



Key to Holarctic species of *Epitrix* flea beetles (Coleoptera: Chrysomelidae: Galerucinae: Alticini) with review of their distribution, host plants and history of invasions

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Abstract

The genus *Epitrix* Foudras, 1860a has a worldwide distribution. Some species of *Epitrix* are major pests of potato, tomato, eggplant, tobacco and other plants in North America and Europe. Some pest species have been inadvertently introduced from North America to Europe, from Europe to North America and from both continents to some islands in Atlantic and Pacific oceans. Therefore, a key for the identification of all Holarctic species is necessary for plant quarantine and protection services. We have compiled the key for distinguishing *Epitrix* from genera that could be confused with it and a key for all Holarctic species of *Epitrix* with the figures of spermathecae and aedeagi and the checklist with a review of the geographical distribution, host plants and history of invasions. The following species are included: *E. abeillei* (Bauduer), *E. allardii* (Wollaston), *E. atropae* Foudras, *E. brevis* Schwarz, *E. caucasica* (Heikertinger), *E. cucumeris* (Harris), *E. dieckmanni* (Mohr), *E. ermischii* (Mohr), *E. fasciata* Blatchley, *E. flavotestacea* Horn, *E. fuscula* Crotch, *E. hirtipennis* (Melsheimer), *E. humeralis* Dury, *E. intermedia* Foudras, *E. krali* Döberl, *E. lobata* Crotch, *E. muehlei* Döberl, *E. priesneri* (Heikertinger), *E. pubescens* (Koch), *E. ogloblini* (Iablokov-Khnzorian), *E. robusta* Jacoby, *E. setosella* (Fairmaire), *E. similis* Gentner, *E. solani* (Blatchley), *E. subcrinita* (LeConte), *E. tuberosa* Gentner, *E. warchalowskii* (Mohr) and *E. papa* Orlova-Bienkowskaja.

Key words: leaf-beetles, *Solanum*, Solanaceae, alien species, plant quarantine, potato, tobacco, pest

Introduction

Flea beetles of the genus *Epitrix* Foudras, 1860a (Coleoptera: Chrysomelidae: Alticinae) are tiny beetles feeding mainly on Solanaceae. Some of them are serious pests of potato, tomato, eggplant, tobacco and other cultivated plants. The genus has a worldwide distribution and consists of nearly 180 species (Döberl 2000). Most of them are native to South and Central America, 13 species are native to Eurasia (Döberl 2010), 13 described species are native to North America (Riley *et al.* 2003; Deczyski 2014), one species is native to the Canary Islands (Döberl 2010), one alien pest species detected in Portugal and Spain has an unknown native range (Orlova-Bienkowskaja 2015).

Some species of the genus have been inadvertently introduced to areas outside their native range. In particular, *E. hirtipennis* (Melsheimer), *E. fasciata* Blatchley and *E. cucumeris* (Harris) have been introduced from North America to the Palaearctic (Döberl 2010). *Epitrix pubescens* (Koch) has been introduced from Europe to North America (Deczyski 2014). *Epitrix hirtipennis*, *E. fasciata*, *E. cucumeris* and *E. pubescens* have been introduced from continents to some islands in Pacific and Atlantic oceans (Döberl 2010). The establishment of some alien pest species of *Epitrix* can lead to significant economic damage. Four species are regarded as quarantine pests in Europe (EPPO 2015), but there is no checklist or key for the identification of all Holarctic species. This checklist and key are necessary for plant quarantine and protection services in Asia, Europe and North America, because correct identification is needed for timely detection, eradication or control of alien pests.

There are several keys for identification of the Palaearctic species (Heikertinger 1950; Doguet 1994; Döberl 2000; Warchalowski 2003) and Nearctic species (Horn 1889; Heikertinger 1950; Deczyski 2014), and some

regional keys: Wilcox (1954)—for Ohio; Seeno and Andrews (1972)—for California; Balsbaugh and Hays (1972)—for Alabama; Downie and Arnett (1996)—for northeastern North America. But since the ranges of the species of the genus *Epitrix* are changing, and the species sometimes establish far from their native range, identification with regional keys is no longer reliable. For example, the species found in the Azores in 1979, was at first described as the new species *Epitrix azorica* (Gruev 1981), but was identified later as the North American species *E. cucumeris* (Israelson 1985).

The taxonomy of the North American species of the genus *Epitrix* needs revision; there are several undescribed species (Riley *et al.* 2002; Deczynski 2014). There are also some unsolved questions in the taxonomy of Palaearctic species (Furth 1997). The aim of the present study is to summarize the knowledge about the flea-beetles of the genus *Epitrix* of Europe, Asia and North America and provide a key for identification of all described species. The checklist and the key based on morphological characters are necessary to form the basis for the promising new area of research: molecular identification of *Epitrix* flea beetles (Germain *et al.* 2013).

Materials and methods

316 specimens of 20 species have been obtained from the National Museum of Natural History (USA), Instituto Nacional de Investigação Agrária e Veterinária (Portugal), Russian Plant Quarantine Center, Zoological Institute of Russian Academy of Sciences, Moscow State Pedagogical University (Russia), and private collections of L.N. Medvedev and A.O. Bieńkowski (Russia), M. Döberl (Germany) and other colleagues (see Table 1 and Supplementary material).

The spermathecae of females and aedeagi of males were extracted using standard procedures. Specimens were soaked in cold water for one day. Then abdominal segments were separated from the rest of the body and soaked in cold 10% KOH for one day, after that the KOH was rinsed off the abdominal segments. Finally, the spermatheca or aedeagus was removed by tearing the abdominal tergites and glued on the carton triangle with the white glue. The terminology used for descriptions of spermatheca is based on Seeno and Andrews (1972).

We describe the history of invasions of species far from their native ranges, i.e. invasions from North America to Europe, from Europe to North America and from both continents to oceanic islands. We usually do not describe the expansion of ranges within continents and the invasion from North America to South America and vice versa, since in such cases it is difficult to prove that the species is newly established and did not occur in the territory undetected.

Epitrix belongs to the group of morphologically allied genera in which the pronotal antebasal transverse impression is more or less developed, pronotal basal longitudinal furrows are distinct (except the genus *Orthaltica*), procoxal cavities are closed behind, the elytra bear regular puncture rows and are entirely covered with setae in the intervals. The key for distinguishing *Epitrix* from morphologically close genera is based on Heikertinger (1950), Arnett (1968), Konstantinov and Vandenberg (1996), Nadein (2011) and material examined.

Results

Key to genera morphologically close to *Epitrix*

1. Pronotum narrower than elytral base, 1.4–1.8X as wide as long; body broad (Figure 1B, C; 2C, D) 2.
- . Pronotum nearly as wide as elytral base, 1.2X as wide as long or narrower; body narrow (Figure 1A) 4.
- 2 (1). Antennal calli separated from vertex by a sharp supracallinal sulcus (Figure 2A, B) 3.
- . Antennal calli not distinctly separated from vertex *Neocrepidodera* Heikertinger (two species, previously included in the genus *Orestioides* Hatch, in N USA and W Canada (Leech 1944; Arnett 1968; Furth 1985; Konstantinov 1995)).
- 3 (2). Pronotum basally slightly narrower than elytral base, narrowed anteriorly (Figure 1B; 2C, D). First abdominal sternite as long as following three combined (Figure 1F). *Epitrix* Foudras (worldwide genus, with more than 180 species, mostly distributed in Central and South America (Döberl 2000), 28 species in Holarctic).
- . Pronotum basally much narrower than elytral base, with parallel lateral sides, almost rectangular (Figure 1C). First abdominal sternite as long as following two combined (Figure 1G) *Lipromima* Heikertinger, (3 species in Japan, China, India (Döberl 2010)).
- 4 (1). Dorsum with contrasting colouration: pronotum rufous to piceous, elytra metallic violet, blue to blackish-blue ... *Derocrepis* Weise (subgenus *Aeschrocnemis* Weise, some species) (the subgenus includes 17 species from SE Europe, Asia Minor, and

Caucasus (Nadein 2011)).

- Dorsum usually brownish to nearly black.
- . . . *Orthaltica* Crotch, (two species, before included in the genus *Leptotrichaltica* Heikertinger, 1925 in W USA (Arnett 1968; Scherer 1974)).

Key to Holarctic species of the genus *Epitrix*

1. Dorsal side entirely black, with or without metallic reflection 2.
- Dorsal side partly or entirely rufous or yellow (testaceous) 31.
- 2 (1). Sutural puncture row of elytra ending at basal 1/3–1/2 of elytra 3.
- Sutural puncture row of elytra extending far beyond mid-point of elytra. Several species distinguishable by shape of male aedeagus and female spermatheca. 14.
- 3 (2). Pronotal surface alutaceous; pronotal discal punctures large, dense, separated with intervals mostly as wide as puncture diameter or narrower. 1–5 elytral intervals with setae irregularly placed, mostly arranged in 2 irregular rows 4.
- Pronotal surface smooth. 6.
- 4 (3). Pronotal antebasal impression weak, anterolateral callosity shorter, as long as 0.4X the rest part of lateral side. Elytra black with very slight greenish tint; antennae and legs yellow. Body elongate. Aedeagus (Figure 3A). Spermatheca: receptacle impressed externally (Figure 4T). Length 1.7–2.1mm *E. intermedia* Foudras
- Pronotal antebasal impression distinct, anterolateral callosity longer, as long as 0.5X the rest part of lateral side. Elytra black, without metallic reflection 5.
- 5 (4). Pronotum with anterolateral callosity bearing small denticle, pronotal posterior angles distinctly more than 90°, rounded, not projecting, lateral sides arc-shaped behind the anterolateral callosity (Figure 1D). Antennae and legs yellow with only hind femora piceous. Body oval. Aedeagus (Figure 3B). Spermatheca: receptacle impressed externally (Figure 4M). Length 1.5–2.0mm *E. pubescens* (Koch)
- Pronotum with anterolateral callosity bearing large denticle, posterior angles almost rectangular, projecting, lateral sides almost straight behind the anterolateral callosity. Antennae and legs yellow, apex of antennae and femora brown. Length 2.0mm. One specimen, holotype is known till now *E. ogloblini* (Iablokov-Khnzorian)
- 6 (3). Dorsal side black with bright bronze reflection. Pronotum laterally serrated. Antennae testaceous, often darkened towards apex; tibia and tarsi testaceous; all femora dark testaceous to piceous, often becoming lighter towards apex. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Aedeagus (Figure 3F). Spermatheca: receptacle impressed externally (Figure 4R). Length 1.8–2.3mm. *E. subcrinita* (LeConte)
- Dorsal side black, without metallic reflection or with only slight reflection (if bronze reflection is rather distinct, then pronotal lateral margin not serrated, pronotal disk covered by less dense punctures than in *E. subcrinita*, and aedeagus of different shape) 7.
- 7 (6). Setae in elytral intervals forming 1 regular row. Pronotal antebasal impression weak 8.
- Setae in 1–5 elytral intervals irregularly placed, mostly arranged in 2 irregular rows 9.
- 8 (7). Body broadly oval (1.6x as broad as long). Dorsal side purely black. Antennae, tibia, and tarsi pale testaceous; head anteriorly often pale; femora dark testaceous, often becoming lighter towards apex. Pronotal lateral margin serrated. Pronotal anterolateral callosity as long as 0.5X the rest part of lateral side. Aedeagus (Figure 3H). Spermatheca: receptacle bottle-shaped, narrowed and constricted apically (Figure 4G). Length 1.3–1.6mm. *E. brevis* Schwarz
- Body elongate (1.9–2.0x as broad as long) (Figure 6D, E). Dorsal side black with weak bronze reflection. Antennae, tibia, and tarsi pale testaceous; femora dark, becoming lighter towards apex. Pronotal lateral margin not serrated (Figure 7B, F). Pronotal anterolateral callosity as long as 0.3–0.4X the rest part of lateral side. Aedeagus (Figure 5B). Spermatheca: receptacle curved and slightly constricted medially, spermathecal pump attached to lateral side of receptacle apex and does not lie in the sagittal plane (Figure 5G, H). Length 1.8mm (male), 2.2mm (female). *Epitrix papa* Orlova-Bienkowskaja
- 9 (7). Body broadly oval (1.6x as broad as long). Vertex covered with irregular dense wrinkles. Antennae, tibia, and tarsi pale testaceous; femora dark testaceous, becoming lighter towards apex. Pronotum laterally not serrated. Pronotal anterolateral callosity as long as 0.7X the rest part of lateral side. Aedeagus laterally weakly curved over entire length; narrowed in apical 1/3; apex straight, curved neither ventrally, nor dorsally; apically rounded. Spermatheca: receptacle slightly constricted at mid-length (Figure 4H). Length 1.8–2.0mm. *E. lobata* Crotch
- Body more elongate (1.8x as long as broad). Vertex smooth. Pronotum laterally serrated. 10.
- 10 (9). Body larger, 2.3–2.4mm long. Punctures at pronotal disk smaller than those in the elytral rows. Antennae, tibia, anterior and middle femora testaceous; hind femora dark testaceous, becoming lighter towards apex. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Aedeagus laterally curved in basal 1/3; straight in apical 2/3; narrowed in apical 1/2; apex directed slightly ventrally; apical 1/5 rounded to small apical truncated projection. Spermatheca: receptacle slightly impressed externally (Figure 4J). Length 2.3–2.4mm *E. robusta* Jacoby
- Body usually smaller, less than 2.0mm, if larger (in *E. fuscula*), then pronotal punctures large, larger than those in elytral rows, very dense, separated with intervals as large as 1/3 puncture diameter 11.
- 11 (10). Pronotal antebasal impression distinct 12.
- Pronotal antebasal impression obscured by dense large punctures. Pronotal punctures very dense and large, more dense than in *E. tuberosa*. Antennae mostly pale testaceous with apical antennomeres sometimes darker; all femora mostly piceous, often becoming testaceous towards apex; tibia testaceous becoming darker before pale apex; tarsi testaceous. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Aedeagus (Figure 3G). Spermatheca: receptacle bottle-shaped, nar-

- rowed and constricted apically (Figure 4P). Length 1.9–2.4mm *E. fuscula* Crotch
- 12 (11). Aedeagus (Figure 3I, 5A) slightly narrowed at sides in apical half, with apex (Figure 5D) more prominent and more drawn out than in *E. tuberis* and *E. cucumeris*. Spermatheca: receptacle impressed on interior side at mid-length, pump much shorter than receptacle (Figure 4S). Pronotal punctures large, punctures on disk separated with intervals not wider than their diameter (Figure 6C, 7A). Eyes (viewed from above, Figure 6C) slightly more convex and more projecting, than in *E. tuberis*, their combined width when viewed from the front equal to or slightly less than the interocular distance (Figure 2B). Antennae, tibia, and tarsi rufous; femora piceous with rufous apex. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Length 1.7–1.8mm *E. similaris* Gentner
- . Aedeagus (Figure 2K, 3E) with parallel lateral sides or slightly broadened at sides in apical half, with apex less prominent than in *E. similaris* 13.
- 13 (12). Pronotal punctures smaller, punctures on disk separated with intervals wider than their diameter. Aedeagus (Figure 2K). Spermatheca: receptacle constricted at mid-length, pump much shorter than receptacle (Figure 4L). Antennae, tibia, and tarsi pale testaceous; femora dark testaceous, often becoming lighter towards apex. Pronotal anterolateral callosity as long as 0.5X the rest part of lateral side. Length 1.7–2.0mm *E. cucumeris* (Harris)
- . Pronotal punctures larger, punctures on disk separated with intervals not wider than their diameter (Figure 6A, B, 7C). Aedeagus (Figure 3E, 5C, F). Spermatheca: receptacle oval, pump as long as receptacle, much larger than in *E. cucumeris* and *E. similaris* (Figure 4O, 5I–K). Eyes (viewed from above, Figure 5A, B) less convex and less projecting, than in *E. similaris*, their combined width when viewed from the front less than the interocular distance (Figure 2A). Antennae testaceous with apical antennomeres sometimes darker, femora mostly piceous, often becoming testaceous towards apex, tibia and tarsi testaceous. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Length 1.8–1.9mm. . *E. tuberis* Gentner
- 14 (2). Males 15.
- . Females 23.
- 15 (14). Aedeagus short and broad, not more than 3X longer than broad (Figure 3 C, D). Pronotum with antebasal impression weak 16.
- . Aedeagus slender, 4X or more longer than broad (Figure 2G–J; 3J–L) 17.
- 16 (15). Aedeagus with almost parallel lateral sides (Figure 3D). Dorsal side black with weak bronze reflection, antennae, tibiae and tarsi pale, apex of last antennomere and all femora black. Last abdominal sternite with a great, shallow opaque impression. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Length 1.4–1.7mm. *E. dieckmanni* (Mohr)
- . Aedeagus broadened basally (Figure 3C). Coloration of body as in *E. dieckmanni*. Last abdominal sternite with deep, round, smooth impression (Figure 1H). Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Length 1.4–1.6mm *E. priesneri* (Heikertinger)
- 17 (15). Apex of aedeagus drawn out and sharpened (Figure 2G). Dorsal side black without metallic reflection. Antennae, tibia, and tarsi rufous, femora piceous. Length 1.2–2.0mm *E. atropae* Foudras (var. *nigritula* Weise)
- . Apex of aedeagus rounded, often with a little lamella. 18.
- 18 (17). Aedeagus in lateral view almost straight (Figure 3J). Antennae and legs pale, only femora more or less darkened. Length 1.5–1.8mm. *E. warchalowskii* (Mohr)
- . Aedeagus in lateral view distinctly bent 19.
- 19 (18). In lateral view, apical part of aedeagus simply feebly bent up (Figure 2H, 3K) 20.
- . In lateral view, very tip of aedeagus shortly feebly S-shaped (Figure 2I, J; 3L) 21.
- 20 (19). Underside of aedeagus concave along entire length (Figure 3K). Pronotal antebasal impression very weak. Last abdominal sternite with oval smooth shallow depression before apex. Dorsal side black with bronze reflection. Antennae, tibiae, and tarsi pale, all femora dark with lighter apex, last antennomere weakly darkened. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Length 1.6–1.9mm *E. muehlelei* Döberl
- . Underside of aedeagus concave in apical part only (Figure 2H). Pronotal antebasal impression distinct. Last abdominal sternite without depression. Dorsal side black with bronze reflection. Antennae, tibiae, and tarsi pale, femora dark with lighter apex, last antennomere darkened apically. Pronotal anterolateral callosity as long as 0.2X the rest part of lateral side. Length 1.5mm *E. ermischii* (Mohr)
- 21 (19). Aedeagus slightly narrowed at mid-length, on underside the median concavity spoon-shaped apically (Figure 2I). Dorsal side black with bronze reflection. Antennae, tibiae, and legs pale, hind femora and last antennomere dark. Supracallinal sulci curved at angle. Pronotal antebasal impression weak. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Length 1.6–2.0mm *E. abeillei* (Bauduer)
- . Aedeagus subparallel, with underside concave along entire length. Antennae, tibiae, and tarsi pale, all femora more or less darkened, with lighter apex 22.
- 22 (21). Aedeagus (Figure 3L). Supracallinal sulci curved at angle. Pronotal disk and apical part very finely punctate, base and lateral sides more strongly punctate. Antennae, tibiae, and tarsi pale, femora dark with lighter apex, last antennomere darkened apically. Length 1.3–1.6mm. *E. kralli* Döberl
- . Aedeagus (Figure 2J). Supracallinal sulci curved at arc. Dorsal side black with bronze reflection. Antennae, tibiae, and tarsi pale, all femora more or less darkened, with apex lighter. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Length 1.3–1.6mm. *E. caucasica* (Heikertinger)
- 23 (14). Last abdominal sternite with a little oval impression before apex. Spermatheca: receptacle cylindrical (Figure 4N). (see also couplet 16) *E. priesneri* (Heikertinger)
- . Last abdominal sternite without impression 24.
- 24 (23). Spermatheca with conspicuously small elongate receptacle 0.06mm long (Figure 4W). (see also couplet 20) 24.

-*E. muehlelei* Döberl
- . Spermatheca of normal size, its receptacle much longer than 0.06mm 25.
- 25 (24). In lateral view external side of receptacle straight (Figure 4E, Q, U) 26.
- . In lateral view receptacle impressed externally (Figure 4C, D, F, V) 28.
- 26 (25). Receptacle elongate, slender, 3.5–3.6X longer than wide (Figure 4Q). (see also couplet 22) *E. krali* Döberl
- . Receptacle more stout, about 2.5X longer than wide 27.
- 27 (26). Receptacle broadened apically (Figure 4E) (see also couplet 21) *E. abeillei* (Bauduer)
- . Receptacle cylindrical (Figure 4U). (see also couplet 16) *E. dieckmanni* (Mohr)
- 28 (25). Proximal part of ductus spermathecae broadly bent 29.
- . Proximal part of ductus spermathecae narrowly bent 30.
- 29 (28). Spermatheca: receptacle almost straight in basal 2/3 and bent in apical 1/3 (Figure 4V). (see also couplet 18) *E. warchalowskii* (Mohr)
- . Spermatheca: receptacle arc-shaped (Figure 4D). (see also couplet 20) *E. ermischii* (Mohr)
- 30 (28). Dorsal side with feeble metallic reflex. Spermatheca: Figure 4F. (see also couplet 22) *E. caucasica* (Heikertinger)
- . Dorsal side without any metallic reflex. Spermatheca: Figure 4C. (see also couplet 17) *E. atropae* Foudras (var. *nigritula* Weise)
- 31 (1). Pronotum black. Elytra black with apical marking, in some specimens also with humeral marking rufous. Sutural puncture row of elytra extending beyond mid-point of elytra. Pronotal antebasal impression distinct. Antennae, tibia, and tarsi rufous, femora piceous. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Aedeagus (Figure 2G). Spermatheca (Figure 4C) Length 1.2–2.0mm *E. atropae* Foudras
- . Pronotum rufous or yellow 32.
- 32 (31). Pronotal anterolateral callosity long, as long as 0.5X the rest part of lateral side. Elytra brownish-red or rufous with black lateral sides and suture (or only suture). Antennae and legs yellow with only hind femora piceous. Aedeagus (Figure 3B). Spermatheca: receptacle impressed externally (Figure 4M). Length 1.5–2.0mm ... *E. pubescens* (Koch) (var. *ferruginea* Weise)
- . Pronotal anterolateral callosity short 33.
- 33 (32). Sutural puncture row extending beyond mid-point of elytra. Antennae and legs pale. Head and pronotum reddish-brown, elytra pale with more or less darkened suture and sometimes with obsolete transverse band at mid-length. Pronotal antebasal impression very weak. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side. Length 1.8mm. Aedeagus (Figure 2L). Spermatheca: receptacle impressed externally (Figure 4X) *allardii* (Wollaston)
- . Sutural puncture row ending in basal 1/3–1/2 of elytra 34.
- 34 (33). Setae in the intervals between elytral puncture rows forming 2 irregular rows 35.
- . Setae in the intervals between elytral puncture rows forming 1 regular row 37.
- 35 (34). Elytra piceous. Antennae and legs pale. Head and pronotum reddish-brown. Pronotal antebasal impression very weak. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Aedeagus (Figure 2E). Spermatheca: receptacle impressed externally (Figure 4A). Length 1.6–1.9mm *E. setosella* (Fairmaire)
- . Elytra rufous or yellow, one-coloured or with dark transverse band 36.
- 36 (35). Pronotal punctures denser, intervals between pronotal punctures as wide as 1/2 puncture diameter. Antennae testaceous becoming darker towards apex; legs testaceous. Pronotal anterolateral callosity as long as 0.7X the rest part of lateral side. Aedeagus laterally slightly curved along entire length, narrowed in apical 1/2; apex straight; abruptly narrowed to rounded apex. Spermatheca: receptacle constricted at mid-length (Figure 4Z). Length 2.0–2.5mm *E. flavotestacea* Horn
- . Pronotal punctures sparser, intervals between pronotal punctures as wide as puncture diameter or more. Body including antennae and legs testaceous to nearly piceous, often rufous, sometimes with elytral humeri paler than rest of elytra. Pronotal anterolateral callosity as long as 0.7X the rest part of lateral side. Aedeagus laterally curved in basal 1/3, straight on apical 2/3, narrowed in apical 1/2; apex straight; sides subparallel; apically gradually rounded to apex with a small produced rounded apex. Spermatheca: receptacle constricted at mid-length (Figure 4I). Length 1.7–2.4mm *E. humeralis* Dury
- 37 (34). Pronotal lateral ridge without serration. Pronotal surface smooth. Dorsal side one-coloured, pale testaceous. Legs and antennae pale testaceous. Pronotal anterolateral callosity as long as 0.7X the rest part of lateral side. Aedeagus laterally weakly curved along entire length, narrowed in apical 1/3; apex directed slightly ventrally; sides subparallel; apically narrowed to a point. Spermatheca: receptacle bottle-shaped, moderately broadened basally (Figure 4K). Length 1.3–1.5mm *E. solani* (Blatchley)
- . Pronotal lateral ridge with serration. Pronotal surface alutaceous. Elytra usually with dark transverse band near mid-length .
- 38 (37). Body elongate with subparallel sides. Legs testaceous; antennae testaceous becoming darker towards apex. Pronotal anterolateral callosity as long as 0.3X the rest part of lateral side (Figure 1E). Aedeagus (Figure 2F). Spermatheca: receptacle bottle-shaped, constricted apically (Figure 4B). Length 1.6–2.1mm *E. hirtipennis* (Melsheimer)
- . Body broadly oval. Legs and antennae testaceous. Pronotal anterolateral callosity as long as 0.4X the rest part of lateral side. Aedeagus (Figure 3M). Spermatheca: receptacle rounded with apical 1/4 narrowed towards apex (Figure 4Y). Length 1.3–1.8mm *E. fasciata* Blatchley

TABLE 1. Examined material, photos and figures.

Species	No. specimens examined			Examined photoes and figures		
	Total number	Males with examined aedeagus	Females with examined spermatheca	General view	Aedeagus	Spermatheca
<i>abeillei</i> (Bauduer)	31	13	17	[2]	[4], [2], [7]	[4]
<i>allardii</i> (Wollaston)	1	1		–	[4]	[4]
<i>atropae</i> Foudras	23	4	5	[2]	[4], [7]	[4]
<i>brevis</i> Schwarz	3	2	1	[3]	–	[3]
<i>caucasica</i> (Heikertinger)	9	2	4	[2]	[4], [2], [7]	[4]
<i>cucumeris</i> (Harris)	11	3	5	[3], [5]	[3], [4], [5]	[3], [4], [5]
<i>dieckmanni</i> (Mohr)	1	1	–	–	[4]	[4]
<i>ermischi</i> (Mohr)	39	5	6	–	[4]	[4]
<i>fasciata</i> Blatchley	–	–	–	[3]	[4]	[4]
<i>flavotestacea</i> Horn	–	–	–	[3]	–	[3]
<i>fuscata</i> (Duval)	–	–	–	[1]	–	–
<i>fuscula</i> Crotch	4	1	1	[3]	[3]	[3]
<i>harilana rubia</i> Bechyne and Bechyne	–	–	–	[6]	–	–
<i>hirtipennis</i> (Melsheimer)	7	1	2	[3], [2], [8]	[4], [9]	[3], [4], [9], [8]
<i>humeralis</i> Dury	–	–	–	[3]	–	[3]
<i>intermedia</i> Foudras	4	4		[2]	[4]	[4]
<i>krali</i> Döberl	1	–	1	[2]	[4]	[4], [2]
<i>lobata</i> Crotch	–	–	–	[3]	–	[3]
<i>muehlei</i> Döberl	1	1	–	–	[4]	[4]
<i>papa</i> Orlova-Bienkowskaja	20	2	2	[5]	[5]	[5]
<i>priesneri</i> (Heikertinger)	6	5	1	[2]	[4], [2], [7]	[4]
<i>pubescens</i> (Koch)	119	17	2	[3], [2]	[4], [7]	[3], [4]
<i>robusta</i> Jacoby	–	–	–	[3]	–	[3]
<i>setosella</i> (Fairmaire)	5	2	3	[10]	[4]	[4]
<i>similaris</i> Gentner	4	4	–	–	[9]	[9]
<i>solani</i> (Blatchley)	–	–	–	[3]	–	[3]
<i>subcrinita</i> (LeConte)	4	1	1	[3]	[9]	[3], [9]
<i>tuberis</i> Gentner	23	9	4	[3]	[9]	[3], [9], [5]
<i>ubaquensis</i> Harold	–	–	–	[6]	–	–
<i>warchalowskii</i> (Mohr)	–	–	–	–	[4]	[4]
<i>yanazara</i> Bechyne	–	–	–	[6]	–	–

[1]—Barriga-Tuñón (2011); [2]—Borowiec (2013); [3]—Deczynski (2014); [4]—Döberl (2000); [5]—EPPO (2011); [6]—Gaiani (2014); [7]—Heikertinger (1950); [8]—Orlova-Bienkowskaja (2014); [9]—Seeno and Andrews (1972); [10]—Smirnov (2006).

Check-list of Holarctic species of *Epitrix* with data on their distribution and host plants

Only the junior synonyms, used in the recent publications, are mentioned. Döberl (2000) and Riley *et al.* (2003) include lists of all synonyms for Palaearctic and Nearctic species, respectively.

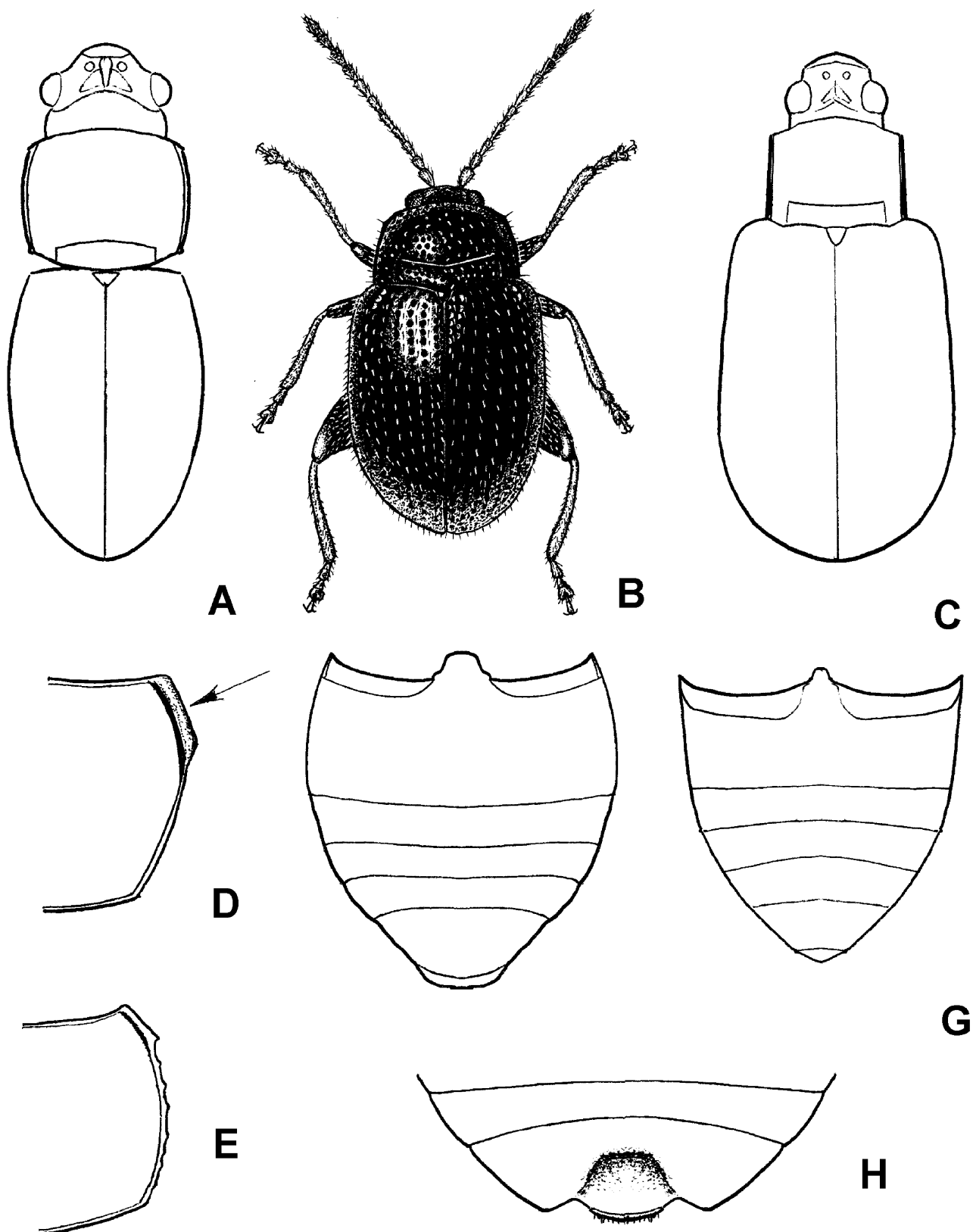


FIGURE 1. Morphology of *Epitrix* and morphologically close genera. (A) *Derocrepis anatolica*, body shape. (B) *Epitrix pubescens*, dorsal view. (C) *Lipromima* sp., body shape. (D) Lateral side of pronotum of *Epitrix pubescens* (anterolateral callosity marked with arrow). (E) Lateral side of pronotum of *Epitrix hirtipennis*. (F) Abdominal sternites of *Epitrix atropae*. (G) Abdominal sternites of *Lipromima* sp. (H) *Epitrix priesneri*, male, fourth and fifth abdominal sternites.

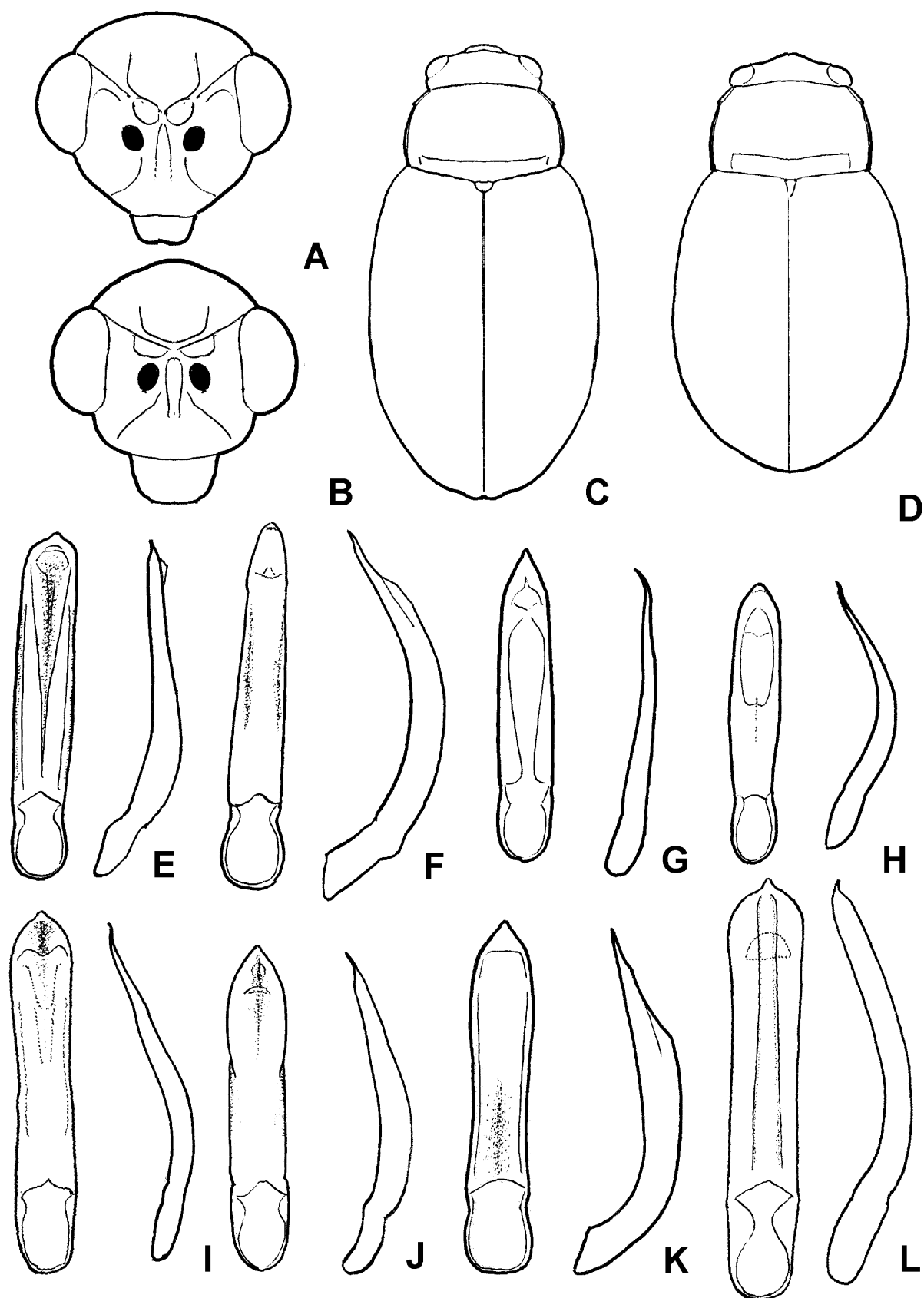


FIGURE 2. Details of different species of *Epitrix*. (A) Head of *E. tuberis*. (B) Head of *E. similis*. (C) Body shape of *E. hirtipennis*. (D) Body shape of *E. fasciata*. (E–L) Aedeagus of different species, ventral and lateral view: (E) *E. setosella*; (F) *E. hirtipennis*; (G) *E. atropae*; (H) *E. ermischii*; (I) *E. abeillei*; (J) *E. caucasica*; (K) *E. cucumeris*; (L) *E. allardii*. (C, D—after Deczynski (2014), others—original).

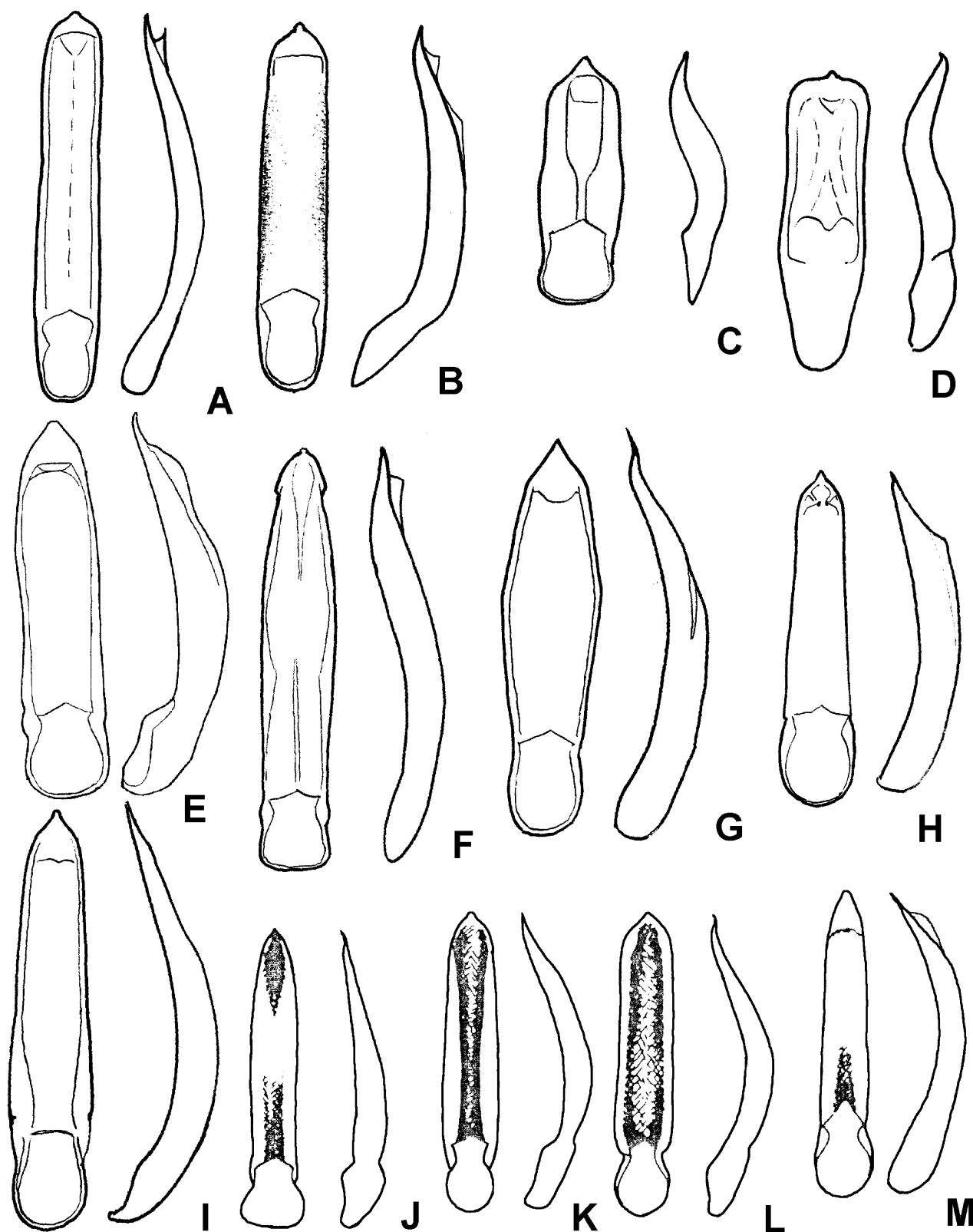


FIGURE 3. Aedeagus of different species of *Epitrix*, ventral (except D, which is dorsal) and lateral view. (A) *E. intermedia*. (B) *E. pubescens*. (C) *E. priesneri*. (D) *E. dieckmanni*. (E) *E. tuberosus*. (F) *E. subcrinita*. (G) *E. fuscus*. (H) *E. brevis*. (I) *E. similis*. (J) *E. warchalowskii*. (K) *E. muehlei*. (L) *E. krall*. (M) *E. fasciata*. (J–M—after Döberl (2000), others—original).

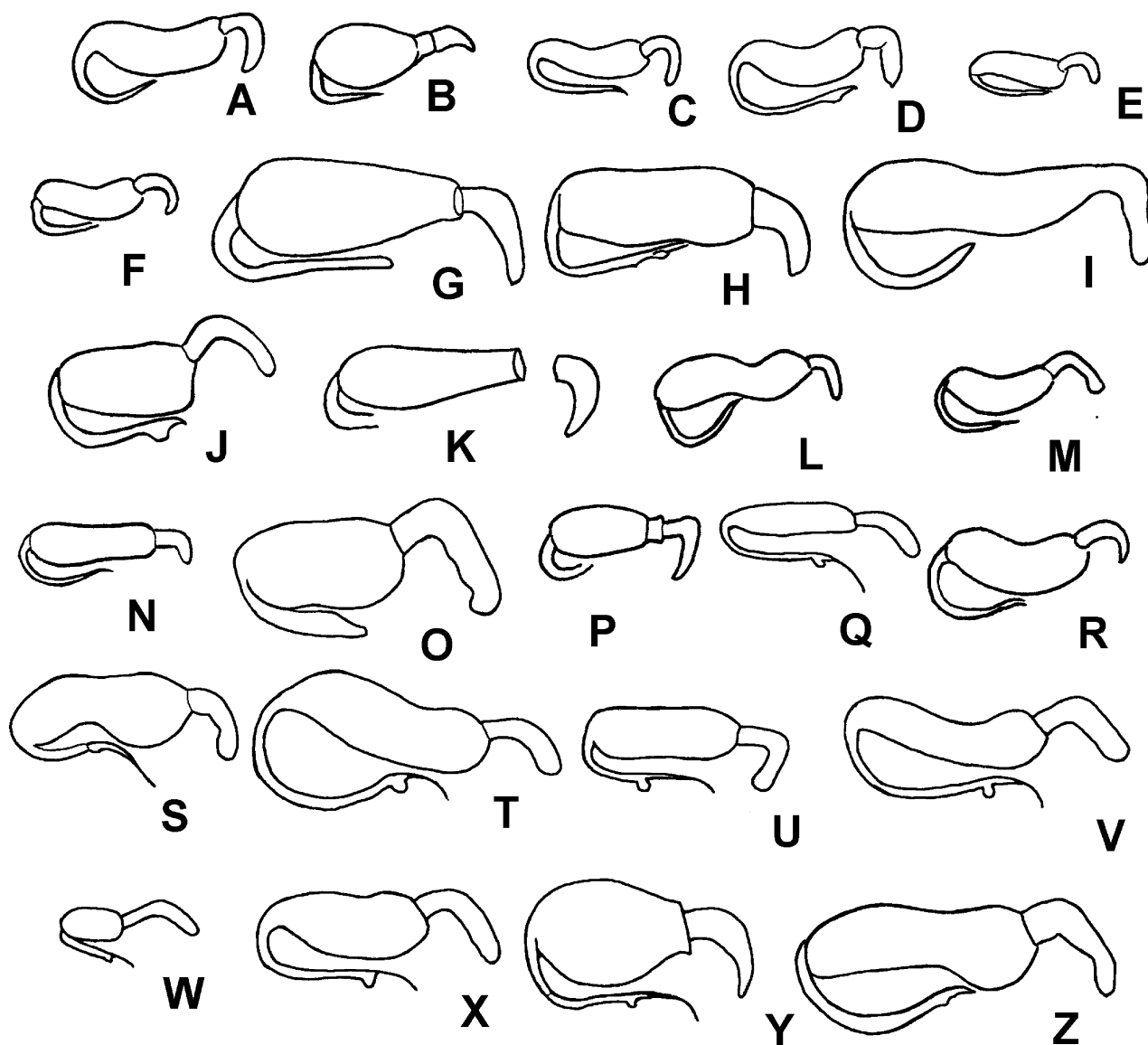


FIGURE 4. Spermatheca of different species of *Epitrix*, lateral view. (A) *E. setosella*. (B) *E. hirtipennis*. (C) *E. atropae*. (D) *E. ermishi*. (E) *E. abeillei*. (F) *E. caucasica*. (G) *E. brevis*. (H) *E. lobata*. (I) *E. humeralis*. (J) *E. robusta*. (K) *E. solani*. (L) *E. cucumeris*. (M) *E. pubescens*. (N) *E. priesneri*. (O) *E. tuberosa*. (P) *E. fuscata*. (Q) *E. krali*. (R) *E. subcrinita*. (S) *E. similis*. (T) *E. intermedia*. (U) *E. dieckmanni*. (V) *E. warchalowskii*. (W) *E. muellei*. (X) *E. allardii*. (Y) *E. fasciata*. (Z) *E. flavotestacea*. (G–K, Z—after Deczynski (2014), Q, T–Y—after Döberl (2000), S—after Seeno and Andrews (1972), others—original).

Epitrix abeillei (Bauduer, 1874)

Distribution. Afghanistan; Azerbaijan; China: Xinjiang; Egypt; Iran; Iraq; Israel; Jordan; Kazakhstan; Lebanon; Mongolia; Syria; Turkey; Turkmenistan; Uzbekistan (Döberl 2010).

Host plants. *Lycium* (Medvedev and Roginskaja 1988). Pest of *Lycium barbarum* in China (Chen *et al.* 2003).

Remarks. Interpretation of species is based on descriptions by Bauduer (1874), Borowiec (2013), Döberl (2000) and Heikertinger (1950). According to Döberl (2000), female spermatheca has receptacle impressed externally. However, available female from the series with male specimens has receptacle straight externally.

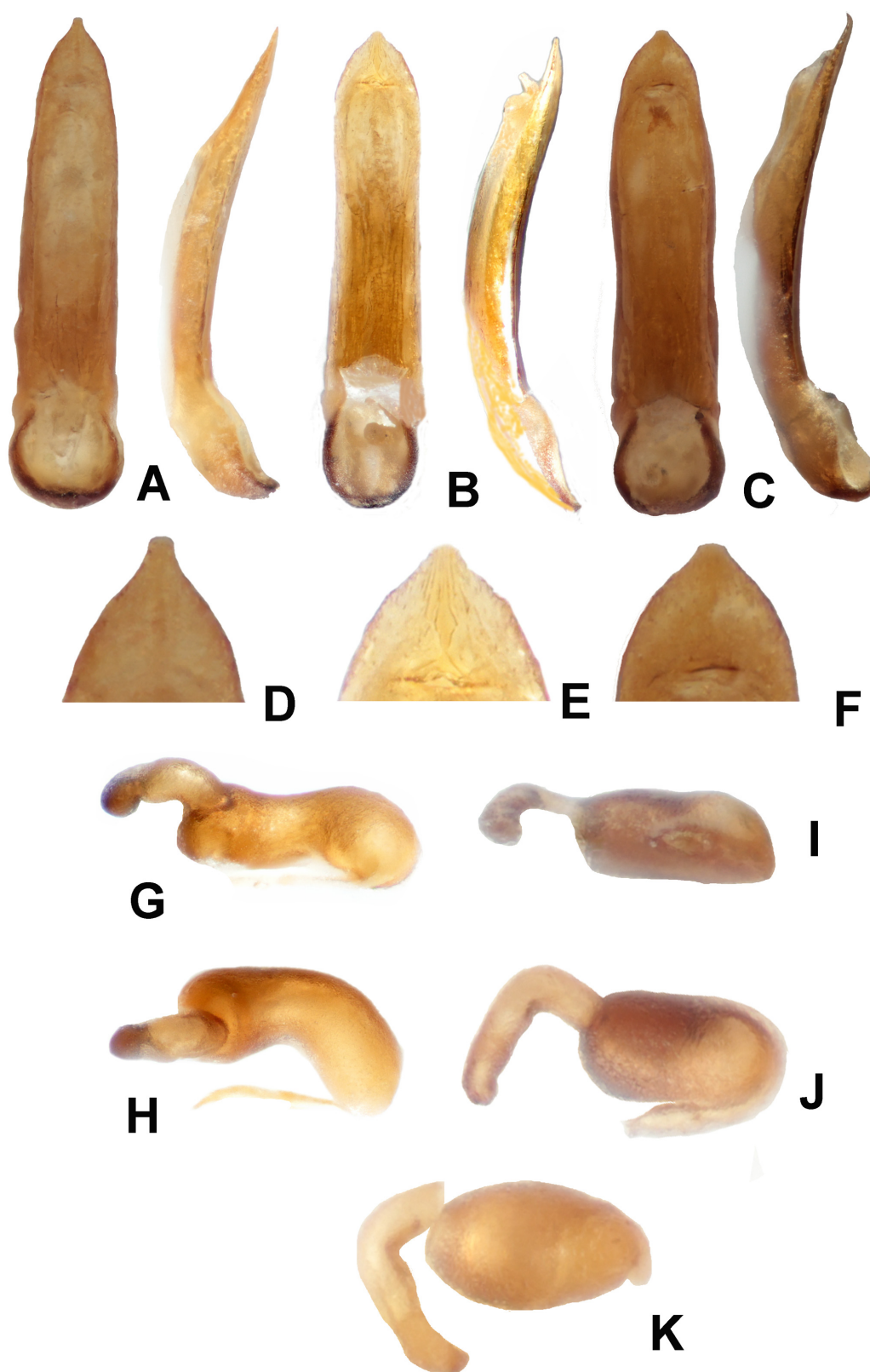


FIGURE 5. Details of *Epitrix papa*, *E. similaris* and *E. tubaris*. (A) Aedeagus of *E. similaris* paratype, ventral and lateral view. (B) Aedeagus of *E. papa* holotype, ventral and lateral view. (C) Aedeagus of *E. tubaris* paratype, ventral and lateral view. (D) Apex of the aedeagus of *E. similaris* paratype. (E) Apex of the aedeagus of *E. papa* holotype. (F) Apex of the aedeagus of *E. tubaris* paratype. (G) Spermatheca of *E. papa* paratype, ventral view. (H) Spermatheca of *E. papa* paratype, lateral view. (I) Spermatheca of *E. tubaris* non-type specimen, ventral view. (J) Spermatheca of *E. tubaris* non-type specimen, lateral view. (K) Spermatheca of *E. tubaris* paratype, lateral view (spermathecal pump is broken).

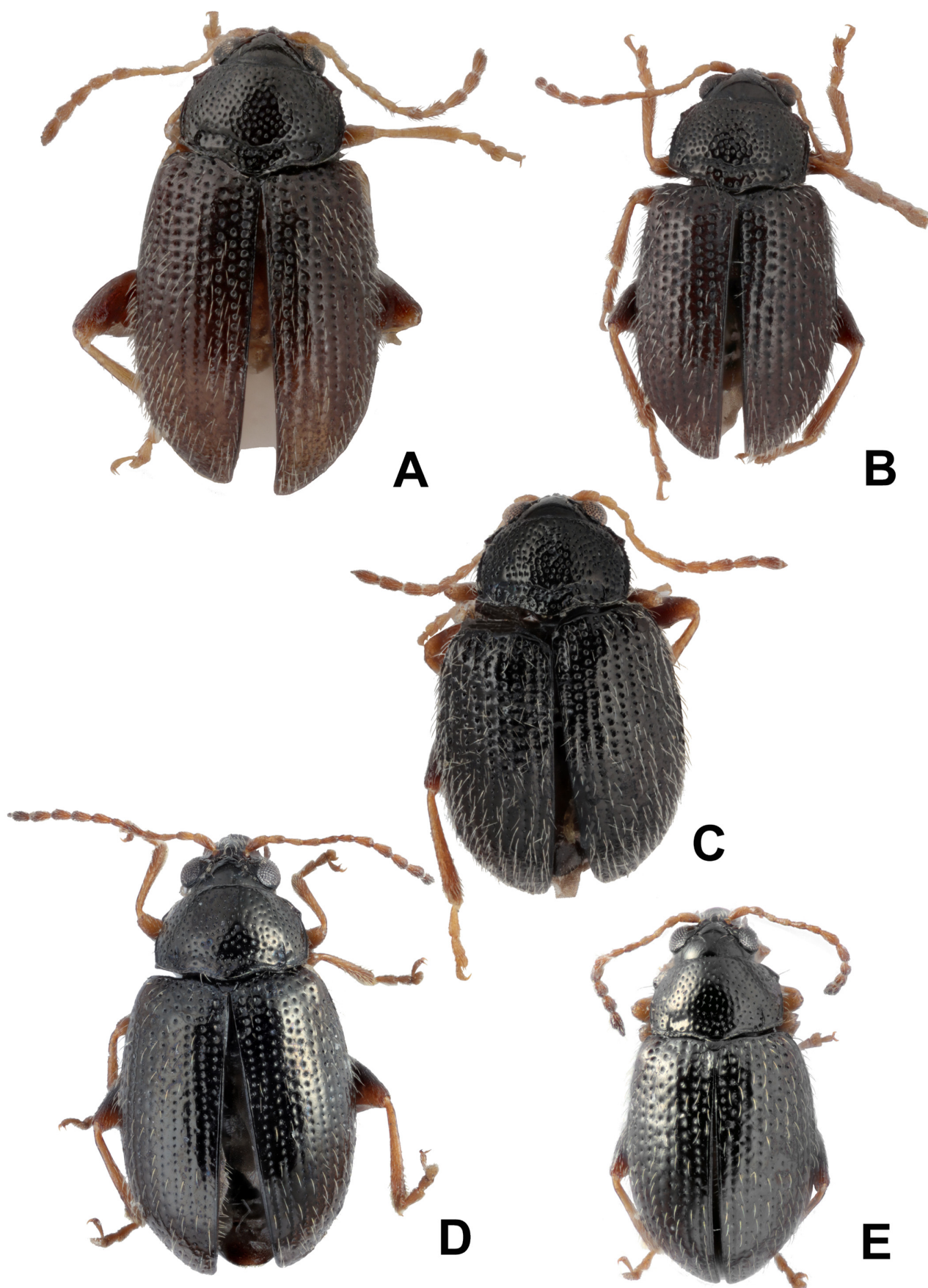


FIGURE 6. General view of *Epitrix papa*, *E. similaris* and *E. tuberis*. (A) *Epitrix tuberis* female paratype. (B) *E. tuberis* male paratype. (C) *E. similaris* male paratype. (D) *E. papa* female paratype. (E) *E. papa* male holotype.

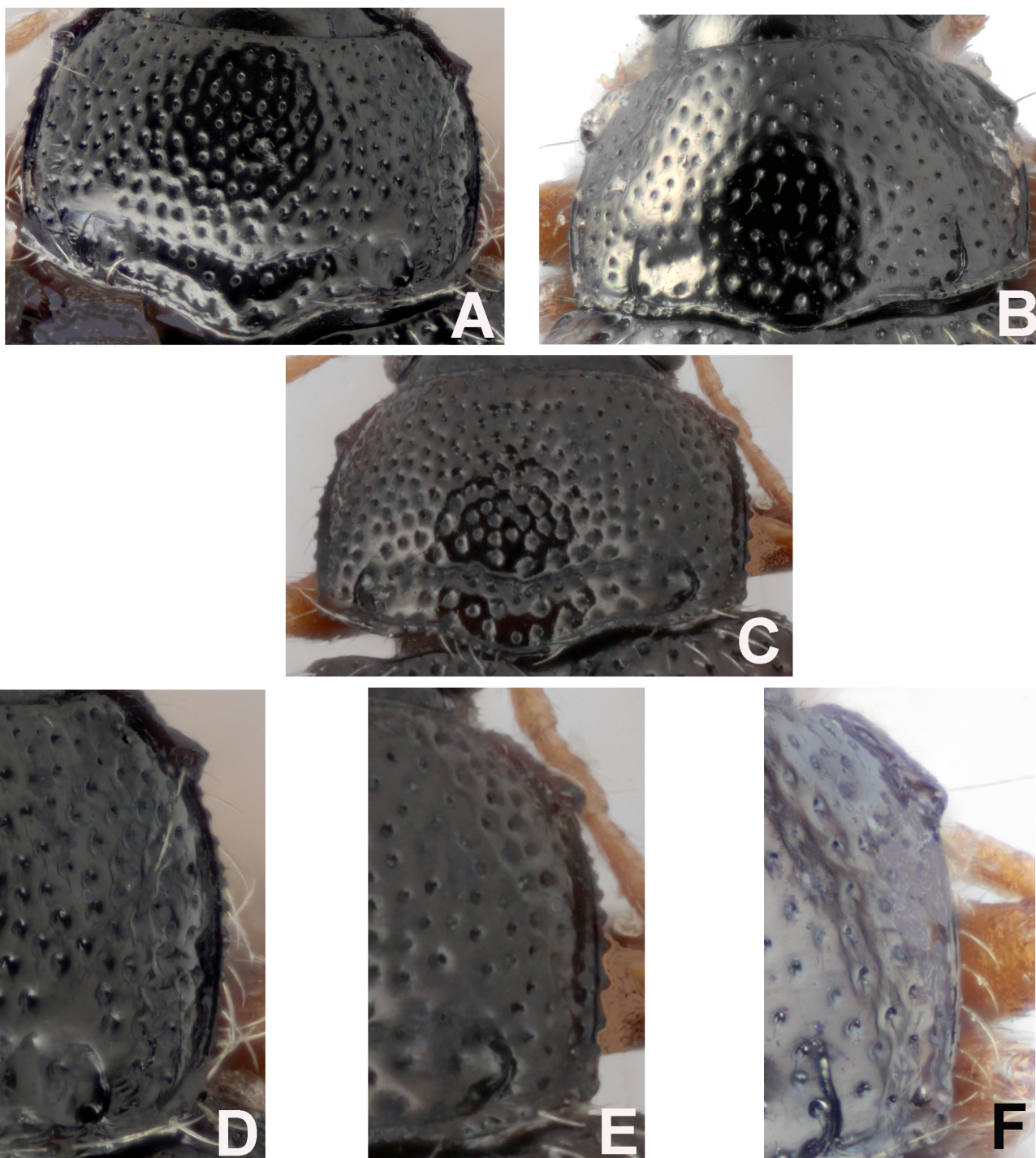


FIGURE 7. Pronotum. (A) *E. similaris* pronotum. (B) *E. papa*. (C) *E. tuberosa*. (D) Shape of lateral margin in *E. similaris*. (E) Shape of lateral margin in *E. tuberosa*. (F) Shape of lateral margin in *E. papa*.

***Epitrix allardii* (Wollaston, 1860)**

Distribution. Canary Islands (Döberl 2010).

Host plants. *Physalis aristata* (Heikertinger 1950).

Remarks. Interpretation of species is based on on descriptions by Wollaston (1860), Döberl (2000) and Heikertinger (1950).

***Epitrix atropae* Foudras, 1860b (belladonna flea beetle)**

Distribution. Albania; Algeria; Armenia; Austria; Azerbaijan; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; Czech Republic; France; Germany; Hungary; Italy; Luxembourg; Macedonia; Netherlands; Poland; Romania; Slovakia; Slovenia; Spain; Switzerland; Turkey; UK; Ukraine (Döberl 2010); Montenegro; Serbia (Gruev and Döberl 1997); Abkhazia (Okhrimenko 1992), Crimea (Shapiro 1961), Russia: Daghestan (Shapiro 1969; Yaroshenko 1986), Karachay-Cherkessia (Yaroshenko 1986), Krasnodar Territory (Yaroshenko 1986 and original data), Voronezh region (original data).

Host plants. *Lycium barbarum*, *L. halimifolium*, *Atropa belladonna*, *A. caucasica*, *Hyoscyamus niger*, *Solanum nigrum*, *Datura stramonium* (Medvedev and Roginskaja 1988; Cox 2007).

Remarks. Interpretation of species is based on descriptions by Foudras (1860b), Borowiec (2013), Döberl (2000) and Heikertinger (1950). The database GBIF (2015) contains information about two specimens of *E. atropae* from Salvador (Santa Ana: Trifinio) identified by B. Bechyné and J. Bechyné and marked as "allotype". Obviously it is a mistake, since there are no other records of *E. atropae* from South America, and these specimens cannot be allotypes. We suspect that these specimens belong to *Epitrix atripes silvicola* J. Bechyné, B. Bechyné described from this locality (Bechyné & Springlová de Bechyné, 1960).

***Epitrix brevis* Schwarz, 1878**

Distribution. Canada: Ontario; USA: Alabama, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Missouri, New Jersey, North Carolina, Ohio, Oklahoma, Rhode Island, South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin (Riley *et al.* 2003), Delaware, Pennsylvania (Deczynski 2014).

Host plants. *Capsicum frutescens*, *Datura stramonium*, *Lycopersicon esculentum*, *Physalis alkekengi*, *P. longifolia*, *P. pubescens*, *Solanum americanum*, *S. dulcamara*, *S. melongena*, *S. tuberosum* L. (Clark *et al.* 2004), *S. aethiopicum* (Deczynski 2014).

Remarks. Interpretation of species is based on descriptions by Schwarz (1878), Balsbaugh and Hays (1972), Deczynski (2014), Heikertinger (1950).

***Epitrix caucasica* (Heikertinger, 1950)**

Distribution. Azerbaijan; Georgia; Crimea (original data); India; Iran; Kazakhstan; Turkey; Turkmenistan (Döberl 2010).

Host plants. *Lycium*, *Solanum* (Medvedev and Roginskaja 1988), beetles also were collected on *Hyoscyamus niger* in Crimea (our data) and in Turkey (Gruev *et al.* 1994).

Remarks. Interpretation of species is based on descriptions by Heikertinger (1950), Borowiec (2013) and Döberl (2000). According to Döberl (2000), the female spermatheca has the receptacle straight externally. However, available female from the series with male specimens has receptacle impressed externally.

***Epitrix cucumeris* (Harris, 1851) (potato flea beetle)**

Synonyms. *Haltica seminulum* J.L. LeConte 1861; *Epitrix azorica* Gruev 1981.

Distribution in America. USA: Alabama, Arkansas, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Pennsylvania, Rhode Island, South Carolina, South Dakota, Vermont, Virginia, West Virginia, Wisconsin, Wyoming (Riley *et al.* 2003), New Mexico (EPPO 2005), Oregon, Tennessee, Washington (CABI 2013); Canada: Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Prince Edward Island, Quebec, Saskatchewan (Riley *et al.* 2003), Alberta, British Columbia, Northwest Territories, Nunavut, Yukon (CABI 2013); Mexico (Furth and Savini 1996); Guatemala (Downie and Arnett 1996); Bolivia; Colombia; Costa Rica;

Dominican Republic; Ecuador; Guadeloupe; Jamaica; Nikaragua; Puerto Rico; Venezuela (EPPO 2015). *Epitrix cucumeris* is also recorded from California (USA) (CABI 2013; EPPO 2015), but this record is doubtful. It could refer to another species, since it is based on the reference to the work published in 1932, i.e. before the description of two species close to *E. cucumeris*: *E. tuberis* and *E. similaris*.

History of invasions. New Caledonia. In 1945 *E. cucumeris* was firstly detected outside its native range: in New Caledonia. The introduction may have taken place during World War II, for the specimens were collected during that time. Whether the species has become established on New Caledonia is an unanswered question (Samuelson 1973).

Azores. *Epitrix cucumeris* was first found in the Azores in 1979 in Faial Island and identified as the new species *Epitrix azorica* (Gruev 1981). Later it was found to be the North-American species *E. cucumeris* (Israelson 1985). Now it has become established and widespread on all the islands except Corvo (Boavida and Germain 2009).

Madeira. *Epitrix cucumeris* was firstly recorded in Madeira in 2001 (Gruev and Döberl 2005).

Mainland Portugal. *Epitrix cucumeris* was firstly collected in mainland Portugal in 2007 north of Porto (Boavida and Germain 2009). Then it was detected in several other locations in Northern Portugal (Doguet 2009; Boavida and Germain 2009; Boavida *et al.* 2013).

Host plants. In America: *Atropa belladonna*, *Capsicum annum*, *Datura stramonium*, *Lycopersicon esculentum*, *Nicotiana tabacum*, *Petunia x hybrida*, *P. nyctaginiflora*, *Physalis alkekengi*, *P. angulata*, *P. peruviana*, *P. pubescens*, *P. virginiana*, *Solanum americanum*, *S. burbankii*, *S. carolinense*, *S. dulcamara*, *S. melongena*, *S. pseudocapsicum*, *S. purpureum*, *S. rostratum*, *S. torvum*, *S. tuberosum* and many other species of *Solanum* (Clark *et al.* 2004). In Portugal: *Datura stramonium*, *Lycopersicon esculentum*, *Solanum nigrum*, *S. melongena*, *S. tuberosum* (Boavida *et al.* 2013). Pest of *Solanum tuberosum*, *S. melongena*, *Nicotiana tabacum*, and *Lycopersicon esculentum* (Heikertinger 1950; Downie and Arnett 1996; Boavida *et al.* 2013). On potato *E. cucumeris* was found to be mostly associated with foliage injury and occasionally with the less damaging type of tuber injury ('pimples' and 'slivers') but never with 'worm tracks' typical for *E. tuberis* (Gentner 1944; Boavida *et al.* 2013). *Epitrix cucumeris* is included in the list A2 of quarantine pests in Europe and is also regarded as a quarantine pest in Jordan, Kazakhstan, Russia, Turkey and Ukraine (EPPO 2015).

Remarks. Interpretation of species is based on specimens identified by L.G. Gentner and T. Seeno and descriptions by Crotch (1873), Gentner (1944), Heikertinger (1950), Balsbaugh and Hays (1972), Downie and Arnett (1996), Döberl (2000), EPPO (2011) and Deczynski (2014). The correctness of the identification of this species in Portugal has been proved by the comparison of its DNA markers with the DNA markers of specimens of *E. cucumeris* from USA, Canada and Azores (Germain *et al.* 2013). In spite of being established and widespread in all the Azores, *E. cucumeris* was never associated there with any kind of potato tuber damage (Boavida and Germain 2009). In the laboratory *E. cucumeris* was observed to be able to feed on very small immature tubers, causing serpentine tracks and holes. However, in some cases it developed exclusively on roots (Boavida *et al.* 2013). Therefore, the damage to potato tubers in Portugal since 2004 has been caused by another species which has been initially identifies as *E. similaris*, but later was described as a new species *E. papa*.

***Epitrix dieckmanni* (Mohr, 1968)**

Synonym. *Epitrix paliji* Gruev.

Distribution. Arab Emirates; Iran; Israel; Jordan; Saudi Arabia; Turkey; Turkmenistan (Döberl 2010).

Host plants. *Hyoscyamus aureus* (Furth 1997), *Lycium depressum* (Gök and Çilbıroğlu 2004).

Remarks. Interpretation of species is based on descriptions by Mohr (1968) and Döberl (2000).

***Epitrix ermischi* (Mohr, 1968)**

Distribution. Iran; Turkmenistan; Uzbekistan (Döberl 2010).

Host plants. Unknown.

Remarks. Interpretation of species is based on examination of specimens identified by M. Döberl and descriptions by Mohr (1968) and Döberl (2000).

***Epitrix fasciata* Blatchley, 1918 (southern tobacco flea beetle)**

Synonym. *Crioceris parvula* Fabricius, nec Paykull.

Distribution in America. USA: Florida, Georgia, Louisiana, Maryland, Mississippi, South Carolina, Texas, West Virginia (Riley *et al.* 2003), Delaware, Virginia (Deczynski 2014); Mexico (Riley *et al.* 2003); Venezuela; Columbia; Brasil; Argentina (White and Barber 1974); Cuba; Bahamas; Grenada; Puerto Rico; St. Vincent (Peck 2005); Nikaragua (GBIF 2015); Peru (Vreugdenhil *et al.* 2011).

History of invasions. Bermuda. *Epitrix fasciata* was an established and common pest in Bermuda in 1923 and it has been suggested that this species was introduced by man (Ogilvie 1924).

Hawaii. *Epitrix fasciata* is regarded as an immigrant in Hawaii (Nishida 2002; Riley *et al.* 2003). It was established there before 1942 (Holdaway 1943).

Host plants. *Datura stramonium*, *Lycopersicon esculentum*, *Nicotiana tabacum*, *Physalis angulata*, *P. heterophylla*, *S. americanum*, *S. carolinense*, *S. indicum*, *S. melongena*, *S. nigrescens*, *S. nodiflorum*, *S. torvum*, *S. tuberosum* (Clark *et al.* 2004), *S. erianthum* (Deczynski 2014). *Epitrix fasciata* is a pest of *Nicotiana tabacum* and other solanaceous plants (Capinera 2001). It is regarded as a quarantine pest in southern Africa (EPPO 2015).

Remarks. Interpretation of species is based on descriptions by Blatchley (1918), White and Barber (1974), Döberl (2000) and Deczynski (2014).

***Epitrix flavotestacea* Horn, 1894**

Distribution. USA: Arizona; Mexico (Riley *et al.* 2003).

Host plants. *Datura meteloides*, *D. stramonium* (Deczynski 2014).

Remarks. Interpretation of species is based on descriptions by Horn (1894) and Deczynski (2014).

***Epitrix fuscula* Crotch, 1873 (eggplant flea beetle)**

Distribution. USA: Alabama, Arkansas, Connecticut, District of Columbia, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nebraska, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, West Virginia, Wisconsin (Riley *et al.* 2003); Brazil; Venesuela (GBIF 2015).

Host plants. *Datura stramonium*, *Lycopersicon esculentum*, *Nicotiana tabacum*, *Physalis pubescens*, *Solanum americanum*, *S. carolinense*, *S. dulcamara*, *S. elaeagnifolium*, *S. melongena*, *S. rostratum*, *S. tuberosum* (Clark *et al.* 2004), *S. aethiopicum* (Deczynski 2014). Pest of *Solanum melongena* and *S. tuberosum* (Balsbaugh and Hays 1972).

Remarks. Interpretation of species is based on descriptions by Crotch (1873), Heikertinger (1950), Balsbaugh and Hays (1972) and Deczynski (2014).

***Epitrix hirtipennis* (Melsheimer, 1847) (tobacco flea beetle)**

Distribution in America. Canada: Ontario, Quebec; USA: Alabama, Arkansas, Arizona, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Iowa, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, West Virginia, Wyoming; Mexico (Riley *et al.* 2003); Brasilia; Cuba; Granada; Guadeloupe; Guatemala; Panama; Puerto Rico; St. Vinsent; Venesuela (Furth and Savini 1996); Bahama (Chamberlin and Tenhet 1923); Columbia (Sannino *et al.* 1985).

History of invasions. Hawaii. *Epitrix hirtipennis* was introduced to Hawaii at the end of 19th century (Sharp 1900). It was not found by Blackburn who collected beetles in Hawaii in the late 1870s and early 1880s (Sharp 1900). But in the 1890s it was recorded in Oahu, Lanai and Molokai (Sharp 1900; Samuelson 1973). Since then, *E.*

hirtipennis has become common on all major islands: Nihoa, Kauai, Oahu, Molokai, Lanai and Maui (Samuelson 1973; Nishida 2002).

Bermuda. In 1923 *E. hirtipennis* was reported in Bermuda as a pest injurious to leaves of *Ipomoea batatas*, *Solanum tuberosum* and other plants (Ogilvie 1924). In 1969 it was common on *Solanum tuberosum* leaves (Hilburn and Gordon 1989).

Tahiti. *Epitrix hirtipennis* has been present in Tahiti at least since 1965 (Gourves and Samuelson 1979).

Fiji. *Epitrix hirtipennis* is common in Fiji. The time of invasion is unknown (Waterhouse 1997).

Azores. *Epitrix hirtipennis* was first recorded in the Azores in 1984 (Israelson 1985).

Europe. *Epitrix hirtipennis* was the first American species of this genus introduced to Europe. In 1983 this species, native to North and Central America, was found in Europe for the first time in Northern Italy (Sannino *et al.* 1985). It then quickly spread to South and Central Italy (Sannino and Balbiani 1990) and Greece in 1988 (Lykouressis 1991), Turkey in 1993 (Döberl 1994), Spain in 1993 (Deseö *et al.* 1993), Macedonia in 1996 (Krsteska *et al.* 2009), Bulgaria in 2000 (Trenchev and Tomov 2000), Syria in 2002 (Gruev and Döberl 2005) and Russia: Krasnodar Territory in 2013 (Orlova-Bienkowskaja 2014); the infestations in Mallorca in 1998 and in Menorca in 2000 were immediately controlled, so it was removed from potato crops and it hasn't been found again (E. Petitpierre, personal communication).

Japan. *Epitrix hirtipennis* was first recorded in 2011. It was found in 13 locations on Honshu (Harada and Takizawa 2012).

Philippines and Sri Lanka. In some reviews the records from Sri Lanka (Chamberlin and Tenhet 1923) and the Philippines (Martin and Herzog 1987; Deseö *et al.* 1993) are mentioned. But these records are doubtful, since no references to the source of information are given. *Epitrix hirtipennis* is not mentioned in works on the Alticinae of the Philippines (Medvedev 1993a, 1993b) and Indian subcontinent (Scherer 1969).

Host plants. In America: *Capsicum frutescens*, *Datura stramonium*, *Lycopersicon esculentum*, *Nicotiana tabacum*, *Petunia*, *Physalis ixocarpa*, *P. peruviana*, *P. pubescens*, *Solanum americanum*, *S. carolinense*, *S. dulcamara*, *S. elaeagnifolium*, *S. melongena*, *S. nigrum*, *S. rostratum*, *S. tuberosum* (Clark *et al.* 2004). **In Europe:** pest of *Nicotiana tabacum* and *S. melongena* (Lykouressis 1991). In Italy *E. hirtipennis* feeds also on native Solanaceae (Beenen 2006). **In Hawaii:** *Lycopersicon esculentum*, *Solanum melongena* and *Physalis peruviana* (Samuelson 1973; Nishida 2002). **In Bermuda:** pest injurious to leaves of *Ipomoea batatas*, *Solanum tuberosum* and other plants (Ogilvie 1924; Hilburn and Gordon 1989). **In Fiji:** major pest of *Lycopersicon esculentum*, *Solanum melongena* and *S. tuberosum* (Waterhouse 1997). **In Azores:** *Datura stramonium*, *Solanum nigrum* and *S. tuberosum* (Israelson 1985). **In Japan:** pest of *Solanum melongena*, *S. tuberosum* and *Nicotiana tabacum* (Harada and Takizawa 2012). Pest of *Nicotiana tabacum*, *Solanum melongena*, *S. tuberosum*, *Lycopersicon esculentum* (Capinera, 2001).

Remarks. Interpretation of species is based on examination of specimens identified by T. Seeno and M. Döberl and descriptions by Melsheimer (1847), Heikertinger (1950), Balsbaugh and Hays (1972), Seeno and Andrews (1972), White and Barber (1974), Döberl (2000), Borowiec (2013) and Deczynski (2014).

Epitrix humeralis Dury, 1906

Distribution. Canada: Ontario (Riley *et al.* 2003); USA: Alabama, Florida, Indiana, Iowa, Kansas, Maryland, Michigan, Missouri, New York, North Carolina, Ohio, Oklahoma, South Dakota, Virginia, West Virginia, Wisconsin (Riley *et al.* 2003), Arizona (Downie and Arnett 1996), Delaware, Illinois, Tennessee (Deczynski 2014); Mexico (Downie and Arnett 1996). There is a record of *E. humeralis* collected in Brazil (Mato Grosso, Chapada dos Guimaraes) (GBIF 2015). However, this is obviously a mistake, because according to this database the specimen identified by J. Bechiné and B. Bechiné is marked as a holotype. It is a holotype of the different *Epitrix* species described from Chapada dos Guimaraes: *Epitrix domenica melanopicea* Bechiné (Nascimento and Overal 1979).

Host plants. *Physalis heterophylla*, *P. longifolia*, *P. pubescens*, *P. virginiana*, *Solanum americanum* (Clark *et al.* 2004).

Remarks. Interpretation of species is based on descriptions by Dury (1906), Heikertinger (1950) and Deczynski (2014).

***Epitrix intermedia* Foudras, 1860b**

Distribution. Albania; Azerbaijan; Bulgaria; France; Greece; Hungary; Italy; Macedonia; Romania; Slovakia; Slovenia; Spain; Ukraine; Turkey (Döberl 2010); Serbia (Gruev and Döberl 1997); Luxemburg (GBIF 2015); South of European Russia: Karachay-Cherkessia (Yaroshenko 1986), Saratov region (Bieńkowski 2011).

Host plants. *Solanum nigrum* (Heikertinger 1950). We found adults on *S. dulcamara* (Bieńkowski 2011).

Remarks. Interpretation of species is based on descriptions by Foudras (1860b), Heikertinger (1950), Döberl (2000) and Borowiec (2013).

***Epitrix krali* Döberl, 2000**

Distribution. Iran; Jordan; Tadjikistan (Döberl 2010).

Host plants. Unknown.

Remarks. Interpretation of species is based on examination of the paratype and descriptions by Döberl (2000) and Borowiec (2013).

***Epitrix lobata* Crotch, 1873**

Distribution. USA: South Carolina (Crotch 1873), Florida, Georgia, Ohio, North Carolina, West Virginia (Riley *et al.* 2003), Texas (Deczynski 2014).

Host plants. *Physalis* (Deczynski 2014).

Remarks. Interpretation of species is based on descriptions by Crotch (1873), Heikertinger (1950) and Deczynski (2014).

***Epitrix muehle* Döberl, 2000**

Distribution. Yemen; Saudi Arabia (Döberl 2010).

Host plants. Unknown.

Remarks. Interpretation of species is based on examination of the paratype and description by Döberl (2000).

***Epitrix ogloblini* Iablokov-Khnzorian, 1960**

Distribution. Armeina.

Host plants. *Solanum persicum*.

Remarks. Interpretation of species is based on description by Iablokov-Khnzorian (1960). This species was described from one specimen (Iablokov-Khnzorian 1960). No other specimens of this species are known up to now. Currently the holotype cannot be found in the collection of Iablokov-Khnzorian (personal communication by M.Yu. Kalashyan). Warchałowski (2003) regards *E. ogloblini* as a synonym of *E. pubescens*.

***Epitrix papa* Orlova-Bienkowskaja, 2015**

Distribution. Portugal; Spain. The damage to potato tubers caused by this species was detected in 2004 in northern part of Portugal (Oliveira *et al.* 2008). Then it was found out that the species is widely distributed in Portugal (Boavida and Germain 2009). In 2008 a single adult was found in Spain, in Xinzo, near the Portuguese border (Boavida and Germain 2009). In 2014 the pest was detected in A Coruña, Ourense and Pontevedra provinces of Spain (EPPO 2014). Native range is unknown. It is quite possible, that the pest is from North America, since at least 30% of North American *Epitrix* species are undescribed (Riley *et al.* 2002; Deczynski 2014). Theoretically the invasion from outside the Holarctic is also possible.

Host plants. *Solanum tuberosum*, *S. melongena*, *S. nigrum*, *Lycopersicon esculentum*, *Datura stramonium* (Boavida *et al.* 2013). Pest of *Solanum tuberosum* in Portugal.

Remarks. Interpretation of species is based on examination of the holotype and paratypes. A new kind of potato tuber damage was detected in Portugal in 2004 (Boavida 2009). In 2008 an entire consignments of potatoes sent from Portugal to France, Spain and other countries were rejected because the tubers were damaged (Cuthbertson 2015). It was detected that the damage was caused by larvae of flea beetles of the genus *Epitrix*. The pest was identified as *E. similaris*, rare North American species previously recorded only from California (Boavida and Germain 2009; Doguet 2009; EPPO 2011). At the same time another alien pest species, *E. cucumeris* native to North America was found in the same region of Portugal. It was hypothesized that the origin both species of *Epitrix* in Portugal is related to the bulk imports of seed potatoes from Canadian provinces of Prince Edward Island and New Brunswick (Eyre and Giltrap 2012). Experiments and observations have shown that larvae of *E. cucumeris* develop on roots and do not significantly damage tubers, and just the larvae of the species identified as *E. similaris* damage tubers leaving superficial tracks ('worm tracks'), black splinters, and shallow holes (Boavida *et al.* 2013). This species was the main culprit of the damage of potato crop in Portugal in 2008 (Boavida *et al.* 2013).

In 2010 *E. similaris* was included in the list A2 of quarantine pests of European and Mediterranean Plant Protection Organization as an alien pest which threatens to potato production in Europe (EPPO 2015). But the identity of the pest was doubted by some authors because of zoogeographical and ecological reasons (Eyre and Giltrap 2012). The genetic study by Germain *et al.* (2013) proves that this species is not *E. cucumeris*, *E. tuberis*, *E. hirtipennis*, *E. subcrinita* and *E. fasciata*. But this study does not prove that it is *E. similaris*, since no comparative material of *E. similaris* from North America was studied.

Our examination of 20 adult specimens of the pest from Portugal and comparison them with the paratypes of *E. similaris* from National Museum of Natural History (USA) and the original description of *E. similaris* by Gentner (1944) has revealed that the pest is not *E. similaris*, since it significantly differs from *E. similaris* in the shape of spermatheca, aedeagus and other characters.

The traces of larvae of the invasive pest on potato tubers are similar to that of *E. tuberis* (Boavida *et al.* 2013). But comparison of the adults of the pest with the paratypes of *E. tuberis* from National Museum of Natural History (USA) has revealed that the pest is not *E. tuberis*. We tried to identify the pest by analysis of characters of all species of *Epitrix* native to Holarctic (Döberl 2010; Riley *et al.* 2003; Deczynski 2014; EPPO 2011) and all *Epitrix* known as pests of potato in the world (Saunders *et al.* 1983; Vreugdenhil *et al.* 2011). But the pest clearly differs from all of them. So it has been described as a new species.

***Epitrix priesneri* (Heikertinger, 1950)**

Distribution. Arab Emirates; Egypt; Iran; Oman; Saudi Arabia; Yemen (Döberl 2010).

Host plants: Unknown.

Remarks. Interpretation of species is based on descriptions by Heikertinger (1950), Döberl (2000) and Borowiec (2013).

***Epitrix pubescens* (Koch, 1803)**

Synonym. *Epitrix lencorana* Pic, 1903.

Distribution in Palearctic. Albania; Austria; Azerbaijan; Belarus; Belgium; Bosnia and Herzegovina; Bulgaria; Croatia; Czech Republic; Cyprus; Denmark; Estonia; Finland; France; UK; Georgia; Greece; Germany; Hungary; Iran; Israel; Italy; Latvia; Kazakhstan; Kirgizstan; Liechtenstein; Lithuania; Luxemburg; Macedonia; Moldova; Netherlands; Poland; Portugal; Romania; Slovakia; Slovenia; Spain; Sweden; Switzerland; Turkey; Ukraine (Döberl 2010); Montenegro; Serbia (Gruev and Döberl 1997); Norway (GBIF 2015); European Russia: Daghestan (Shapiro 1969), Yaroslavl region (Gimmelman 1927 and original data), Chelyabinsk region (Gus'kova 2010 and original data), Tatarstan (Zaitsev and Muravitskij 1989), Stavropol region (Ogloblin 1925), Vyatka region (Shernin 1974), Karelia (Silfverberg 1979), Krasnodar Territory (Okhrimenko 1992 and original data), Stavropol

krai (Okhrimenko 1992), Astrakhan region, Bashkiria, Belgorod region, Bryansk region, Chuvashia, Lipetsk region, Kalmykia, Kaluga region, Kostroma region, Mordovia, Moscow region, Nizhnij Novgorod region, Orel region, Penza region, Pskov region, Rostov region, Saratov region, Tambov region, Tula region, Udmurtia, Vladimir region, Voronezh region (original data); East Siberia: Krasnoyarsk Territory (original data). The record from West Siberia (Heikertinger 1950) cited in several reviews is questionable, since there are no other records, and *E. pubescens* is absent in Chrysomelidae collection of Siberian Zoological Museum (2015).

History of invasions. Azores. *Epitrix pubescens* was the first species of the genus found in Azores. It was recorded before 1970 in Sao Jorge (Israelson 1985; Borges 1990).

North America. *Epitrix pubescens* has been recently detected in several localities in northeastern USA: Massachusetts, New Hampshire (Deczynski 2014).

Host plants. In the Palaearctic: *Solanum dulcamara*, *S. nigrum*, *Lycium halimifolium*, *Hyoscyamus niger*, *Atropa belladonna* (Medvedev and Roginskaja 1988); *Solanum luteum* (Furth 1997); *Solanum melongena* (Tölg 1938; Cox 2007), *Nicotiana*, *Lycopersicon esculentum*, *Solanum nigrum*, *Datura stramonium*, *Lycium barbarum* (Cox 2007), *Solanum tuberosum* (Steinhausen 1994). Host plants in Nearctic are unknown (Deczynski 2014). Though *E. pubescens* is not usually regarded as a pest, there are records of damage to *Solanum melongena* in Turkey (Tölg 1938) and *Solanum tuberosum* in Europe (Steinhausen 1994).

Remarks. Interpretation of species is based on description of junior synonym *Epitrix lencorana* (Pic 1903) and descriptions of *Epitrix pubescens* by Heikertinger (1950), Döberl (2000), Borowiec (2013) and Deczynski (2014).

***Epitrix robusta* Jacoby, 1891**

Distribution. Mexico (Furth 2013); USA: Texas (Deczynski 2014).

Host plants. Unknown.

Remarks. Interpretation of species is based on descriptions by Jacoby (1891) and Deczynski (2014).

***Epitrix setosella* (Fairmaire, 1888)**

Synonym. *Epitrix wuorentausi* Heikertinger, 1950.

Distribution. Russian Far East: Amur Region, Primorsky Krai; China: Fujian, Guangxi, Hebei, Jiangxi (Döberl 2010).

Host plants. Unknown.

Remarks. Interpretation of species is based on its original description (Fairmaire 1888) and description of its junior synonym *Epitrix wuorentausi* (Heikertinger 1950) as well as on descriptions by Döberl (2000) and Smirnov (2006).

***Epitrix similaris* Gentner, 1944**

Distribution. USA: California (Riley *et al.* 2003).

Host plants. *Lycopersicon esculentum*, *Nicotiana*, *Solanum americanum*, *S. douglasii*, *S. melongena*, *S. tuberosum* (Clark *et al.* 2004).

Remarks. Interpretation of species is based on examination of paratypes (Figures 5 A, D; 6 C; 7A, D) and specimens identified by T. Seeno as well as on the original description of species (Gentner 1944) and description by Seeno and Andrews (1972).

It was believed that the invasive pest of potato introduced from North America to Portugal and Spain and damaging potato tubers was *E. similaris* (Doguet 2009; Boavida and Germain 2009; EPPO 2011). But the comparison of specimens from Portugal with type material has shown that the identification was incorrect. *Epitrix similaris* is not regarded as a pest in its native range. It is included in the A2 list of quarantine pests of EPPO and of several European countries (EPPO 2015). However, since the identification of the pest introduced to Portugal is incorrect, this species should be excluded from the lists.

***Epitrix solani* (Blatchley, 1925)**

Distribution. USA: Florida (Riley *et al.* 2003).

Host plants. *Solanum verbascifolium* (Clark *et al.* 2004).

Remarks. Interpretation of species is based on descriptions by Blatchley (1925) and Deczynski (2014). There is one more species with name "*Epitrix solani*". It was described in by J. Weise (1923) from Australia (Heikertinger and Csiki 1940). Formally the name *Epitrix solani* (Blatchley 1925) is a junior secondary homonym, and replacement of the name is necessary. But *Epitrix solani* Weise is not an *Epitrix* in fact, but belongs to the new genus, which will be described soon (Dr. C. Reid personal communication). So the names *Epitrix solani* (Blatchley) and *Epitrix solani* Weise will no longer be homonyms soon, and the replacement of the name is unnecessary (ICZN 1999: article 59.2).

***Epitrix subcrinita* (LeConte, 1860) (western potato flea beetle)**

Distribution. USA: Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington (Riley *et al.* 2003), New Mexico, Wyoming (EPPO 2015); Canada: Alberta, British Columbia; Mexico (Riley *et al.* 2003); Guatemala (Furth and Savini 1996); Peru (Alcazar 1997). Record from Saskatchewan (Deczynski 2014) with reference to Riley *et al.* (2003) is a mistake.

Host plants. *Capsicum frutescens*, *Datura meteloides*, *Lycium*, *Lycopersicon esculentum*, *Nicandra physalodes*, *Nicotiana alata*, *Physalis francheti*, *P. lobata*, *P. longifolia*, *P. pubescens*, *Solanum americanum*, *S. carolinense*, *S. dulcamara*, *S. melongena*, *S. rostratum*, *S. triflorum*, *S. tuberosum*, *S. villosum* (Clark *et al.* 2004). *Epitrix subcrinita* is a pest of *S. tuberosum* (Morrison *et al.* 1967; Alcazar 1997). It included in A1 list of quarantine pests in EPPO (2015).

Remarks. Interpretation of species is based on examination of specimens identified by L.G. Gentner as well on descriptions by LeConte (1860), Heikertinger (1950), Seeno and Andrews (1972) and Deczynski (2014).

***Epitrix tuberis* Gentner, 1944 (tuber flea beetle)**

Distribution. Canada: Alberta, British Columbia, Saskatchewan (Riley *et al.* 2003), Manitoba (CABI 2015); USA: Arizona, California, Colorado, Idaho, Montana, Nebraska, New Mexico, Oregon, South Dakota, Washington, Wyoming (Riley *et al.* 2003), North Dakota (Fauske 2003); Dominican Republic; Jamaica; Puerto Rico (EPPO 1990); Ecuador (EPPO 2015); Costa Rica (Germain *et al.* 2013). *Epitrix tuberis* is believed to be native to northern Colorado where it fed on wild hosts and then spread to other states of USA and to Canada due to mechanical transport by men during the course of the 20th century (Gentner 1944; Morrison *et al.* 1967; Seeno and Andrews 1972). The species is still spreading, in particular it was introduced to Ecuador (CABI 2015).

Host plants. *Capsicum rutescens*, *Datura meteloides*, *D. stramonium*, *Lycium*, *Lycopersicon esculentum*, *Nicandra physalodes*, *Nicotiana alata*, *N. tabacum*, *Petunia*, *Physalis francheti*, *Physalis ixocarpa*, *P. lanceolata*, *P. lobata*, *P. longifolia*, *P. pruniosa*, *P. pubescens*, *Solanum americanum*, *S. carolinense*, *S. dulcamara*, *S. melongena*, *S. rostratum*, *S. triflorum*, *S. tuberosum*, *S. villosum* (Clark *et al.* 2004). Major pest of *Solanum tuberosum*, larvae damage tubers, causing an extensive, serpentine, surface tunnelling, described as 'worm track type injury', as well as less important tuber injury, resembling 'pimples' and 'slivers' Gentner (1944). *Epitrix tuberis* is included in A1 list of quarantine pests in EPPO and is also regarded as a quarantine pest in East and Southern Africa, Israel, Jordan, Kazakhstan, Russia, Turkey, Ukraine (EPPO 2015).

Remarks. Interpretation of species is based on examination of the paratypes (Figures 5 C, F; 6 A, B, 7C, E) as well as on original description (Gentner 1944) and other descriptions (Seeno and Andrews 1972, Deczynski 2014, EPPO 2011).

***Epitrix warchalowskii* (Mohr, 1968)**

Distribution. Iran (Döberl 2010).

Host plants. Unknown.

Remarks. Interpretation of species is based on descriptions by Mohr (1968) and Döberl (2000).

Epitrix canariensis (Franz, 1996) was described from Canary Islands (Franz 1996). But now it is regarded as a synonym of *Neodryophilus cryptophagoides* (Wollaston, 1864) (Anobiidae) (personal communication by Dr. Jaech via Dr. Döberl).

Discussion

At least five Holarctic species of the genus *Epitrix* have become established outside their native continents: *E. hirtipennis*, *E. fasciata*, *E. cucumeris*, *Epitrix papa* and *E. pubescens* (Figure 8). In most cases alien species have established in the islands. This probably reflects well-known ecological law that the island ecosystems are more susceptible to invasions (Elton 2000).

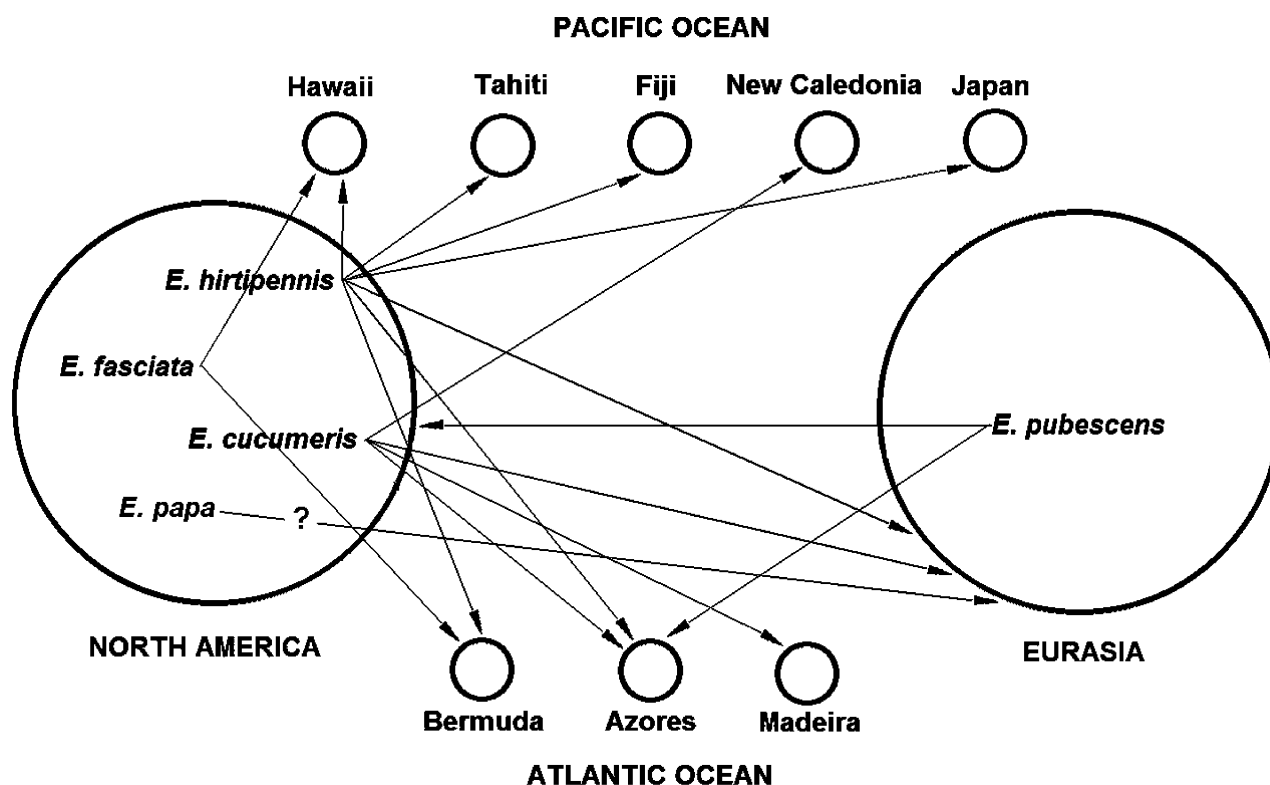


FIGURE 8. Invasions of the species of the genus *Epitrix* from their native ranges to other continents and islands in Pacific and Atlantic oceans.

North American species disperse outside their native range more often than species native to Eurasia. It was suggested that North American species of *Epitrix* spread eastward with trade winds (Döberl 1994). But this seems unlikely, because *Epitrix* species from North America have spread not only to the east across the Atlantic ocean, but also to the west across the Pacific ocean. All the North American species that have established far from their native range are pests of cultivated plants, mainly of tobacco and potato. It is likely that they are inadvertently introduced with planting material. This suggestion is confirmed by the fact that *Epitrix* species are sometimes transported in the soil associated with imported horticultural plants (Sæthre *et al.* 2010).

The establishment of alien species of flea-beetles often stays unnoticed (Beenen 2006). This is especially true for Alticinae, because they are tiny and difficult to identify. Since the ranges of several pest species of *Epitrix* are expanding, a targeted survey would be necessary to determine the current distributions. The present article should help to identify these flea-beetles and reveal alien species.

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Supplementary material.

Species	Label	Number of specimens	Depository
<i>Epitrix abeillei</i> (Bauduer, 1874)	Монголия, Баян-Хонгор. аймак, Экин-Гол, 900м, 3-4.9.1976, Л.Н.Медведев	1	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Монголия, Ю-Гобийский аймак, 75км ССВ Гурван-Тэс, солончак, на Liciun, 31.8.1976, Л.Н.Медведев	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Dzhafarchan, 20.5.1933, Th. Lukjanovitch	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Jerico, J.Sahlb. leg.	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Merv, Ahnger leg.	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Sibir. Coll. Semenov Tian-Shansky	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Trans-Caspi G., Turcmenien, E.Koenig leg.	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Асхабад, 31.5.-12.6.1898, К.О. Ангерь	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Асхабад, Закасп. обл., Ангерь, 8.8.1896	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Джиликуль, р. Вахш, 15.6.1934, В.Гуссаковский	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Закасп., Татагит, 25.7.1898, К.О.Ангерь	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Закаспийская обл., Переправа, 21.5.1903, К.О.Ангерь	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Испас, 70км NW Чарджоу, 1.6.1965, М.Козелов	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Кульджуктау, Аякгузюмды, 8.6.1963, Л.Арнольди	5	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Мерв, у реки, 21.3.1900, Ангерь	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Монголия, Баян-Хонгор. аймак, 25км ЮВ р. Шара-Хулсны-Булак, 2.9.1970, Кержнер	5	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Сераксь Закасп. о., К.Ангерь 14.5.1903	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	ст. Бахарден, Закаспийск. ж.д., 21.5.1896, Ангерь	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	ст. Гяурс-Байрам-Али, Закасп. 1896, Ангерь	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Фрунзе, караг. роца, 23.6.1946, А.Любищев	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Фрунзе, ущелье Аламедин 14.8.1944, А.Любищев	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix abeillei</i> (Bauduer, 1874)	Ю. Туркмения, Душак, 1-9.5.1989, Шаров	1	Moscow State Pedagogical University (Moscow)
<i>Epitrix allardi</i> (Wollaston, 1860)	I. Canariae. Crepidodera allardi Woll.	1	Collection by L.N. Medvedev (Moscow)
<i>Epitrix atropae</i> Foudras, 1860	Alushta 15.6.1927 Th. Lukjanovitch	7	Collection by A.O. Bienkowski (Zelenograd)

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Continued.

Species	Label	Number of specimens	Depository
<i>Epitrix atropae</i> Foudras, 1860	Austria, Gutersteiner Alpen, Schneeberg, unter 830 m, 30.5.2004 М. и А. Бенковские	10	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix atropae</i> Foudras, 1860	окр. Сочи, дол. р. Мзымта, Роза-хутор, укос в нижней части лесного склона, 3.5.2013, М. и А. Бенковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix atropae</i> Foudras, 1860	Austr.	2	Zoological Institute RAS (St. Petersburg)
<i>Epitrix atropae</i> Foudras, 1860	Рамонь, Воронеж, 20.7.1949, В.Ф.Палий	2	Zoological Institute RAS (St. Petersburg)
<i>Epitrix brevis</i> Schwarz, 1878	Amer. bot., колл. Сольского	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix brevis</i> Schwarz, 1878	Лафайетт, шт. Индиана, США, 21-24.10.1978, А.Л.Лобанов	2	Collection by L.N. Medvedev (Moscow)
<i>Epitrix caucasica</i> (Heikertinger, 1950)	р. Алма, Крымъ Рыбаковъ	3	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix caucasica</i> (Heikertinger, 1950)	Крым, Керчь, Аршинцево, на белене черной, 6.5.1997, И.Мельник	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix caucasica</i> (Heikertinger, 1950)	Caucasus coll. Semenov-Tian-Shansky	2	Zoological Institute RAS (St. Petersburg)
<i>Epitrix caucasica</i> (Heikertinger, 1950)	Caucasus, Helenendorf, Reitter	2	Zoological Institute RAS (St. Petersburg)
<i>Epitrix cucumeris</i> (Harris, 1851)	Crepidodera cucumeris West Point. N.Y. May 25 - 1908 W. Robinson / (♀ prep.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	Gravesend, Long I. N.Y. Aug. 23. 96 [1896] / Fredk Krab Collector / (неокрепший экз.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	Green Bay Wis N F Howard 6-VII-15 / (♀ prep.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	Lakeland 21-VII-66 Md / Collection F.Knab / (1 spec.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	Manchester N.H. / W S Abbott 1932 thru Bridwell / (♀ prep.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	Monmouth Gt. N.J. X-12-1940 / Shoemaker Collection 1956 / (♂ prep.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	Niles, Mich. 2 Aug. 1928 / On Solanum / L.G. Gentner Collector / <i>Epitrix cucumeris</i> Harr. Det. L.G. Gentner '40 / (♂ prep.)	1	National Museum of Natural History (Washington)
<i>Epitrix cucumeris</i> (Harris, 1851)	W. Va. USA, Springfield	1	Russian Plant Quarantine Center (Bykovo)
<i>Epitrix cucumeris</i> (Harris, 1851)	Wooster. O. 1.6.1956. L.H. Rolston coll. on Rumex sp.	1	Russian Plant Quarantine Center (Bykovo)
<i>Epitrix cucumeris</i> (Harris, 1851)	Fairmont, W. Va. USA, P.N. Musgrave coll.	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix cucumeris</i> (Harris, 1851)	Portugal, Rio Maior, Estanganhola 2, 1.6.2015	1	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix dieckmanni</i> (Mohr, 1968)	Yemen, b. Thibar n. Mabar, 12.3.1992, V. Harten leg.	1	Collection by L.N. Medvedev (Moscow)

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Species	Label	Number of specimens	Depository
<i>Epitrix ermischii</i> (Mohr, 1968)	Bezirk Krasnovodsk, W Kopet Dagh-Gebirge 10-20km S Kara Kala, Turkmenistan, 1.5.1993, leg. Cate and Dostal	9	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix ermischii</i> (Mohr, 1968)	Alex. Geb., Orloff, 12.6.1907, E. Fischer	10	Zoological Institute RAS (St. Petersburg)
<i>Epitrix ermischii</i> (Mohr, 1968)	Uz Maral (Ur Maral?) 06.1907, E. Fischer	10	Zoological Institute RAS (St. Petersburg)
<i>Epitrix ermischii</i> (Mohr, 1968)	хр. Бабага, Акмечеть, 21.5.1970, Г.Медведев	10	Zoological Institute RAS (St. Petersburg)
<i>Epitrix fuscuscula</i> Crotch, 1873	Amer. bor., coll. Сольского	4	Zoological Institute RAS (St. Petersburg)
<i>Epitrix hirtipennis</i> (Melsheimer, 1847)	Сочи, к западу от улицы Краносельская, холм, лиственный лес и опушка, укос 30.4.2013 - 2 самки.	3	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix hirtipennis</i> (Melsheimer, 1847)	Туапсе, улице Калараша, пустыри, большей частью - газон у школы, укос 7 мая, 1 самка 7.5.2013, 1 самка.	1	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix hirtipennis</i> (Melsheimer, 1847)	Garden Grove, Orange Co., Calif., 14.9.1970, ex Physalis peruviana, E.Станмер coll., N. York, coll. Сольского	1	Russian Plant Quarantine Center (Bykovo)
<i>Epitrix hirtipennis</i> (Melsheimer, 1847)	Texas, Deyrolle coll., 1900	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix hirtipennis</i> (Melsheimer, 1847)	Саратовская область Краснокутский район, Дьяковка, степь паслен сладко-горький М. и А. Беньковские	1	Zoological Institute RAS (St. Petersburg)
<i>Epitrix intermedia</i> Foudras, 1860	Саратовская область Краснокутский район, Дьяковка, паслен сладко-горький, болотце на паслене сладко-горьком М. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix krali</i> Döberl, 2000	Tigrovaja Balka, Tajikistan m., 2-6.6.1966, Kral, Epitrix krali Doeberl, paratype, female	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix muehlei</i> Döberl, 2000	Yemen, Sana'a, Hadda, 30.5.1987, leg. H. Muehle, Epitrix muehlei Doeberl, paratype, male	1	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix priesneri</i> (Heikertinger, 1950)	E Iran, 37km SW Zahedan, 22-23.4.1973, exp. Nat. Mus. Praha	2	Collection by L.N. Medvedev (Moscow)
<i>Epitrix priesneri</i> (Heikertinger, 1950)	Jabal Shams, Jabal Akhdar, 23@15N 57@15E 16.7.1981, Oman, M.D.Gallagher leg.	2	Collection by L.N. Medvedev (Moscow)
<i>Epitrix priesneri</i> (Heikertinger, 1950)	Jemen, Sanhan, ca.15km, SE Sana'a, on peach, 05.1993	2	Collection by L.N. Medvedev (Moscow)
<i>Epitrix pubescens</i> (Koch, 1803)	Краснодарский край Russia Krasnodar Territory vicinity of Krasnodar	2	Collection by A.G. Koval (St. Petersburg)
<i>Epitrix pubescens</i> (Koch, 1803)	Moscow reg., 20 km NWW Zelenograd Trusovo Istrinskoe Reservoir shore, on gresses 6.6.2004 M. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Sachsen bei Moritzburg 3.7.2005 Solanum M. и А. Беньковские	1	Collection by A.O. Bienkowski (Zelenograd)

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Species	Label	Number of specimens	Depository
<i>Eptirix pubescens</i> (Koch, 1803)	Астраханская область поселок Лиман берег ерика, паслен сладко-горький М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Белгородская обл., Борисовский р-н, Новоборисовка, перелесок, ручей, паслен сладкогорький 30.7.2012 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Белгородская область поселок Борисовка, пойменный луг, 5.7.1990 Дробышев	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Брянская область окрестности Брянска Свенский монастырь М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Брянская область Суземский район Селечня берег пруда и пойма ручья: на Solanum dulcamara. М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Калмыкия, Лагерь, берег канала 1.5.2012 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Кострома (обл. центр), 8.6.2011 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Краснодарский край окрестности Сочи на пасленовом; Раздольное на паслене сладкогорьком М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Краснодарский край, окр. Геленджик, близ Михайловский перевал, предгорье на паслене, 5.9.1990, М. Орлова, А. Беньковский	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Краснодарский край, окр. Сочи, близ Дагомыс, сад на паслене 27.8.1992 А. Беньковский	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Красноярский Край, Назаровский р-н, Алтат, паслен черный, 9-10.7.1987 Самодерженков Е.В.	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Липецк. обл., 30 км вост. Елец, Донское, правый и левый берег Дона у переправы, 11.8.2007 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Мордовия, Большеберезниковский р-н, биостанция МГУ заболоченный пруд и берег озера М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Московская Рузский озеро Глубокое М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Московская обл., Зеленоград бер Черного оз, паслен сладко-горький, 16.6.2008 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Орловская область Хотынецкий район национальный парк "Орловское поле" село Львов ручей, на Solanum dulcamara. М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Eptirix pubescens</i> (Koch, 1803)	Псковская область Себежский район Себеж, берег оз. Ороно, жуки на Solanum dulcamara; Бондари, жуки на заболоченном берегу ручья и сфагново-осоковом болоте в лесу. М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)

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Species	Label	Number of specimens	Depository
<i>Epitrix pubescens</i> (Koch, 1803)	Псковская область, Себежский район Осыно жуки в зарослях травы в сыром ольшанике по берегу оз. Осыно М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Псковская область, Себежский район Осыно М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Ростовская обл., Александровский лесхоз, пос. Ленинский Лесхоз, укос по опушкам, 15.5.1953 Г. Курчева	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Саратовская обл. Хвалынский Берег пруда; ручьи в лиственном лесу и по опушке; На <i>Solanum dulcamara</i> . VI, VII. М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Саратовская обл. Хвалынский район р. Терешка М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Саратовская область Краснокутский район, Дьяковка, паслен сладко-горький М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Тамбовская область, Тамбовский район, 16 км ССВ г. Тамбов, "Горельский лесхоз", 18-19.6.2011 И. Забалуев	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Тула, пойма р. Упа, 8.8.2012 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Уфа, лиственный лес близ р. Белая, паслен, 31.5.2009 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Чувашия, Чебоксары 13.6.2011 М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Южный Урал Ильменский заповедник. оз. Б. Таткуль, берег, <i>Solanum</i> 1.8.2000 А. Беньковский	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Ярославская область Ростов Великий берег озера Неро, укос М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Ярославская область Ростов Великий укос М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Владимир, 15.8.2013, М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Калужская обл., Таруса, л.бер. р. Ока, сухое болотце, на <i>Solanum dulcamara</i> , 3.8.1972, В.Ф. Палий	1	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Костромская обл., устье р. Кешка, N57,52496 E41,10604 18.7.2013, М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Липецк, пойма р. Воронеж, укос, 27.6.2013, М. и А. Беньковские	2	Collection by A.O. Bieńkowski (Zelenograd)
<i>Epitrix pubescens</i> (Koch, 1803)	Московская обл., Зеленоград, дол. р. Ржавка, паслен сладко-горький, 25.5.2012, А. Беньковский	2	Collection by A.O. Bieńkowski (Zelenograd)

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Species	Label	Number of specimens	Depository
<i>Epiritrix pubescens</i> (Koch, 1803)	Московская обл., Зеленоград, Малинское болото, 17.5.2012, М. и А. Беньковские	1	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	Нижегородская обл., Сормово, паслен сладко-горький, 8.8.2013, М. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	окр. Сочи, Весёлое, пустырь, укос, 2.5.2013, М. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	окр. Сочи, Семёновка, паслен сладко-горький, 4.5.2013, М. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	Ростовская обл., Александровский р-н, пос. Ленинский Лесхоз, укос по опушкам, 15.5.1953, Г. Курчева	1	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	Тула, парк им. Белоусова, 8.8.2012, М. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	Тула, пойма р. Упы, 8.8.2012, М. и А. Беньковские	2	Collection by A.O. Bienkowski (Zelenograd)
<i>Epiritrix pubescens</i> (Koch, 1803)	паслен возле р. Неж. 19-21 А. Андреева	2	Belgorod State University (Belgorod)
<i>Epiritrix pubescens</i> (Koch, 1803)	Владимирская обл., нац. Парк "Мещера", п. Уршельский,	2	Collection by V.B. Semenov (Moscow)
<i>Epiritrix pubescens</i> (Koch, 1803)	Московская обл. пос. Быково территория ВНИИКР	2	Russian Plant Quarantine Center (Bykovo)
<i>Epiritrix pubescens</i> (Koch, 1803)	Ярославская обл., Угличский район, д. Метьево, биостанция ЯРГУ, 24.6.1997 leg. Vlasov D.	1	Collection by D.V. Vlasov (Yaroslavl)
<i>Epiritrix pubescens</i> (Koch, 1803)	Persia I m Caspij, Enzeli, 14.5.1915, Iljin leg.	1	Zoological Institute RAS (St. Petersburg)
<i>Epiritrix pubescens</i> (Koch, 1803)	Talyschgeb., Transcaucas., Leder, Reitter	1	Zoological Institute RAS (St. Petersburg)
<i>Epiritrix pubescens</i> (Koch, 1803)	Астрабад, С. Персия, 04.1858, Бинергь	1	Zoological Institute RAS (St. Petersburg)
<i>Epiritrix pubescens</i> (Koch, 1803)	Московская область Раменский район Отдых	2	Zoological Museum of Moscow State University (Moscow)
<i>Epiritrix pubescens</i> (Koch, 1803)	Московская область Трофимово почвенная ловушка, 14 окт-7 ноя 2011	2	Zoological Museum of Moscow State University (Moscow)
<i>Epiritrix pubescens</i> (Koch, 1803)	Пензенская область Бессоновский р-н, Победа, Пр. 18-24.07.07	2	Collection by I.G. Pronina (Penza)
<i>Epiritrix pubescens</i> (Koch, 1803)	Пензенская область Пенза, Согласие, Пр.25.05.07	2	Collection by I.G. Pronina (Penza)
<i>Epiritrix pubescens</i> (Koch, 1803)	Московская обл., Орехово-Зуевский р-н, ст. Подосинки, у реки	2	Collection by K.P. Tomkovich (Moscow)
<i>Epiritrix pubescens</i> (Koch, 1803)	2 экз. Д-ров., окр. с. Гудово пойменный луг, у пруда, на траве, 15.V.1996 (Щуриков) det. Щуриков М.Н. (проверил Беньковский А.О.).	3	Collection by M.N. Tsurikov (Lipetsk region)

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Species	Label	Number of specimens	Depository
<i>Epirix pubescens</i> (Koch, 1803)	1 экз. 25 км СВ г. Воронежа, Усманский бор, у воды, 5.IV.1995 (Цуриков) det. Цуриков М.Н. (проверил Беньковский А.О.)	1	Collection by M.N. Tsurikov (Lipetsk region)
<i>Epirix pubescens</i> (Koch, 1803)	Тамбов. обл., Знамен. р-н, паслен, 15.7.2012	3	Collection by R.N. Ishin (Tambov)
<i>Epirix pubescens</i> (Koch, 1803)	Тамбов	2	Collection by R.N. Ishin (Tambov)
<i>Epirix pubescens</i> (Koch, 1803)	Удмуртия материалы Сергея Викторовича Дедюхина	3	Collection by S.V. Dedukhin (Izhevsk)
<i>Epirix pubescens</i> (Koch, 1803)	Тульская область Щекинский район Ясная Поляна лесное болото кошение	1	Collection by Yu.V. Dorofeev (Tula)
<i>Epirix setosella</i> (Fairmaire, 1888)	Amur, Selemzhinsky Distr., Aldikon River, 200m, 07.2006, A.Ryvkin leg.	2	Collection by L.N. Medvedev (Moscow)
<i>Epirix setosella</i> (Fairmaire, 1888)	Култур, Амурская обл., 6.8.1968, Ю.Зайцев	3	Collection by L.N. Medvedev (Moscow)
<i>Epirix similaris</i> Gentner, 1944	PARATYPE <i>Epirix similaris</i> ♂ L.G.Gentner '44 / Paraiso Springs Monterey Co Cal V-5-1922/ (aedeagus prep., photo)	1	National Museum of Natural History (Washington)
<i>Epirix similaris</i> Gentner, 1944	PARATYPE <i>Epirix similaris</i> ♂ L.G.Gentner '44 / Playa del Roy IV-20-35 Cal / A.T. McClay Collector / (aedeagus prep.)	1	National Museum of Natural History (Washington)
<i>Epirix similaris</i> Gentner, 1944	PARATYPE <i>Epirix similaris</i> ♂ L.G.Gentner '44 / Santa Barbara VI-16-32. Cal / A.T. McClay Collector / (aedeagus prep.)	1	National Museum of Natural History (Washington)
<i>Epirix similaris</i> Gentner, 1944	Hntngtn Bch. Cal. 24.8.1904. ESG Titus coll., Sugar beets	1	Russian Plant Quarantine Center (Bykovo)
<i>Epirix subcrinita</i> (LeConte, 1857)	Hansen, Idaho, 9.3.1930, S. tuberosum, David E.Fox leg.	1	Russian Plant Quarantine Center (Bykovo)
<i>Epirix subcrinita</i> (LeConte, 1857)	Klamath Falls, Ore. 25.7.1963, on potato, L.G.Gentner leg. and det.	1	Russian Plant Quarantine Center (Bykovo)
<i>Epirix subcrinita</i> (LeConte, 1857)	WISC: Lopez, 26.7.1969, Wm.W.Baker	1	Russian Plant Quarantine Center (Bykovo)
<i>Epirix subcrinita</i> (LeConte, 1857)	Carlotta, Humboldt Co., Cal., 8.7.1969, ex popato, R.P.Allen coll.,	1	Collection by L.N. Medvedev (Moscow)
<i>Epirix tuberis</i> Gentner, 1944	On Tomato leaves Seattle Wash 29-VII-44 - 19118 / Lot No 44 - 19118 tuberis / (1 ♂ aed. prep., 1 ♀ spermatheca prep. photo + 4 spec. non prep.)	2	National Museum of Natural History (Washington)
<i>Epirix tuberis</i> Gentner, 1944	PARATYPE <i>Epirix tuberis</i> ♀ L.G.Gentner '44 / Ft. Collins Colo. 10/22/31 / 107 / (spermatheca prep., photo)	1	National Museum of Natural History (Washington)
<i>Epirix tuberis</i> Gentner, 1944	PARATYPE <i>Epirix tuberis</i> ♂ L.G.Gentner '44 / Satus, Wn. VI-24-1940 HP Lomdester / Merton C. Lane Collection 1975 / (aedeagus prep.)	1	National Museum of Natural History (Washington)
<i>Epirix tuberis</i> Gentner, 1944	PARATYPE <i>Epirix tuberis</i> ♂ L.G.Gentner '44 / Scottsbluff IX-27-1940. Neb. / On potato H-D. Tate / (aedeagus prep.)	1	National Museum of Natural History (Washington)

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Species	Label	Number of specimens	Depository
<i>Epirix tubensis</i> Gentner, 1944	PARATYPE <i>Epirix tubensis</i> ♂ L.G.Gentner '44 / Scottsbluff VI-28-1943. Nebr. / On potato R.E. Hill / (aed. prep., photo)	1	National Museum of Natural History (Washington)
<i>Epirix tubensis</i> Gentner, 1944	PARATYPE <i>Epirix tubensis</i> ♂ L.G.Gentner '44 / Scottsbluff VI-28-1943. Nebr. / On potato R.E. Hill / U.S.N.M. Paratype 57102 / (aed. lost?)	1	National Museum of Natural History (Washington)
<i>Epirix tubensis</i> Gentner, 1944	Scottsbluff Nebr. VI-27-45. Nebr. R L Wallis T C a - 591 / On Solanum nigrum 45 - 19730 / tuberis 12 cucumeris 10 / (1 ♂ aed. prep. + 5 spec, non prep.)	6	National Museum of Natural History (Washington)
<i>Epirix tubensis</i> Gentner, 1944	Wapato Wn Get. 14, 1935 Mc Lane col. / Merton C. Lane Collection 1975 (3 ♂ prep. aed.)	3	National Museum of Natural History (Washington)
<i>Epirix tubensis</i> Gentner, 1944	Ore., Clackamas Co., Clackamas R., 6 mi. E., 3 mi. N. Oregon City, potato, 1.6.1962, Morrison and Koontz leg. E. tuberis det. Gentner	1	Russian Plant Quarantine Center (Bykovo)
<i>Epirix tubensis</i> Gentner, 1944	Fairmont, W.Va. USA, 08.1915, P.N.Musgrave coll.	3	Zoological Institute RAS (St. Petersburg)
<i>Epirix tubensis</i> Gentner, 1944	Ont... 14.6.1916	3	Zoological Institute RAS (St. Petersburg)
<i>Epirix papa</i> Orlova-Bienkowskaja, 2015	Holotype (♂), paratypes (13♂, 6♀). The specimens were collected 24.iii.2015 from cages in the INIAV (Instituto Nacional de Investigação Agrária e Veterinária) in Lisbon. The culture was established in 2012 from adults collected from a farm near the village of Toxofal, located 70 km north of Lisbon and refreshed with wild adults from the same location twice a year.	20	Holotype and three paratypes will be deposited in the collection of Zoological Institute of Russian Academy of Sciences (St.-Petersburg, Russia), four paratypes in the National Museum of Natural History (Washington, USA), four paratypes in the Natural History Museum (London, UK), four paratypes in the private collection of M. Döberl (Abensberg, Germany) and four paratypes in the private collection of A.O. Bienkowski