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The Platypodine Ambrosia Beetles of Laos (Coleoptera: Curculionidae: Platypodinae)

by Roger A. Beaver

Abstract. Forty-three species of Platypodinae are recorded from Laos, thirty-six for the first time in the country. There are five genera and thirty-eight species of Platypodini, three genera and five species of Tesserocerini. The following new synonymy is proposed: *Peroplatypus laosi* (Schedl, 1971) (= *Crossotarsus fagacearum* Browne, 1975 syn.nov.).

Keywords. Curculionidae – Platypodinae – ambrosia beetles – new records – new synonymy – Laos

Introduction

The Platypodinae are a largely tropical subfamily of weevils (Curculionidae) that have been almost entirely neglected in Laos. Only four papers (SCHEDL 1962, 1971; BEAVER 2013a, b) include original records from the country, and these list a total of only seven species. The platypodines are ambrosia beetles living in an obligatory symbiotic relationship with various fungi which form the food of both larvae and adults (e.g. BROWNE 1961, BEAVER 1989, KIRKENDALL *et al.* 2015). The great majority of species breed in recently fallen or cut trees or branches in the forest, or in logs and lumber stored at sawmills for processing. They are usually not host-specific, but breed in any host tree which is of suitable size and in suitable condition; however, a few species are associated with particular families of trees (BROWNE 1961, BEAVER 1977, HULCR *et al.* 2007, BEAVER & LIU 2013). Reviews of the biology of the subfamily are provided by BROWNE (1961), SCHEDL (1972) and KIRKENDALL *et al.* (2015). The beetles are of considerable economic importance in tropical and subtropical countries because their gallery systems often penetrate deeply into recently felled timber, and their associated fungi cause staining of the wood around the galleries, resulting in a downgrading of timber quality (BROWNE 1961, 1968, BEAVER & LIU 2013).

In recent years, I have been able to examine numerous specimens collected in Laos and sent to me for identification by various museums and individuals. This has enabled me to increase considerably the number of genera and species recorded from the country, although the total fauna must be considerably richer than the forty-three species recorded in the present paper.

Material and Methods

The paper is based on the examination of over 370 specimens of Platypodinae from Laos. The majority were sent by museums in Europe for identification. I have also been able to study the collections in some of these museums, and collections made by individuals in the country. Whenever possible, specimens have been checked against type material, particularly in the Schedl collection (Naturhistorisches Museum, Vienna), and in the Natural History Museum, London.

The classification used here follows the catalogue of ALONSO-ZARAZAGA & LYAL (2009). Species are listed alphabetically within each genus. For each species, I give the currently accepted name, the original generic and specific names and a reference to the original description. Details of the Laotian material examined follow. It should be noted that the spelling of certain provinces and place names sometimes varies between different labels. The actual spelling on each label is retained. The distribution of the species outside Laos is given based on published records, with additions from other sources if available. Taxonomic notes are included where necessary. Finally a short summary of information on the biology of the species is given. There is a large literature pertaining to some of the species, especially those of economic importance, and only a selection of references is given for these. Further references and taxonomic information for each species can be obtained from the catalogue of WOOD & BRIGHT (1992), and its supplements (BRIGHT & SKIDMORE 1997, 2002; BRIGHT 2014).

Abbreviations

CIRAD ..... Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Montferrier-sur-Lez
HNHM ..... Hungarian Natural History Museum, Budapest
NMPC ..... National Museum, Prague
NHMB ..... Naturhistorisches Museum, Basel
BMNH ..... Natural History Museum, London
NHRS ..... Naturhistoriska Riksmuseet, Stockholm
NKME ..... Naturkundemuseum, Erfurt
NMW ..... Naturhistorisches Museum, Wien
RAB ..... R. A. Beaver, private collection, Chiangmai

Results

A total of forty-three species in eight genera of Platypodinae has now been identified in Laos. Thirty-six species are recorded for the first time from the country. There are five genera and thirty-eight species of the tribe Platypodini; three genera and five species of the tribe Tesserocerini. Two new species of *Baiocis* Browne, 1962 will be described in a separate review of that genus in the Oriental region, and are not included in the total. One species of *Crossotarsus* Chapuis, 1865, and about eight species of *Platypus* Herbst, 1793 remain unidentified, primarily because they are represented only by females, and accompanying males are needed for identification. These species are also not included in the total. The beetles have been collected in eleven of the seventeen Laotian provinces (see records below). However, more than ten species have been collected in only four provinces: Borikhamxay (16 species), Houaphanh (14), Khammuane (13), Phongsaly (12). The distribution of records appears to reflect the distribution of collectors rather than the actual distribution of the beetles, and much more collecting will be needed to gain an accurate idea of the latter. The platypodine fauna is similar to that of neighbouring Thailand (BEAVER & LIU 2013), and thirty-three (77%) of the Laotian species also occur in Thailand. The majority of the Laotian species (24 species; 56%) are quite widely distributed in the Oriental region, their range sometimes

extending beyond the region (see records below); eighteen species (42%) have a more restricted distribution, their range centred in Southeast Asia, and absent from Malaysia and Indonesia. One species (*Platypus arrogans* Schedl, 1971) is only known from Laos so far.

Records of Platypodinae

PLATYPODINI

Baiocis pernanulus (Schedl)

Crossotarsus pernanulus Schedl, 1935, Philippine J. Sci. 57: 482.

Material examined: Laos, Louangphrabang pr., Ban Song Cha (5 km W), 20°33–34′N, 102°14′E, 1200 m, 1–6.v.1999, Vít Kubáň leg. (1 ex., NHMB).

Distribution. From India through Southeast Asia and Indonesia to New Guinea and Australia. New to Laos.

Biology. A polyphagous species recorded from both angiosperms and gymnosperms (Beeson 1961 (as *Platypus bacillus* [n.nud.]), Browne 1961, Ohno 1990).

Carchesiopygus assamensis (Beeson)

Crossotarsus assamensis Beeson, 1937, Indian For. Rec. (N.S.) Ent., 3: 59.

Material examined: Laos, Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, IBCFL, Opération Canopée, 17–22.v.2012, H-P. Aberlenc (1 ex., RAB).

Distribution. China (Yunnan), India (Assam), Laos, Thailand. New to Laos.

Biology. The only recorded host tree is *Vatica lanceaefolia* (Dipterocarpaceae) (Beeson 1937).

Carchesiopygus impariporus (Beeson)

Crossotarsus impariporus Beeson, 1937, Indian For. Rec. (N.S.) Ent., 3: 62.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, Vít Kubáň leg. (6 exx., NHMB, RAB); Phongsaly prov., Phongsaly env., 21°41–2′N, 102°06–08′E, ~1500 m, 28.v.–20.vi.2003, Vít Kubáň leg. (6 exx., NHMB, RAB): as previous except: Ban Sano Mai, 21°21′N, 102°03′E, ~1150m, Vít Kubáň leg. (6 exx., NHMB); Laos-NE, Houa Phan prov., Ban Saluei to Phou Pane Mt, 20°12–13.5′N, 103°59.5′–104°01′E, 1340–1870 m, 15.iv.–1.v.2009, Lao collector leg. (1 ex., NMPC).

Distribution. China (Hainan, Xizang, Yunnan), India (Assam, Sikkim), Vietnam. New to Laos.

Biology. Recorded from trees in the families Celastraceae, Clusiaceae, Dipterocarpaceae, Euphorbiaceae, Lauraceae and Leguminosae (Beeson 1937, Zhang *et al*. 2008). The species is evidently polyphagous, like the majority of Platypodinae (Beaver & Liu 2013).

Carchesiopygus wollastoni (Chapuis)

Crossotarsus wollastoni Chapuis, 1865, Monogr. Platypides, p.74.

Material examined: NE Laos, Hua Phan prov., Ban Saluei, Phu Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 27.iv.–25.vi.2011, leg. C. Holzschuh (1 ex., BMNH).

Distribution. Laos, Malaysia (E. & W.), Thailand, Vietnam. First recorded from Laos by Schedl (1971).

Biology. Recorded only from *Dyera costulata* (Apocyanaceae), and unidentified species of Lauraceae and Sapotaceae (BROWNE 1961).

Crossotarsus bonvouloiri Chapuis

Crossotarsus bonvouloiri Chapuis, 1865, Monogr. Platypides, p. 55.

Material examined: Laos, Phongsaly prov., Phongsaly env., 21°41–2′N, 102°06–08′E, ~1500 m, 28.v.–20.vi.2003, Vít Kubáň leg. (1 ex., NHMB).

Distribution. From India through Southeast Asia to Indonesia and the Philippines. New to Laos.

Biology. The gallery system, as in other species of *Crossotarsus* Chapuis, has a more or less radial or curved main gallery in the transverse plane, with a number of longitudinal branches which end in groups of pupal cells (BROWNE 1961, BEAVER & BROWNE 1975). The frons of the female is deeply excavated, and BEESON (1961) notes that eggs are carried in the cavity. The species is polyphagous (BEESON 1961).

Crossotarsus brevidens Browne

Crossotarsus brevidens Browne, 1975, Orient. Insects, 9: 302.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, Vít Kubáň leg. (1 ex., RAB).

Distribution. Thailand. New to Laos.

Biology. Recorded only from *Quercus* sp. (Fagaceae) in Thailand (BEAVER & BROWNE 1975).

Crossotarsus emorsus Beeson

Crossotarsus emorsus Beeson, 1937, Indian For. Rec. (N.S.) Ent., 3: 87.

Material examined: Laos, Khammouane pr., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (1 ex., NHMB); Louangphrabang pr., Thong Khan, 19°35′N, 101°58′E, ~750m, 11.21.v.2002, Vít Kubáň leg. (3 exx., NHMB, RAB).

Distribution. Myanmar, Thailand. New to Laos.

Biology. The species is recorded from trees in the families Lecythidaceae, Leguminosae, Sterculiaceae and Verbenaceae (BEESON 1937), and is presumably polyphagous.

Crossotarsus externedentatus (Fairmaire)

Platypus externedentatus Fairmaire,1849, p.78 of preprint of Rev. Mag. Zool. Sér.2, 2 (1850).

Material examined: Laos, Attapeu prov., Annam Highlands Mts., Dong Amphan NBCA, Nong Fa crater lake, env., 15°05.9′N, 107°25.6′E, ca 1180 m, 30.iv.–6.v.2010, Jiří Hájek leg. (2 exx. NMPC); Laos-C, Kham Mouan prov., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (1 ex., NHMB); Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, IBCFL, Opération Canopée, 8–17.v.2012, H-P. Aberlenc (3 exx., CIRAD); as previous except: 17–22.v.2012 (3 exx., CIRAD); as previous except: 17°59.659′N, 104°49.272′E, valley forest edge, piège Malaise, 9–18.v.2012 (1 ex., CIRAD).

Distribution. Tropical east and south Africa, Madagascar, Indian ocean islands, Japan, Taiwan, Oriental region to New Guinea and Australia, Pacific islands. First recorded from Laos by Schedl (1971, as *Platypus externe-dentatus* [sic]).

Biology. Strongly polyphagous (e.g. Beeson 1961, Browne 1961, Schedl 1965, Wood & Bright 1992). The species can be of economic importance in plantations, because it sometimes attacks living trees (Browne 1968, Beaver 2000).

Crossotarsus nitens Chapuis

Crossotarsus nitens Chapuis, 1865, Monogr. Platypides, p. 77.

Material examined: NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (1 ex., BMNH).

Distribution. Indonesia (Maluku), Malaysia (E. & W.), Thailand. New to Laos.

Biology. Almost all host tree records are from Dipterocarpaceae (Browne 1984, Ohno 1990, Schedl 1966), but there is also one record from Leguminosae (Browne 1961).

Crossotarsus sauteri Strohmeyer

Crossotarsus sauteri Strohmeyer, 1913, Ent. Blätt. 9: 164.

Material examined. NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (3 exx., BMNH); as previous except: 27.iv.–1.vi.2011 (6 exx., BMNH, RAB).

Distribution. Taiwan. The species also occurs in China (Jiangxi) (R. A. Beaver, unpublished record). New to Laos.

Biology. The species seems to show some preference for the family Lauraceae, but also attacks other families (Beaver & Shih 2003 as *Crossotarsus rengetensis* Niijima & Murayama).

Crossotarsus squamulatus Chapuis

Crossotarsus squamulatus Chapuis, 1865, Monogr. Platypides, p. 87.

Material examined. Laos-C, Kham Mouan prov., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (1 ex., NHMB); Khammouane Pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, IBCFL, Opération Canopée,

8–17.v.2012, H-P. Aberlenc (1 ex., CIRAD); Phongsaly prov., Phongsaly env., 21°41–2′N, 102°06–08′E, ~1500 m, 28.v.–20.vi.2003, Vít Kubáň leg. (4 ex., NHMB); NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (1 ex., BMNH).

Distribution. From Northeastern India through Southeast Asia and Indonesia to the Bismarck Islands. New to Laos.

Biology. A strongly polyphagous species (BEESON 1937, 1961, BROWNE 1961, KALSHOVEN 1960). These authors give details of the gallery system, brood sizes and approximate rates of development. KALSHOVEN (1960) notes that it may attack apparently healthy trees, and BROWNE (1961) considers it to be of possible economic importance due to its abundance.

Crossotarsus terminatus Chapuis

Crossotarsus terminatus Chapuis, 1865, Monogr. Platypides, p. 83.

Material examined. Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, Vít Kubáň leg. (1 ex., NHMB).

Distribution. India (Andaman & Nicobar Islands), Thailand, Malaysia (E. & W.), Indonesia, New Guinea and the Solomon Islands. New to Laos.

Biology. Polyphagous (BEESON 1961, BROWNE 1961, WOOD & BRIGHT 1992). BROWNE (1961) notes that it tends to attack stems of smaller size (8–25 cm diameter) than many platypodines, and has not been found in very large logs or sawn timber. Like *C.squamulatus*, BROWNE (1961) considers it to be of possible economic importance due to its abundance.

Crossotarsus wallacei (Thomson)

Platypus wallacei Thomson, 1857, Arch. Ent. 1: 343.

Material examined. Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, Pacholátko leg. (3 exx., NHMB); Laos-C, Kham Mouan prov., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (3 exx., NHMB, RAB).

Distribution. From Sri Lanka and India through Southeast Asia, Taiwan and Indonesia to New Guinea. New to Laos.

Biology. This is one of the largest platypodines. It commonly occurs as a secondary or wound parasite of rubber trees (BROWNE 1968), and may cause severe damage to felled timber since it makes large holes over 3 mm diameter. The species is polyphagous (BROWNE 1961, WOOD & BRIGHT 1992), usually attacking stems of more than 15 cm diameter (BROWNE 1961). The gallery system resembles that of *C. bonvouloiri* (see above). As in that species, the female frons is deeply excavate, and the antennal scapes are enlarged and compressed. BROWNE (1961) notes that the scapes can be used like forceps to pick up the eggs as they are laid, and place them in the cavity, where they adhere to hairs. This may protect them from damage as the female moves around the gallery.

Dinoplatypus cavus (Strohmeyer)

Platypus cavus Strohmeyer, Ent. Blätt. 9: 162.

Material examined. Laos-C, Kham Mouan prov., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (22 exx., NHMB); as previous except: 19–31.v.2001 (5 exx., NHMB); Khammouan P., Baan Nahin, 18°12.226′N, 104°31.423′E, 160m, 05.iii.2009. leg. T. Ihle (1 ex., NKME); Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.645′N, 104°49.352′E, piège lumineux, IBCFL, Opération Canopée, 11.v.2012, H-P. Aberlenc (1 ex., CIRAD); as previous except: 17.v.2012 (1 ex., CIRAD) Laos-CE, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, Pacholátko leg. (12 exx., NHMB); Laos-N, Louangphrabang pr., Khan riv., 19°53′N, 102°09′E, 300 m, Vít Kubáň leg. (2 exx., NHMB); Laos-N, Udomxai prov., Pak Beng, 19°53′37″N, 101°07′51″E, 450 m, 18–27.v.2001, J. Kolibáč leg. (7 exx., NHMB); Laos PDR, Luang Namtha prov., Nam Ha NBCA, Lakhammai village, Nam Leung stream, 749 m, 47Q0744602, UTM2339873, light trap, 30.iv.2005, N. Jönsson, T. Malm & B. Viklund leg. (1 ex. NHRS); NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (1 ex., BMNH).

Distribution. From India and Pakistan through Southeast Asia and Indonesia (from Sumatra to Sulawesi) and the Philippines. The species also occurs in China (Hainan Isl.) (R. A. Beaver, unpublished record). New to Laos.

Biology. A polyphagous species (e.g. Browne 1961, Kalshoven 1960, Ohno 1990). The gallery system is the same as in *Platypus*, with branched tunnels, more or less in one transverse plane. Short secondary branches end in groups of pupal cells above and below the tunnel. Kalshoven (1960) notes that the species may attempt to attack healthy trees, but such attacks are unsuccesful due to the defense mechanisms of the tree.

Dinoplatypus cupulatus (Chapuis)

Platypus cupulatus Chapuis, 1865, Monogr. Platypides, p. 278.

Material examined: Laos, Attapeu prov., Annam Highlands Mts., Dong Amphan NBCA, Nong Fa crater lake, env., 15°05.9′N, 107°25.6′E, ca 1180 m, 30.iv.–6.v.2010, Jiří Hájek leg. (3 exx. NMPC); Champasak prov., Bolavens plateau, waterfall ca. 2 km E Tao Katamtok, 15°08.1′N, 106°38.8′E, 415 m, 10–12-v.2010, Jiří Hájek leg. (2 exx., NMPC); Hua Phan prov., 25 km SE Vieng Xai (by road), Ban Kangpabong env., 20°19′N, 104°25′E, 14–18.v.2001, J. Bezděk leg. (5 exx., NMPC); Sekong prov., ca 51 km N. Sekong (river), Ho Chi Minh trail, 15°49.6′N, 106°39.8′E, ca 410 m, 14–15.v.2010, Jiří Hájek leg. (1 ex., NMPC).

Distribution. From India through Southeast Asia to Indonesia and New Guinea. New to Laos.

Biology. The gallery system and habits resemble those of *D. cavus* (see above). Browne (1961) notes that the adults fly at night and are attracted to light. The species is most common in large logs, but also attacks smaller branches. Attacks may sometimes be very heavy. Development takes about a month in West Malaysia (Browne 1961).

Dinoplatypus forficula (Chapuis)

Platypus forficula Chapuis, 1865, Monogr. Platypides, p. 283.

Material examined: Laos-C, Kham Mouan prov., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (2 exx., NHMB).

Distribution. From India through Southeast Asia and Indonesia to New Guinea, Australia and Solomon Islands. New to Laos.

Biology. The species is polyphagous (e.g. BROWNE 1961, OHNO *et al.*1989, WOOD & BRIGHT 1992). It attacks trees of any size down to about 10 cm diameter (BROWNE 1961).

Dinoplatypus pseudocupulatus (Schedl)

Platypus pseudocupulatus Schedl, 1935, J. Fed. Malay States Mus. 17: 635.

Material examined: Laos, Hua Phan prov., 25 km SE Vieng Xai (by road), Ban Kangpabong env., 20°19′N, 104°25′E, 14–18.v.2001, J. Bezděk leg. (1 ex., NMPC); Laos PDR, Luang Namtha Prov., Tong Om village, 552 m, 47Q0750111, UTM 2321825, light trap, 1.v.2005, N. Jönsson, T. Malm & B. Viklund leg. (3 exx., NHRS); Laos S, Udomxai Prov., Pak Beng, 19°53′37″N, 101°07′51″E, 450 m, 18–27.v.2001, J. Kolibáč leg. (1ex., NHMB).

Distribution. India through Southeast Asia and Indonesia to New Guinea, Australia and Solomon Is. New to Laos.

Biology. A common and polyphagous species (e.g. BROWNE 1961, OHNO 1990, WOOD & BRIGHT 1992), attacking large logs and smaller branches. As in some other species of *Dinoplatypus* Wood, 1993, the dispersing adults fly at night and are attracted to light. Development can be rapid, and BROWNE (1961) records final instar larvae present 21 days after the initial attacks.

Euplatypus parallelus (Fabricius)

Bostrichus parallelus Fabricius, 1801, Systema Eleutheratorum, 2: 384.

Material examined: Laos, Attapeu prov., Annam Highlands Mts., Dong Amphan NBCA, Nong Fa crater lake, env., 15°05.9′N, 107°25.6′E, ca 1180 m, 30.iv.–6.v.2010, Jiří Hájek leg. (1 ex. NMPC); Laos PDR, Luang Namtha Prov., Tong Om village, 552 m, 47Q0750111, UTM 2321825, light trap, 1.v.2005, N. Jönsson, T. Malm & B. Viklund leg. (3 exx., NHRS); Laos-C, Kham Mouan Pr., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (2 exx., NHMB); Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.645′N, 104°49.352′E, piège lumineux, IBCFL, Opération Canopée, 11.v.2012, H-P. Aberlenc (2 exx., CIRAD); as previous except: 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, 8–17.v.2012 (4 exx., CIRAD); as previous except: 17–22.v.2012 (5 exx., CIRAD); Salavan prov., ca 16 km NW Salavan, broken bridge over SE Don river, 15°47.4′N, 106°17.5′E, 150m, at light, Jiří Hájek leg. (2 exx., NMPC).

Distribution. USA (Southern states), Caribbean Islands, Mexico through Central and South America to Argentina. Introduced to and widespread in the Afrotropical region, Indian Ocean islands and Madagascar. In Asia, recorded from Sri Lanka and India, through Southeast Asia, eastwards to New Guinea and Australia, and northwards to China and Taiwan. Recorded from Laos by BEAVER (2013b).

The species appears to have been relatively recently introduced to the Oriental region (BEAVER 2013b). It has spread rapidly, probably largely through commerce, and is now the most abundant species of platypodine in some areas at lower altitudes (BEAVER 2013b).

Biology. Strongly polyphagous (e.g. SCHEDL 1965, OHNO 1990, WOOD & BRIGHT 1992). The gallery system resembles that of species of *Dinoplatypus* and *Platypus*, with

branching galleries in one transverse plane, the branches ending in groups of pupal cells above and below the gallery (SCHEDL 1965). WOOD & BRIGHT (1992) consider it to be the most destructive and most widely distributed platypodine in the world. Its status as a pest in the Oriental region is discussed by BEAVER (2013b).

Peroplatypus laosi (Schedl)

Platypus laosi Schedl, 1971, Orient. Insects, 5: 391.
Crossotarsus fagacearum Browne, 1975, Orient. Insects, 9: 303. **syn.nov.**

Material examined: Laos area, Vankly, 1963 (male holotype, NMW); Laos, Phongsaly prov., Phongsaly env., 21°41–2′N, 102°06–08′E, ~1500 m, 28.v.–20.vi.2003, Vít Kubáň leg. (1 ex., RAB); NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2011, leg. C. Holzschuh (1 ex., BMNH).

Remarks on systematics. *Peroplatypus laosi* was previously known only from the male holotype (NMW). The species was transferred from *Platypus* to *Peroplatypus* Wood, 1993 by WOOD (1993), apparently without seeing the holotype. The holotype has been compared with a series of specimens (including paratypes) of *Crossotarsus fagacearum* Browne, 1975 from Thailand in my own collection (RAB), and the two species are clearly conspecific. The latter species is therefore placed in synonymy. The species is not closely related to other species placed in *Peroplatypus* by WOOD (1993). However, this genus, as currently constituted, is heterogeneous. It was diagnosed by WOOD (1993) largely on the basis of the circular, truncate elytral declivity of the male. This enables the male to block the gallery entrance, and helps to prevent the entry of predators and parasites. However, this is an adaptive character of the declivity which has evolved independently more than once in the Platypodinae, as it has in the Scolytinae (HULCR *et al.* 2015). It appears to have evolved independently more than once in species currently placed in *Peroplatypus*. *Peroplatypus laosi* can not be placed satisfactorily in the genus *Crossotarsus* because of the three-segmented not two-segmented labial palps, and the large mycangial pores on the female pronotum. It is retained here temporarily in *Peroplatypus* pending further studies of the genus, but will probably need to be separated in a new genus.

Distribution. Laos, Thailand.

Biology. Apparently host-specific to the family Fagaceae, and recorded only from species of *Quercus* and *Castanopsis* (BEAVER & BROWNE 1975, BEAVER & LIU 2013). The species is probably restricted to hill evergreen forests at altitudes between c. 1000–1800 m, where trees of the family Fagaceae dominate the forests (GARDNER *et al.* 2000).

Platypus afzeliae Browne

Platypus afzeliae Browne, 1972, Orient. Insects, 6: 29.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, Vít Kubáň leg. (7 exx., NHMB, RAB); Laos-C, Kham Mouan Pr., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (1 ex., NHMB).

Distribution. Thailand. New to Laos.

Biology. The only recorded host is *Afzelia xylocarpa* (Leguminosae) (BROWNE 1972).

Platypus arrogans Schedl

Platypus arrogans Schedl, 1971, Orient. Insects, 5: 387.

Material exmined: None. Known only from the female holotype (NMW).

Distribution. Laos.

Biology. Unknown.

Platypus burmanus (Sampson)

Crossotarsus burmanus Sampson, 1923, Ann. Mus. Civ. Stor. Nat. Giacomo Doria, 51: 72.

Material examined: NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (5 exx. BMNH, RAB); as previous except: 27.iv.–1.vi.2011 (3 exx. BMNH).

Distribution. Myanmar. New to Laos.

Biology. Unknown.

Platypus contaminatus Blandford

Platypus contaminatus Blandford, 1894, Trans. Ent. Soc. Lond. 1894: 131.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (4 exx., NHMB, RAB).

Distribution. China (Fujian), India (N.), Japan, Taiwan. New to Laos.

Biology. A polyphagous species (BEAVER & SHIH 2003).

Platypus curtus Chapuis

Platypus curtus Chapuis, 1865, Monogr. Platypides, p. 261.

Material examined: Laos-C, Kham Mouan pr., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (4 exx., NHMB); Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, 8–17.v.2012 (2 exx., CIRAD); as previous except: 17–22.v.2012 (3 exx., CIRAD).

Distribution. India through Southeast Asia to the Philippines and Indonesia, China and Taiwan. New to Laos.

Biology. A polyphagous species (OHNO 1990, WOOD & BRIGHT 1992), but with a preference for trees of the family Dipterocarpaceae (BROWNE 1961). BROWNE (1961) describes the gallery system, and suggests that the life cycle can be completed in about one month. He considers it of potential economic importance due to its abundance.

Platypus fraterculus Schedl

Platypus fraterculus Schedl, 1941, Ent. Ber. 10: 361.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (2 exx. NHMB).

Distribution. "Borneo", India (Nicobar Is.), Indonesia (Java, Sumatra), Malaysia (E. & W.), Philippines, Thailand. New to Laos.

Biology. Polyphagous, recorded from five families of host trees (KALSHOVEN 1960, BROWNE 1961).

Platypus indicus Strohmeyer

Platypus indicus Strohmeyer, 1910, Ent. Blätt. 6: 131.

Material examined: Laos, Phongsaly prov., Ban Sano Mai, 21°21′N, 102°03′E, c. 1150 m, 19–26.v.2004, P. Pacholátko leg. (3 exx., NHMB, RAB); Laos, NE, Houe Phan prov., Phou Pané Mt., 20°13′09–19″N, 103°59′54″–104°00′03″E, 1480–1510 m, 22.iv.–14.v.2008, Vít Kubáň leg. (2 exx., NHMB).

Distribution. India (N. & S.), Laos, Myanmar, Taiwan, Thailand, Vietnam. First recorded from Laos by BEAVER (2013a).

Biology. A polyphagous species, with a gallery system typical of the genus (BEESON 1961).

Platypus infuscatus Browne

Platypus infuscatus Browne, 1970, J. Nat. Hist. 4: 579.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (2 exx. NHMB, RAB); Louangphrabang, Thong Khan, 19°35′N, 101°58′E, ~750 m, 11–21.v.2002, Vít Kubáň leg. (1 ex., NHMB); Phongsaly prov., Phongsaly env., 21°41–2′N, 102°06–08′E, ~1500 m, 28.v.–20.vi.2003, Vít Kubáň leg. (2 exx., NHMB, RAB); as previous except: 6–17.v.2004 (3 exx., NHMB, RAB).

Distribution. Myanmar. New to Laos.

Biology. Recorded only from *Wrightia tomentosa* (Apocyanaceae) (BROWNE 1970).

Platypus insulindicus Schedl

Platypus bicornis Schedl, 1939, J. Fed. Malay States Mus. 18: 360.
Platypus insulindicus Schedl, 1952, Ent. Blätt. 47/48: 164. Nom.nov. because of homonymy with *P. bicornis* Nunberg 1939.

Material examined: Laos–C, Kham Mouan Pr., Ban Khoun Ngeun, 18°07′N, 104°29′E, ~200 m, 19–31.v.2001, Pacholátko leg. (5 exx., NHMB, RAB).

Distribution. Indonesia (Java), Malaysia (E. & W.), Myanmar, Thailand. New to Laos.

Biology. A polyphagous species (BEESON 1961, BROWNE 1961, WOOD & BRIGHT 1992).

Platypus lobacanthus (Schedl)

Carchesiopygus lobacanthus Schedl, 1969, Orient. Insects, 3: 59.

Material examined: NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (1 ex., BMNH).

Remarks on systematics. This species was incorrectly placed in *Carchesiopygus* Schedl, and is transferred to *Platypus* by BEAVER & SANGUANSUB (2015).

Distribution. India (Uttarakhand), Thailand. New to Laos.

Biology. The only recorded hosts are *Quercus incana* (Fagaceae) (BEESON 1961), and an undetermined tree of the same family (BEAVER & SANGUANSUB 2015).

Platypus loricatus (Sampson)

Crossotarsus loricatus Sampson, 1923, Ann. Mus. Civ. Stor. Nat. Giacomo Doria, 51: 71.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (1 ex., NHMB); Phongsaly prov., Phongsaly env., 21°41′N, 102°6′E, ~1500 m, 6–17.v.2004, V. Kubáň leg. (5 exx., NHMB, RAB).

Distribution. Indonesia (Java, Sumatra), Malaysia (E. & W.), Myanmar, Philippines, Thailand, Vietnam. New to Laos.

Biology. A polyphagous species (BROWNE 1961, OHNO 1990).

Platypus pseudocurtus Schedl

Platypus pseudocurtus Schedl, 1935, J. Fed. Malay States Mus., 17: 635.

Material examined: Laos, NE, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (1 ex., BMNH); Phongsaly prov., Phongsaly env., 21°41–2′N, 102°06–08′E, ~1500 m, 28.v.–20.vi.2003, Vít Kubáň leg. (1 ex., NHMB).

Distribution. "Borneo", Indonesia (Sumatra), Malaysia (W.), Thailand, Vietnam. New to Laos.

Biology. Associated primarily with Dipterocarpaceae, although trees in other families may sometimes be attacked (BROWNE 1961, OHNO 1990).

Platypus querci Browne

Platypus querci Browne, 1980, Kontyű, 48: 488.

Material examined: Laos, NE, Houa Phan prov., Phou Pané Mt., 20°13′09–19″N, 103°59′54″–104°00′03″E, 1480–1510 m, 22.iv.–14.v.2008, Vít Kubáň leg. (1 ex., RAB).

Distribution. Taiwan. New to Laos.

Biology. The only host recorded is *Quercus* sp. (Fagaceae) (BROWNE 1980).

Platypus quercivorus Murayama

Platypus quercivorus Murayama, 1925, J. Coll. Agr. Hokkaido Imp. Univ. 15: 229.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (2 exx., NHMB).

Distribution. India, Indonesia (Java), Japan, Taiwan, Thailand, Vietnam. New to Laos. The record from New Guinea (SCHEDL 1972), cited by numerous Japanese authors, is likely to be an error.

Biology. This species has been the subject of much recent research in Japan, where it is an economically important pest of *Quercus* and *Pasania* (Fagaceae) (e.g. KUBONO & ITO 2002, KINUURA & KOBAYASHI 2006, YAMASAKI & FUTAI 2012, YAMASAKI *et al.* 2014). Other hosts may also be attacked, but the beetle has a strong preference for the Fagaceae. In Southeast Asia, the species occurs in the highland evergreen forests which are dominated by Fagaceae, but appears not to attack healthy trees, and is not known to be of economic importance (BEAVER & LIU 2013).

Platypus secretus Sampson

Platypus secretus Sampson, 1921, Ann. Mag. Nat. Hist. (ser. 9), 7: 25.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (1 ex. NHMB); NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 27.iv.–1.vi.2011, leg. C. Holzschuh (3 exx., BMNH); Laos–C, Kham Mouan Pr., Ban Khoun Ngeun, 18o07′N, 104°29′E, ~200 m, 24–29.iv.2001, Pacholátko leg. (13 exx., NHMB, RAB); as previous except: 1–18.v.2001 (2 exx. NHMB); as previous except: 19–31.v.2001 (1 ex., NHMB); Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, 17–22.v.2012 (2 exx., CIRAD); Phongsaly prov., Phongsaly env., 21°41′N, 102°6′E, ~1500 m, 6–17.v.2004, V. Kubáň leg. (1 ex. NHMB); as previous except: 28.v.–20.vi.2003 (1 ex., NHMB).

Distribution. Bangladesh, Bhutan, India, Laos, Myanmar, Thailand, Vietnam. First recorded from Laos by SCHEDL (1971).

Biology. A polyphagous species (BEESON 1961).

Platypus squameus Schedl

Platypus squameus Schedl, 1942, KolForstl. Mitt. 5: 200.

Material examined: Laos, Bolikhamsay Prov., Phou Khao Kouay NBCA, Tad Leuk waterfall, 280 m, at light, 11–12.iv.1998, leg. O. Merkl & G. Csorba (1 ex., HNHM); as previous except: Nam Leuk village, 380 m, from cut logs, 13.iv.1998 (1 ex. HNHM).

Distribution. Indonesia (Sumatra), Myanmar, Thailand. The species also occurs in Brunei Darussalam and East Malaysia (R. A. Beaver, unpublished records). New to Laos.

Biology. Unknown.

Platypus vetulus Schedl

Platypus vetulus Schedl, 1935, J. Fed. Malay States Mus. 17: 638.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (29 exx., NHMB, RAB); NE Laos, Hua Phan prov., Ban Saluei, Phou Pan (Mt.), 20°12′N, 104°01′E, 1300–1900m, 7.iv.–25.v.2010, leg. C. Holzschuh (1 ex., BMNH); Phongsaly prov., Phongsaly env., 21°41′N, 102°6′E, ~1500 m, 6–17.v.2004, V. Kubáň leg. (4 exx., NHMB).

Distribution. Indonesia (Sumatra), Malaysia (E. & W.), Thailand. New to Laos.

Biology. A polyphagous species (SCHEDL 1935, OHNO 1990).

Treptoplatypus fulgens (Schedl)

Platypus fulgens Schedl, 1951, Tijd. Ent. 93: 97.

Material examined: Laos, Champassak Prov., Dong Hua Xao NBCA, bank of Nam Phak river, 15°59′N, 105°55′E, 280 m, at light, 28–29.iii.1998, leg. O. Merkl & G. Csordas (1 ex., HNHM); Louangphrabang pr., Muang Nooy, 20°43′N, 102°41′E, 500 m, 22.iv.1999, Vít Kubáň leg. (1 ex., NHMB).

Distribution. Thailand, Vietnam. The species also occurs in Cambodia (R. A. Beaver, unpublished record). New to Laos.

Biology. Unknown.

Treptoplatypus solidus (Walker)

Platypus solidus Walker, 1858, Ann. Mag. Nat. Hist. ser. 3, 2: 286.

Material examined: Laos, Attapeu prov., Annam Highlands Mts., Dong Amphan NBCA, Nong Fa (crater lake) env., 15°05.9′N, 107°25.6′E, ca 1150 m, 30.iv.–6.v.2010, Jiří Hájek leg. (1 ex., NMPC).

Distribution. Throughout the Oriental region from India and Sri Lanka through Southeast Asia, North to Japan, Korea and Taiwan, and East to New Guinea, Australia and the Pacific islands. New to Laos.

Biology. A strongly polyphagous species (e.g. BEESON 1961, BROWNE 1961, OHNO 1990), which is sometimes of economic importance. Attacks on living trees have been noted in India, Java, Malaysia and Papua New Guinea (BEESON 1961, BROWNE 1961, GRAY & WYLIE 1974). CHEY (2002) considers it a major pest of forest plantations in Sabah. The gallery system, development and emergence is described by BEESON (1961).

TESSEROCERINI

Diapus aculeatus Blandford

Diapus aculeatus Blandford, 1894, Trans. Ent. Soc. Lond. 1894: 139.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (2 exx., NHMB); Phongsaly prov., Phongsaly env., 21°41′N, 102°6′E, ~1500 m, 6–17.v.2004, V. Kubáň leg. (6 exx. NHMB); as previous except: 28.v.–20.vi.2003 (3 exx., NHMB, RAB).

Distribution. Bhutan, India (Assam, Uttarakhand), Japan, Taiwan, Thailand, Vietnam. New to Laos.

Biology. This species is normally restricted to hosts in the family Fagaceae (*Castanea, Castanopsis, Quercus*), although there is one record from *Alnus* (Betulaceae) in northern India (Beaver & Shih 2003).

Diapus gestroi Sampson

Diapus gestroi Sampson, 1923, Ann. Mus. Civ. Stor. Nat. Giacomo Doria, 51: 74.

Material examined: Laos, Phongsaly prov., Phongsaly env., 21°41′N, 102°6′E, ~1500 m, 6–17.v.2004, V. Kubáň leg. (1 ex., RAB); as previous except: P. Pacholátko leg. (1 ex., NHMB); as previous except: Ban Sano Mai, 21°21′N, 102°03′E, ~1150 m, 19–26.v.2004, Vít Kubáň leg. (1 ex., NHMB).

Distribution. Myanmar. The species also occurs in Nepal (R. A. Beaver, unpublished record). New to Laos.

Biology. Unknown.

Diapus quinquespinatus Chapuis

Diapus quinquespinatus Chapuis, 1865, Monogr. Platypides, p. 334.

Material examined: Laos, Louangphrabang pr., Ban Song Cha (5 km W), 20°33–34′N, 102°14′E, 1200 m, 1–9.v.1999, Vít Kubáň leg. (1 ex., NHMB); as previous except: 10–16.v.1999 (1 ex., RAB); Khammouane pr., Hin Boun riv., Ban Nathan, Camp de l'Agame, 17°59.773′N, 104°49.396′E, valley forest, piège Malaise géant, 8–17.v.2012 (2 exx., CIRAD); as previous except: 17°59.645N, 104°49.352′E, piège lumineux, 10.v.2012 (1 ex. CIRAD).

Distribution. Tropical Africa; throughout the Oriental region North to Japan, and East to New Guinea, Australia and the Pacific islands. New to Laos.

Biology. A polyphagous species recorded from a wide variety of host trees (e.g. Beeson 1961, Browne 1961, Ohno *et al.* 1988, 1989, Wood & Bright 1992). It usually attacks unhealthy or felled trees, usually of large size, but can also attack living trees through bark injuries (Browne 1968). The gallery system lies largely in one transverse plane, and may penetrate deeply into the wood. Pupal cells are constructed in groups at the end of short branch galleries.

Genyocerus quadriporus (Schedl)

Diacavus quadriporus Schedl, 1942, KolForstl. Mitt. 5: 217.

Material examined: Laos, Bolimkhamxai prov., Ban Nape (8 km NE), 18°21′N, 105°08′E, ~600 m, 1–18.v.2001, V. Kubáň leg. (2 exx., NHMB).

Distribution. Indonesia (Sumatra), Malaysia (E. & W.), Philippines, Thailand. New to Laos.

Biology. Recorded only from four genera of Dipterocarpaceae (Beaver & Liu 2007).

Platytarsulus biconicus Schedl

Platytarsulus biconicus Schedl, 1954, Sarawak Mus. J. 6: 162.

Material examined: Laos, Attapeu prov., Annam Highlands Mts., Dong Amphan NBCA, Nong Fa crater lake, env., 15°05.9′N, 107°25.6′E, ca 1180 m, 30.iv.–6.v.2010, Jiří Hájek leg. (1 ex., RAB).

Distribution. "Borneo", Malaysia (E.). New to Laos.

Biology. The species of this genus appear to breed only in trees of the family Dipterocarpaceae (BEAVER 1998). The gallery system has not been described.

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