorum regionis palaearticae, F. 1936; NIJIMA, 1941, Ins. Mats., 15 : 130; KURENZOV, 1941, Короеды Дальнего Востока СССР, 31 : 222; INOUE, 1953, A detailed book of the forest insect control, 2 : 109; SCHEDL, 1954, Mitt. Münch. Ent. Gesell. e. V., 44/45 : 21; KRIVOLUTZKAYA, 1956, Rev. d'Ent. l'URSS, 35 : 831; MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 284; КАБЕ, 1957, Nipponsan Kikuimushirui Shokkon Zusetsu, p. 126; KRIVOLUTZKAJA, 1958, Короеды Осторова Сахалина, p. 129; KURENZOV, 1961, Rev. d'Ent. l'URSS, 40 : 599; KRIVOLUTZKAJA, 1965, Фауна Короедов Южных Курильских Островов, p. 229; TSAI & YIN, 1965, Acta Zool Sinica, 2 : 326.

This species is closely allied to *P. polygraphus* but may be distinguished by the following points. Antennal clubs not pointed at apex and gently rounded in upper margin; pronotum covered with scales only; declivity without row of tubercles on 2nd interstriae; and scales on declivity shorter and wider.

Type locality : —Europe. Aihara and Sapporo for *P. sachalinensis*.

Host trees : —*Picea jezoensis* CARR. and *Pinus koraiensis* SIEB. et ZUCC. (Korea).

Gallery : —Unknown.

Distribution : —Japan (Hokkaido), Sakhalin, Kamtchatka, Siberia, Korea, and Europe.

43 specimens from Siberia were examined.

Japanese name : —Tôhino-kikuimushi.

***Polygraphus uchimappensis* MURAYAMA**

Polygraphus granulatus NIJIMA, 1941, Ins. Mats., 15 : 125 (nec. EGGERS, 1932); MURAYAMA, 1954, Bull. Fac. Agr. Yamaguti Univ., 5 : 165; КАБЕ, 1960, On the hosts and habits of the scolytid

and platypodid beetles in Japan, p. 30.

Polygraphus uchimappensis MURAYAMA, 1956, Bull. Fac. Agr. Yamaguti Univ., 7 : 282.

Polygraphus japonicus NUNBERG, 1956, Ann. Zool. Polsk., 16 : 208; NUNBERG 1959, Polsk. Pism. Ent., 29 : 168.

A male specimen labelled as “Aomori, Uchimappe, Niisima, 9, 9, 1911”, “Type” in a red label and “*Polygraphus granulatus* Nijj., (VII-1-126), nach Nijjima”, and a female specimen “Aomori, 10, IX, 1931, Niisima”, “Type” in a red label, and “*Polygraphus granulatus* Nijj., (VII-1-125) nach Y. Nijjima” are in the NIJJIMA’s Collection. A male specimen is chosen as lectotype. The both types are bald on the elytron. The 1st and 4th interstriae of the elytra have distinct tubercles in an irregular row.

Type locality : —Honshu (Uchimappe-Staatswald bei Aomori).

Host tree : —*Abies Mariesii* MAST.

Gallery : —Unknown.

Distribution : —Japan (Honshu).

Japanese name : —Aomori-kikuimushi.

Explanation of Plates

Plate 1~2. Antennae

- Fig. 1 *Polygraphus fulvipennis* NIJJIMA ♂
 Fig. 2 *Polygraphus gracilis* NIJJIMA ♀
 Fig. 3 *Polygraphus gracilis* NIJJIMA ♂
 Fig. 4 *Polygraphus horyurensis* MURAYAMA ♀
 Fig. 5 *Polygraphus horyurensis* MURAYAMA ♂
 Fig. 6 *Polygraphus jezoensis* NIJJIMA ♀
 Fig. 7 *Polygraphus jezoensis* NIJJIMA ♂
 Fig. 8 *Polygraphus kisoensis* NIJJIMA ♂
 Fig. 9 *Polygraphus meakaensis* NIJJIMA ♂
 Fig. 10 *Polygraphus nigrielytris* NIJJIMA ♂
 Fig. 11 *Polygraphus parvulus* MURAYAMA ♀
 Fig. 12 *Polygraphus parvulus* MURAYAMA ♂
 Fig. 13 *Polygraphus polygraphus* (LINNÉ) ♂
 Fig. 14 *Polygraphus polygraphus* (LINNÉ) ♀
 Fig. 15 *Polygraphus proximus* BLANDFORD ♀
 Fig. 16 *Polygraphus proximus* BLANDFORD ♂
 Fig. 17 *Polygraphus shariensis* NIJJIMA ♀
 Fig. 18 *Polygraphus shariensis* NIJJIMA ♂
 Fig. 19 *Polygraphus squamulatus* NIJJIMA ♂
 Fig. 20 *Polygraphus ssiori* NIJJIMA ♀
 Fig. 21 *Polygraphus ssiori* NIJJIMA ♂
 Fig. 22 *Polygraphus subopacus* THOMSON ♀
 Fig. 23 *Polygraphus subopacus* THOMSON ♂
 Fig. 24 *Polygraphus uchimappensis* MURAYAMA ♂

Plate 3.

- Fig. 25 *Polygraphus fulvipennis* NIIJIMA
- Fig. 26 *Polygraphus gracilis* NIIJIMA
- Fig. 27 *Polygraphus horyurensis* MURAYAMA
- Fig. 28 *Polygraphus jezoensis* NIIJIMA
- Fig. 29 *Polygraphus kisoensis* NIIJIMA, lectotype
- Fig. 30 *Polygraphus meakaensis* NIIJIMA
- Fig. 31 *Polygraphus nigrielytris* NIIJIMA, lectotype
- Fig. 32 *Polygraphus parvulus* MURAYAMA
- Fig. 33 *Polygraphus polygraphus* (LINNÉ)
- Fig. 34 *Polygraphus proximus* BLANDFORD
- Fig. 35 *Polygraphus shariensis* NIIJIMA
- Fig. 36 *Polygraphus squamulatus* NIIJIMA, lectotype
- Fig. 37 *Polygraphus ssiori* NIIJIMA
- Fig. 38 *Polygraphus subopacus* THOMSON
- Fig. 39 *Polygraphus uchimappensis* MURAYAMA, lectotype