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Abstract

This study reports 30 species of Lepidoptera previously known from either the Palearctic or the Nearctic that are newly recorded as Holarctic. For 28 of these species, their intercontinental distributions were initially detected through DNA barcode analysis and subsequently confirmed by morphological examination; two Palearctic species were first detected in North America through morphology and then barcoded. When possible, the origin and status of each species (introduced, overlooked Holarctic species, or unknowingly re-described) is discussed, and its morphology is diagnosed and illustrated. The species involved include Tineidae: *Scardia amurensis* Zagulajev, *Triaxomera parasitella* (Hübner), *Nemapogon cloacella* (Haworth), *Elatobia montelliella* (Schantz), *Tinea svenssoni* Opheim; Gracillariidae: *Caloptilia suberinella* (Tengström), *Parornix betulae* (Stainton); *Phyllonorycter maestingella* (Müller); Yponomeutidae: *Paraswammerdamia albicapitella* (Scharfenberg), *P. conspersella* (Tengström); Plutellidae: *Plutella hyperboreella* Strand; Lyonetiidae: *Lyonetia pulverulentella* Zeller; Autostichidae: *Oegoconia deauratella* (Herrich-Schäffer), *O. novimundi* (Busck); Blastobasidae: *Blastobasis glandulella* (Riley), *B. maroccanella* (Amsel), *B. tarda* Meyrick; Depressariidae: *Agonopterix conterminella* (Zeller), *Depressaria depressana* (F.); Coleophoridae: *Coleophora atriplicis* Meyrick, *C. glitzella* Hofmann, *C. granulatella* Zeller, *C. texanella* Chambers, *C. vitisella* Gregson; Scythrididae: *Scythris sinensis* (Felder & Rogenhofer); Gelechiidae: *Altenia perspersella* (Wocke), *Gnorimoschema jalavai* Povolný, *Scrobipalpa acuminatella* (Sircom), *Sophronia gelidella* Nordman; Choreutidae: *Anthophila fabriciana* (L.); and Tortricidae: *Phiaris bipunctana* (F.). These cases of previously unrecognized faunal overlap have led to their redescription in several instances. Five new synonyms are proposed: *Blastobasis glandulella* (Riley, 1871) = *B. huemeri* Sinev, 1993, syn. nov.; *B. tarda* Meyrick, 1902 = *Neoblastobasis ligurica* Nel & Varenne, 2004, syn. nov.; *Coleophora atriplicis* Meyrick, 1928 = *C. cervinella* McDunnough, 1946, syn. nov.; *C. texanella* Chambers, 1878 = *C. coxi* Baldizzone & van der Wolf, 2007, syn. nov., and = *C. vagans* Walsingham, 1907, syn. nov. Lectotypes are designated for *Blastobasis tarda* Meyrick and *Coleophora texanella* Chambers. Type specimens were examined where pertinent to establish new synonymies. We identify 12 previously overlooked cases of species introductions, highlighting the power of DNA barcoding as a tool for biosurveillance.

Key words: Autostichidae, biosurveillance, Blastobasidae, Choreutidae, Coleophoridae, Depressariidae, Gelechiidae, Gracillariidae, Lepidoptera, Lyonetiidae, non-native insects, Plutellidae, Scythrididae, Tineidae, Tortricidae, Yponomeutidae

Introduction

Because DNA barcoding provides a rapid, standardized means for species identification (Hebert *et al.* 2003; Hebert *et al.* 2010), its use has been advocated for the detection of non-indigenous and invasive species amidst the background diversity of native fauna (Armstrong & Ball 2005; Floyd *et al.* 2010; Armstrong 2010; deWaard *et al.* 2010; Wilson & Schiff 2010; Nagoshi *et al.* 2011; Quiao *et al*. 2012; Collins *et al.* 2012; Frewin *et al.* 2013; Porco *et al.* 2013). Although barcoding may overlook some closely related species, it can significantly accelerate the tedious morphological scrutiny of individual specimens, which is otherwise necessary to obtain even near-species-level identification in many small, mega-diverse taxa, such as arthropods. Morphological examination can then be conducted selectively and more effectively on representative specimens of DNA barcode clusters. While traditional morphology-based methods are still widely employed in species surveys, DNA barcoding is quickly emerging as a powerful tool for the detection of non-indigenous species, previously unsuspected shared native species, and taxonomic synonyms.

The development of DNA barcode libraries providing coverage for thousands of Lepidoptera species (e.g. Hebert *et al.* 2010; deWaard *et al.* 2011; Hausmann *et al.* 2011; Huemer & Hebert 2012; Hebert *et al.* 2013) now enables the search for shared faunal elements that previously have been overlooked (Mutanen *et al.* 2012b). Using a combination of DNA barcoding and morphology, several papers have recently reported the presence of European or Palearctic Lepidoptera from North America: *Lampropteryx suffumata* (Geometridae) (deWaard *et al.* 2008); *Paraswammerdamia nebulella* (as *lutarea*) and *Argyresthia pruniella* (Yponomeutidae); *Prays fraxinella* (Praydidae); *Dichelia histrionana* (Tortricidae) (deWaard *et al.* 2009); *Gypsonoma aceriana* (Tortricidae) (Humble *et al.* 2009); and *Eupithecia pusillata* (Geometridae) (deWaard *et al.* 2010). Other studies have documented cases of misidentifications, as well as synonymous and cryptic species (Mutanen *et al.* 2012a; Yang *et al.* 2012).

The frequent necessity for genitalia dissections to assess diagnostic characters in Microlepidoptera, even at supra-specific levels, coupled with incomplete taxonomy and the low quality of specimens obtained in surveillance surveys, are additional factors that impede species identification and detection through morphology.

This paper discusses 28 species of Microlepidoptera whose joint occurrence in North America and Europe was initially revealed by DNA barcode analysis and subsequently confirmed by morphological analysis, and two additional species first recognized through morphology. Most of these species are reported in North America for the first time, and four involve new synonyms, including three species hitherto known under different names from Europe. We also assess whether they are likely to represent introduced species or native taxa with a Holarctic distribution.

Material and methods

Barcode analysis. By October 2013, more than 800,000 specimens of Lepidoptera had been DNA barcoded through various projects and campaigns, such as FinBOL (http://www.finbol.org/) and All-Leps (http://www.lepbarcoding.org/). These specimens — caterpillars (e.g. Janzen *et al.* 2009), adults (e.g. Hebert *et al.* 2010), even parasitoid gut-contents (Rougerie *et al.* 2011) — derive from hundreds of collectors and are vouchered in dozens of natural history collections. In most cases, specimens or tissue samples were shipped to the Canadian Centre for DNA Barcoding in Guelph for sequence analysis. Laboratory protocols at this facility have been heavily optimized, and the current iteration can be accessed at http://www.ccdb.ca. In short, a small tissue sample is lysed and genomic DNA extracted using an automated, silica-based method (Ivanova *et al.* 2006). The COI barcode region is amplified via PCR using one or more primer sets (Hebert *et al.* 2013) and successful amplicons are then bi-directionally sequenced (deWaard *et al.* 2008). The resultant sequences, along with the voucher data, images, and trace files, are deposited in the Barcode of Life Data Systems (BOLD) (Ratnasingham & Hebert 2007; www.barcodinglife.org) and the sequences subsequently deposited in GenBank.

For the 30 new records presented here, DNA barcodes were obtained at two stages of discovery. In most cases, such as *Nemapogon cloacella* (see below), barcode analysis revealed an identical or close match to sequence records from the native range of another taxon. In other cases, such as *Scardia amurensis* and *Paraswammerdamia conspersella* (see below), a suspected new record was corroborated by DNA barcode analysis, confirming that the species was present.

Two 'technical' outgroup taxa were selected for each of the 30 species to illustrate the level of intraspecific variation versus interspecific divergence. The two taxa with the closest Barcode Identification Numbers (BINs) (Ratnasingham & Hebert 2013) in BOLD were used: on average selected species showed less than 5% divergence, although in some (e.g. *Anthophila fabriciana*) the distance was more than 10% because no closer confamilial taxon was available. In total, COI sequence data is provided for 1415 specimens from 80 species. Neighbor-joining trees and genetic distances were calculated with MEGA 5.05 (Tamura *et al.* 2011) using the Kimura two-parameter (K2P) model of base substitution (Kimura 1980). All of the barcode records are publicly available in the BOLD dataset "DS-28NHM", accessed at dx.doi.org/10.5883/DS-28NHM. In addition, the specimen accession, BOLD accession, GenBank accession, collection region, storing museum, and BIN for each specimen are listed in Appendix 1.

Dissections. Genitalia dissections and slide mounts were carried out as outlined in Landry (2007).

Photography. Pinned specimens were photographed with a Canon EOS 60D with a MP-E 65 mm macro lens. They were placed on the tip of a thin plastazote wedge mounted on an insect pin, with the head facing toward the pin and the fringed parts of the wings facing outward. This ensured that there was nothing between the fringes and the background. Most specimens were photographed over a white background, except very pale specimens for which a 25% grey background was used. Lighting was provided by a ring of 80 LED covered with a white diffuser dome (Fisher 2012 and references therein). The camera was attached to a re-purposed stereoscope fine-focusing rail. Sets of 20–35 images in thin focal planes were taken for each specimen and assembled into deep-focused images using Zerene Stacker and edited in Adobe Photoshop. Barcoded specimens of the new records were illustrated, unless their condition was poor in which case a better-quality specimen was used to show the aspect of the species.

Slide-mounted genitalia with few exceptions were photographed with a Nikon DS-Fi1 digital camera mounted on a Nikon Eclipse 800 microscope at magnifications of 100–400×. Nikon's NIS 2.3 Elements was used to assemble multiple photos of different focal planes into single deep-focus images.

Classification and order of presentation. The familial arrangement follows Nieukerken *et al.* (2012). Subfamily assignments follow Karsholt & Razowski (1996) for Tineidae; De Prins & De Prins (2005) for

Gracillariidae; Kaila (2004) and Kaila *et al.* (2011) for Gelechioidea, except Gelechiidae; Lee *et al.* (2009) for Gelechiidae; and Brown (2005) for Tortricidae. Species are listed alphabetically within each family/subfamily. Genus and species names follow Fauna Europaea (2013) except for species names not previously reported for Europe. Species are numbered uniserially and the same numbers are applied to all illustrations for each species, removing the need to insert figure references throughout the text.

Material examined. The primary sources of records analyzed were from barcoded specimens that are recorded in BOLD. Genitalia were examined for barcoded representatives of both sexes (if available) of every species. In some instances additional specimens not barcoded were also dissected and examined to supplement barcode-based records or to illustrate the genitalia of a sex not barcoded. No attempt was made to search North American collections widely to establish more comprehensive geographical distributions or to check for additional undetected records. This would have required substantial time and resources that were beyond the scope of this work, which aimed at reporting first instances of intercontinental occurrences, most of which were detected through DNA barcodes. Cases of new synonymies were established when they could be supported by examination of primary types. Cases for which synonymies were suspected but types could not be examined in the present study are discussed but left unresolved.

Specimen depositories

ADAM	Research Collection of James K. Adams, Calhoun, Georgia, USA
AMS	Australian Museum, Sydney, New South Wales, Australia
BIOUG	Biodiversity Institute of Ontario, University of Guelph, Ontario, Canada
BIRD	Research Collection of Charles Bird, Erskine, Alberta, Canada
BLDZ	Research Collection of Giorgio Baldizzone, Asti, Italy
BMNH	Natural History Museum, London, UK
BUCH	Research Collection of Peter Buchner, Schwarzau/Steinfeld, Austria
CAMA	Research Collection of Alain Cama, La Chapelle-sur-Loire, France
CNC	Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Ontario, Canada
DESC	Research Collection of Gerfried Deschka, Steyr, Austria
DEUT	Research Collection of Helmut Deutsch, Assling, Osttirol, Austria
EMEC	Essig Museum of Entomology, University of California, Berkeley, California, USA
HAND	Research Collection of Daniel Handfield, Saint-Mathieu-de-Beloeil, Québec, Canada
INRA	Institut National de Recherche Agronomique, Orléans, France
LAST	Research Collection of Aleš & Zdeněk Laštůvka, Brno, Czech Republic
LMK	Landesmuseum Kärnten, Klagenfurt, Austria
MEM	Mississippi Entomological Museum, Mississippi State University, Starkville, Mississippi, USA
MZH	Finnish Museum of Natural History, Helsinki, Finland
NFRC	Northern Forestry Centre, Canadian Forest Service, Edmonton, Alberta, Canada
NSM	Nova Scotia Museum, Halifax, Nova Scotia, Canada
NSWPI	New South Wales Department of Primary Industries, Orange, New South Wales, Australia
PFRC	Pacific Forestry Centre, Canadian Forest Service, Victoria, British Columbia, Canada
POHL	Research Collection of Greg R. Pohl, Edmonton, Alberta, Canada
PRIN	Research Collection of W. & J. De Prins, Tervuren, Belgium
RBCM	Royal British Columbia Museum, Victoria, British Columbia, Canada
SEM	Spencer Entomological Collection of the Beaty Biodiversity Museum, University of British Columbia, Vancouver, British Columbia, Canada
SIMM	Research Collection of Ian Sims, Reading, UK
SUKA	V.N. Sukachev Institute of Forest, Krasnoyarsk, Russia
SUMP	Research Collection of J. Šumpich, Czech Republic
TABE	Research Collection of Jukka Tabell, Hartola, Finland
TLMF	Tiroler Landesmuseum Ferdinandeum, Innsbruck, Austria
UCMS	University of Connecticut, Storrs, Connecticut, USA
USNM	National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA

VNGA	Inatura Dornbirn, Austria
WAGN	Research Collection of David L. Wagner, Storrs, Connecticut, USA
WATK	Research Collection of Ian Watkinson, Yuma, Arizona, USA
WSDA	Washington State Department of Agriculture, Olympia, Washington, USA
WSU	Maurice T. James Entomological Collection, Washington State University, Pullman, Washington, USA
ZMUO	Zoological Museum, University of Oulu, Finland

Results

1. *Scardia amurensis* Zagulajev, 1965 (Tineidae: Scardiinae)

Scardia amurensis Zagulajev, 1965: 411. Type locality: Russia: Primorskii Territory, Spassk-Dalny.
BOLD:AAG4818

Palearctic distribution. Amur and Primorskii Regions in far-eastern Russia, Japan, possibly adjacent parts of China (Robinson 1986; Baryshnikova 2008).

New North American records. USA: Georgia, Maryland, Mississippi, New Jersey, North Carolina, South Carolina, Georgia, Texas, West Virginia (CNC, USNM). Many specimens in the USNM and in the James Adams Collection in Athens, Georgia were examined but not barcoded.

Diagnosis. The forewing cream marking are extended along the entire length of the dorsal margin and over the terminal area; the terminal margin has a few rusty-brown spots. In the native North American species, *Scardia anatomella* (Grote), the forewing cream markings form three irregular, disjointed spots along the hind margin (somewhat confluent in some specimens), and the terminal cream area is variegated with dark brown; there are also small cream spots along the anterior margin, which are lacking in *amurensis*. Though highly variable in size, *amurensis* specimens are very large with a wingspan of up to 40 mm. The differences in both male and female genitalia between *amurensis* and *anatomella* are striking: in *amurensis* male, the uncus lobes are long and prominent, extended to two-thirds of the valvae, the valvae are elongate with the distal portion rounded and spatulate, the claw-like juxta lobes are arcuate, the abdominal T8 is roundly conical, and the abdominal coremata are smaller than the 8th segment; in *anatomella* male, the uncus lobes are very short, about one-quarter the length of valvae, with long setae, the valvae are proportionally short and caudally emarginate, the claw-like juxta lobes are straight with a hooked apex, T8 is tongue-like, and the abdominal coremata are much larger than the 8th segment. In *amurensis* female, the distal margin of both S8 and T8 is bilobate; in *anatomella* female, the distal margin of both S8 and T8 is only slightly emarginate.

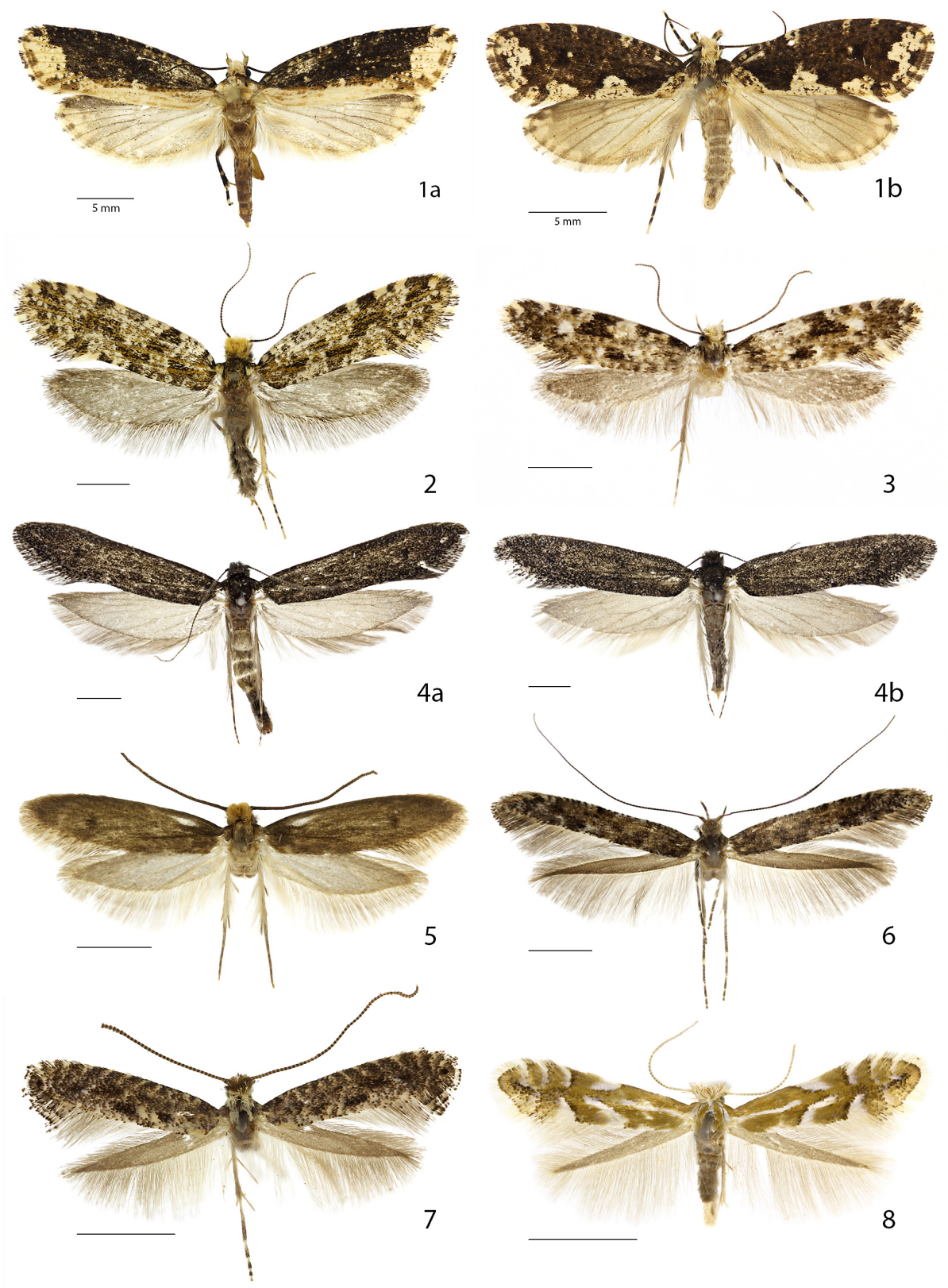
Larval host. *Fomes* fungi (Robinson 1986) and possibly other bracket fungi. One specimen from Maryland reared from *Globifomes graveolens* growing on fallen *Fagus grandifolia* (USNM).

Note. This species was initially discovered mixed among specimens of the Nearctic *Scardia anatomella* (Grote, 1881) in the USNM, while selecting specimens of the latter for barcoding. Careful examination of additional *anatomella* revealed several older records of *S. amurensis* from the southeastern U.S., with the earliest from eastern Texas in 1967 (USNM). Thus the introduction of this species into North America took place several decades ago, but the species has remained unrecognized. The species may be common in other U.S. collections, though misidentified, as evidenced by series collected in the 2000s in Georgia (ADAM) and in Maryland (USNM). No specimens from the Palearctic region were barcoded as few specimens are available, none recent. However, our identification was verified by genitalia examination and comparison with those of the type material, illustrations of which were kindly supplied by Reinhard Gaedike. The species appears to be widespread in the southeastern U.S.

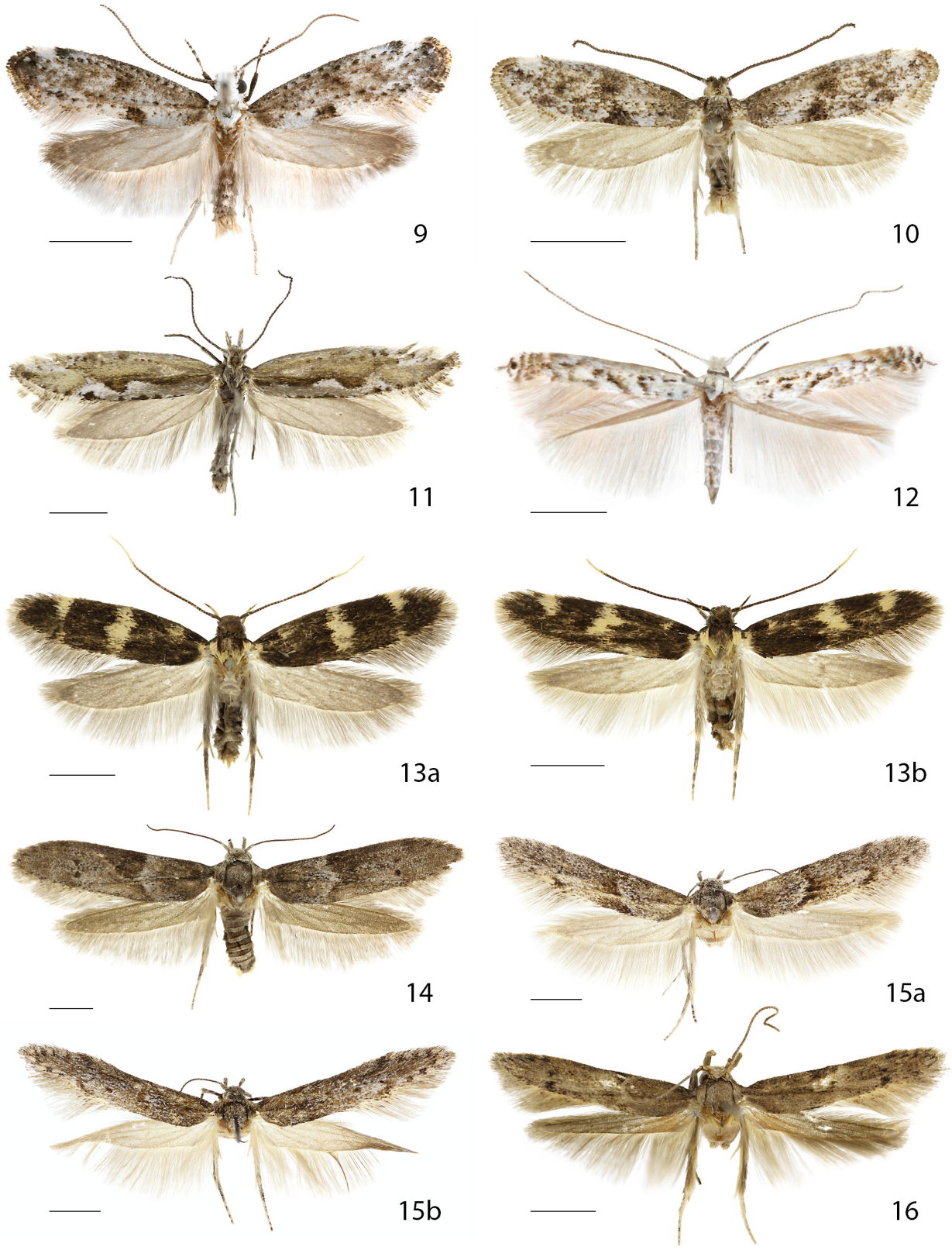
2. *Triaxomera parasitella* (Hübner, 1796) (Tineidae: Nemapogoninae)

Tinea parasitella Hübner, 1796: 16. Type locality: [Germany].
BOLD:AAD9379

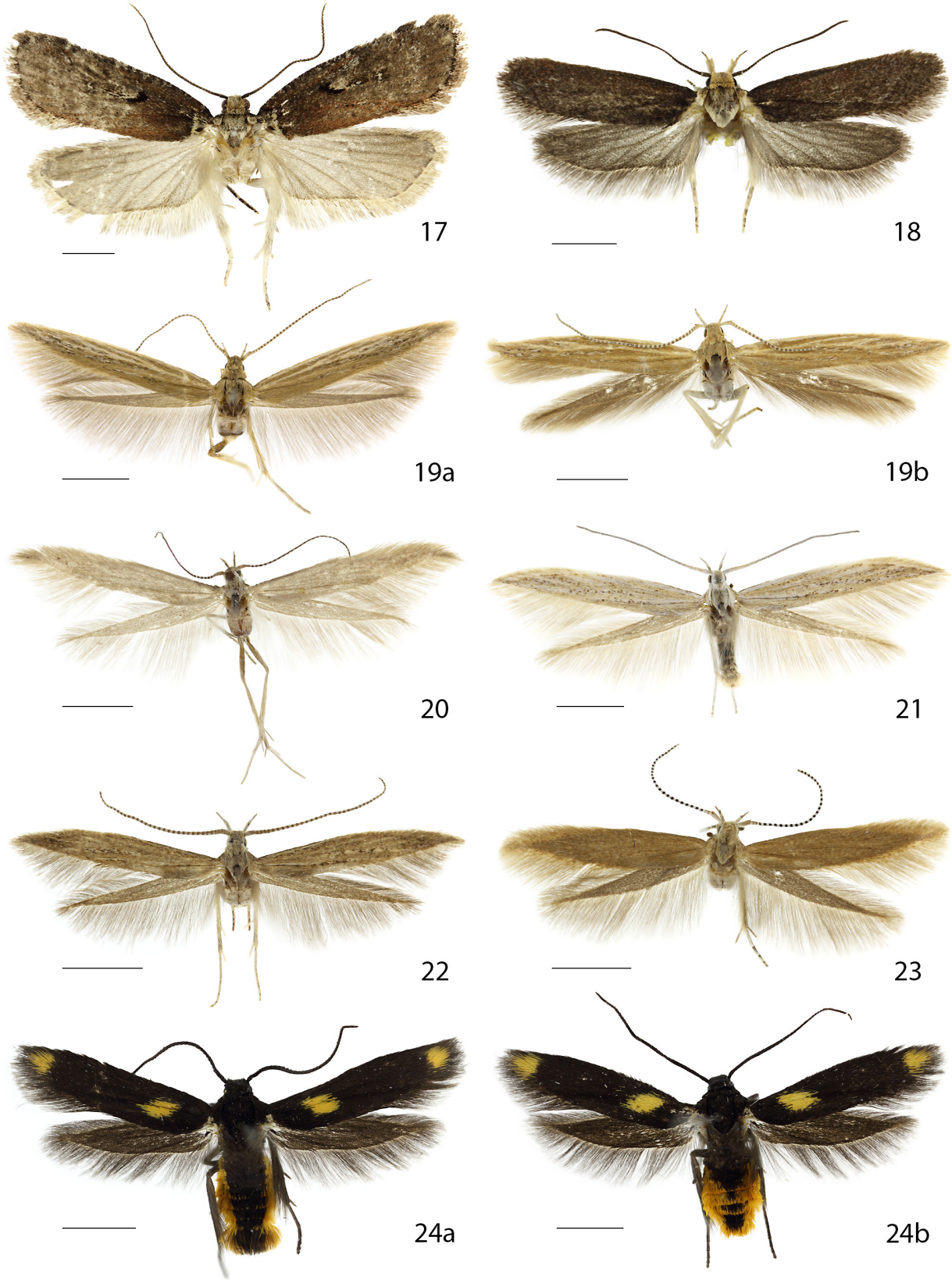
Palearctic distribution. Widespread in Europe (Karsholt & Razowski 1996).



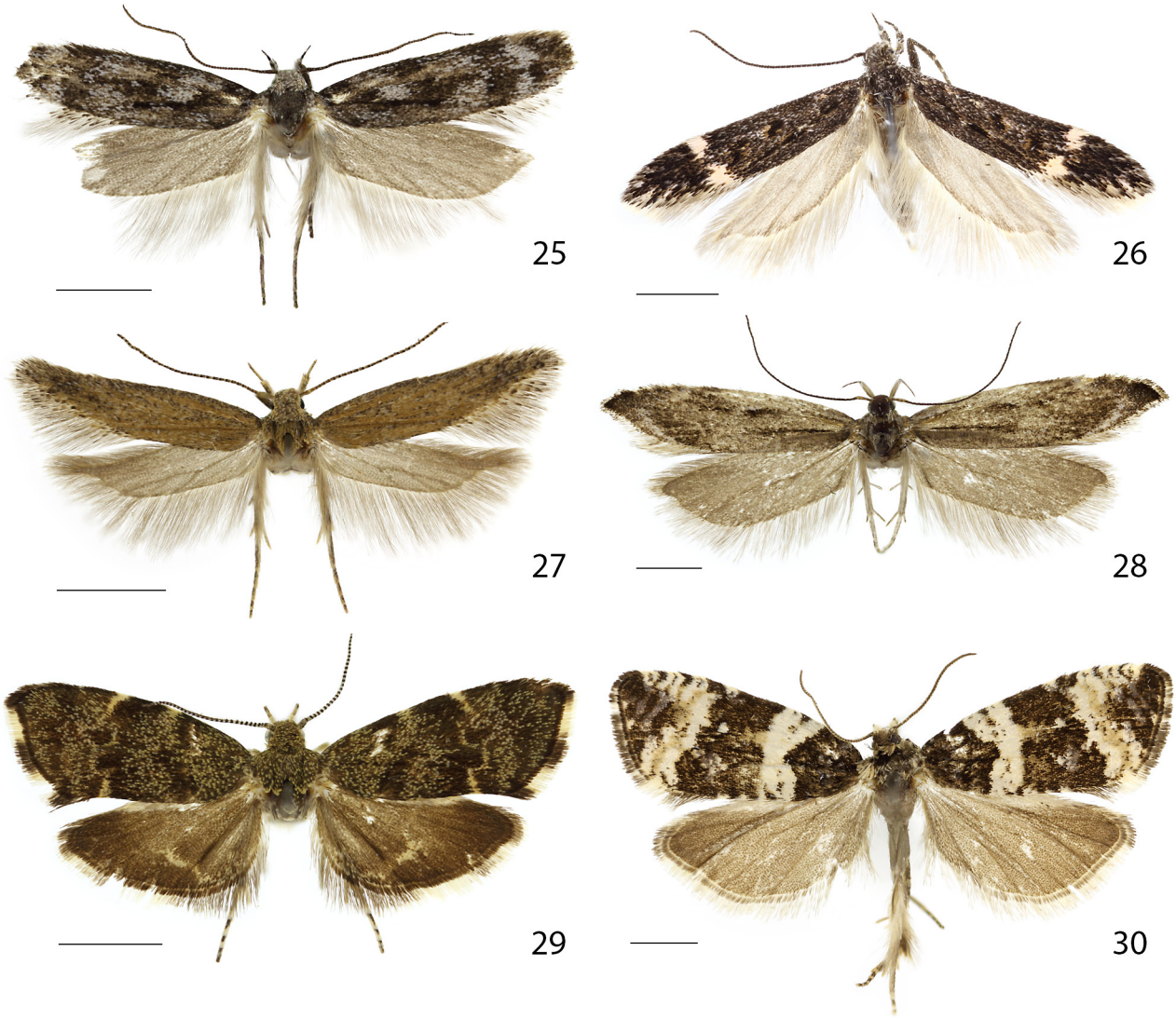
FIGURES AD1–AD8. Adults. Sample IDs in parentheses. Scale bar = 2 mm unless otherwise indicated. AD1a, *Scardia amurensis* (06-BLLOC-1332); AD1b, *Scardia anatomella* (USNMENT00657747); AD2, *Triaxomera parasitella* (CNCLEP00067773); AD3, *Nemapogon cloacella* male (CNCLEP00069166); AD4a, *Elatobia montelliella* male (JD7366); AD4b, *Elatobia montelliella* female (JD7368); AD5, *Tinea svenssoni* (CNCLEP00027522); AD6, *Caloptilia suberinella* (USNMENT00657745); AD7, *Parornix betulae* (MM03970); AD8, *Phyllonorycter maestingella* (USNMENT00657746).



FIGURES AD9–AD16. Adults. Sample IDs in parentheses. Scale bar = 2 mm. AD9, *Paraswammerdamia albicapitella* (UKLB39D08); AD10, *Paraswammerdamia conspersella* (CNCLEP00001780); AD11, *Plutella hyperboreella* (CNCLEP00043304); AD12, *Lyonetia pulverulentella* (MM15552); AD13a, *Oegoconia deauratella* (CNCLEP00082259); AD13b, *Oegoconia novimundi* (CNCLEP00078281); AD14, *Blastobasis glandulella* (CNCLEP00006352); AD15a, *Blastobasis maroccanella* (CNCLEP00056067); AD15b, *Blastobasis maroccanella* (CNCLEP00056068); AD16, *Blastobasis tarda* (CNCLEP00077992).



FIGURES AD17–AD24. Adults. Sample IDs in parentheses. Scale bar = 2 mm. AD17, *Agonopterix conterminella* (CNCLEP00029286); AD18, *Depressaria depressana* (CNCLEP00097815); AD19a, *Coleophora atriplicis* (CNCLEP00043728); AD19b, *Coleophora cervinella* holotype (CNCLEP00019865) (= *C. atriplicis*); AD20, *Coleophora glitzella* (CNCLEP00029017); AD21, *Coleophora granulatella* (CNCLEP00007105); AD22, *Coleophora texanella* (CNCLEP00025913); AD23, *Coleophora vitisella* (CNCLEP00043989); AD24a, *Scythris sinensis* male (CNCLEP00077338); AD24b, *Scythris sinensis* female (CNCLEP00077344).



FIGURES AD25–AD30. Adults. Sample IDs in parentheses. Scale bar = 2 mm. AD25, *Altenia perspersella* (CNCLEP00026593); AD26, *Gnorimoschema jalavai* (CNCLEP00061422); AD27, *Scrobipalpa acuminatella* (CNCLEP00067700); AD28, *Sophronia gelidella* (CNCLEP00026569); AD29, *Anthophila fabriciana* (USNMENT00657744); AD30, *Phiaris bipunctana* (CNCLEP00098043).

New North American records. Canada: British Columbia, Port Coquitlam (Vancouver area), in an urban backyard, 29 May 2005, 1 ♀; 11 Jun 2006, 1 ♂; 3 Jun 2007, 1 ♀; 1–4 Jun 2009, 2 ♀ (CNC).

Diagnosis. A medium-sized tineid (wingspan 15–19 mm) with ciliate antenna, and the forewing with dark brown irrorations over a dirty white ground colour. The male genitalia have the valvae fused to the vinculum, with a straight outer margin, an inner margin with a dentiform notch in the distal third, the saccus shorter than the vinculum, and the gnathos arms recurved and finger-like. In the female genitalia the ductus bursae is finely spinulose and slightly longer than the anterior apophyses, the signum is a finely serrate plate attenuate caudally and with a indistinct edge on one side, the ostium is set at the apex of a short, cylindrical projection, and S8 has a pair of kidney-like lateral lobes on each side of the ostium.

Larval host. Bracket fungi (Pelham-Clinton 1985).

Note. This is likely an introduced species. It is quite distinct in size and colouration and should be easily recognized.

3. *Nemapogon cloacella* (Haworth, 1828) (Tineidae: Nemapogoninae)

Tinea cloacella Haworth, 1828: 563. Type locality: England.
BOLD:ABY6823

Palearctic distribution. Widespread in the Palaearctic Region.

New North American records. Canada: British Columbia, Port Coquitlam (Vancouver area), at light in an urban backyard, 26 Jun 2006, 1 ♂; 7 Jun 2007, 1 ♀; 28 Jun 2008, 1 ♂ (CNC).

Diagnosis. Externally this species is similar to *N. granella* (L.) and *N. variatella* (Clemens), which also have a predominantly brown ground colour variously irrorated with dirty white patches on the forewings. However, *cloacella* has generally darker forewings and deeper yellow head tufts. In Europe, *cloacella* is most similar to *N. wolffiella.* The genitalia of *cloacella* are similarly configured to those of other *Nemapogon* with differences in details. In the male genitalia, the caudal margin of the uncus is slightly produced into two small, setose lobes (broadly concave in *variatella*, straight in *granella*), the gnathos arms are L-shaped with pointed "elbows" and apices (resemble a pair of sharp boots) (in *variatella*, apices dentate and resembling a pair of small hands; in *granella*, apices and "elbows" rounded); inner lobe of valva blunt with apex outwardly oriented, and shorter than outer lobe (in *variatella*, inner lobe sharply incurved; in *granella*, inner lobe apically emarginate) phallus slightly sinuate with apex unarmed (in *variatella* and *granella*, phallus shaft with two sections and appearing "broken" in middle, apex toothed). In female genitalia, the ostium bursae is situated at the anterior margin of S8 on a short conical, medial sterigma, the posterior margin of S8 has a transverse band with a medial notch, and the distal half of the ductus bursae is sclerotized (in *variatella* and *granella*, the sterigma is a transverse plate about as wide as S8 and the caudal margin of S8 is differently configured).

Larval host. Primarily bracket fungi outdoors, but also a wide range of food materials indoors including dry-rot fungi on decayed wood, stored vegetable products, grain and dry fruit, similar to those of *N. granella* (Pelham-Clinton 1985).

Note. This species was included in earlier North American checklists (Dyar 1903 with a question mark, McDunnough 1939). It was not repeated in the more recent checklist (Hodges 1983), possibly because its occurrence was never confirmed or was based on misidentifications. It is easily confused with *variatella* and *granella* and genitalia should be examined to confirm identifications. This is most likely an introduction and it is probably more common than the few confirmed records indicate.

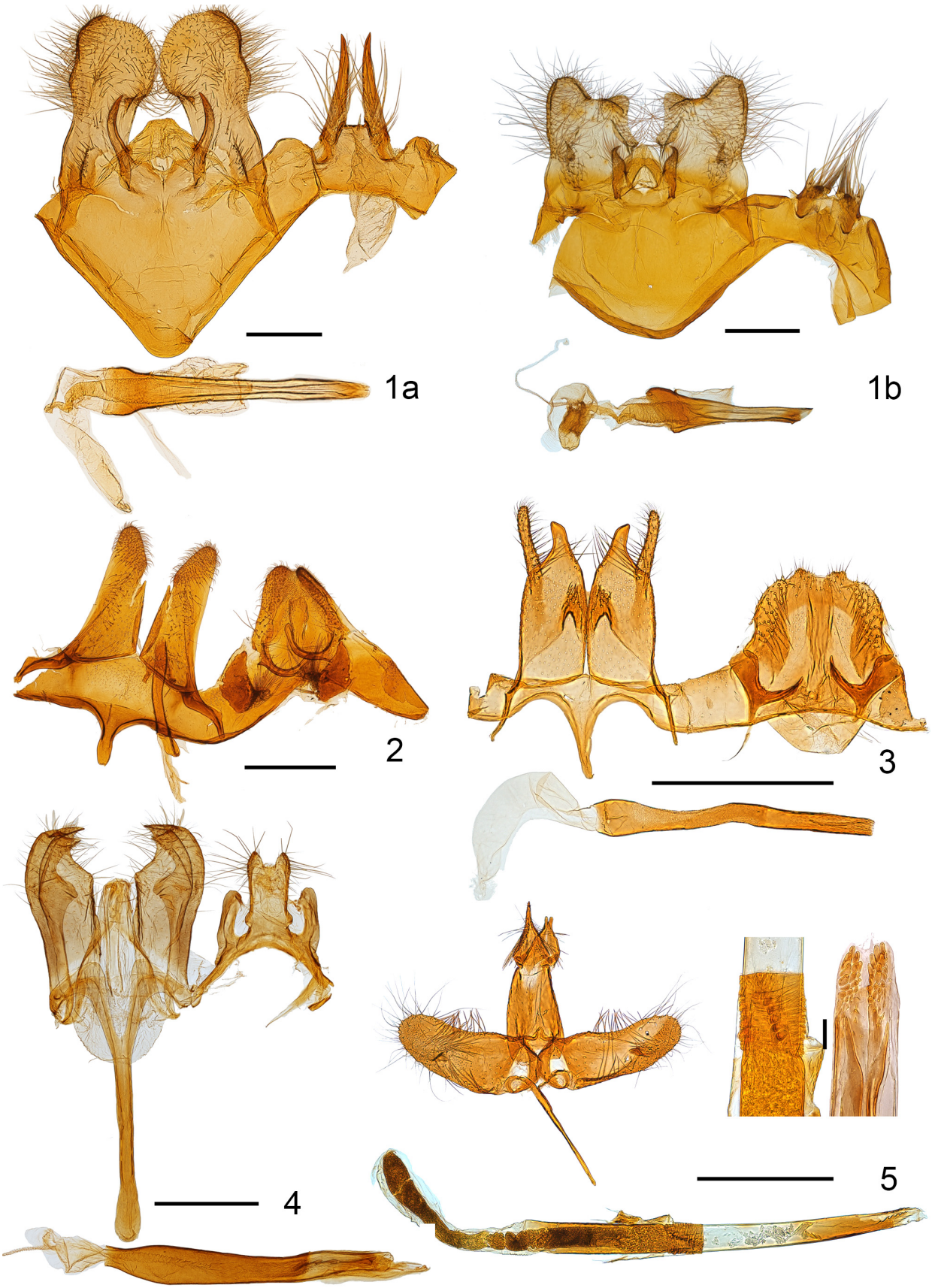
4. *Elatobia montelliella* (Schantz, 1951) (Tineidae: Tineinae)

Tinea montelliella Schantz, 1951: 18. Type locality: Finland: Lapponia kemensis, Muonio.
BOLD:AAG0142

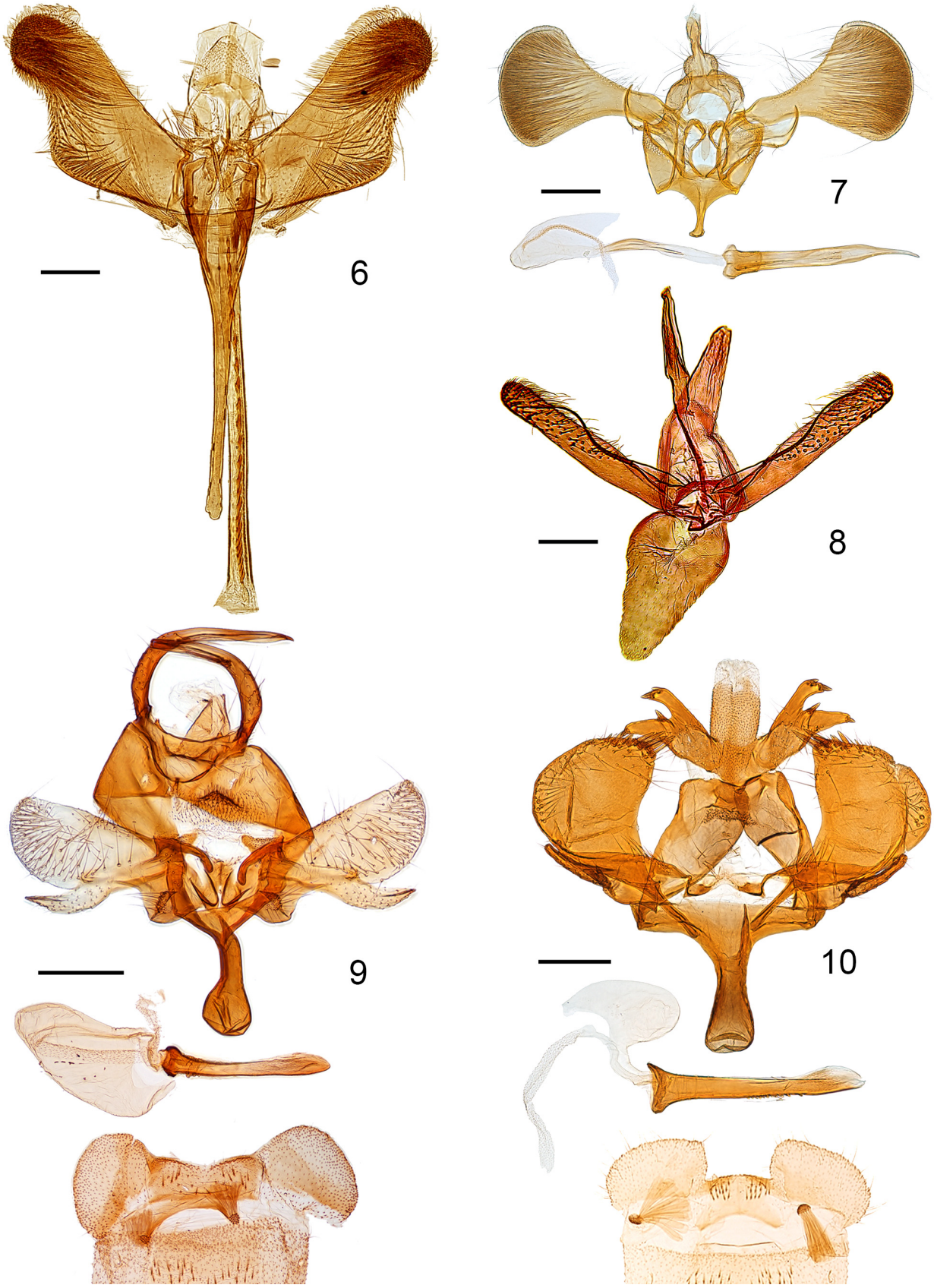
Palearctic distribution. Finland.

New North American records. Canada: Alberta, Kootenay Plains, 20 Jul 2009, 1 ♂, 1 ♀ (CNC); Waterton National Park, Jul 2008, 1 ex. (BIOUG); Jasper National Park, 2010, 1 ex. (BIOUG). United States: Utah, Ephraim Canyon, 20 Jul 2006, 1 ♂ (USNM).

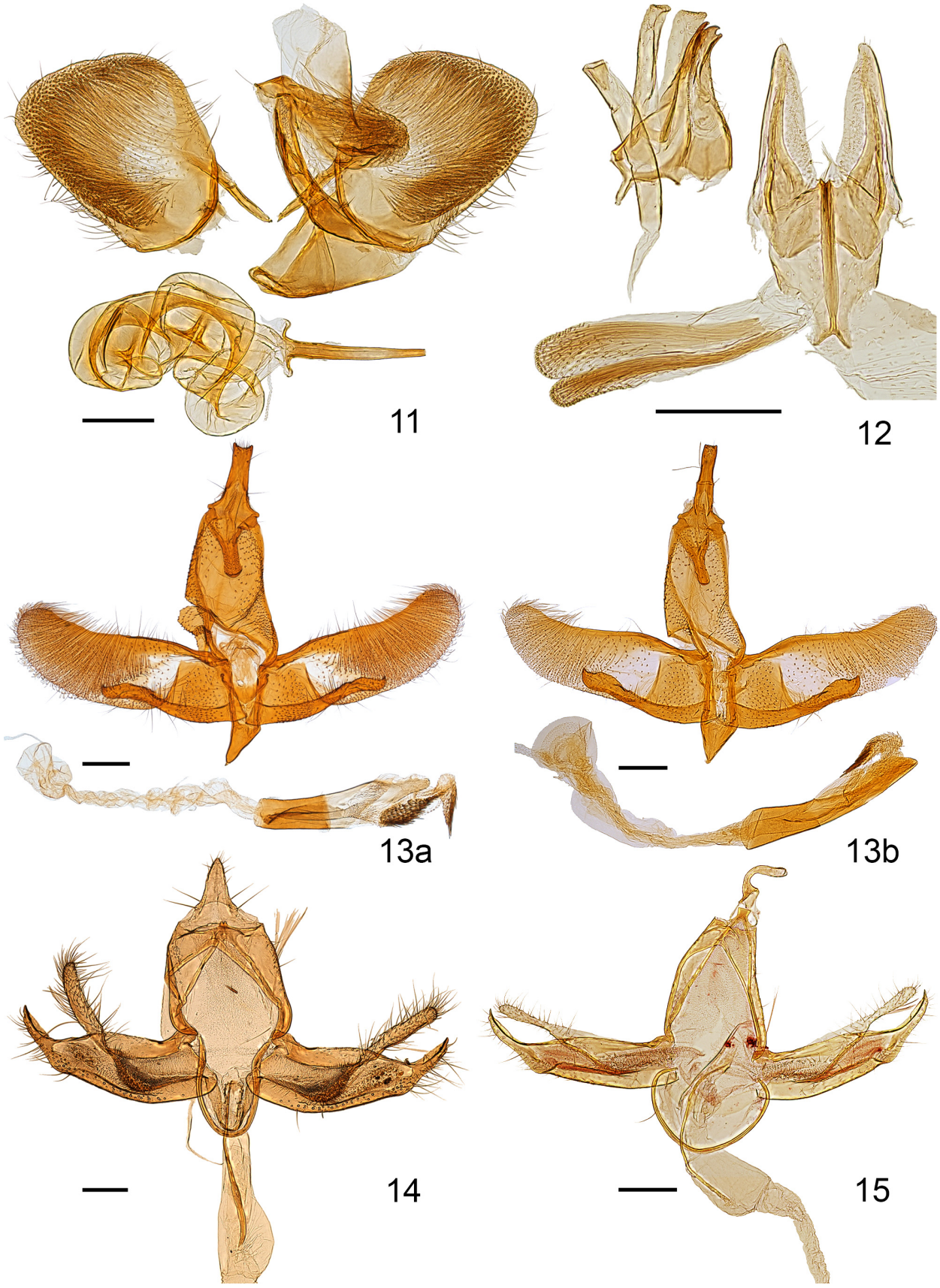
Diagnosis. A medium-sized (forewing span 16–22 mm), slender, blackish tineid with proportionally slender wings and abdomen. The type is described by Bengtsson *et al.* (2008) as follows: "Wingspan 16 mm. Head greyish black. Forewing greyish black with brownish hue, sparsely strewn with pale scales and with a blackish spot at the outer margin of the discal cell." In male genitalia, the uncus is elongate and bilobate; the tegumen is transversely narrow and has a pair of large, prominent labetal lobes; the vinculum is posteriorly deeply incised and the saccus is somewhat longer than the valvae; the valva is apically incurved and bifid with sharp points; the phallus has three short, stout cornuti. The only other described North American species, *E. carbonella* Dietz, differs in the proportionally shorter lateral lobes of the tegumen, the straight and truncate apex of the valva, and phallus with four very long and slender cornuti. The female genitalia is here described and illustrated for the first time for the species from North American specimens: Sterigma somewhat U-shaped with posterior margin protruded into a pair of rounded lobes that are shorter than S8 but posteriorly projected beyond ostium; surface transversely wrinkled; medial area above ostium longitudinally elevated, ridge-like; ductus bursae proportionally short, about the same



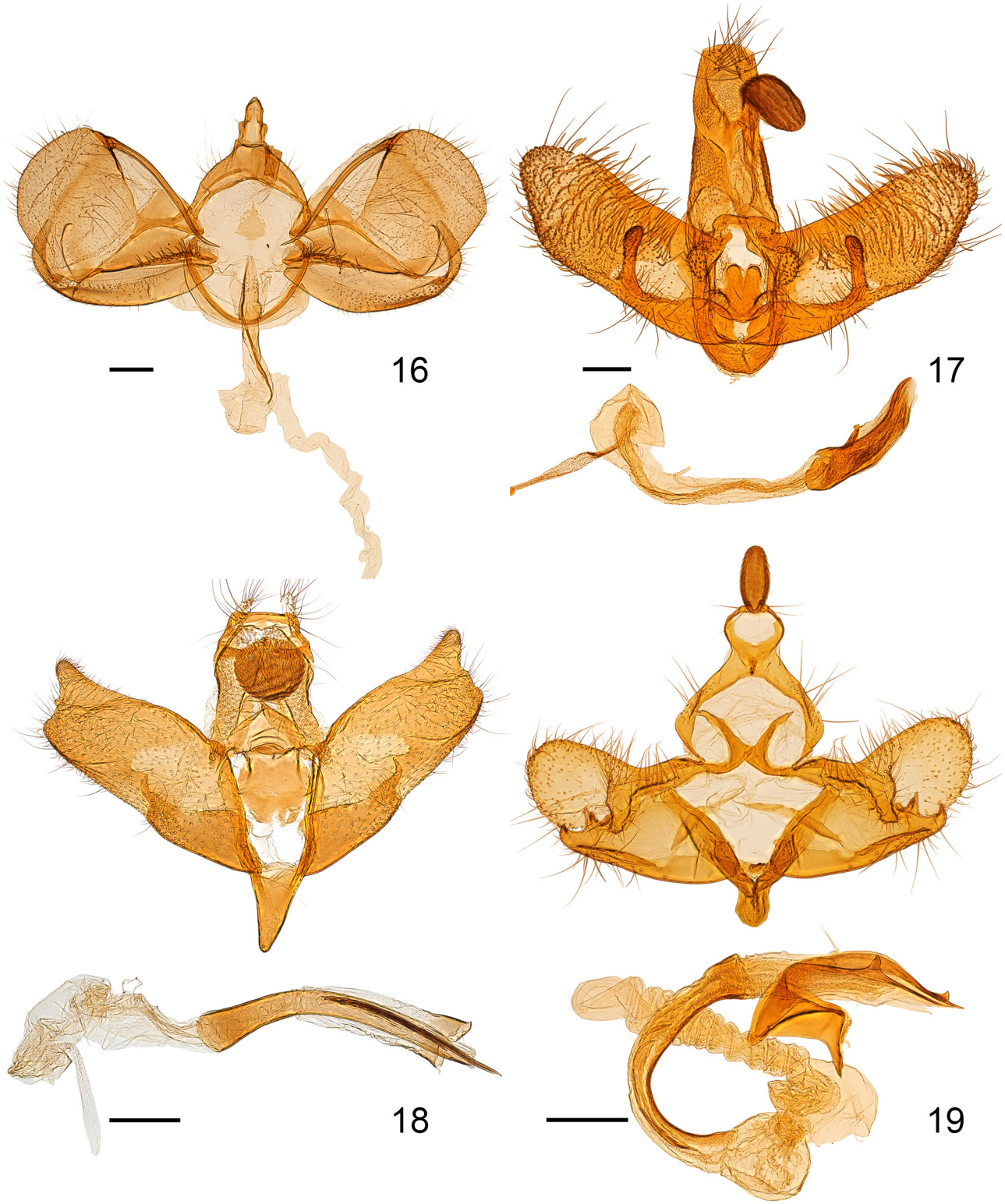
FIGURES MG1–MG5. Male genitalia. Scale bar = 500µm. Genitalia slide numbers in parentheses. MG1a, *Scardia amurensis* (JFL1701); MG1b, *Scardia anatomella* (MIC6059); MG2, *Triaxomera parasitella* (MIC5366); MG3, *Nemapogon cloacella* (MIC5376); MG4, *Elatobia montelliella* (MIC6791); MG5, *Tinea svenssoni* (MIC5577, inset = magnification of internal phallic structures; scale bar = 50µm).



FIGURES MG6–MG10. Male genitalia. Scale bar = 200µm. Genitalia slide numbers in parentheses. MG6, *Caloptilia suberinella* (Jackh5988); MG7, *Parornix betulae* (MIC6205); MG8, *Phyllonorycter maestingella* (G. Deschka GenPrep1328); MG9, *Paraswammerdamia albicapitella* (MIC6790); MG10, *Paraswammerdamia conspersella* (MIC4141, genitalia; MIC6187, abdomen).



FIGURES MG11–MG15. Male genitalia. Scale bar = 200µm. Genitalia slide numbers in parentheses. MG11, *Plutella hyperboreella* (MIC6191); MG12, *Lyonetia pulverulentella* (MIC6630); MG13a, *Oegoconia deauratella* (MIC6771); MG13b, *Oegoconia novimundi* (MIC5423); MG14, *Blastobasis glandulella* (MIC6603); MG15, *Blastobasis maroccanella* (DAdamski6067).



FIGURES MG16–MG19. Male genitalia. Scale bar = 200µm. Genitalia slide numbers in parentheses. MG16, *Blastobasis tarda* (MIC5831); MG17, *Agonopterix conterminella* (MIC5361); MG18, *Depressaria depressana* (MIC6212); MG19, *Coleophora atriplicis* (MIC6208).

length as S8, with straight sclerotized walls and internally ridged, with a distal swelling, short posteriormost section anterad of ostium membranous; membrane inside ostium bursae with patch of very fine spinules; corpus bursae elongate-ovoid, with a single tooth-like signum in the middle, posterior half wrinkled; ovipositor slender, about twice as long as S8. *Elabotia carbonella* differs in the shape and length of the sterigma and its lobes which

are thin and about as long as S8, the deeply emarginate S8, the longer and thicker sclerotized section of the ductus bursae, and the signum which is either tiny or absent.

Larval host. Unknown. However, the related *E. fuliginosella*, which is sympatric in Europe, is associated with forest fires and prefers burnt, sun-exposed trees. It has been bred from the thick bark of old, live pine trees; larvae were observed living in bark with a lot of insect holes and were detected by the presence of silk and protruding frass (Saarela 1995). Many adults have been collected on partially burnt pine trees which clearly are preferred, but species associated with burnt forests typically occur in lower numbers on trees that are not burnt, but are sun-exposed and preferably in bad condition (MM, pers. obs.). This is likely the case also with *montelliella.*

Note. In Europe, the species remains known only from the holotype male (barcoded) collected in Muonio, Finland, despite intense collecting activity in the area of the type locality since its discovery, which is dominated by xeric pine forest. Because forest fires are now very rare and restricted in Finland, it is possible that *montelliella* has vanished through habitat loss. In North America, the name *carbonella* has been applied to all *Elatobia* without checking genitalia. Although we did not conduct a thorough verification of North American material, at least two undescribed species are represented including one that is barcoded (BOLD:AAG0124) (specimens in CNC and USNM), in addition to *monteliella*.

5. *Tinea svenssoni* Opheim, 1965 (Tineidae: Tineinae)

Tinea svenssoni Opheim, 1965: 54. Type locality: Norway: Oslo.
BOLD:AAG0125

Palearctic distribution. Northern Europe and Russia.

New North American records. Canada: Québec, Sainte-Agathe des Monts, 3 Jul 2006 at light at the edge of a mixed forest, 1 ♂ (CNC).

Diagnosis. In external appearance, this species resembles a few other species of *Tinea*, notably *T. columbariella* Wocke and, to a lesser extent, the case-bearing clothes moth, *T. pellionella* L., both of which have also been introduced to North America. The head vestiture is golden-yellow in *svenssoni* whereas it is rusty brown in *columbariella* and *pellionella*. In *svenssoni*, the forewings are uniformly golden brown with a black spot in the distal third and a translucent bare patch near the costa at the base; *pellionella* has one or two ill-defined discal spots in addition to the subapical one. Slightly worn specimens of these three species are often difficult to identify externally. In genitalia, *svenssoni* is most similar to *columbariella*, from which it was distinguished (Opheim 1965, 1973): in the male, the small conical projection on the distal part of the valva is located slightly beyond the middle and directed inwardly (in *columbariella*, the projection is in the distal quarter and touching the ventral edge of the valva, and directed upwardly); in the female, the sterigma has sinuate lateral edges and appears bottle-shaped (in *columbariella*, straight edges with a triangular aspect).

Larval host. In bird nests (Opheim 1965, 1973). Based on Finnish observations, typically in cavity-nesting species, such as tits and owls.

Note. The barcode of the single Canadian specimen matches those from Finland. It seems unlikely that this species has been introduced, considering its biology and the locality where it has been found, as well as its northern distribution in the Palearctic Region. However, the absence of previous Nearctic records is puzzling. It seems likely that it is native, but has been overlooked. The Palearctic distribution suggests a boreal species. In general, records of tineids from the boreal zone are sparse in North American collections and these need to be checked through genitalia examination for the possible occurrence of unreported taxa.

6. *Caloptilia suberinella* (Tengström, 1848) (Gracillaridae: Gracillariinae)

Gracilaria suberinella Tengström, 1848: 145. Type locality: Russia (South Karelia).
BOLD:AAF8460

Palearctic distribution. Northern and Central Europe, Russia and China.

New North American records. Canada: British Columbia, Hazelton (in northwest central area of the province), 30 Jul 2009, 1 ♀ (CNC).

Diagnosis. The forewing ground colour is brown with dark brown and dirty white variegations. In North Europe, the forewing coloration varies from plain white or ochreous to plain black, but a majority of specimens have wings mottled with dark and light (Mutanen & Välimäki 2012). In North America, it is quite similar to *C. strictella* (Walker), both in colouration and in genitalia. In male genitalia, the saccus is very long, longer than the length of valvae, the valvae have the ventral margin medially bulged and distally sinuate, and the phallus has a row of short, stout, closely set spines extended over nearly its entire length, the spines being smaller in the distal section. In female genitalia, the distal two-thirds of the ductus bursae are smoothly sclerotized, without spinulations nor microsculpture, twisted at mid-length, the membranous anterior section is looped before entering the bursa; the inception of the ductus spermathecae is situated a short distance anterad of the ostium and has a short but distinctly sclerotized section that juts out of the ductus bursae; the sterigma is suboval.

The European *populetorum* (Zeller), also living on *Betula* spp., closely resembles pale specimens of *suberinella*, but can be separated externally by the almost unicolorous pale tarsal segments in the fore- and mid-leg (dark and more clearly ringed in *suberinella*). The male genitalia of *populetorum* differ by having a proportionally much shorter saccus, only a few cornuti in the phallus, and less elongated valvae. The female genitalia of *populetorum* differ in the smaller ostium, and weakly sclerotized and thinner ductus bursae (Bengtsson & Johansson 2011). *Caloptilia suberinella* is obligatorily univoltine, whereas *populetorum* usually has a mid-summer generation in addition to the overwintering one.

Larval host. Birch, *Betula* spp., according to Bengtsson & Johansson (2011) in open habitats, but actually preferring birches growing in mixed forests.

Note. This species is possibly native. If so, it is surprising that it has not been reported previously. Possibly it has been reported or recorded previously under the name *C. strictella*, to which it is very similar. The single Canadian specimen was collected in the interior of British Columbia, but the area is managed with tree plantations which include some non-indigenous species. Like many microlepidoptera, it is probably undercollected and may be more widely distributed than the single present record suggests. Because North American species of *Caloptilia* have never been the object of a taxonomic treatment, several existing names remain unrecognized or inadequately diagnosed. The majority of the species were described from Eastern North America, but many unnamed species are known from reared adults or larval shelters (Powell & Opler 2009). There is a possibility that it is synonymous with *C. strictella* (Walker, 1864): we failed to see significant differences between that Nearctic species and *suberinella*. However, the identification of *strictella* remains in doubt because the type has never been studied and the original description does not allow for clear placement, even at the family level. The species was originally described as a *Gelechia* and subsequently transferred to *Caloptilia* by Dyar (1903) without explanation. McDunnough (1946b) discussed the identity issue with *strictella*, and the identification of all subsequent specimens appears to have been based on his tentatively named material in the CNC. We did not pursue the investigation of the type of *strictella*, which is likely in the BMNH, because this would have entailed time and resources that were not available within the scope of the present work.

7. *Parornix betulae* (Stainton, 1854) (Gracillaridae: Gracillariinae)

Ornix betulae Stainton, 1854: 205. Type locality: England.
BOLD:AAE3418

Palearctic distribution. Europe to Korea. Barcoded specimens from Finland, Austria, UK, and Germany.

New North American records. Canada: Québec, Saint-Hyacinthe, 9 May 2006, 1 ♀ (CNC); Ontario, Puslinch Township, 17 Jul 2010, 6 exx. (BIOUG); 29 May 2010, 1 ♀ (CNC); British Columbia, Mount Revelstoke National Park, 25 Jul 2005, 1 ♂ (CNC).

Diagnosis. Species of *Parornix* are very difficult to distinguish on external morphology, particularly if specimens are worn, but they do have distinctive genitalia. In male *betulae*, the vinculum is transverse with the anterior margin extending to the saccus broadly concave, the vincular processes are sickle-shaped and extended slightly beyond the dorsal edge of the valva, the saccus is narrow and slightly longer than the vinculum, the valvae are securiform without spiniform ornamentation, and the phallus has the basal two-thirds straight and is distally attenuate and slightly curved; the other three North American birch-feeding species have either a reduced (*vicinella* (Dietz)) or wide saccus (*conspicuella* (Dietz), *obliterella* (Dietz)), thick vincular processes, rounded, spoon-shaped

valvae, and a basally arched phallus. In female *betulae*, the ductus bursae is slightly longer than the bursa and finely spiculose, the signa are a pair of elongate, spinulate patches at the posterior end of the bursa, there is a digitiform lobe projecting out of the ductus bursae near the inception of the bursa, and both pairs of apophyses are vestigial.

Larval host. Birch, *Betula* spp. (Betulaceae).

Note. This species of *Parornix* is undoubtedly undercollected and likely more widely distributed than the few records indicate. The North American species of *Parornix* have never been the subject of a modern taxonomic treatment. Several of the existing names remain unrecognized or undiagnosed and undescribed species are known. More synonymies may exist; for example, the birch-feeding Palearctic *loganella*, which is a taiga species, may occur in northern Canada. Three Nearctic species reportedly feed on birch, *conspicuella* (Dietz, 1907), *obliterella* (Dietz, 1907), and *vicinella* (Dietz, 1907), and all differ in genitalia from *betulae*.

8. *Phyllonorycter maestingella* (Müller, 1764) (Gracillaridae: Lithocolletinae)

Tinea maestingella Müller, 1764: 58. Type locality: [Denmark], [Frederiksdal].
BOLD:AAH8496

Palearctic distribution. Widespread in Europe, Russia.

New North American records. Canada: British Columbia, Port Coquitlam (greater Vancouver area), 22 Jul 2006, at light, 1 ♀ (CNC).

Diagnosis. The pattern of forewing markings of *maestingella* is shared by several species of *Phyllonorycter* and includes the following elements over an orange-brown ground colour (terms from Emmet *et al.* 1985): a basal streak (without black edging), four white costal strigulae with anterior black edge, an unedged basal patch, three white dorsal strigulae with anterior black edge, and a black apical spot. Within this general pattern there is variation in details such as the shade of the orange-brown ground colour, extent of black edging of white marks, and black suffusion in the terminal area and terminal fringe. Superficially *maestingella* is closely similar to *restrictella* (Braun), and to a lesser extent to some well-known and widespread species such as *blancardella* (F.), *crataegella* (Clemens), and *mespilella* (Hübner). However, the latter three species have the basal streak edged with black, usually on both sides. Examination of genitalia is necessary for positive identification, particularly for worn adults collected on the wing. In male genitalia, the valvae and filaments are symmetrical; the filaments are sigmoid, extended nearly to the apex of the valvae, and with a slim, tapered base about one-fifth the length of valva; the tip of the phallus is pod-like (as opposed to variously hooked in many *Phyllonorycter*); and S8 is elongate-conical, apically tapered and rounded. In female genitalia, the sterigma is subcylindrical, about half the length of S8, with a straight, transverse posterior margin, and anteriorly abruptly constricted where it extends into the ductus bursae, the ductus is about 2.5 x the length of S8, the corpus bursae is subspherical, and the signum tiny, double-horned and not surrounded by a weakly sclerotized zone.

Specimens of *restrictella* are indistinguishable from those of *maestingella* both externally and possibly also in genitalia: subtle differences in genitalia were observed but their significance could not be assessed, in view of the lack of taxonomic treatment of the Nearctic fauna.

Larval host. Beech (*Fagus* spp., Fagaceae).

Note. This could be an introduction in North America. However, the species is difficult to recognize based on external characters and is easily confused with several North American species. It could also be an overlooked species that has been present for a long time, especially if confused with *restrictella*, which also uses *Fagus* as host plant. The single specimen reported here is quite worn and would have probably remained unrecognized without barcoding. The taxonomy of North American *Phyllonorycter* is inadequately known. Also it should be noted that there is no native species of *Fagus* in western North America but species of beeches are planted.

DNA barcodes show two haplotype clusters among European *maestingella*. The specimen from British Columbia reported here belongs to a haplotype cluster (BOLDAAH8496) with specimens from Belgium, Germany, U.K., Czech, Turkey, Austria, Sweden, and France. All specimens are recorded from *Fagus sylvatica* except three Turkish specimens reared by Gerfried Deschka from *Fagus orientalis.* Two additional barcoded specimens from the U.S. (Tennessee) (sample IDs: CLV280711 & CLV280811) match the second European haplotype cluster of *maestingella* (BOLD: AAL6962). They were reared from *Fagus americana* and identified by

G. Deschka as *Phyllonorycter maestingella* (Fig. MG8). European specimens in this haplotype cluster are from Austria, Croatia, Finland, France, Italy, Slovenia, U.K. There appears to be no genitalia differences between specimens belonging to the two clusters.

Currently *maestingella* has six junior synonyms. A detailed morphological analysis as well as study of type material will be needed to assess whether the two haplotype clusters represent different species, and, if they do, which of them represents the "true" *P. maestingella*, and which name, if any, may apply to the other.

As for *restrictella* no specimens have been barcoded and its type could not be examined, thus comparisons with *maestingella* haplotypes and genitalia cannot be made at this time. Given these difficulties and the inadequate state of North American *Phyllonorycter* taxonomy, we did not pursue the investigation of possible synonymies which would have been beyond the scope of this paper.

9. *Paraswammerdamia albicapitella* (Scharfenberg, 1805) (Yponomeutidae)

Phalaena albicapitella Scharfenberg, 1805: 803. Type locality: [Germany].
BOLD:AAN2906

Palearctic distribution. Europe.

New North American records. Canada: British Columbia, Victoria, 3 Aug 2006, at light, 1 ♂ (CNC).

Diagnosis. The head and dorsum of the thorax are white; the forewing is grey with irregular rows of small black dots, a white patch on the costa near apex and a black patch medially on the hind margin. Superficially it resembles dark specimens of *P. conspersella* and species of *Swammerdamia*, particularly if specimens are rubbed. The genitalia of both sexes are highly diagnostic. In the male, the socius lobes are markedly developed, sickle-shaped and longer than the tegumen, with a medial tuft of long setae on the inner side; the valva has a large sacculus arising from the middle and with the distal half projecting off the ventral margin of the valva, the latter of which is basally lobate; the phallus is simple with smooth walls, the vesica with very small, fine, indistinct spinules in lieu of cornuti. In the female, the sterigma is a pair of apical digitiform, setose lobes projecting from the posterior margin of S8 and longer than the segment itself, which is shaped as two transversely crescentic halves on each side of the ostium, and the signum is lacking.

Larval host. *Prunus spinosa*, which is introduced in North America.

Note. There is little doubt that this is a recent introduction. There is barcode variation in European populations of this species. German specimens are somewhat divergent although all within the same BIN. The Canadian specimen shows closer barcode congruence to specimens from Finland and U.K.

10. *Paraswammerdamia conspersella* (Tengström, 1848) (Yponomeutidae)

Tinea conspersella Tengström, 1848: 112. Type locality: Finland.
BOLD:AAC7755

Palearctic distribution. Northern Europe and Northwestern Russia.

New North American records. Canada: Québec: Îles de la Madeleine, Île Grande-Entrée, two series (30 specimens) reared from *Empetrum nigrum* in 1998 and 1999 from the same location (CNC); Havre-Saint-Pierre, 26 Jul 2012, 1 ♂; Parc national de l'Archipel de Mingan, 3–13 Aug 2012, 2 ♂ (CNC).

Diagnosis. Superficially somewhat similar to the preceding species, with the head and dorsum of thorax with a variable mixture of whitish grey and brown; the forewing has a pale grey ground colour mottled with dark brown nearly coalescing with the medial dark-brown patch of the hind margin to form a diffuse transverse fascia; the white subapical patch is somewhat inconspicuous. The colouration varies significantly among the Quebec specimens, the majority resembling the one illustrated, but some specimens are darker, similar to *Swammerdamia caesiella* (Hübner). European specimens are paler, predominantly pale grey with a more conspicuous median transverse fascia. In male genitalia, *conspersella* is easily distinguished from *albicapitella*: the socius lobes are bifurcate with stout spines at the apices and in the middle of the bifurcation, the valva has a proportionally smaller sacculus and the apical margin set with several stout spiniform setae, and the phallus has a row of fine spinules on

one side. In female genitalia, the sterigma lobes are broad, subtriangular and subequal in length to S8, and that segment is narrowly transverse, and the bursa has a signum.

Larval host. *Empetrum nigrum* (Empetraceae), a widespread circumpolar plant. In Québec the plant occurs along the lower St. Lawrence River and around the Gulf of St. Lawrence.

Note. The species was first found in 1998–1999 in the Magdalen Islands in the Gulf of St. Lawrence by conservation biologists monitoring coastal habitats who noted heavy larval damage at a single location in a small area. There was no evidence of similar signs of damage at other locations despite the host plant being widely distributed in the islands. This pattern suggested a recent introduction, but given its larval host, the species seemed an unlikely candidate for human-mediated introduction. JFL suspected that it could be more widespread around the Gulf of St. Lawrence, but overlooked, given that there are relatively few records of any Microlepidoptera from that region. Specimens collected on the northern coast of the Gulf of St. Lawrence in 2012 by Carle Bélanger confirmed the latter.

11. *Plutella hyperboreella* Strand, 1902 (Plutellidae)

Plutella hyperboreella Strand, 1902: 63. Type locality: Norway: Alta, Kåfjord.
BOLD:AAC3387

Palearctic distribution. Northern Europe and Arctic Russia.

New North American records. Canada: Nunavut, Sirmilik National Park, 12 Jul 2007, 1 ♂; 13 Jul 2007, 3 ♂, 1 ♀; 18 Jul 2007, 2 ♂, 1 ♀; 29 Jul 2007, 1 ♂ (CNC). The nine barcoded specimens are from Bylot Island at the northern tip of Baffin Island, high above the Arctic Circle. They were collected in mid-July on and around flowers during day time. The CNC also contains several older records from the Canadian Arctic (Baffin Island, Banks Island, Northwest Territories, as well as the high boreal Schefferville, Québec), collected between 1935 and 1968, which were previously unidentified among protem material. They were not barcoded, but examination of genitalia confirmed their conspecificity.

Diagnosis. Externally, *hyperboreella* has the forewing predominantly pale grey brown with hints of pale yellow and a dirty white, wavy band along the hind (dorsal) margin somewhat akin to that of *xylostella* (L.) but dotted with dark brown along the margin; the head and dorsum of thorax are mostly grey brown (white to pale yellow in *xylostella*). The male genitalia are similar to those of other species of Palearctic *Plutella* (*Plutelloptera*), with small differences in shape and proportions of the socii, vinculum, and valvae; but are distinctive among Nearctic plutellids. (The male genitalia were mounted laterally for better comparison with the figures in Baraniak (2007)) The female genitalia are also distinctive with the corpus bursae with an accessory bulla seminalis and lack of signum. It is the only known representative of the genus in the high North American Arctic.

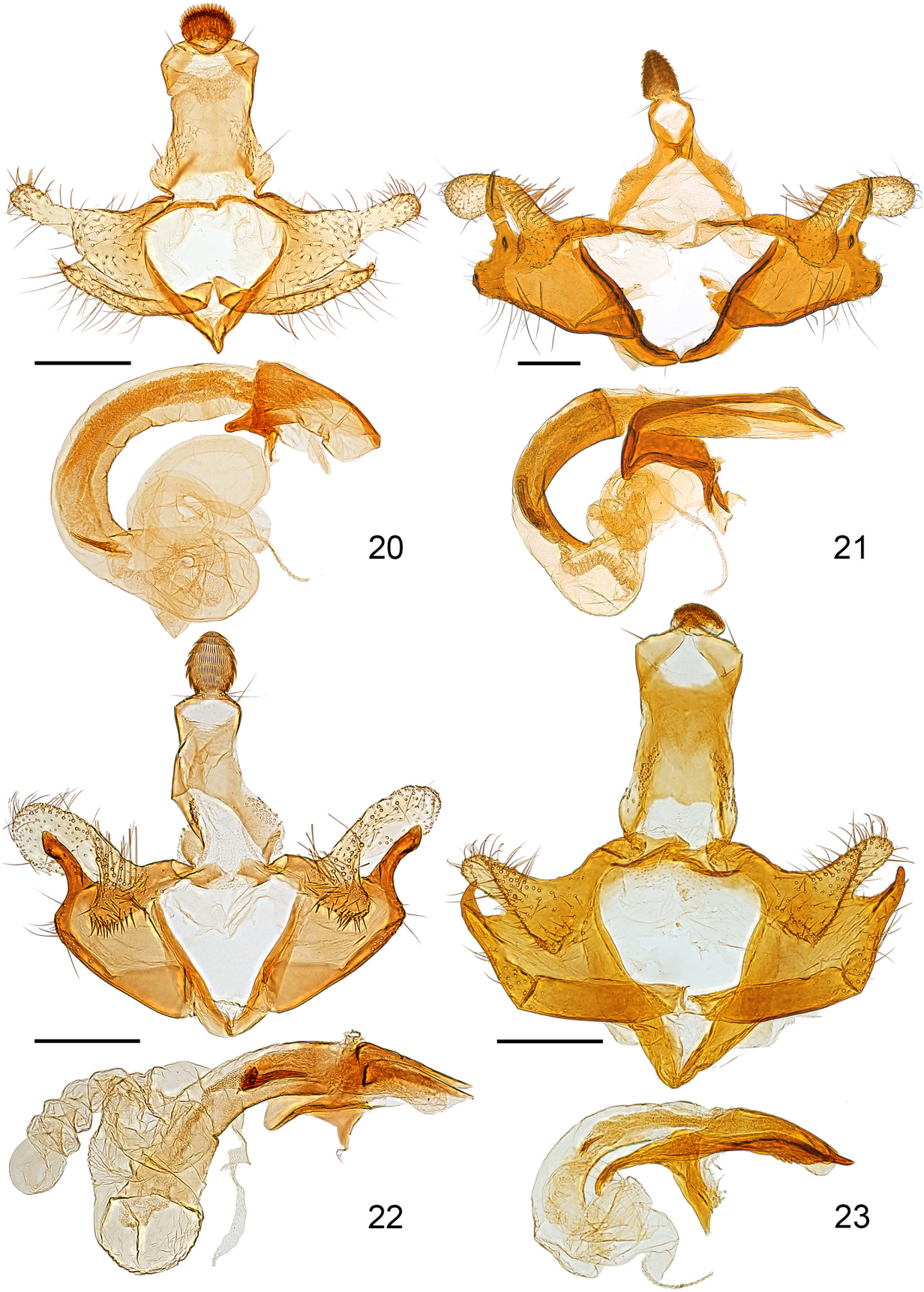
Larval host. *Arabis alpina* and *Draba* spp. (Brassicaceae) in Europe. The questionable report of *Ribes* (Grossulariaceae) as a probable host in northern Europe (Baraniak 2007) is puzzling because, if true, it would represent an exceptional case of oligophagy across plant orders within *Plutella*. Most species are restricted to a single plant family (Brassicaceae) or even a single host genus within this family.

Note. Baraniak (2007) proposed the new genus *Plutelloptera* for this and six other Palearctic species of *Plutella*; although supported by a phylogenetic analysis, the characters used to define this and two other genera (*Plutella*, *Pseudoplutella*) were minor and the study only examined Palearctic species. No European authors have adopted these genera. Fauna Europaea (2012) treats *Plutelloptera* and *Pseudoplutella* as subgenera of *Plutella*, but we are not aware of a publication where this change in rank was formalized.

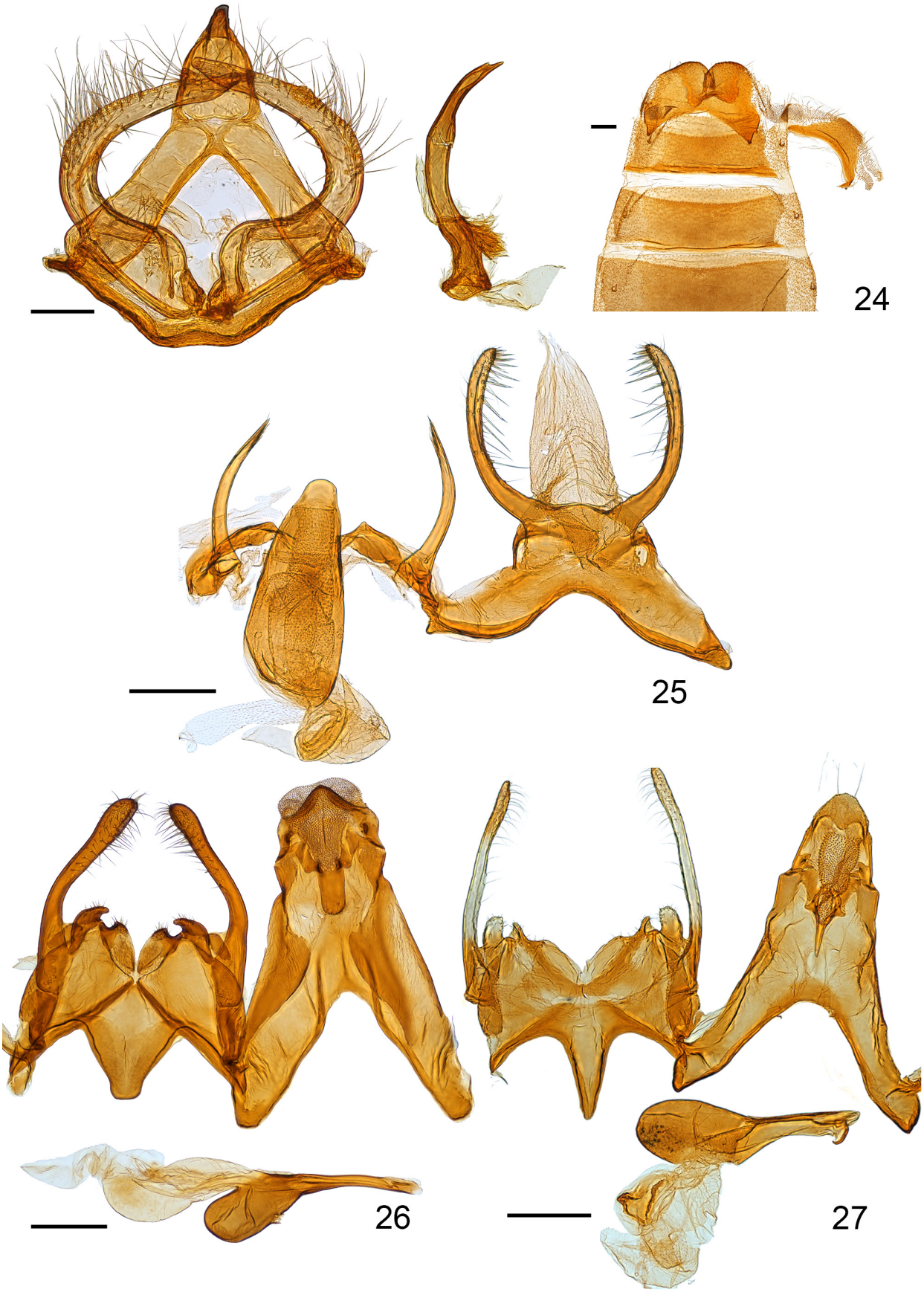
12. *Lyonetia pulverulentella* Zeller, 1839 (Lyonetiidae)

Lyonetia pulverulentella Zeller, 1839: 216. Type locality: "Böhmen" (Czech Republic).
BOLD:AAH6132

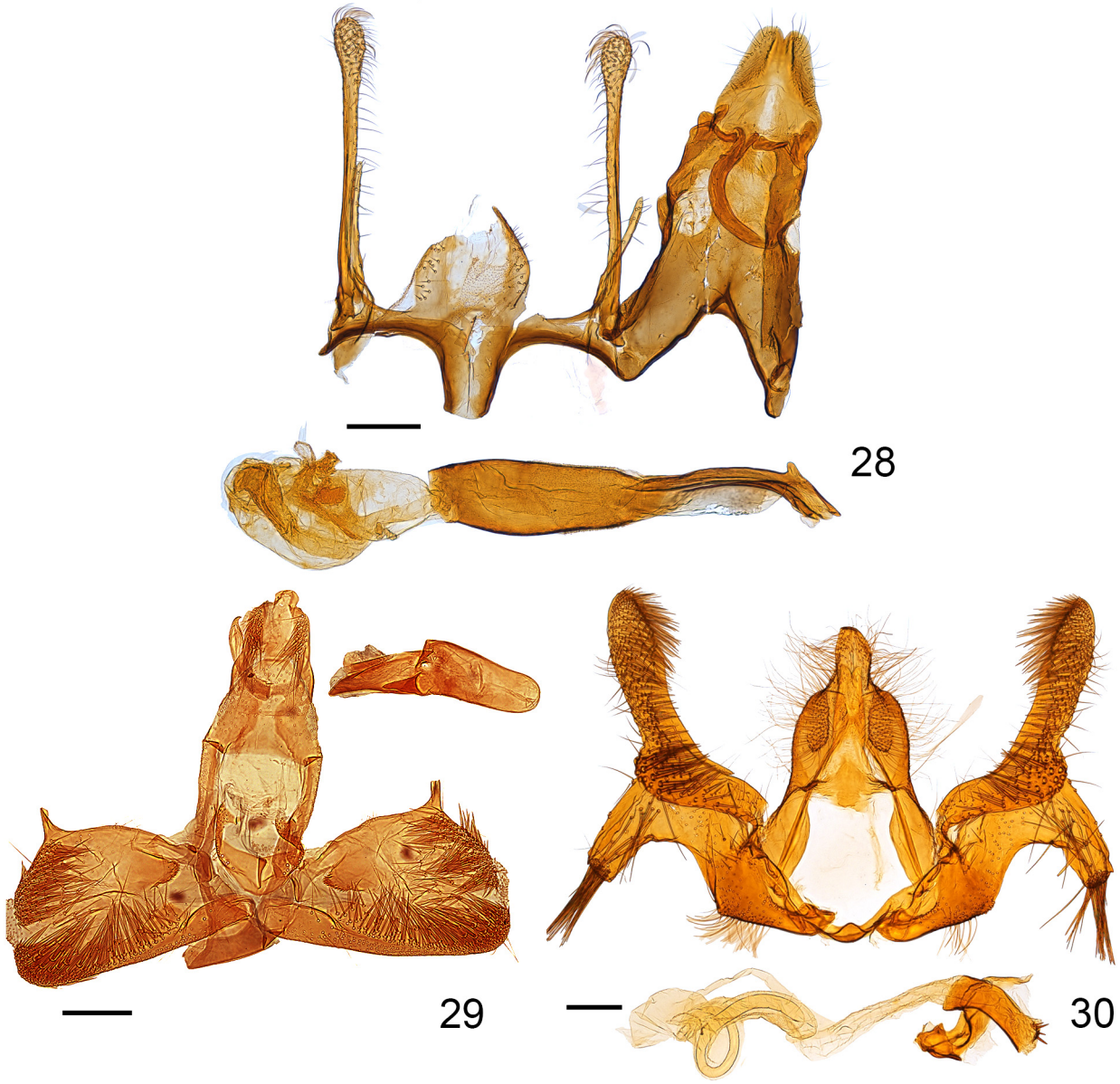
Palearctic distribution. Europe and Russia to Ukraine.



FIGURES MG20–MG23. Male genitalia. Scale bar = 200µm. Genitalia slide numbers in parentheses. MG20, *Coleophora glitzella* (MIC6610); MG21, *Coleophora granulatella* (MIC5225); MG22, *Coleophora texanella* (MIC3582); MG23, *Coleophora vitisella* (MIC6155).



FIGURES MG24–MG27. Male genitalia. Genitalia slide numbers in parentheses. MG24, *Scythris sinensis* (MIC6783); MG25, *Altenia perspersella* (MIC5351); MG26, *Gnorimoschema jalavai* (MIC5930); MG27, *Scrobipalpa acuminatella* (MIC5204).



FIGURES MG28–MG30. Male genitalia. Scale bar = 200µm. Genitalia slide numbers in parentheses. MG28, *Sophronia gelidella* (MIC5492); MG29, *Anthophila fabriciana* (USNMENT00657744); MG30, *Phiaris bipunctana* (TOR1620).

New North American records. Canada: British Columbia, near Hazelton, 30 Jul 2009, 5 ♂, 4 unsexed (CNC, PFRC, RBCM, SEM).

Diagnosis. BC specimens are predominantly dark, the forewings with a grey ground colour and suffused with brown-tipped scales; there are two transversely oblique fuscous brown fasciae in the basal half, and in the apical portion two short, fuscous subapical bars, one subapical fuscous spot and a projecting fuscous pencil in the terminal white cilia typical of *Lyonetia*. In Europe *pulverulentella* has variable colouration, like most species of *Lyonetia*, with the majority being predominantly pale. North American specimens are superficially similar to *saliciella*. In male genitalia, the paired caudal extensions of T8 are parallel to each other with straight apices (incurved, outcurved, or attenuate in other species), the apex of the uncus is upcurved with a sharp but shallow notch (pointed or deeply notched in others), and the apex of the valva is truncate (rounded in others). In female genitalia (not illustrated), the corpus bursae is narrowly elongate, without signum.

Larval host. Willows (*Salix* spp.) (Bengtsson & Johansson 2011).

Note. The Canadian specimens of *pulverulentella* were initially identified by default as *L. saliciella* Busck, 1904, which was described from British Columbia (type locality: Kaslo). There is a possibility that *saliciella* is

conspecific with *pulverulentella*. Examination of the type of *saliciella* Busck will be necessary to ascertain whether this could be a synonym, but this could not be done within the scope of this work. The CNC has a series under *saliciella* that was reared from *Salix* as well as from *Populus*. There is no taxonomic treatment of North American *Lyonetia* but *L. prunifoliella* was treated in detail by Schmitt *et al.* (1996). The collecting locality of the *pulverulentella* records is the same as for *Caloptilia suberinella* (see note about that species above) and the issue with a possible case of synonymy is also similar.

13. *Oegoconia deauratella* (Herrich-Schäffer, 1855) (Autostichidae: Symmocinae)

Lampros deauratella Herrich-Schäffer, 1855: 135. Type locality: Austria, Vienna.
BOLD:AAB8271

Palearctic distribution. Both species are widespread in Europe (Gozmány 2008).

New North American records. *O. deauratella*: Canada: Québec, barcoded records and several additional specimens from Gatineau, Ste-Agathe des Monts, St-Hyacinthe (CNC); Ontario, Ottawa, Carp, Port Franks, Manitoulin Island (series), Puslinch Township; various collecting dates in July and August (all CNC). USA: Michigan, Presque Isle Co., Ocqueoc Lake, July 1987 (USNM).

Diagnosis. Most species of *Oegoconia* have no reliable external differences and genitalia must be examined for identification. In males, *deauratella* is distinguished from *novimundi* by the indented apex of the uncus, the apex of the sacculus is slightly narrower than the base, the distal portion of the valva is not distinctly narrowed, and there is a large patch of densely set, stout spines subapically on the vesica anterad of the terminal bundle of thin spines; in *novimundi*, the apex of the uncus is straight or truncate, the apex of the sacculus is slightly broadened, the distal portion of the valva is slightly narrowed, and the vesica has only a terminal bundle of thin spines. In females, *deauratella* has a smooth-walled ductus bursae with finely spinulose microsculpture, and the signum has a rounded, asymmetrical base and a short terminal spine; in *novimundi*, the ductus bursae has sclerotized wrinkles without microsculpture, and the signum has a subsymmetrical, deeply notched base and a long terminal spine.

Larval host. Not known, but presumed to be decaying vegetable matter similar to the hosts for other *Oegoconia* species. JFL has collected adults of *deauratella* emerging from a paper bag of decaying dead leaves and garden plant clippings in Gatineau, Québec (CNC). One *novimundi* specimen from Maine with the label "emerged from old elm leaves" (USNM).

Note. North American specimens of *Oegoconia* have long been reported under *O. quadripuncta* (Haworth, 1828) (Hodges 1983, Powell 1992, Lee & Brown 2010). *Oegoconia novimundi* (Busck, 1915), described from Pennsylvania, has long been considered a junior synonym of *O. quadripuncta* (McDunnough 1939, Hodges 1983, Lee & Brown 2010). However, the synonymy is unwarranted as the two species are clearly distinct both in genital morphology and DNA barcodes (*novimundi*: BOLD:AAH4681). Specimens in many North American collections are misidentified and represent a mixture of two distinct species, *O. novimundi* and *O. deauratella*. No confirmed record of *quadripuncta* could be found, hence we conclude that *quadripuncta* does not occur in North America. Both *novimundi* and *deauratella* also occur in Europe. Their status and taxonomy in Europe was clarified by Huemer (1998) and additional European records provided by Sutter (2003) and Gozmány (2008), but overlooked by Lee & Brown (2010) in their recent review of North American Symmocinae. The species discussed and illustrated by Lee & Brown (2010) is insufficiently diagnosed and illustrated to determine whether they had one or both species under the European *quadripuncta*. Details of specimens examined by these authors were not provided but several records in the USNM, examined by JFL, were presumably used by them, including a damaged male genitalia dissection of *novimundi* (USNM slide 94293) from Massachusetts which they illustrated (their figure 6 of "*quadripuncta*"). The earliest records of *deauratella* that we found are from Ontario (Manitoulin Island) in 1984 (CNC) and northern Michigan (Presqu'Ile Co.) in 1987 (USNM) (not barcoded but genitalia dissected). The earliest Québec record is in 1994 from Gatineau (near Ottawa, Ontario) (Landry 1995, reported as *quadripuncta*, CNC). We have not seen specimens of *novimundi* from eastern Canada although there is one record from Burlington, VT in 1992 (female, genitalia slide USNM 130389), which is only 130 km from localities in southern Quebec where *deauratella* was collected (barcoded); another record of *novimundi* is from Augusta, Maine in 1976 (female, genitalia slide USNM 130388). Both the CNC and USNM have specimens of *Oegoconia* collected at various times over the past 100 years, yet they contain no *deauratella* specimens collected before the 1980s. Even

though we did not check collections widely, the lack of old records of *deauratella* suggests a relatively recent introduction.

14. *Blastobasis glandulella* (Riley, 1871) (Blastobasidae: Blastobasinae)

Gelechia glandulella Riley, 1871: 118. Type locality: USA: Missouri.
= *Blastobasis huemeri* Sinev, 1993: 369. Type locality: Croatia: Krk Island. **New synonymy.**
BOLD:AAB1096

Palearctic records. Central Europe, including Austria, Croatia, Czech Republic, France, Germany, Hungary, Italy, Slovakia, and Switzerland.

Nearctic distribution. Widespread in the East from Québec and Ontario south to Florida, west to Colorado east of the Rocky Mountains, Arizona, and as far south as Brownsville, Texas; probably occurs also in northern Mexico (D. Adamski, pers. comm.). In Canada known only from Québec, Ontario, and Manitoba (CNC).

Diagnosis. This species is highly variable in size and forewing colouration. Among the North American specimens barcoded, forewing span varies from 12–25 mm, seemingly irrespective of sex. Most specimens are grey with a darker grey chevron-shaped transverse band in the basal third of the forewing inwardly lined with a paler, variously contrasting band (as shown in Fig. 14); in some specimens the dark band is nearly black and the distal third beyond it is more contrastingly very pale grey. Many specimens have one or two dark dots in the distal third of the forewing. There is enough variation in external appearance of the moths to give the impression that there could be more than one species. Genitalia must be examined for positive identification. In male genitalia, the uncus is conical, the gnathos has the medial process bifid and wide lateral arms, the cucullar lobe of the valva is evenly digitiform, the saccular lobe is very slightly upcurved and extended to, but not exceeding, the apex of the cucullus, the base of the dorsal margin of the valva is thickened to about one-third the width of the valva, and the proximal flange is wide, half the width of the valva with a rounded ventral expansion covered with a zone of dense microtrichia mesially and coarse spinules posteriorly. In female genitalia, the ovipositor is about 1.5 x the length of S1-S7, the S7-S8 intersegmental membrane is longer than S7 and laterally covered with dense, coarse microtrichia in the basal two-thirds which gradually thin out in the posterior third, the anterior half of the ductus bursae is finely spinulate and with one loop, and the corpus bursae has a lateral lobe near the inception of the ductus bursae and a thorn-like signum. Other species of *Blastobasis* show variation and differences in all these aspects. However, the lack of revision of the Nearctic species makes it difficult to present a more comparative diagnosis.

Larval host. Various acorns (*Quercus*) and chestnuts (*Castanea*) (Fagaceae).

Note. This native North American species was first found in Croatia in the 1980s and has since spread to much of temperate Central Europe showing the typical pattern of an invasive species.

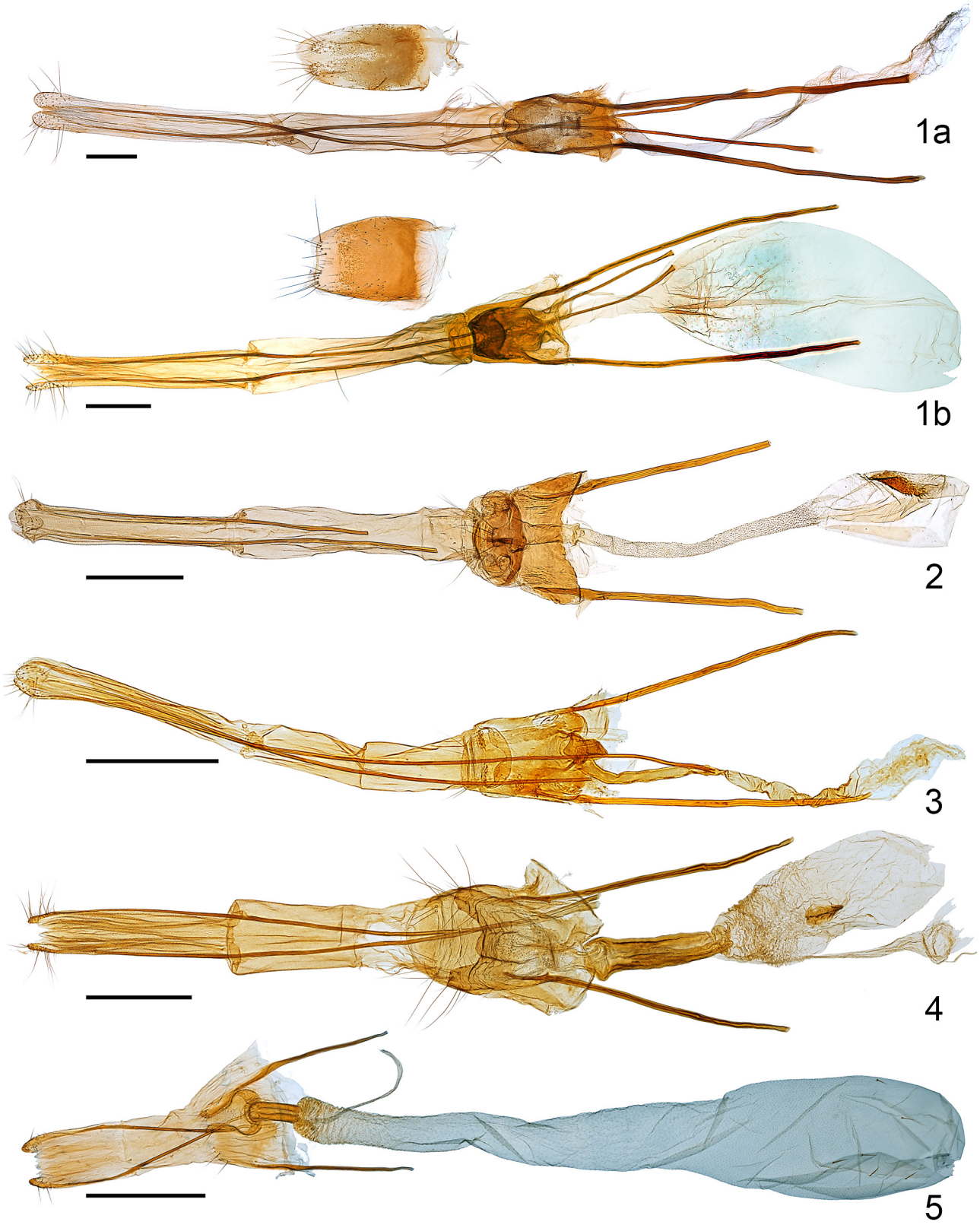
15. *Blastobasis maroccanella* (Amsel, 1952) (Blastobasidae: Blastobasinae)

Blastobasis maroccanella Amsel, 1952: 70. Type locality: Morocco: Meknes.
BOLD:AAC4091

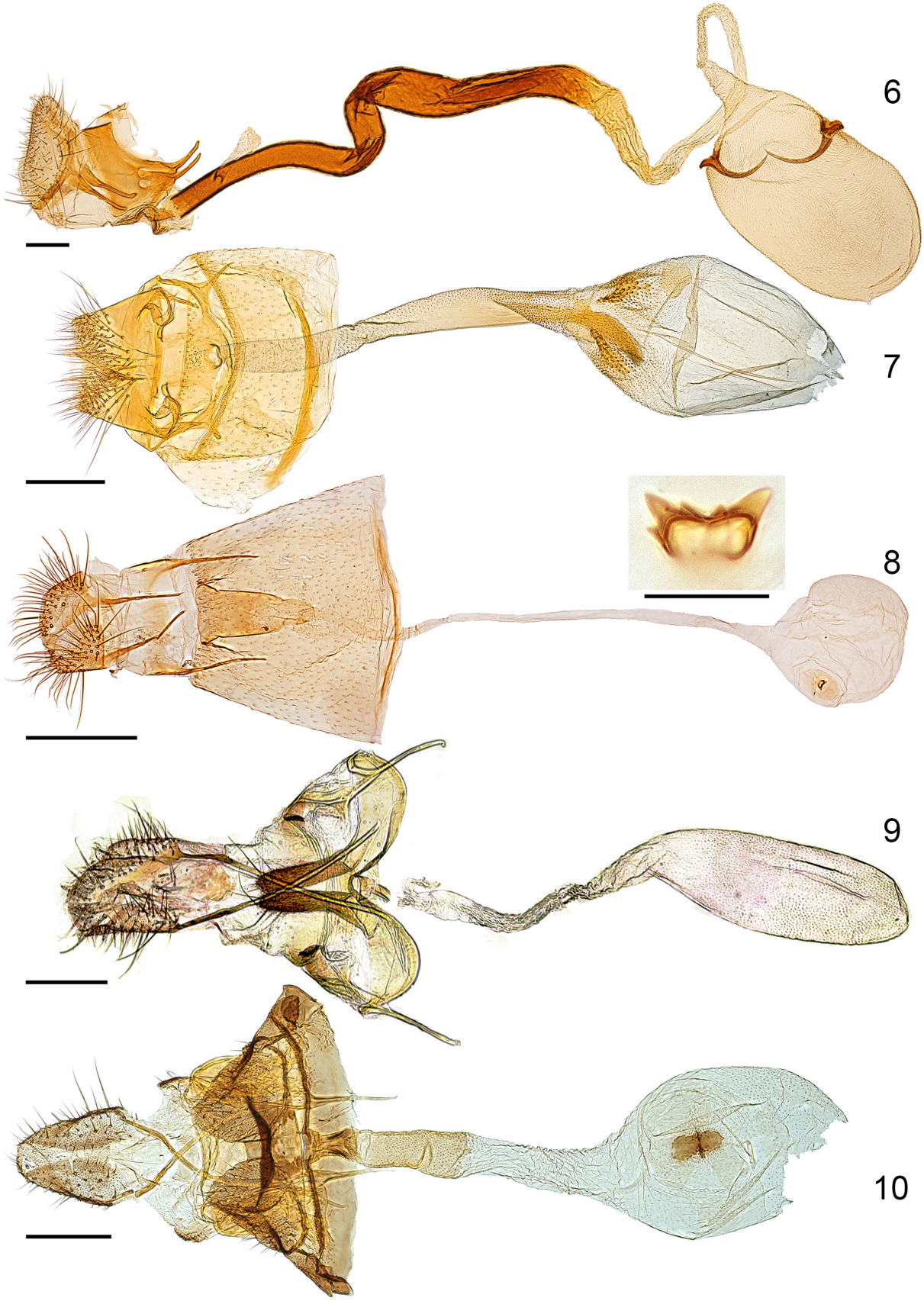
Palearctic distribution. Widely distributed in Macaronesia and Western Mediterranean (Karsholt & Sinev 2004).

North American records. USA: California, Berkeley area (series in CNC, USNM, EMEC).

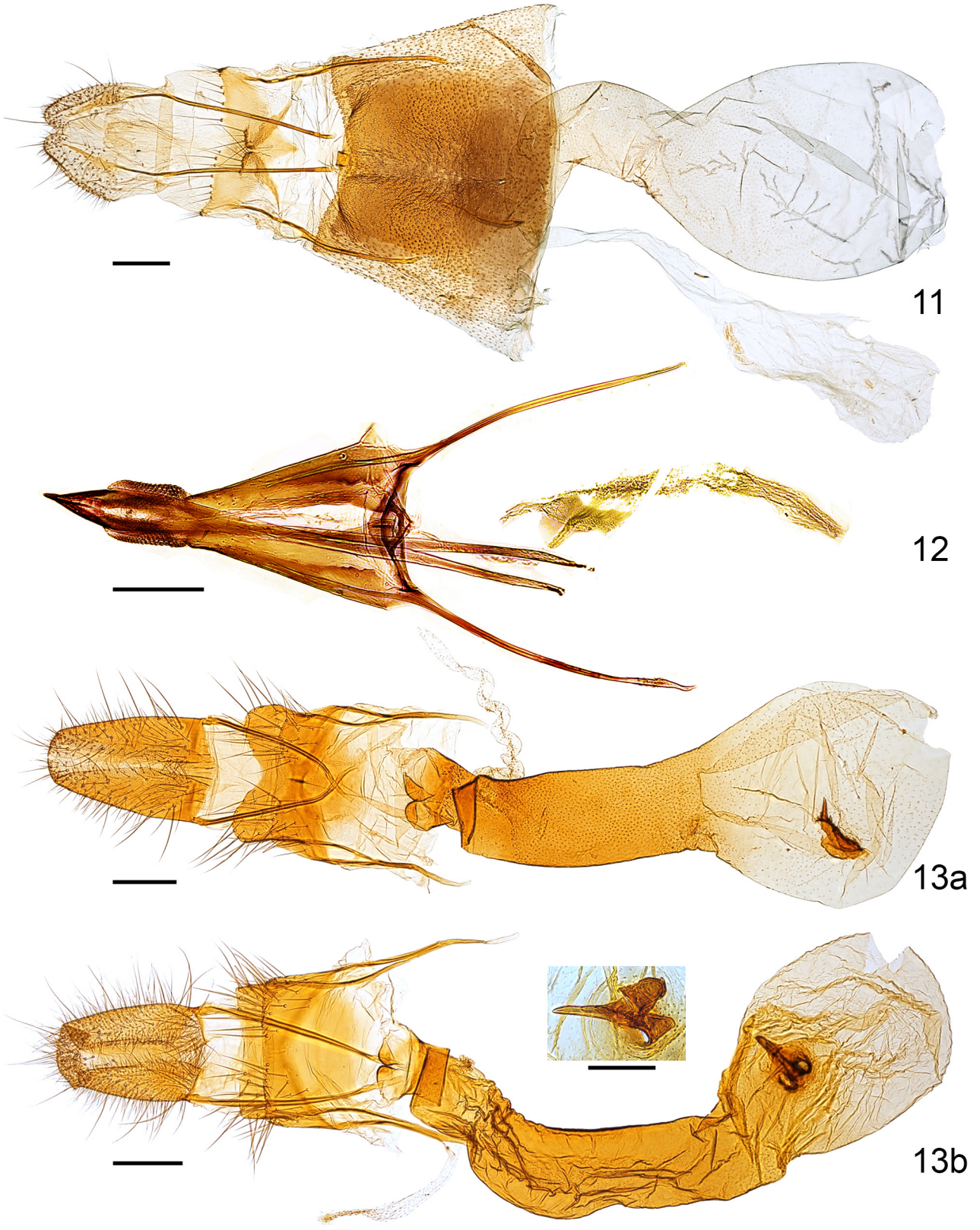
Diagnosis. Like *glandulella*, this species is variable in size and colouration, with forewings with a peppered appearance of dark brownish grey over a paler ground colour and with a dark transverse band near middle and two short dark transverse streaks in the distal third, one near costa and one chevron-like near termen (Fig. 15a); some specimens lack distinct transverse bands (Fig. 15b). The variable maculation is not diagnostic and genitalia should be examined. In male genitalia, the uncus is recurved and comma-like, the gnathos medial process is protruded and truncate, the cucullar lobe of the valva is medially slightly constricted, the saccular lobe is upcurved, with the apex sharply pointed and slightly exceeding the apex of the cucullus, the base of the dorsal margin of the valva is thin, the proximal flange is narrow and less than half the width of the valva with a narrow, linear mesial zone of microtrichia spinules and posteriorly with a few coarse spinules covering an area proportionally much smaller than



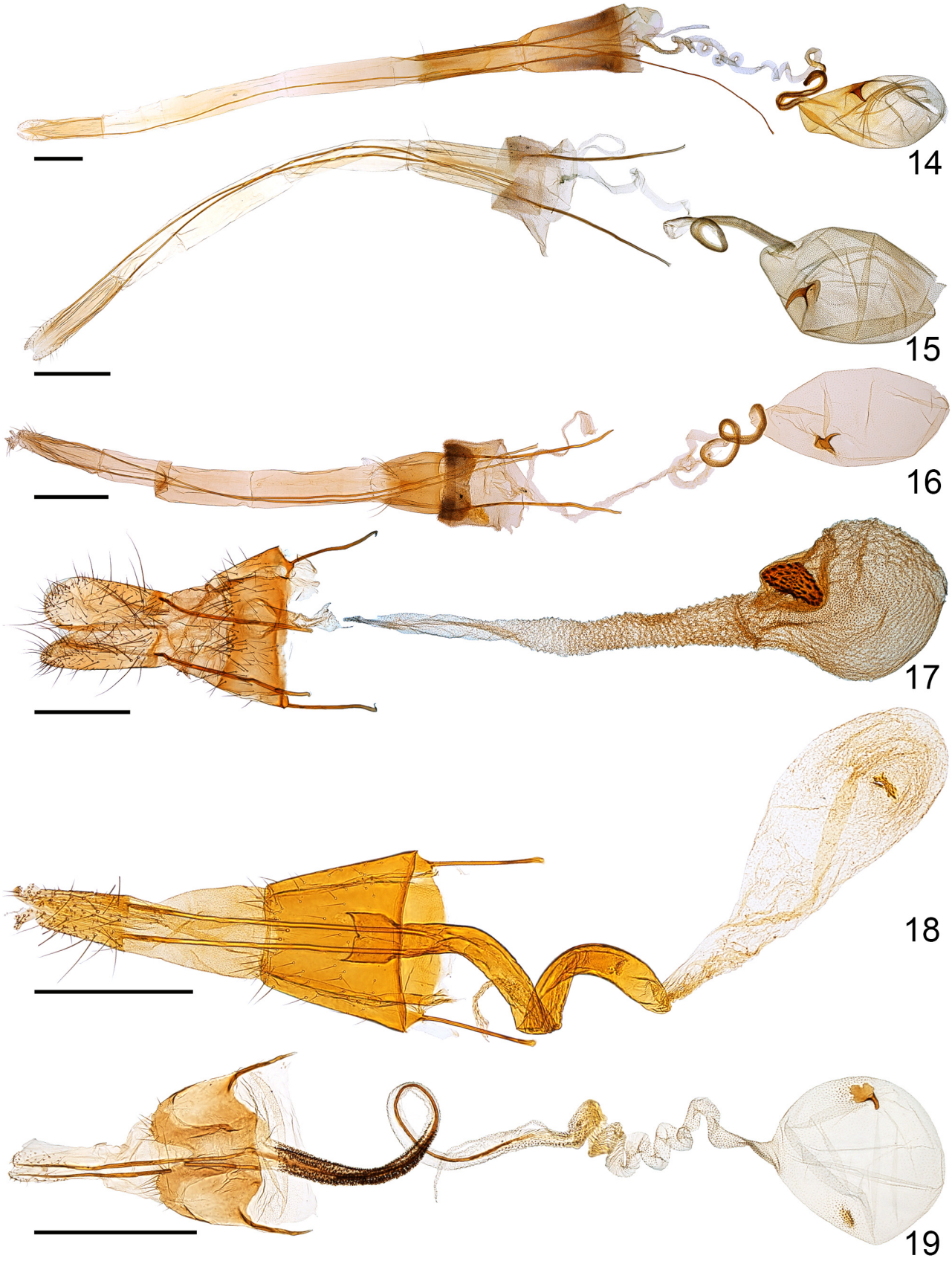
FIGURES FG1–FG5. Female genitalia, ventral aspect. Scale bar = 500µm. Genitalia slide numbers in parentheses. FG1a, *Scardia amurensis* (JFL1702, inset = 8th abdominal tergum); FG1b, *Scardia anatomella* (MIC6097, inset = 8th abdominal tergum); FG2, *Triaxomera parasitella* (MIC6619); FG3, *Nemapogon cloacella* (MIC6618); FG4, *Elatobia montelliella* (MIC6792); FG5, *Tinea svenssoni* (USNM130227).



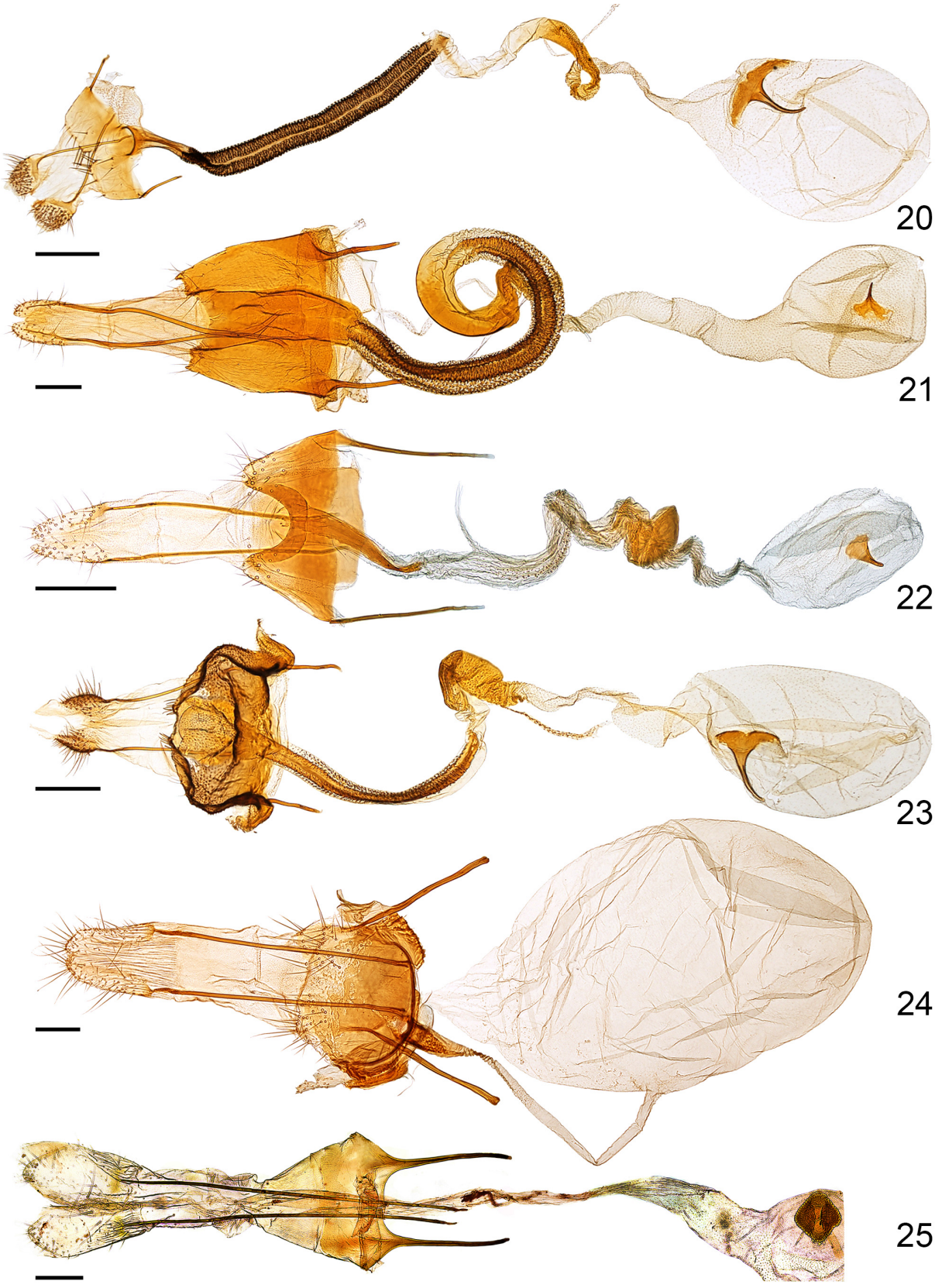
FIGURES FG6–FG10. Female genitalia, ventral aspect. Scale bar = 200µm. Genitalia slide numbers in parentheses. FG6, *Caloptilia suberinella* (MIC6609); FG7, *Parornix betulae* (MIC6207). FG8, *Phyllonorycter maestingella* (MIC6211, inset = magnification of signum; scale bar = 20µm); FG9, *Paraswammerdamia albicapitella* (YPO151PH); FG10, *Paraswammerdamia conspersella* (MIC6188).



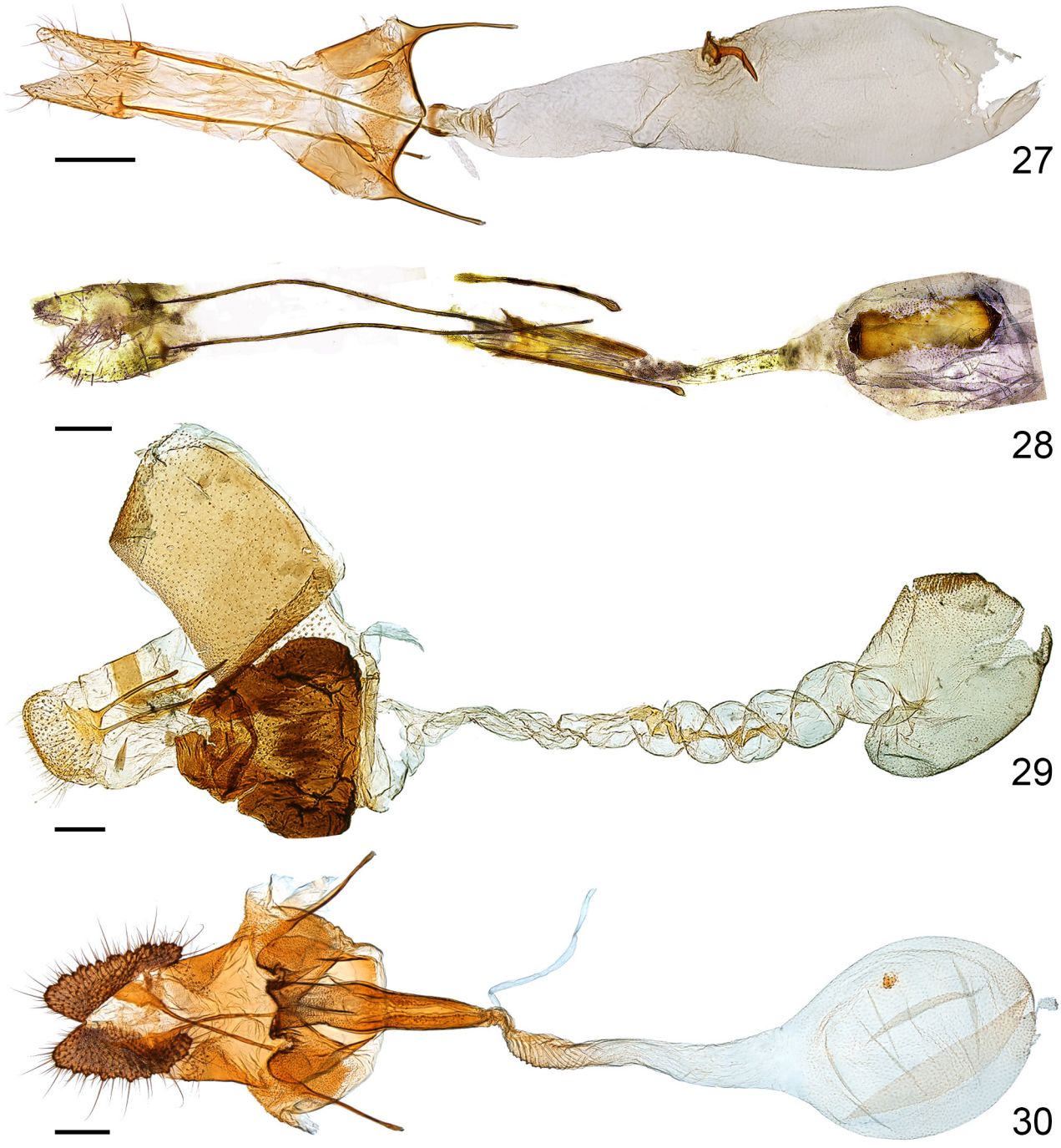
FIGURES FG11–FG13. Female genitalia, ventral aspect. Scale bar = 200µm. Genitalia slide numbers in parentheses. FG11, *Plutella hyperboreella* (MIC6204); FG12, *Lyonetia pulveratella* (YPO152PH); FG13a, *Oegoconia deauratella* (MIC5260); FG13b, *Oegoconia novimundi* (MIC5261; inset = signum of MIC5269, scale bar = 100µm).



FIGURES FG14–FG19. Female genitalia, ventral aspect. Scale bar = 500µm. Genitalia slide numbers in parentheses. FG14, *Blastobasis glandulella* (MIC6604); FG15, *Blastobasis maroccanella* (DAdamski6068); FG16, *Blastobasis tarda* (MIC5832); FG17, *Agonopteryx conterminella* (USNM130226); FG18, *Depressaria depressana* (MIC5961); FG19, *Coleophora atriplicis* (MIC6210).



FIGURES FG20–FG25. Female genitalia, ventral aspect. Scale bar = 200µm. Genitalia slide numbers in parentheses. FG20, *Coleophora glitzella* (MIC6772); FG21, *Coleophora granulatella* (MIC5226); FG22, *Coleophora texanella* (BL844); FG23, *Coleophora vitisella* (MIC6156); FG24, *Scythris sinensis* (MIC6784); FG25, *Altenia perspersella* (GEL650PH).



FIGURES FG27–FG30. Female genitalia, ventral aspect. Scale bar = 200µm. Genitalia slide numbers in parentheses. FG27, *Scrobipalpa acuminatella* (MIC6489); FG28, *Sophronia gelidella* (4949OK); FG29, *Anthophila fabriciana* (MIC6607); FG30, *Phiaris bipunctana* (TOR4327).

in *glandulella*. In female genitalia, the ovipositor is slightly longer than S1–S7, the S7–S8 intersegmental membrane is slightly longer than S7 and laterally covered with very fine microtrichia, the anterior half of the ductus bursae is finely spinulate and with one loop, and the corpus bursae has a lateral lobe near the inception of the ductus bursae and a thorn-like signum. The configuration of the ductus and corpus bursae is much like in *glandulella* but proportionally shorter.

Larval host. Reported to feed on widely differing host materials —cultivated grapes and peas, decaying wood (Karsholt & Sinev 2004). The adults may fly the year around in suitable climate.

Note. This species, cited as *Holcocera maroccanella*, was first reported as present in Berkeley, California in 2002, without further details (Brown *et al.* 2010). Jerry Powell (email of 13 May 2013 to JFL) "first noticed it [in

Berkeley] in 2000 (1 record) and 2002 (1 record), before it began to appear frequently —2003 (4 records), 2005 (48 dates) and numerous per date in 2006. Since that time it has been the most frequent moth at his blacklight, present nearly every night year around, sometimes very numerous". Barcoded specimens are from that locality.

16. *Blastobasis tarda* Meyrick, 1902 (Blastobasidae: Blastobasinae)

Blastobasis tarda Meyrick, 1902: 169. Type locality: Australia, Queensland.
= *Neoblastobasis ligurica* Nel, & Varenne, 2004: 25. Type locality: France, Alpes Maritimes: Cagnes-Sur-Mer, Moulin du Loup. **New synonymy.**
BOLD:AAJ8258

Palearctic distribution. Possibly native to Australia where it was first described (Meyrick 1902); introduced to North America where it was found in southern California; also introduced in New Zealand (Dugdale 1988), as well as Europe (where it was unwarrantedly re-described as *Neoblastobasis ligurica*). The recent discoveries in Europe and North America likely indicate recent introductions.

New North American records. USA: California, San Diego area (USNM, CNC), at light on several dates between April and September 2009.

Diagnosis. This is a pale grey species with a couple of dark dots in the distal third of the forewing. Like many Blastobasinae it is not easily recognizable on external features and genitalia must be examined. The male genitalia is unique among the North American fauna with the greatly enlarged and rounded dorsal (membranous) lobe of the valva with a long, slender, inwardly directed spine extended from its dorsal margin to its base, markedly recurved apical process of the sacculus, and proximal flange with a row of short, stout setae and without microtrichia; in *glandulella*, *maroccanella*, and other Blastobasinae, the dorsal (membranous) part of the valva is narrowly digitiform, and the apical process of the sacculus is less recurved, and the proximal flange bears patches or rows of microtrichia and spinules. The female genitalia is not so distinctive and has the anterior section of the ductus bursae looped and finely spinulate like many species of *Blastobasis*, but the ovipositor is slightly shorter than S1–S7 and the S7–S8 intersegmental membrane has zones of coarse microtrichia laterally.

Larval host. unknown.

Note. Meyrick stated that the type series from Australia comprised specimens from Rosewood and Brisbane, Queensland, and Newcastle and Sydney, New South Wales. Only specimens from Sydney are in BMNH. Meyrick did not state the number of specimens in the type series. The type material of *tarda* was studied by David Adamski, who generously provided the data and lectotype designation below, and confirmed the species identity as well as the synonymy of *ligurica*. Probably suspecting an alien species newly introduced in France, Nel & Varenne (2004) hesitated before describing *N. ligurica* as a new species, but finally did so after consultations with several taxonomists failed to establish a match to any known species.

Lectotype designation for *Blastobasis tarda* Meyrick, 1902. Lectotype, ♂, present designation by D. Adamski, "Lectotype" [round purple-bordered label]; "Sydney, N[ew] S[outh] Wales, 25−10−[18]79"; "*Blastobasis tarda* Meyr., 1/8, Meyrick det., in Meyrick Coll[ection]"; "Meyrick Coll[ection], B.M. 1938−270"; "*tarda* Meyr.,"; "BM ♂ Genitalia Slide No. 31958", [BMNH]. A lectotype is being designated in order to maintain stability of usage of the name of a taxon with congeners that look similar. Paralectotypes, 4 ♂, 3 ♀, all from New South Wales.

17. *Agonopterix conterminella* (Zeller, 1839) (Depressariidae)

Depressaria conterminella Zeller, 1839: 196. Type locality: [Germany], Augsburg.
BOLD:AAE7213

Palearctic distribution. Europe to Japan.

New North American records. Canada: British Columbia, Mount Revelstoke National Park, 26 Jul 2005, 1 ♀ (CNC); Sheridan Lake, 29 Jul 2006, 1 ♂ (CNC); Ontario, Thunder Bay area, 24 Jul 1981, 1 ♀ (CNC).

Diagnosis. North American specimens have brownish grey forewings with a discal black chevron-like mark

and a distally adjacent dirty white spot. They are very similar both in maculation and genitalia to the Nearctic *gelidella* (Busck), which is also reported to feed primarily on willow (Hodges 1974). The similarity in pattern between the two was noted by Clarke (1941). The male genitalia of both species has the digitiform process of the sacculus straight, relatively thick, apically rounded and extended to about three-quarters the height of the valva, and the cucullus of the valva is broadly rounded; differences between the two species appear subtle and have not been studied. In the female genitalia of *conterminella*, the signum is near the posterior third of the corpus bursae or near the constriction of the ductus bursae, whereas in *gelidella* it is in the anterior third of the corpus bursae; as in male genitalia, differences are subtle and have not been studied in relation to individual variation. The two species are more than 5% barcode divergent.

Larval host. Willows (*Salix* spp., Salicaceae).

Note. The three North American records were collected in relatively remote locations and probably indicate that the species is native, hence Holarctic in distribution. The very close similarity in morphology with the North American *gelidella* means that the two species would be very difficult to distinguish without the help of barcodes, and there could be unrecognized specimens of *conterminella* among *gelidella* material in collections.

18. *Depressaria depressana* (Fabricius, 1775) (Depressariidae)

Tinea depressana Fabricius, 1775: 655. Type locality: Sweden.
BOLD:AAE7397

Palearctic distribution. Widely distributed from Europe to China and the Russian Far East.

New North American records. Canada: Québec, Gatineau, 27 Oct 2012, 1 ♂ (CNC); Ontario, Port Franks, 2 Aug 2008, 1 ♂ (CNC). We also barcoded one female from Ontario that was found live in a garlic shipment from China (CNC).

Diagnosis. Externally *depressana* is grey with head, labial palps, mesothorax and tegulae contrastingly pale, cream-white. It resembles *alienella* with similarly contrasting head and thorax but the tegulae are entirely dark brown and the forewings are predominantly rufous brown with very short dark brown streaks along the veins. North American specimens of *depressana* have the forewings almost uniformly dark grey with a little bit of pale grey suffusion in the distal half, contrasting markedly with the pale head and thorax. The two species are easily separable on genitalia. In male *depressana*, the sacculus has a short, smooth recurved process protruded from its apical end about one-third the height of the valva, and the endophallus has a bundle of long, thin cornuti tightly packed together; in male *alienella*, the sacculus has an elongate, digitiform, spinulate, and straight apical process extended about three-quarters the height of the valva, and the endophallus is finely spinulate and without large cornuti. In female *depressana*, S8 is elongate-trapezoid, the antrum is more or less square with a slightly indented posterior margin, and the ductus bursae is thickly sclerotized with one loop; in female *alienella*, S8 is narrowly transverse, the antrum is slightly rounded, and the ductus bursae is entirely membranous with an abrupt bend at the entrance of the corpus bursae.

Larval hosts. Apiaceae: mainly wild carrot, *Daucus carota,* but in Europe also *Carum carvi, Pimpinella, Pastinaca, Seseli* and *Peucedanum oreoselinum.*

Note. This species is almost certainly introduced in North America. The lack of earlier records despite two revisions of the North American Depressariinae (Clarke 1941, Hodges 1974) suggests that the introduction is recent. As in Europe (Harper *et al.* 2002), it probably overwinters in the adult stage as the Québec record in late October suggests.

19. *Coleophora atriplicis* Meyrick, 1928 (Coleophoridae)

Coleophora atriplicis Meyrick: 763. Type locality: England.
= *Coleophora cervinella* McDunnough, 1946a: 59. Type locality: Canada: Nova Scotia: Parrsboro. **New synonymy.**
BOLD:AAD7734

Palearctic distribution. Northern and Central Palaearctic region.

New North American records. Canada: Nova Scotia, Parrsboro, 3–4 Jul 1944, 2 ♀ (holotype and paratype of *cervinella*) (CNC); Alberta, Erskine, 15 Jul 2001, 1 ♀ (BIRD); Buffalo Lake Conservation Area, 2 Aug 2000, 1 ex. (BIRD); Tolman Bridge, 9 Jul 1984, 2 ♂ (CNC); Lac La Biche, 26 Jul 1994, 1 ♀ (CNC); British Columbia, Peachland, 28 Aug 1935, one ♀ (CNC). USA: Washington, Wilapa Bay, 26 Jul 2011, one ♀ (CNC).

Diagnosis. This species has ochreous-buff forewings with veins somewhat highlighted with creamy white, and sparsely peppered dark brown scales, especially in the distal half. It is confusingly similar to several other *Coleophora*, especially among the seed-feeding groups and including several undescribed species (JFL pers. obs.) and can be recognized with certainty only through examination of the genitalia. In male genitalia, the tegumen is pyramidal, the gnathos ellipsoid and laterally compressed, the transtilla arms are markedly developed and outwardly upcurved, nearly joined medially, the apex of the sacculus has a few short dentate projections, the cucullus is broadly rounded, the valvula markedly sclerotized and digitiform, and the juxta rods each have one tooth, subapical on the right arm, medial on the left one; the overall configuration of the phallotheca with its long and curved outer tube, long, multi-coiled appendix, and long cluster of small, closely set cornuti, is very similar to that of several other seed-feeding species exemplified by *duplicis* Braun. (For genital terms of *Coleophora*, see Landry & Wright 1993.) In female genitalia, S8 is roundly trapezoidal with a notched posterior margin, the colliculum is as long as S8 with a blind sac at its anterior right extremity, the ductus bursae is very long with at least six coils in its anterior section, the spinulate section of the ductus is anteriorly curved and about as long as the membranous looped section, and the signum is double, one typical thorn-like with a short, stubby point, the other rasp-like and very small. This type of double signum is found in several seed-feeding species, such as the *duplicis* complex, with differences in size.

Larval host. *Halimione portulacoides, Suaeda, Salicornia*, *Atriplex* spp., *Chenopodium* spp. (Chenopodiaceae) in saline habitats.

Note. The type series of *C. cervinella* which consisted of two females was collected in a salt marsh (where several of the host plants of *atriplicis* occur). McDunnough suspected the synonymy of this species and wrote in an undated note placed in the CNC collection tray with the type: "Possibly falls to *atriplicis* descr. from Europe". This species is undoubtedly more widely distributed than current records indicate but it is not recognizable without examining the genitalia. The occurrence on both the east and west coasts of North America as well as deep in the Okanagan valley of British Columbia and scattered localites in Alberta suggest that it could be Holarctic.

20. *Coleophora glitzella* Hofmann, 1869 (Coleophoridae)

Coleophora glitzella Hofmann, 1869: 119. Type locality: Germany and Poland.
BOLD:ABZ4058

Palearctic distribution. Palaearctic: Western, Central and Northern Europe (Baldizzone *et al.* 2006).

New North American records. Canada: Yukon, marsh 31 km E of Dawson, 5 ♂, 2 ♀; bog 60 km E of Dawson, 2 ♂; km 30 on Dempster Hwy, 2 ♂; 16 km southeast of Whitehorse, 1 ♂; all specimens collected in early July 1994 (CNC, MZH).

Diagnosis. A species with an ochreous-buff or pale grey external appearance and forewings lacking irrorations or variegations, and markedly annulated antennae. Some of the Yukon specimens are very pale, almost whitish buff. Superficially this species is very difficult to distinguish from other similarly coloured *Coleophora* and variation in the ground colour intensity enhances this confusion, but it is easily recognized on genitalia. Male genitalia resemble those of *murinella* Tengström. In male *glitzella*, the apex of the sacculus is distinctly notched to form a small tooth-like process; the cucullus is as long as the valvula and digitiform, the juxta rods are short, stubby with an unarmed, weakly sclerotized apex, the outer tube of the phallus is 2x the length of the juxta, and the vesica has a single slender cornutus. In male *murinella*, the apex of the sacculus is pointed but not toothed, the cucullus is broad, stubby and shorter than the valvula, the outer tube of the phallotheca is proportionally shorter, less than 1.5x the length of the juxta complex, and there are 5–6 slender cornuti. In female *glitzella*, S8 is a simple transversely rectangular plate, the ostium bursae is crescentic, the colliculum is longer than S8 and medially constricted, the spinulate section of the ductus bursae is about half the length of the ductus and nearly straight except for a short distal twist, and the ovipositor is very short with broad papillae anales; in *murinella* the spinulate section of the ductus bursae is proportionally much shorter and broader.

Larval host. *Vaccinium vitis-idaea* (Ericaceae). Razowski (1990) reported *Vaccinium uliginosum*, which appears incorrect because it is not an evergreen species like *vitis-idaea*. The larva of *glitzella* overwinters within the mine (MM, pers. obs.).

Note. It is likely that this species shares a northern Holarctic distribution together with its host plant. In North America the related *murinella* Tengström, which reportedly also feeds on *Vaccinium vitis-idaea*, is recorded only from Newfoundland and Nova Scotia. Both species are probably more widely distributed in northern Canada but undercollected.

21. *Coleophora granulatella* Zeller, 1849 (Coleophoridae)

Coleophora granulatella Zeller, 1849: 371. Type locality: Poland and Austria.
BOLD:AAB3655

Palearctic distribution. Europe to China.

New North American records. Canada: Alberta, Dunvegan Prov Pk, 18 Jul 2003, 10 ♂, 2 ♀ (CNC). British Columbia, Tranquille Ecological Reserve, 17 Aug 2007, 1 ♂ (CNC). Ontario, Presqu'Ile Prov Pk, 25 Jul 1985, 7 ♂, 6 ♀ (CNC, MZH). Yukon, Carcross sand dunes, 12 Jul 1994, 1 ♂, 3 ♀ (MZH); Whitehorse, 11 Jul 2006 1 ♂, 3 ♀ (CNC); Kusawa Lake, 16 Jul 2006, 1 ♀ (CNC). USA: Arizona, Cochise Co., Huachuca Mts, Miller Canyon, 4 Aug 1999, 1 ♀ (CNC). Colorado, Chaffee Co., nr Buena Vista, 8–17 Jul 1982, 4 ♂ 1 ♀ (CNC, USNM); nr Central City, 13 Jul 1993, 1 ♂ (MZH). Michigan, Mackinac County, ex Artemisia campestris, em 8 Jun 1998, 1 ♀ (CNC). Wyoming, Laramie Co., Gowdy State Pk, 7 Jul 1993, 1 ♂ (CNC). Washington, Hanford Reach National Monument, 30 Aug 2002, 1 ♂ (CNC). Widely distribution from Ontario west to Colorado and north to the Yukon. Most records are from the West.

Diagnosis. An overall pale species with pale ochreous-buff forewings with the veins highlighted in white and a fine peppering of dark brown scales arranged into very indistinct thin, dotted streaks, and antennae mostly white or indistinctly annulated. Several specimens have the ochreous-buff of the forewings very pale giving them a dirty white appearance. Superficially it is confusingly similar to many species found in the West, including several that are undescribed (JFL, unpublished data) and genitalia must be examined for identification. In male genitalia, the tegumen is rather similar to that of *atriplicis* but less constricted at the pedunculus, and the gnathos is wider; the vinculum is broadly U-shaped and not antero-ventrally protruded, the sacculus is widely angulate with a rounded ventral process and a strong finger-like dorsal process extended to the dorsal margin of cucullus, and proportionally small tongue-like cucullus; the juxta rods are subequal each with a subapical hump; and the outer tube is subequal in length to the juxta rods with a single thick cornutus. In female genitalia, S8 is elongate-trapezoidal with a roundly indented posterior margin, colliculum heavy and slightly longer than S8, ductus bursae with a comma-shaped spinulate section and unlooped membranous section, and proportionally small corpus bursae with a single, small thorn-like signum.

Larval host. *Artemisia campestris* (Asteraceae); the larva develops in the seeds.

Note. This overlooked species is most likely native to North America with a Holarctic distribution. This conclusion is supported by its predominantly interior western distribution, its occurrence in the Yukon and in the Peace River grasslands in northern Alberta, and association with the presence of sage at all reported localities.

22. *Coleophora texanella* Chambers, 1878 (Coleophoridae)

Coleophora texanella Chambers, 1878: 93. Type locality: USA, Texas, [Bosque Co.].
= *Coleophora vagans* Walsingham, 1907: 217. Type locality: USA, New York, New York City. **New synonymy.**
= *Coleophora coxi* Baldizzone & van der Wolf, 2007: 91. Type locality: Italy: Sicily, Catania Fondachello. **New synonymy.**
BOLD:AAB7072

Palearctic records. Evidently this species was recently introduced in Europe where it was unknowlingly redescribed as *coxi*. Reported from Italy, Greece, and France, and adventive.

Nearctic distribution. Widespread in the continental United States, especially in the southern half from

Florida to California, north to New York, Michigan, and Ohio, west to Kansas; also in Mexico (Baja California Sur) and Bermuda (USNM). Specimens were examined from California (several localities) (EMEC, USNM), Colorado (CNC), Florida (CNC, MZH, USNM), Indiana (CNC), Kansas (CNC), Maryland (CNC), Massachusetts (USNM), Michigan (USNM), New York (USNM), North Dakota (USNM), Ohio (CNC), Virginia (USNM). Not recorded from Canada despite the presence of its host plant.

Diagnosis. The forewings are grey brown or ochreous brown, the costa and veins faintly highlighted with dirty white and a thin scattering of dark brown scales; the antenna have alternating pale-dark annulations. In superficial aspect it can be confused with several other Nearctic *Coleophora*, although the fauna of the southern half of North America is insufficiently known to make more precise statements about similar species. Genitalia must be checked for positive identification. The only other Nearctic species known to feed on *Portulaca* is *portulacae* Cockerell, which was described from Texas, but it has very different genitalia (JFL, unpubl. obs.). Male genitalia have the gnathos suborbicular, the transtilla short and wide, the valvula linguiform with short and stiff setae, the sacculus with an angulate ventral margin and an outwardly curved dorsal process that is shorter than the cucullus, short and equal juxta rods that are distally attenuate and unarmed, the basal plate of the juxta is extended anteriorly under the outer tube, the latter is longer than the juxta complex, the appendix has four loops, and there is a single thick cornutus with an asymmetrically widened base. Female genitalia have S8 transverse with the posterior margin deeply and broadly U-indented, a thickened crescentic border along the ostium bursae; the colliculum is longer than S8 and narrowly funnel-shaped with a median chitinized band, its anteriormost portion with a half-twist; the ductus bursae lacks a spiculate section, its anterior half has 3–4 loops; and the corpus bursae is elongate-ovoid with a single thorn-like signum.

Larval host. A leaf miner on pigweed (*Portulaca oleracea*, Portulacaceae).

Note. Probably more widespread and common than current records show, but unrecognized. The food plant is a common weed that has been spread by human activity. Even though the type material of *coxi* was not examined, the high-quality illustrations in the original description of this species leave no doubt that it is a synonym of the Nearctic *texanella*. Barcodes from European specimens, including some reared from France referred to by Baldizzone & Nel (2009), matched North American ones. According to Baldizzone (pers. comm. to JFL, 2012) this species has become very common in Italy.

The synonymy of *vagans* is here established based on examination of its type and female genitalia matching those of the *texanella* type (both examined by JFL). The type of *vagans* eclosed from a larval case that was found attached to a grass blade, evidently not a larval host plant but an attachment site for pupation. Attempts to gain a barcode record from the type yielded a low-quality 94-bp sequence with four ambiguous positions (qualified as a 'fail' in BOLD), which is insufficiently informative for a clear barcode match. A comparison of that 94bp region with *texanella-coxi* barcodes shows one unique 3rd position substitution (a fixed difference with the data available) that sets *vagans* apart from *texanella/coxi*, plus 0 to 2 more, depending on the haplotype comparison. This amounts to 1.1–3.3% divergence between them, based on this small fragment. Despite failure to obtain an adequate barcode match, we are confident to synonymize *vagans* based on morphological similarity of its holotype, which we consider sufficient in this case. The barcode outgroup species labelled 'n.sp. nr *texanella*' in Fig. 22 are both very distinct in morphology and barcode. The type of *vagans* was collected in New York, whereas that of *texanella* was from Texas.

Type material examined. *Coleophora texanella*: Lectotype female, present designation by J.-F. Landry, labelled: "Type 1598" [red except for white band at top]; "83" [handwritten]; "Tex." [printed]; "Chambers." [printed]; "texanella| Chb." [handwritten]; "Holotype| Coleophora| texanella Ch.| B. Wright" [red, part printed, part handwritten]; "Photo| 4 March 69| B. Wright" [beige, handwritten]; "genitalia slide| BW 188 ♀" [pale green, printed]; "Lectotype ♀| Coleophora| texanella| Chambers, 1878| by J.-F. Landry 2013" [orange, part printed, part handwritten]. (MCZ) The uncertainty about the authenticity of many of Chambers 'types' was discussed by Miller & Hodges (1990). In this case the original description contains no indication if there was only one or more specimens, although McDunnough (1944) stated that the 'type' was a unique female which matched the description well. The 'holotype' label inserted by Barry Wright, presumably in the late 1960s, was never published. A lectotype is here designated to maintain stability of usage of the name of a taxon with congeners that look similar.

Coleophora vagans: Holotype female, labelled: "N. York City| on grass| Aug. 1888" [handwritten]; "Collection| Beutenmueller" [printed]; "487" [handwritten]; "181" [pink, handwritten]; "4928| Wlsm. 1906" [black-bordered, handwritten with 'Wlsm.' printed]; "Type| No. 10349| U.S.N.M." [red, printed with number

handwritten]; “Coleophora| vagans, Wlsm.| Type ♀ descr.” [black-bordered, handwritten except ‘Type’ printed]; “genitalia slide| BW 152 ♀” [pale green, printed except female symbol handwritten]; “Database #| CNCLEP00061092” [printed]; “Barcode of Life Project| Leg removed| DNA extracted” [blue, printed]. (USNM). Examined by JFL. Genitalia slide prepared by Barry Wright in 1975, here renumbered USNM 130,228. A larval case is pinned on the same block as the type but evidently this is not the one from which the moth issued. Another case attached to a piece of grass is mounted on a separate pin and labelled “N York| on grass| Aug. 1888”; “Collection| Beutenmueller” [printed]; “487” [handwritten]; “181” [pink, handwritten]; all in the same hand as the holotype. The following labels were added by Barry Wright: “accompanies| HT. vagans| Wlsm.”; “Coleophora| texanella| Cham.| det. B. Wright ‘90”. This separate larval case is the one from which the type eclosed as evidenced by the presence of adult scales and empty pupal shell inside the case. Walsingham (1907) indicated that he had a unique specimen.

23. *Coleophora vitisella* Gregson, 1856 (Coleophoridae)

Coleophora vitisella Gregson, 1856: 5167. Type locality: Great Britain: Lancashire.
BOLD:AAE1198

Palearctic distribution. Western, Central and Northern Europe to Russian Far East.

New North American records. Canada: Yukon, Whitehorse, 11 Jul 2006, 1 ♀ (CNC); 60 km east of Dawson, 5 Jul 1994, 1 ♂ (MZH); Manitoba, Churchill, 30 Jul 2009, 1 ♂ (CNC).

Diagnosis. Males have the forewings greyish fuscous, whereas females have them ochreous with a slight grey tinge (males have a darker, greyer appearance than females). Superficially they can be confused with several other *Coleophora* with little or no forewing variegation and annulated antennae, like *glitzella* (see above). Specimens in less than mint condition (such as the new records here reported) are virtually impossible to recognize on external appearance and genitalia examination is necessary for identification. Male genitalia resemble those of *ledi* Stainton (cf. Landry & Wright 1993), but are distinguished by the sacculus with an angular ventral margin and a terminal process extended to the apex of the cucullus, and phallus with a single small cornutus; in *ledi*, the ventral margin of the sacculus is evenly rounded and the terminal process shorter than the cucullus, and there is a row of multiple, very small cornuti. In female genitalia, *vitisella* has a heavily sclerotized sterigma with a rough and concave surface and a posterior margin entire, and the spinulate section of the ductus bursae is at least twice the length of S8; in *ledi*, the sterigma has a smooth surface and a notched posterior margin, and the spinulate section of the ductus bursae is no more than about 1.5 times the length of S8. Specimens of *ledi* have a lustrous, metallic dark purplish sheen whereas *vitisella* specimens are dull.

Larval host. *Vaccinium vitis-idaea* (Ericaceae).

Note. This is likely a Holarctic species, but it may be restricted to northern regions of North America where collecting is deficient. The Yukon specimens derive from an area that was part of Beringia. The Manitoba record is from a tundra habitat.

24. *Scythris sinensis* Felder & Rogenhofer, 1875) (Scythrididae)

Butalis sinensis Felder & Rogenhofer, 1875: pl. 140, fig. 11. Type locality: China, Shanghai.
BOLD:ABA2267

Palearctic distribution. Eastern Asia, Europe, Central Russia, southern Siberia (Bengtsson 1997, Passerin d’Entrèves & Roggero 2007).

New North American records. USA: Pennsylvania, Montour Co., near Danville, 10 specimens reared from larvae feeding on *Chenopodium album* in July 2011 (CNC). This is the only reported locality for North America.

Diagnosis. This is a strikingly coloured species that is unlike any North American scythridid. The pair of yellow patches on the forewings and bright yellow abdominal segments immediately distinguish it. The abdominal yellow is more extensive in females than in males. In Europe, most individuals lack the yellow spots on wings, but yellow abdominal segments are present (Bengtsson 1997). The male genitalia are also highly distinctive with large,

pincer-like valvae that are fused to the vinculum, the uncus is pointed, T8 is small and trapezoid, and S8 is broadly crescentic and has the caudal margin medially incised, the sides of the incision forming an internal ridge. In the female genitalia, the ostium is positioned slightly off on the left side of the sclerotized S8 (sterigma); the anterior edge of S8 is tightly attached to the hind margin of S7 (separated in the preparation shown).

Larval host. *Chenopodium album*, *Atriplex patula* (Chenopodiaceae) (Passerin d'Entrèves & Roggero 2007), both of which are widespread weeds in North America.

Note. The species was first discovered in Pennsylvania in 2011 by Jesse Babonis and Steve Johnson who reared it from *Chenopodium album* growing alongside a house. It was easily identified from its external morphology and confirmed by genitalia examination and comparison with specimens from Japan (CNC). Currently there are no barcoded specimens of *sinensis* from the Old World. However, the species, which is native to Asia and the East Palearctic, has been reported in Europe since the early 1970s (Sattler 1971) and is now known from several parts of Europe (Bengtsson 1997; Malkiewicz & Dobrzanski 2011). It is not known whether North American occurrences originated from Europe or Asia; however, the fact that they have yellow forewing spots, which are lacking in European specimens, suggests that they may have originated from Asia.

The larvae feed on the same food plant as *S. limbella* (F.), which was also introduced in northeastern North America several decades ago and has since spread as far west as Montana (Landry 1991; Powell pers. comm. to JFL, 2010). There are five junior synonyms under *S. sinensis* (Bengtsson 1997; Passerin d'Entrèves & Roggero 2007). The species is apparently thermophilous and in Europe has been reported in warm spots such as along house walls and in cities (Nupponen & Nupponen 2001; Malkiewicz & Dobrzanski 2011).

25. *Altenia perspersella* (Wocke, 1862) (Gelechiidae: Gelechiinae)

Gelechia perspersella Wocke, 1862: 236. Type locality: Norway.
BOLD:AAE2251

Palearctic distribution. Northern Europe, from Scandinavia and the Baltic republics to Russia (Huemer & Karsholt 1999).

New North American records. Canada: Manitoba, Churchill, 30 Jul 2009, 1 ♂ (CNC); Yukon, summit of Grey Mountain, alpine zone, swept from alpine vegetation in afternoon, 14 Jul 2006, 1 ♂ (CNC).

Diagnosis. Externally the forewings have three irregular transverse bands of pale grey over a darker brown ground colour. The male genitalia are highly distinctive: the tegumen is narrowly transverse; the uncus is bifid with long, incurved digitiform lobes; the gnathos is absent; the valva is shorter than the uncus lobes and acuminate; the vinculum is narrowly transverse; the phallus is broad, short, stubby. The female genitalia are not especially distinctive compared to many other Gelechiidae: the ostium is ill-defined, weakly sclerotized, crescentic; the ductus bursae is membranous, longer than the ovipositor; and the signum is suboval, sub-divided, with serrate edges.

Larval host. *Empetrum nigrum* (Empetraceae), a circumpolar plant.

Note. The species was listed by Lee *et al.* (2009) based on a communication from JFL about the Yukon record here reported. The species is undoubtedly Holarctic and likely distributed in the northern parts of North America where its food plant occurs.

26. *Gnorimoschema jalavai* Povolný, 1994 (Gelechiidae: Gelechiinae)

Gnorimoschema jalavai Povolný, 1994: 58. Type locality: Russia, SW Altai, Katun valley, 10 km W Katanda, 1200 m.
BOLD:AAI5491

Palearctic distribution. Known from southern Russia (Altai Krai, Tuva, Irkutsk Oblast, Buryatia, and Zabaykalsky Krai), as well as Chukotka Peninsula in the north-eastern far east of Russia (Sinev 2008).

New North American records. Canada: Yukon, Carcross sand dunes, 25 Jun 2004, 2 ♂ (CNC).

Diagnosis. This species of *Gnorimoschema* has dark brown forewings with a pair of large subterminal white spots that nearly touch and appear to form an interruped band. This is a very unusual pattern for *Gnorimoschema*

and Gnorimoschemini in general, but otherwise there are other Gelechiidae with somewhat similar forewing maculation, particularly among *Chionodes*. In male genitalia, the broadly triangular and truncate saccus, configuration of the distal margin of the vinculum, slightly bent and distally swollen valva, linguiform gnathos and unhooked apex of phallus are collectively distinctive. The female is unknown.

Larval host. Unknown.

Note. The Canadian specimens were reported as "*G. nordlandicolella*-complex sp. 4" by Nazari & Landry (2009). The species identification was accomplished later after the holotype of *G. jalavai* (ZMH, Finland) was barcoded and its sequence was placed in the same BIN cluster. This was confirmed by the male genitalia which match. The female is unknown. The Yukon occurrence suggests that the species is native in North America.

27. *Scrobipalpa acuminatella* (Sircom, 1850) (Gelechiidae: Gelechiinae)

Gelechia acuminatella Sircom, 1850: 72. Type locality: England.
BIN21644 (BOLD:AAC1644)

Palearctic distribution. Widespread in Europe, western and Central Asia, Siberia and Eastern China (Huemer & Karsholt 2010).

New North American records. Canada: Ontario, Puslinch Township, 30 May 2002, 1 ex. (BIOUG); Québec, Pontiac, Breckenridge 14 Jul 1999, 1 ♀ (CNC); Pontiac, Eardley, 20 May 2005, 1 ♂ (CNC); Gatineau, 5 May 1987, 1 ♂, 14 Jun 1988, 1 ♂, 21 May 1995, 1 ♂, 14 May 1998, 1 ♀, 13 Jul 1999, 1 ♀, 20 May 2011, 1 ♂ (CNC); Sainte-Christine, 30 May 2008, 1 ♂ (CNC); Manseau, 30 May 2005, 1 ♂ (CNC).

Diagnosis. A species with variable forewing colouration and pattern, diagnosable only through genitalia examination. The forewings vary from pale yellow-brown (as illustrated in Fig. 27) to blackish grey and may be variegated with small black dots or not. On the other hand, the genitalia in both sexes are distinct although showing overall similarity to some other *Scrobipalpa*. In male genitalia, the configuration of the posterior margin of the vinculum which is shallowly V-emarginate, the short vincular process subequal in length to the stubby sacculus, the thin and very slightly curved valva, conical apex of uncus, and terminal hook of the phallus together are distinctive. In female genitalia the medial depression of S8 just posterad of the ostium is covered with microtrichia and bordered with a pair of oblique lateral folds, the collicular sclerotized ring is short, the corpus bursae is elongate-ovoid, gradually tapered without constriction posterad of the signum, and the signum is situated on the right side of the middle of the bursa and has an angular bend; these features are collectively diagnostic although differences among species of *Scrobipalpa* tend to be slight.

Larval host. Several species of Asteraceae in Europe, including *Cirsium* spp., *Carduus* spp., *Centaurea* spp. (Huemer & Karsholt 2010).

Note. Possibly introduced in North America.

28. *Sophronia gelidella* Nordman, 1941 (Gelechiidae: Gelechiidae)

Sophronia gelidella Nordman, 1941: 21. Type locality: Finland.
BOLD:AAF4739

Palearctic distribution. Northern Europe, Russia.

New North American records. Canada: Yukon, summit of Grey Mountain, alpine zone, swept from alpine vegetation with extensive patches of *Dryas* in afternoon 14 Jul 2006, 2 ♂ (CNC, POHL).

Diagnosis. This species has the forewing with a slightly arcuate tip which is quite distinctive. In the forewing the apex is dark brown contrasting with the paler disc and is preceded by a paler transverse, chevron band. In male genialia, the uncus is slightly indented apically, the gnathos is a large hook, the valvae are thin, straight rods with a clubbed apex, the saccular processes are very thin and less than half the length of the valvae, and the phallus distal half has a sclerotized rod and a subapical dentiform process. In female genitalia, the posterior apophyses are longer than the ductus bursae, S8 including the ostium weakly sclerotized, smooth, the narrowly funnel-shaped antrum is well sclerotized and reaches about three-quarters the length of anterior apophyses, and the signum is a sublinguiform plate with irregular edges and more darkly melanized extremities.

Larval host. *Dryas octopetala* (Rosaceae). No specimens have apparently been reared from larvae, but one specimen in the Zoological Museum of Oulu, Finland, was reared from a pupa found between two leaves of *Dryas* (MM). Also, the adult occurrence is always restricted to sites with *Dryas*.

Note. This is likely another Holarctic species with an arctic-alpine distribution in North America where its food plant occurs. The Yukon records (two male specimens) were collected on a mountain in the alpine zone with an abundance of *Dryas*.

29. *Anthophila fabriciana* (Linnaeus, 1767) (Choreutidae)

Phalaena fabriciana Linnaeus, 1767: 880. Type locality: [Europe].
BOLD:AAC8582

Palearctic distribution. Widespread in the Palaearctic region.

New North American records. Canada: Manitoba, Churchill, 8 Aug 2006, 1 ♀ (CNC).

Diagnosis. In wing maculation this species resembles *plenicanata* Heppner, and to a lesser extent *alpinella* (Busck) (Heppner 2011). In male genitalia, the valva has a pointed dentiform projection in the middle of its dorsal margin, the phallus is shorter than the uncus-tegumen-vinculum and has a short dentiform median lateral projection (shown in lateral view in Fig. 29); it is more similar to *alpinella* (Busck) but in the latter both the medio-dorsal tooth of the valva and that of the phallus are larger, and its phallus is longer than the uncus-tegumen-vinculum. The female genitalia is distinctive, though overall similar to those of *alpinella*, with its long, tightly coiled ductus bursae and heavily sclerotized, roundly conical, wrinkled sternum 8 and ostial area.

Larval host. *Urtica*, *Parietaria* (Urticaceae).

Note. Undoubtedly more widespread than the single record indicates. Like other Choreutidae, this species is diurnal. In Europe this species occurs in backyards where its host plants grow. The host plants are frequently associated with anthropogenic habitats thus it is conceivable that *fabriciana* may be a recent introduction. Although the locality of Churchill is remote, it is accessible by train and it is a shipping port. Railroads are often lined with introduced plants and can provide a pathway for alien species to disperse deep into natural areas.

30. *Phiaris bipunctana* (Fabricius, 1794) (Tortricidae: Olethreutinae)

Pyralis bipunctana Fabricius, 1794: 250. Type locality: Italy.
BOLD:AAC2476

Palearctic distribution. Central and northern parts of Europe to Eastern Palaearctic and Russian Far East.

New North American records. Canada: Manitoba, Churchill, 8–27 Jul 2007, 1 ♂ (CNC).

Diagnosis. In wing maculation *bipunctana* resembles *Olethreutes glaciana* (Möschler), *O. carolana* (McDunnough), *O. polluxana* (McDunnough), and *O. heinrichana* (McDunnough). In *bipunctana*, the broad dark median fascia has a small white dot at the level of the radial vein; in the other species this dot is black or tends to be darker than the surrounding median fascia; in *bipunctana*, the distal white fascia is narrower than the median dark fascia, whereas in *heinrichana*, it is wider. In male genitalia, it is most similar to *glaciana* from which it is distinguished by the narrower uncus, narrower cucullus, deeper emargination of the ventral margin of the valva, and small cluster of spines at the apex of the phallus (absent in *glaciana*). In female genitalia it is also most similar to *glaciana* but the lateral lobes of the sterigma have their apices at the level of the ostium (markedly extended posterad of the ostium in *glaciana*), the ostium margin is notched (straight in *glaciana*), and the sclerotized distal section of the ductus bursae is twice the length of the sterigma (subequal in *glaciana*).

Larval host. *Vaccinium* spp. (Ericaceae).

Note. Undoubtedly more widespread, especially in the North, than the single record indicates. The barcode and genitalia similarity suggests that *glaciana*, long placed in *Olethreutes*, is a member of *Phiaris*. At some point the latter genus was considered a synonym of *Olethreutes* (Brown 2005) but more recently has been restored to full generic status (Fauna Europaea 2013; Gilligan *et al.* 2012). Obviously the two genera are closely related and one could even be paraphyletic to the other. However, we refrain from proposing a formal transfer of *glaciana* as we believe that this is best done in the context of a proper taxonomic revision.

Discussion

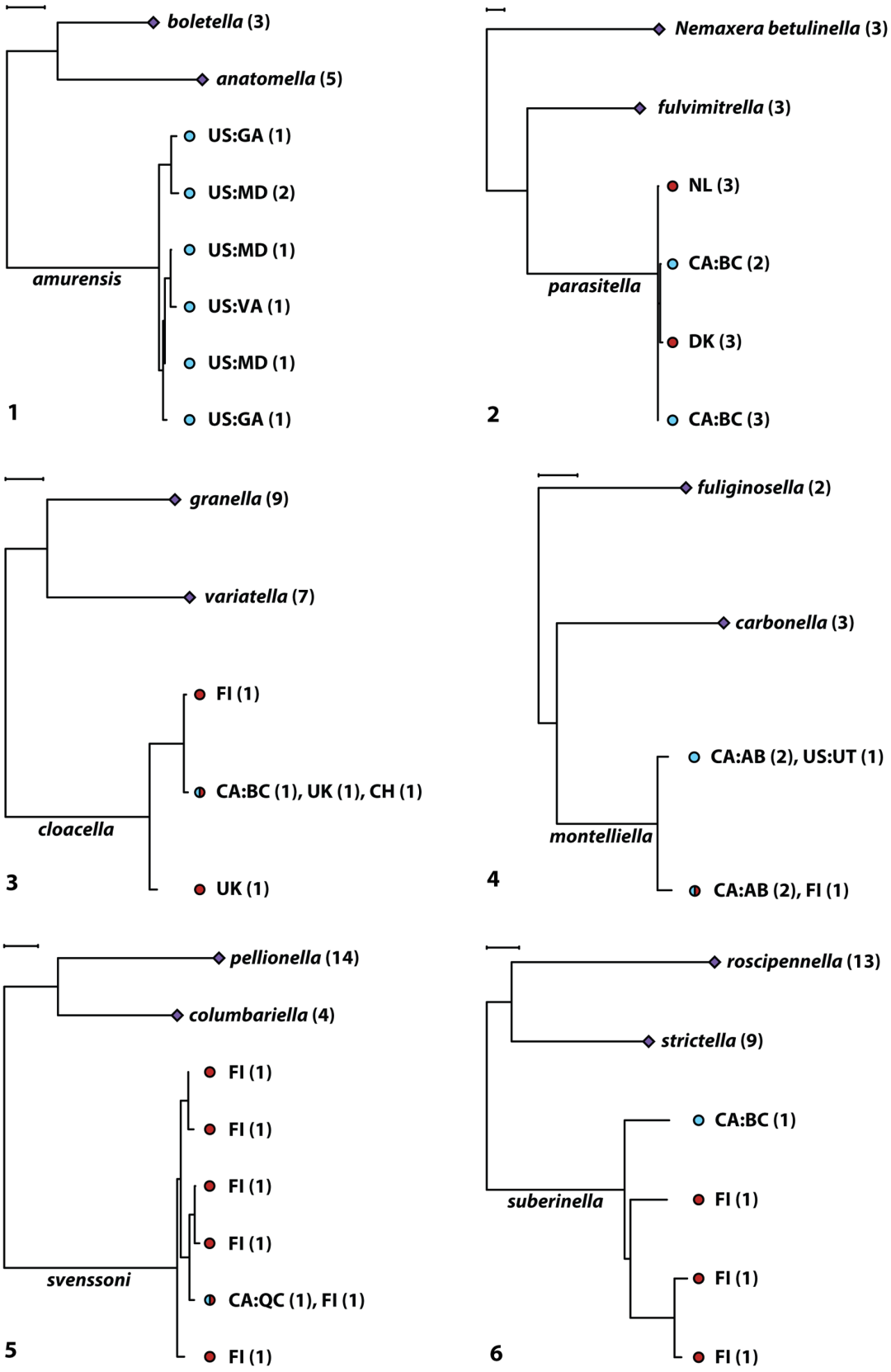
This study increases the number of Microlepidoptera shared by North America and Europe by 30 species (Table 1). Twenty-six of these species involve the first record of a European species in North America, while two represent the converse situation. The last two cases represent the discovery of a species in both Europe and North America that apparently derive one from Australia, another from Asia. Most of these new records were first detected by barcodes, and subsequently confirmed by examination of morphology, primarily genitalia. Two exceptions, *Scardia amurensis* and *Scythris sinensis*, were initially recognized in North America from morphology. Aside from revealing range extensions, this study has exposed four cases in which a known species was described from another continent (Table 2). In one of these cases (*Coleophora cervinella*), the type specimen was barcoded to corroborate the synonymy. A second species (*C. vagans*) was also analysed, but the resulting sequence was too short to convincingly establish synonymy in this case. There are three cases of species pairs for which possible synonymies are left unresolved: *Caloptilia suberinella/strictella*; *Phyllonorycter maestingella/restrictella*; and *Lyonetia pulverulentella/saliciella*. In all these cases, barcodes and genitalia between European and North American specimens are very close, but we have not been able to examine the types to reach satisfactory taxonomic conclusions.

TABLE 1. Thirty species of Microlepidoptera newly reported from Europe and/or North America and their probable status as introductions or as Holarctic taxa with a natural distribution spanning both continents.

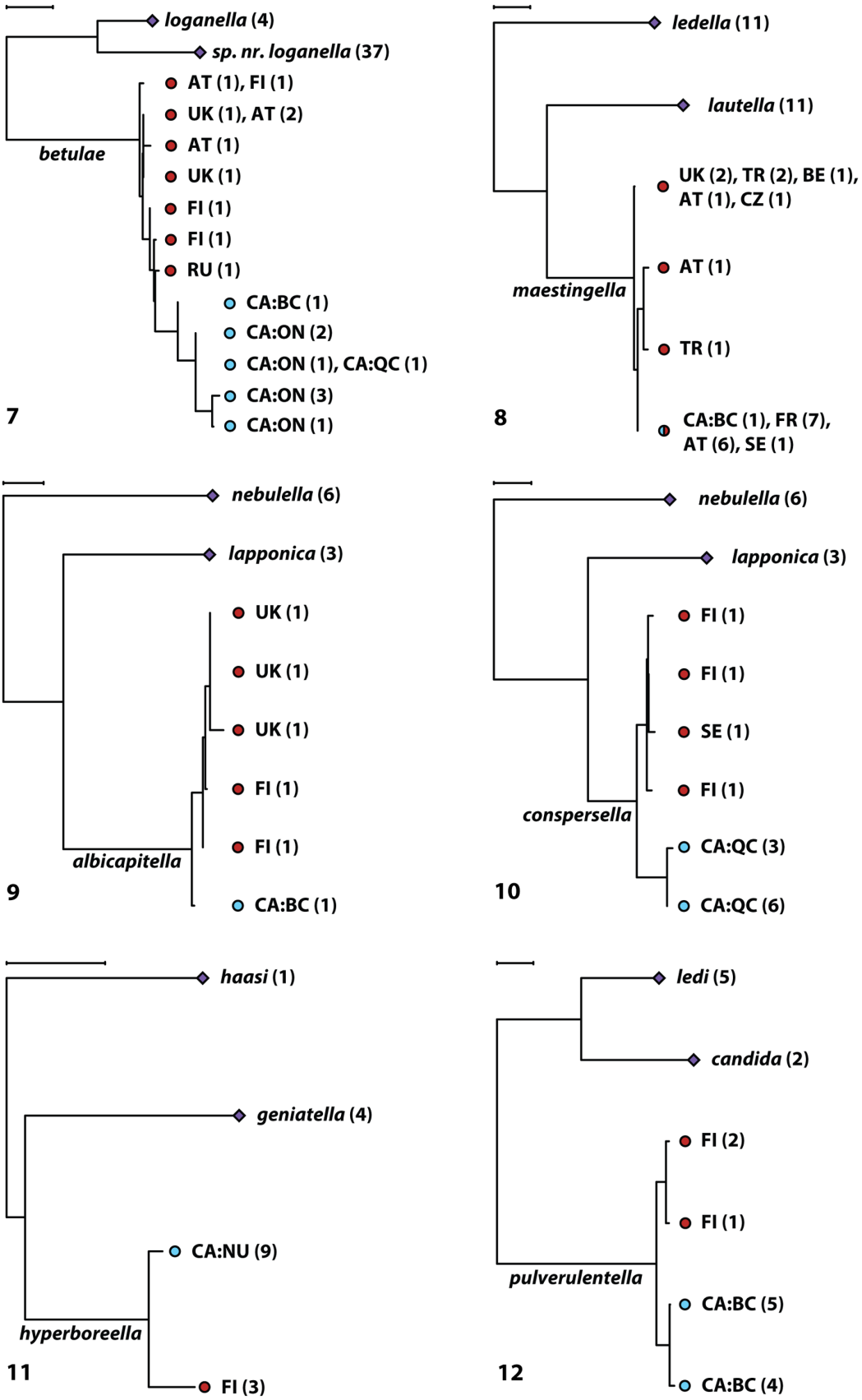
Holarctic species	Introduced to North America
Elatobia montelliella	*Scardia amurensis*
Tinea svenssoni	*Triaxomera parasitella*
Caloptilia suberinella	*Nemapogon cloacella*
Parornix betulae	*Paraswammerdamia albicapitella*
Phyllonorycter maestingella	*Oecogonia deauratella*
Paraswammerdamia conspersella	*Blastobasis maroccanella*
Plutella hyperboreella	*Depressaria depressana*
Lyonetia pulverulentella	*Scrobipalpa acuminatella*
Agonopterix conterminella	
Coleophora atriplicis	
Coleophora glitzella	Introduced to Europe
Coleophora granulatella	*Blastobasis glandulella*
Coleophora vitisella	*Coleophora texanella*
Altenia perspersella	
Gnorimoschema jalavai	
Sophronia gelidella	Introduced to Europe & North America
Anthophila fabriciana	*Blastobasis tarda*
Phiaris bipunctana	*Scythris sinensis*

TABLE 2. Five cases of newly revealed synonymy.

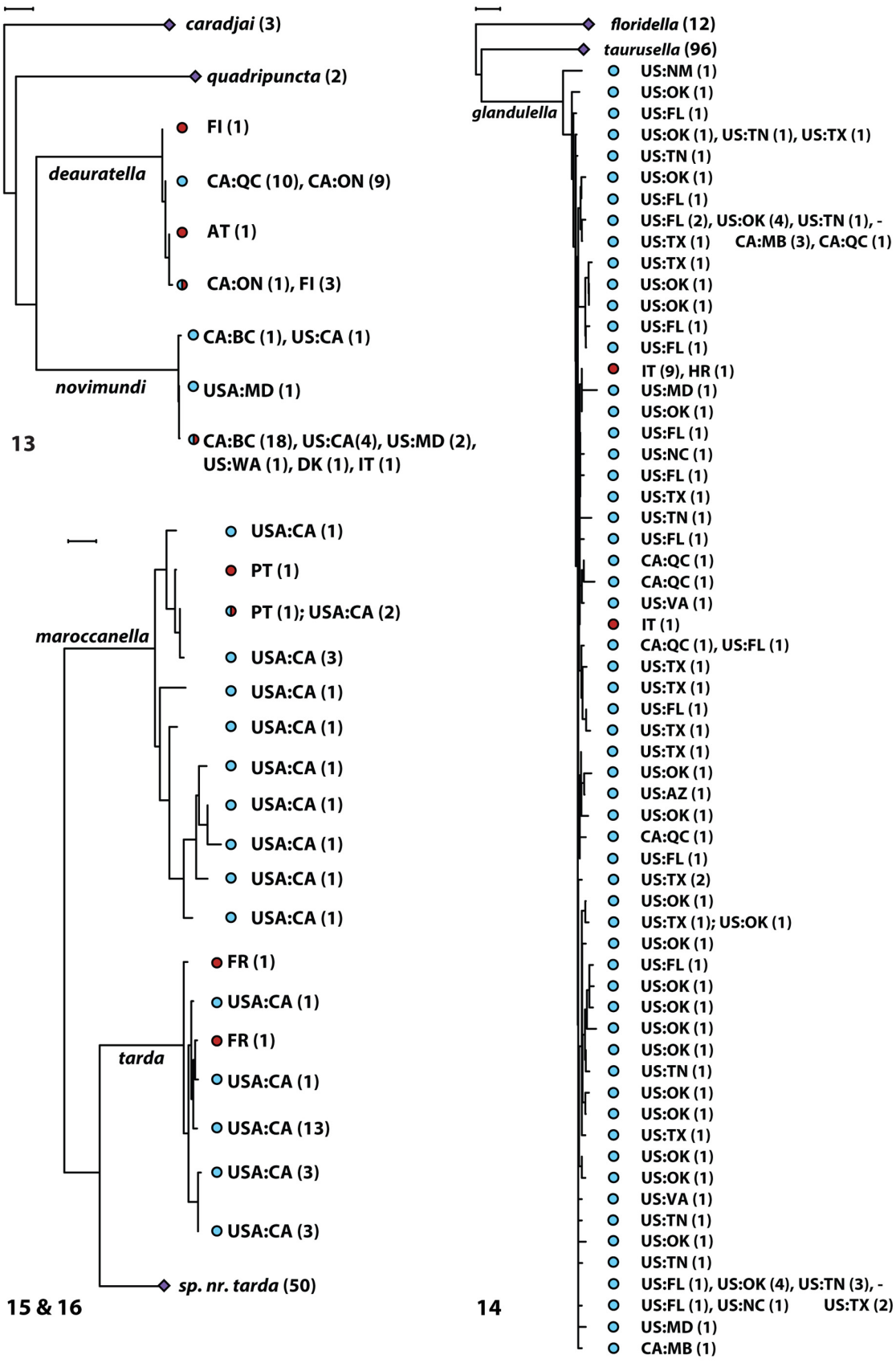
Senior (valid) name	Junior synonym
Blastobasis glandulella (Riley, 1871)	*Blastobasis huemeri* Sinev, 1993. New synonymy
Blastobasis tarda Meyrick, 1902	*Neoblastobasis ligurica* Nel & Varenne, 2004. New synonymy
Coleophora atriplicis Meyrick, 1928	*Coleophora cervinella* McDunnough, 1946a. New synonymy
Coleophora texanella Chambers, 1878	*Coleophora coxi* Baldizzone & van der Wolf, 2007. New synonymy *Coleophora vagans* Walsingham, 1907. New synonymy



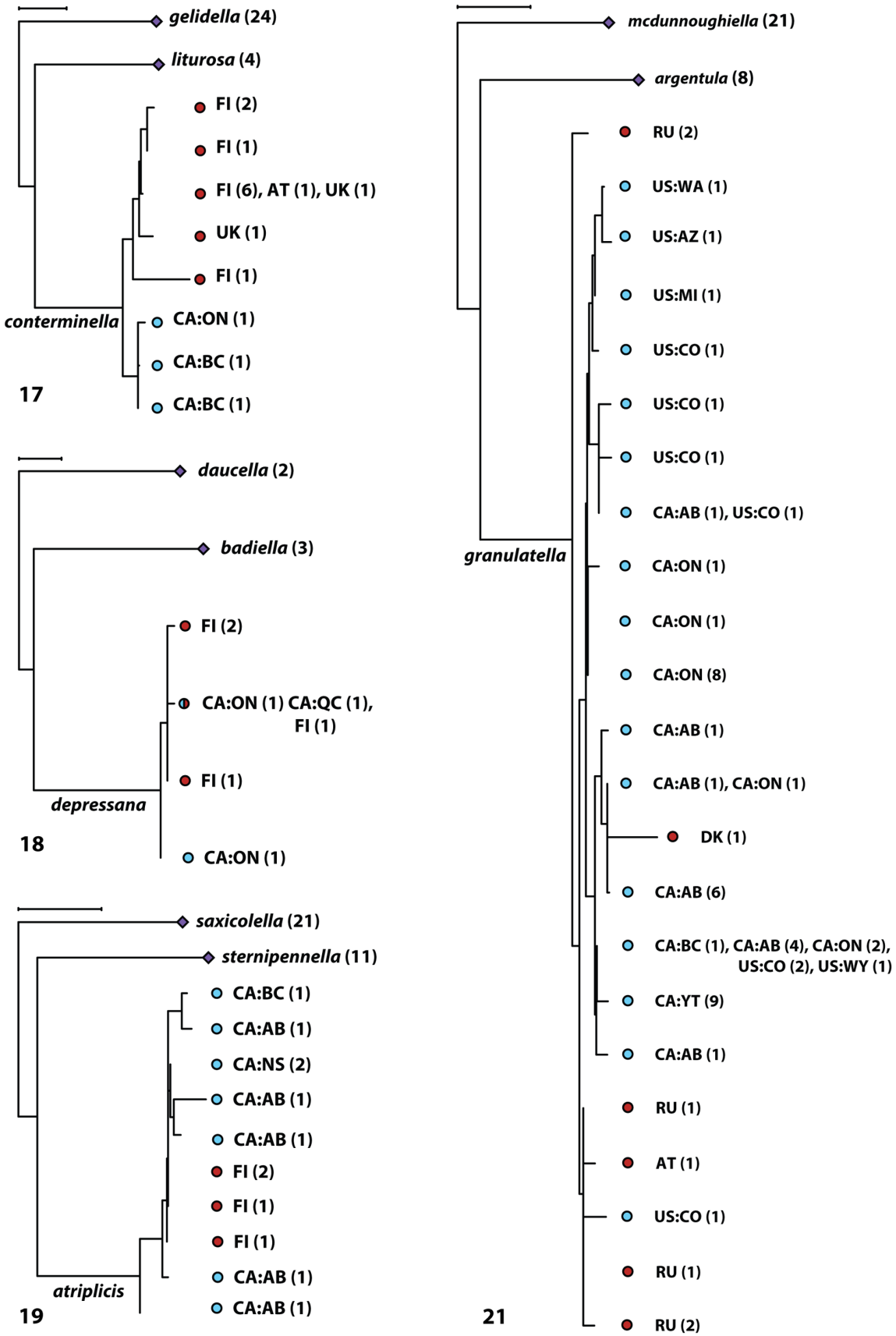
FIGURES NJ1–NJ6. Neighbor-joining trees. Scale bar = 1%. Blue circles indicate Nearctic specimens, red circles Palearctic specimens, and mixed circles indicate a combination of the two; diamonds indicate outgroups. In parentheses are numbers of specimens per node. NJ1, *Scardia amurensis*; NJ2, *Triaxomera parasitella*; NJ3, *Nemapogon cloacella*; NJ4, *Elabotia montelliella*; NJ5, *Tinea svenssoni*; NJ6, *Caloptilia suberinella*.



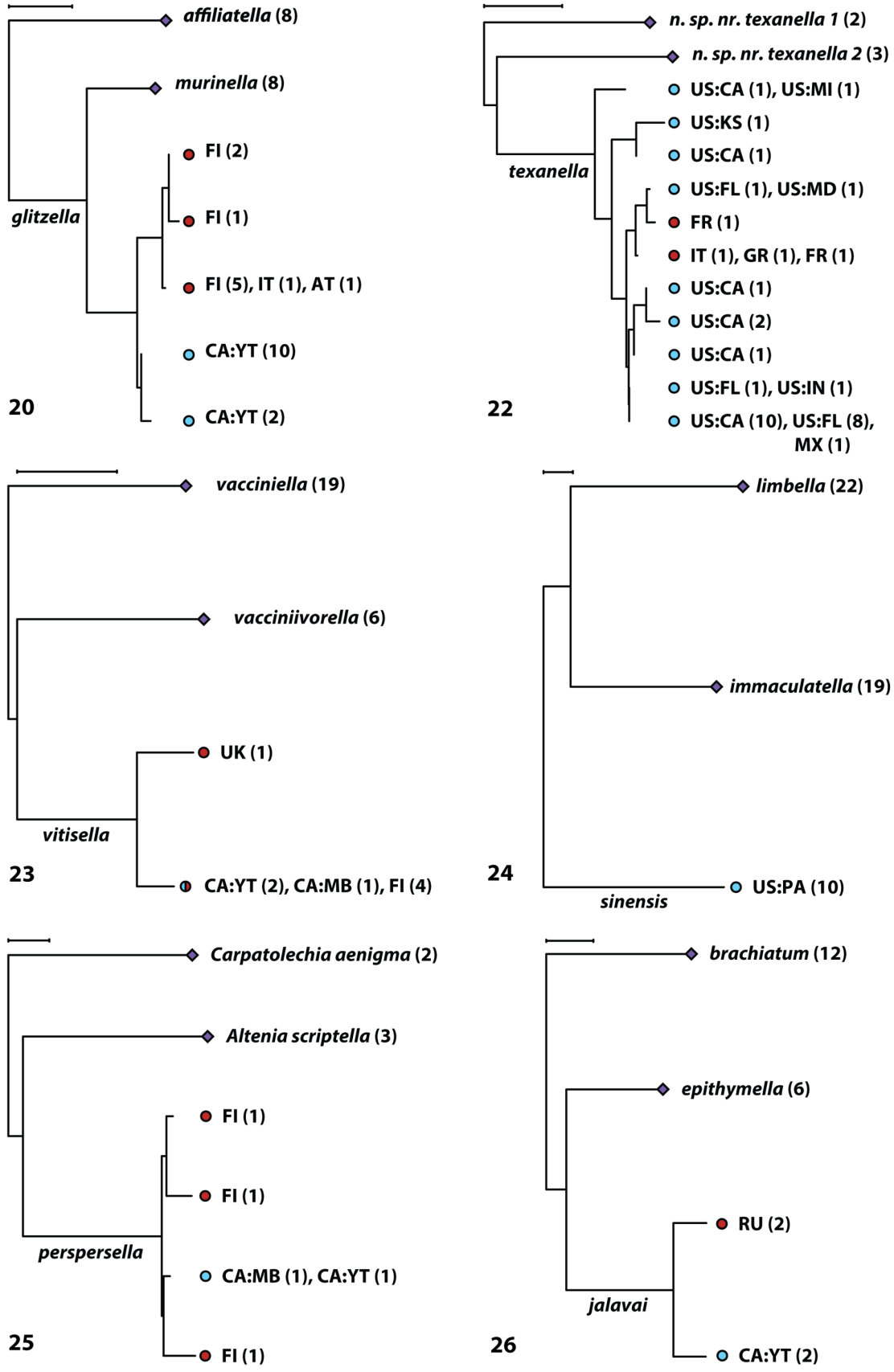
FIGURES NJ7–NJ12. Neighbor-joining trees. Scale bar = 1%. Blue circles indicate Nearctic specimens, red circles Palearctic specimens, and mixed circles indicate a combination of the two; diamonds indicate outgroups. In parentheses are numbers of specimens per node. NJ7, *Parornix betulae*; NJ8, *Phyllonorycter maestingella*; NJ9, *Paraswammerdamia albicapitella*; NJ10, *Paraswammerdamia conspersella*; NJ11, *Plutella hyperboreella*; NJ12, *Lyonetia pulverulentella*.



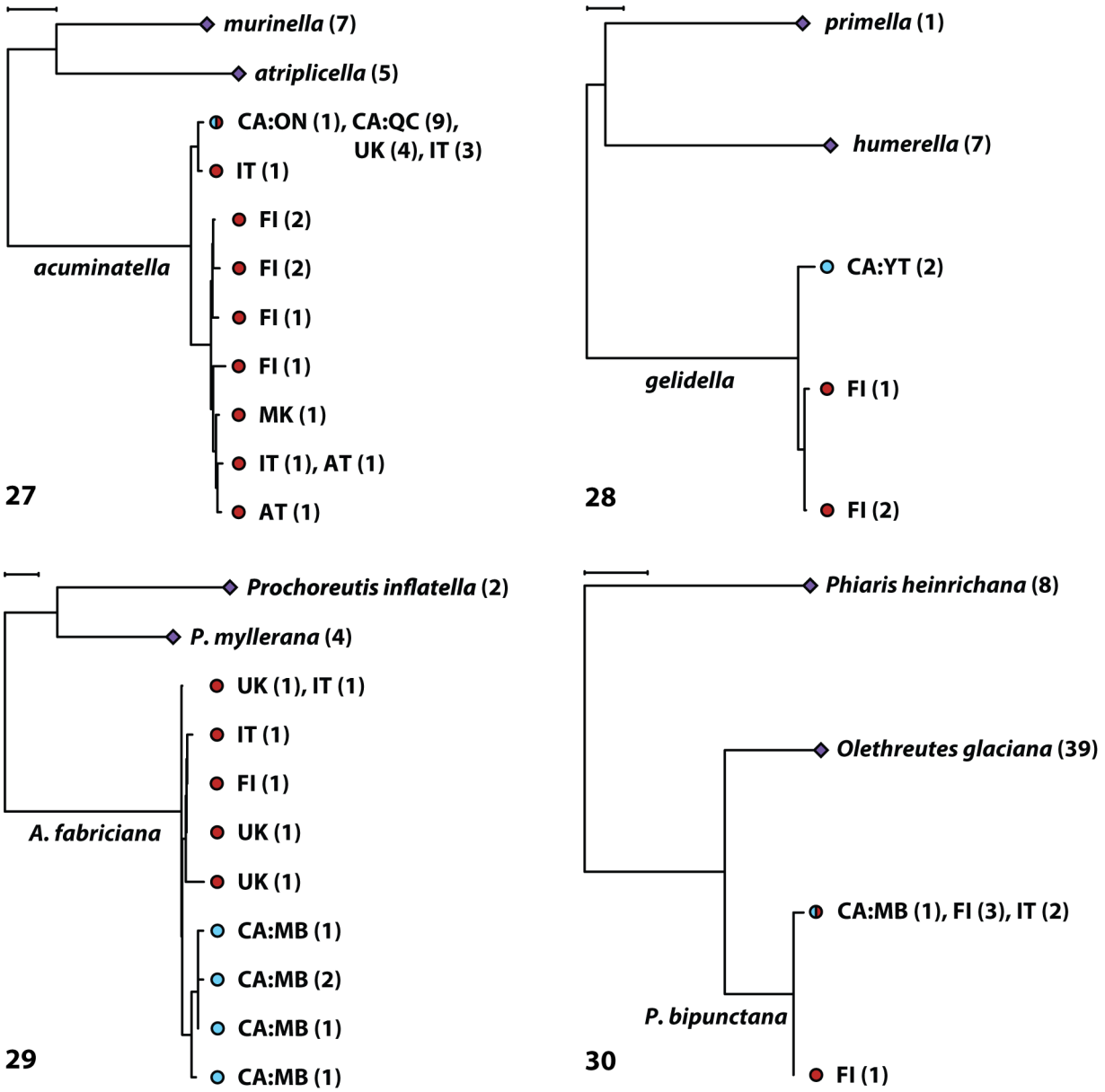
FIGURES NJ13–NJ16. Neighbor-joining trees. Scale bar = 1%. Blue circles indicate Nearctic specimens, red circles Palearctic specimens, and mixed circles indicate a combination of the two; diamonds indicate outgroups. In parentheses are numbers of specimens per node. NJ13, *Oegoconia deauratella*; NJ14, *Blastobasis glandulella*; NJ15 & 16, *Blastobasis maroccanella* and *Blastobasis tarda.*



FIGURES NJ17–NJ19, NJ21. Neighbor-joining trees. Scale bar = 1%. Blue circles indicate Nearctic specimens, red circles Palearctic specimens, and mixed circles indicate a combination of the two; diamonds indicate outgroups. In parentheses are numbers of specimens per node. NJ17, *Agonopterix conterminella.* NJ18, *Depressaria depressana*; NJ19, *Coleophora atriplicis*; NJ21, *Coleophora granulatella.*



FIGURES NJ20, NJ22–NJ26. Neighbor-joining trees. Scale bar = 1%. Blue circles indicate Nearctic specimens, red circles Palearctic specimens, and mixed circles indicate a combination of the two; diamonds indicate outgroups. In parentheses are numbers of specimens per node. NJ20, *Coleophora glitzella*; NJ22, *Coleophora texanella*; NJ23, *Coleophora vitisella*; NJ24, *Scythris sinensis*; NJ25, *Altenia perspersella*; NJ26, *Gnorimoschema jalavai*.



FIGURES NJ27–NJ30. Neighbor-joining trees. Scale bar = 1%. Blue circles indicate Nearctic specimens, red circles Palearctic specimens, and mixed circles indicate a combination of the two; diamonds indicate outgroups. In parentheses are numbers of specimens per node. NJ27, *Scrobipalpa acuminatella*; NJ28, *Sophronia gelidella*; NJ29, *Anthophila fabriciana*; NJ30, *Phiaris bipunctana.*

The discovery of these 30 instances of species overlap is not surprising as the faunas of North America and Europe share many species. Much of this overlap reflects species with natural Holarctic distributions, but some are the result of human-mediated dispersal. Lepidoptera species with a natural distribution spanning the two continents tend to be northerly and feed on plant species which themselves have a Holarctic distribution. The present study detected 18 species in the latter category (Table 1); most are widely distributed, feed on indigenous hosts, and are represented by specimens collected over a broad time span. Moreover, the European and North American lineages of these taxa typically possess some barcode divergence, indicating that populations have experienced limited gene flow for a substantial period. By contrast, introduced species are often detected in proximity to ports or large urban centres, they feed on introduced plants, and appear suddenly in museum records. As expected, given their recent derivation, they lack barcode divergence from their source populations, but may show reduced sequence variation associated with their founding from a small number of colonists. For example, Valade *et al.* (2009) concluded that the highly invasive leaf-mining micromoth *Cameraria ohridella* derived from the southern Balkans as populations

in this region showed the highest genetic diversity. Lees *et al.* (2011) subsequently used barcodes to confirm its presence in Greece in 1879, more than a century before the genus *Cameraria* was described from Europe. In summary, collection localities, host plants, the chronology of museum records, and the level of barcode divergence can all help determine if a newly encountered species is native or introduced.

The present study detected 12 non-indigenous species in North America. Six of these taxa were detected in Canada, most with larvae that feed on introduced plants, and most occurring in coastal British Columbia. Indeed British Columbia has the highest number of non-native insects and mites on woody plants in Canada (Langor *et al.* 2009). Members of these species invariably showed a perfect barcode match with specimens sequenced from their native range. Based on museum collections, some of these introductions occurred more than a century ago, perhaps reflecting unintentional transport as contaminants or/and stowaways with host plants, stored products, or cargo. Certainly many species of alien arthropods, particularly those inhabiting anthropogenic habitats (Lopez-Vaamonde *et al.* 2010), are known to be inadvertently introduced in Europe in this fashion (Mooney & Hobbs 2000; Allen & Humble 2001; Rabitsch 2010). We also report two species of North American origin alien to Europe. These represent two new cases of the 18 North American species of Lepidoptera already known to occur in Europe (Lopez-Vaamonde *et al.* 2010, Van Nieukerken *et al.* 2012a, b).

No prior study has reported such a large number of novel records (12 cases) of introduced alien species of Lepidoptera. Their discovery reflects the increasing power of DNA barcoding as a tool for the detection of overlooked species. Its contribution is particularly significant in groups such as the micromoths examined in this study because taxonomic expertise is limited and the time required for detailed morphological examination is substantial. The technological requirements for DNA barcode analysis are rapidly becoming broadly accessible. As such, the primary constraint on the use of DNA barcoding for screening samples lies in the need for a well-parameterized library of reference sequences. In the case of Lepidoptera, coverage is expanding rapidly as a consequence of efforts to construct and refine DNA barcode reference libraries on national (Hausmann *et al.* 2011) and continental scales (Hebert *et al.* 2010; Hebert *et al.* 2013). There remains a strong need for the curation and validation of records on BOLD, but progress has been substantial as more than 50% of the species of Lepidoptera known from Australia, Europe and North America are now represented on BOLD. However, there remains a great need to identify the unnamed barcode clusters on BOLD (Ratnasingham & Hebert 2013).

This study revealed 12 previously overlooked cases of species introduction, highlighting the power of barcoding as a tool for biosecurity agencies. The implications of DNA barcoding for biocontrol and for meeting standards set by the International Plant Protection Convention (IPPC) are substantial (Floyd *et al*. 2010; Frewin *et al.* 2013). There is also an interesting synergy between the use of DNA barcoding for biosurveillance (Boykin *et al.* 2011) and the resultant expansion of the barcode reference library which will enhance the effectiveness of DNA barcoding as a tool for recognizing invasive species. In our study, the construction of a barcode reference library for European species proved a powerful tool for the identification of unrecognized species present in the Canadian fauna, some native, others invasive, supporting the prediction (Hebert *et al.* 2010) that DNA barcoding would be a powerful aid in identification and detection of over-looked taxa.

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Appendix 1

Sample information for specimens included in this study. Sample IDs are specimen identifiers; Process IDs are sequence identifiers in BOLD; BINs are Barcode Identification Number in BOLD. Details of collecting data, images, sequences, and trace files for the barcoded specimens are available in the BOLD dataset "DS-28NHM", accessed at dx.doi.org/10.5883/DS-28NHM. Specimens without Process ID and BIN were examined but not barcoded.

Species	BIN	Sample ID	Process ID	GenBank	Dissection #	Sex	Region	Depository
Agonopterix conterminella	BOLD:AAE7213	CNCLEP00029286	MNAD377-07	KF808534	MIC5361	M	Canada; British Columbia	CNC
Agonopterix conterminella	BOLD:AAE7213	CNCLEP00084860	MNAO273-11	KF808784			Canada; Ontario	CNC
Agonopterix conterminella	BOLD:AAE7213	HLC-23757	LBCD937-05	KF808655			Canada; British Columbia	BIOUG
Agonopterix conterminella	BOLD:AAE7213	MM00768	LEFIB280-10	HM871182			Finland; Northern Ostrobothnia	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM02198	LEFIB558-10	HM871440			Finland; South Karelia	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM10277	LEFIE913-10	HM874630			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM15555	LEFIG691-10	HM876348			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM17544	LEFIJ919-10	JF853898			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM17547	LEFIJ922-10	KF808674			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM18888	LEFIL590-10	JF854675			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM18889	LEFIL591-10	JF854676			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM18890	LEFIL592-10	JF854677			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	MM18891	LEFIL593-10	JF854678			Finland; Lapland	ZMUO
Agonopterix conterminella	BOLD:AAE7213	TLMF Lep 08446	PHLAH627-12	KF808517			Austria; Vorarlberg	VNGA
Agonopterix conterminella	BOLD:AAE7213	UKLB26B04	CGUKC367-09	KF808629			United Kingdom; England	BMNH

Agonopterix conterminella	BOLD:AAE7213	UKLB33C06	CGUKD044-09	KF808746			United Kingdom; England	BMNH
Agonopterix conterminella		USNMENT00657800			USNM130380	M	Germany; Nieder-Weser	USNM
Agonopterix conterminella		USNMENT00657801			USNM130226	F	Germany; Nieder-Weser	USNM
Agonopterix gelidella	BOLD:AAB7326	06-PROBE-0142	LCHIP031-07	KF808911			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10282	LCHQ390-08	KF808862			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10343	LCHQ451-08	KF808603			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10344	LCHQ452-08	KF808657			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10345	LCHQ453-08	KF808820			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10347	LCHQ455-08	KF808807			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10388	LCHQ496-08	KF809003			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10504	LCHQ612-08	KF809004			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10752	LCHQ860-08	KF808988			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10754	LCHQ862-08	KF808749			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10755	LCHQ863-08	KF808463			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10757	LCHQ865-08	KF808740			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10758	LCHQ866-08	KF808494			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	07WNP-10819	LCHQ927-08	KF808965			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	08BBLEP-02938	LPAB596-08	KF808485			Canada; Alberta	BIOUG
Agonopterix gelidella	BOLD:AAB7326	08BBLEP-02961	LPAB619-08	KF808838			Canada; Alberta	BIOUG
Agonopterix gelidella	BOLD:AAB7326	08BBLEP-04457	LPABC238-09	KF808983			Canada; Alberta	BIOUG
Agonopterix gelidella	BOLD:AAB7326	08BBLEP-04525	LPABC306-09	KF808503			Canada; Alberta	BIOUG
Agonopterix gelidella	BOLD:AAB7326	BIOUG01237-B09	CHIP602-12	KF808936			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	BIOUG01237-C04	CHIP609-12	KF808691			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	BIOUG01237-C05	CHIP610-12	KF808722			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	BIOUG01237-C06	CHIP611-12	KF808721			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	BIOUG01237-E05	CHIP634-12	KF808519			Canada; Manitoba	BIOUG
Agonopterix gelidella	BOLD:AAB7326	BIOUG02021-E11	CHIP154-12	KF808887			Canada; Manitoba	BIOUG
Agonopterix liturosa	BOLD:AAE7191	MM02201	LEFIB559-10	HM871441			Finland; South Karelia	ZMUO
Agonopterix liturosa	BOLD:AAE7191	MM06815	LEFID754-10	HM873511			Finland; Aland Islands	ZMUO
Agonopterix liturosa	BOLD:AAE7191	MM13226	LEFIF858-10	HM875540			Finland; Western Finland	ZMUO
Agonopterix liturosa	BOLD:AAE7191	TLMF Lep 07995	PHLAV176-12	KF808563			Austria; Vorarlberg	VNGA
Altenia perspersella	BOLD:AAE2251	09PROBE-09442	CHLEP147-09	HM375697			Canada; Manitoba	BIOUG
Altenia perspersella	BOLD:AAE2251	CNCLEP00026593	MNAA431-07	KF808733	MIC5351	M	Canada; Yukon Territory	CNC
Altenia perspersella	BOLD:AAE2251	MM03894	LEFIC367-10	HM872210			Finland; North Karelia	ZMUO
Altenia perspersella	BOLD:AAE2251	MM06396	LEFID457-10	HM873228			Finland; Lapland	ZMUO
Altenia perspersella	BOLD:AAE2251	MM14043	LEFIG176-10	HM875856			Finland; North Karelia	ZMUO
Altenia perspersella		USNMENT00657802			Jäckh 10383	M	Sweden; Norrbottens	USNM
Altenia scriptella	BOLD:AAF3288	MM20657	LEEUA598-11	KF808857			Latvia; Daugavpils municipality	ZMUO

Altenia scriptella	BOLD:AAF3288	TLMF Lep 04268	PHLAE048-11	JN271061			Austria; Tirol	TLMF
Altenia scriptella	BOLD:AAF3288	TLMF Lep 07697	PHLAH258-12	KF809016			Austria; Vorarlberg	TLMF
Anthophila fabriciana	BOLD:AAC8582	BIOUG02021-B01	CHIP108-12	KF808571			Canada; Manitoba	BIOUG
Anthophila fabriciana	BOLD:AAC8582	BIOUG02021-B02	CHIP109-12	KF808842			Canada; Manitoba	BIOUG
Anthophila fabriciana	BOLD:AAC8582	BIOUG02021-B03	CHIP110-12	KF808606			Canada; Manitoba	BIOUG
Anthophila fabriciana	BOLD:AAC8582	BIOUG02021-B04	CHIP111-12	KF808558			Canada; Manitoba	BIOUG
Anthophila fabriciana	BOLD:AAC8582	CHU06-LEP-134	MHLEP134-07	KF808466	MIC6607		Canada; Manitoba	BIOUG
Anthophila fabriciana	BOLD:AAC8582	MM02342	LEFIB612-10	HM871491			Finland; South Karelia	ZMUO
Anthophila fabriciana	BOLD:AAC8582	TLMF Lep 05116	PHLAE611-11	KF808758			Italy; Friuli-Venezia Giulia	TLMF
Anthophila fabriciana	BOLD:AAC8582	TLMF Lep 06447	PHLAG137-12	KF808739			Italy; Abruzzo	TLMF
Anthophila fabriciana	BOLD:AAC8582	UKLB31G05	CGUKC900-09	KF808852			United Kingdom; England	BMNH
Anthophila fabriciana	BOLD:AAC8582	UKLB38B09	CGUKD499-09	KF808894			United Kingdom; England	BMNH
Anthophila fabriciana	BOLD:AAC8582	UKLB39C03	CGUKD1025-09	HQ941469			United Kingdom; England	BMNH
Anthophila fabriciana		USNMENT00657744					Italy; Piedmont	USNM
Anthophila fabriciana		USNMENT00657803			USNM130376	F	Italy; Piedmont	USNM
Blastobasis floridella	BOLD:AAB1097	AC005470	LQAC284-07	KF809006			Canada; Quebec	CNC
Blastobasis floridella	BOLD:AAB1097	BL781	BLTIB519-08	KF808756			Canada; Ontario	BIOUG
Blastobasis floridella	BOLD:AAB1097	CNCLEP00025516	MNAA243-07	KF808555	MIC5857	M	United States; Florida	CNC
Blastobasis floridella	BOLD:AAB1097	CNCLEP00025576	MNAA302-07	KF808868			United States; Florida	CNC
Blastobasis floridella	BOLD:AAB1097	CNCLEP00025582	MNAA308-07	KF808906			United States; Florida	CNC
Blastobasis floridella	BOLD:AAB1097	CNCLEP00027269	MNAA773-07	KF808812			United States; Tennessee	CNC
Blastobasis floridella	BOLD:AAB1097	CNCLEP00027426	MNAA917-07	KF808833			United States; Tennessee	CNC
Blastobasis floridella	BOLD:AAB1097	DNA-ATBI-3002	LGSMD082-05	KF808860			United States; Tennessee	CNC
Blastobasis floridella	BOLD:AAB1097	DNA-ATBI-3344	LGSMD570-05	KF808614			United States; Tennessee	CNC
Blastobasis floridella	BOLD:AAB1097	HLC-16768	LOFLD193-07	KF808767			United States; Florida	BIOUG
Blastobasis floridella	BOLD:AAB1097	MDH006071	RDLQI839-09	KF808969			Canada; Quebec	HAND
Blastobasis floridella	BOLD:AAB1097	MDOK-4475	LPOKE397-11	KF808990			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	06-FLOR-1936	LOFLC056-06	KF808996			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00101	BBUSA101-09	GU692045			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00157	BBUSA157-09	GU691990			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00174	BBUSA174-09	GU691975			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00181	BBUSA181-09	GU691968			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00526	BBUSA526-09	GU691750			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00535	BBUSA535-09	GU691742			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00665	BBUSA665-09	HQ552915			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00669	BBUSA669-09	GU691708			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00681	BBUSA681-09	KF808530			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-00684	BBUSA684-09	GU691697			United States; Oklahoma	BIOUG

Blastobasis glandulella	BOLD:AAB1096	09BBLEP-02067	BBLSX139-09	HM427501			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-02097	BBLSX169-09	HM427531			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-02366	BBLSX438-09	HM427796			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-02489	BBLSX561-09	HM427918			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-02848	BBLSX920-09	HM428274			United States; Arizona	BIOUG
Blastobasis glandulella	BOLD:AAB1096	09BBLEP-02951	BBLSY024-09	GU690754			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00237	USLEP237-10	HQ583671			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00519	USLEP519-10	HQ985865			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00535	USLEP535-10	HQ985881			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00914	USLEP914-10	HQ986066			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00915	USLEP915-10	HQ986067			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00932	USLEP932-10	HQ986081			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00933	USLEP933-10	HQ986082			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	10BBLEP-00934	USLEP934-10	HQ986083			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-A08	BBLOB388-11	KF808967			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-B06	BBLOB398-11	KF808973			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-B07	BBLOB399-11	KF808792			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-B09	BBLOB401-11	KF808878			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-C07	BBLOB411-11	KF808873			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-D05	BBLOB421-11	KF809010			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01396-D07	BBLOB423-11	KF808549			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01419-A07	BBLOB1432-11	KF808791			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01551-F04	BBLOD082-11	KF808845			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01551-F07	BBLOD085-11	KF808925			United States; Texas	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01925-E04	BBLOE650-11	KF808915			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	BIOUG01989-D08	BBLOE1632-12	KF808662			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00025797	MNAB206-07	KF808658			United States; Florida	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027169	MNAA680-07	KF808928			United States; North Carolina	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027170	MNAA681-07	KF808889			United States; North Carolina	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027228	MNAA736-07	KF808909			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027271	MNAA775-07	KF808720			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027275	MNAA779-07	KF808468			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027284	MNAA788-07	KF808592			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027288	MNAA792-07	KF808580			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027289	MNAA793-07	KF808588			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027378	MNAA869-07	KF808642			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027398	MNAA889-07	KF808999	MIC5594	M	United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027435	MNAA926-07	KF808500			United States; Tennessee	CNC

Blastobasis glandulella	BOLD:AAB1096	CNCLEP00027899	MNAD165-07	KF808926			United States; New Mexico	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00040596	MNAF611-08	KF808525			Canada; Manitoba	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00040597	MNAF612-08	KF808520			Canada; Manitoba	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00040965	MNAF980-08	KF808601			Canada; Manitoba	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00040966	MNAF981-08	KF809029			Canada; Manitoba	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00042322	MNAI039-09	GU693258			United States; Maryland	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00042323	MNAI040-09	GU693251			United States; Maryland	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00077947	MNAL749-10	HQ965380			United States; Virginia	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00077948	MNAL750-10	HQ965381			United States; Virginia	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00091723	MNAP122-12	KF808825	MIC6604	F	Croatia; Primorje-Gorski Kotar	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00091724	MNAP123-12	KF808625			Italy; Piedmont	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00091725	MNAP124-12	KF808529			Italy; Piedmont	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00091726	MNAP125-12	KF808992			Italy; Piedmont	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00091727	MNAP126-12	KF808683			Italy; Piedmont	CNC
Blastobasis glandulella	BOLD:AAB1096	CNCLEP00091728	MNAP127-12	KF808902	MIC6603	M	Italy; Piedmont	CNC
Blastobasis glandulella	BOLD:AAB1096	DNA-ATBI-3538	LGSMD522-05	KF808624			United States; Tennessee	CNC
Blastobasis glandulella	BOLD:AAB1096	HLC-16866	LOFLD291-07	KF808607			United States; Florida	BIOUG
Blastobasis glandulella	BOLD:AAB1096	IAWAZ-0550	IAWL710-09	KF808843			United States; Texas	WATK
Blastobasis glandulella	BOLD:AAB1096	jflandry0988	MECB044-04	KF808977			Canada; Quebec	CNC
Blastobasis glandulella	BOLD:AAB1096	jflandry1054	MECB110-04	KF808949	MIC5008	F	Canada; Quebec	CNC
Blastobasis glandulella	BOLD:AAB1096	jflandry1055	MECB111-04	KF808865			Canada; Quebec	CNC
Blastobasis glandulella	BOLD:AAB1096	jflandry1056	MECB112-04	KF808667			Canada; Quebec	CNC
Blastobasis glandulella	BOLD:AAB1096	jflandry1057	MECB113-04	KF808870			Canada; Quebec	CNC
Blastobasis glandulella	BOLD:AAB1096	MDOK-0013	LPOKA013-08	KF808595			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0081	LPOKA081-08	KF808827			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0305	LPOKA305-08	KF808856			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0336	LPOKA336-08	KF808794			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0707	LPOKA707-09	GU800002			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0749	LPOKA749-09	GU799962			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0807	LPOKA807-09	GU799918			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-0876	LPOKB024-09	GU800700			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-1542	LPOKB500-09	GU800343			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-1546	LPOKB504-09	GU800339			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-1782	LPOKB740-09	GU800889			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-2126	LPOKC049-09	GU801634			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-2224	LPOKC147-09	GU800959			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-2272	LPOKC195-09	GU801198			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-2308	LPOKC231-09	GU801199			United States; Oklahoma	BIOUG

Blastobasis glandulella	BOLD:AAB1096	MDOK-2656	LPOKC579-09	GU801156			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	MDOK-3842	LPOKD763-10	HQ572809			United States; Oklahoma	BIOUG
Blastobasis glandulella	BOLD:AAB1096	TLMF Lep 02113	PHLAC078-10	JF859699			Italy; South Tyrol	TLMF
Blastobasis glandulella	BOLD:AAB1096	TLMF Lep 02114	PHLAC079-10	JF859700			Italy; South Tyrol	TLMF
Blastobasis glandulella	BOLD:AAB1096	TLMF Lep 02256	PHLAC221-10	JF859831			Italy; South Tyrol	TLMF
Blastobasis glandulella	BOLD:AAB1096	TLMF Lep 02263	PHLAC228-10	JF859838			Italy; South Tyrol	TLMF
Blastobasis glandulella	BOLD:AAB1096	TLMF Lep 04345	PHLAE125-11	JN263336			Italy; Piedmont	TLMF
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056060	MNAG549-08	KF808823	SLIDE 5646	M	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056061	MNAG550-08	KF808677	SLIDE 5647	M	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056062	MNAG551-08	KF808467	SLIDE 6066	M	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056063	MNAG552-08	KF808570	SLIDE 6067	M	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056064	MNAG553-08	KF808544			United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056066	MNAG555-08	KF808697	SLIDE 5648	F	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056067	MNAG556-08	KF808837	SLIDE 5649	F	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056068	MNAG557-08	KF808579	SLIDE 6068	M	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056069	MNAG558-08	KF808591	SLIDE 6069	F	United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056070	MNAG559-08	KF809019			United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056071	MNAG560-08	KF808913			United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056072	MNAG561-08	KF808940			United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	CNCLEP00056073	MNAG562-08	KF808876			United States; California	USNM
Blastobasis maroccanella	BOLD:AAC4091	TLMF Lep 04773	PHLPM078-11	KF809027			Portugal; Madeira	TLMF
Blastobasis maroccanella	BOLD:AAC4091	TLMF Lep 04783	PHLPM088-11	KF808829			Portugal; Madeira	TLMF
Blastobasis sp nr tarda	BOLD:AAA9854	05-NSW-00707	LNSWA707-05				Australia; New South Wales	NSWPI
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-0670	NSWHH670-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1064	NSWHI064-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1190	NSWHI190-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1200	NSWHI200-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1290	NSWHI290-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1332	NSWHI332-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1335	NSWHI335-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1368	NSWHI368-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1369	NSWHI369-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1373	NSWHI373-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-NSWHH-1374	NSWHI374-09				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	08-QLDLI-082	LOLI082-08				Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1032	NSWHK020-10	HM888704			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1033	NSWHK021-10	HM888705			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1068	NSWHK056-10	HM888739			Australia; New South Wales	BIO

Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1108	NSWHK096-10	HM888775			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1176	NSWHK164-10	HM888837			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1232	NSWHK220-10	HM888889			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1569	NSWHK557-10	HM888940			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1616	NSWHK604-10	HM888983			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1617	NSWHK605-10	HM888984			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-1633	NSWHK621-10	HM888999			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-2005	LHHMT114-10	HQ987754			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-2030	LHHMT139-10	HQ987776			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-2044	LHHMT153-10	HQ987789			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-2052	LHHMT161-10	HQ987796			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	09-NSWHH-2078	LHHMT187-10	HQ987821			Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG00954-C12	NSWHM890-11				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG00960-B06	NSWHM2012-11				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG00960-B10	NSWHM2016-11				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG00987-H04	NSWHN1129-11				Australia; New South Wales	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG01025-C11	PHLCB130-11				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG01152-F12	PHLCC167-11				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG02109-F02	PHLCD1508-12				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG02152-A11	PHLCC1341-12				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG02152-A12	PHLCC1342-12				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG02152-B07	PHLCC1349-12				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG02152-E11	PHLCC1389-12				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	BIOUG02247-E06	PHLCD3124-12				Australia; Australian Capital Territory	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc14530-1L	LOQTE935-10	JF857060			Australia; Queensland	AMS
Blastobasis sp nr tarda	BOLD:AAA9854	gvc5498b	LOQTF049-10	HM879517			Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc5499c	LOQTF053-10	HM879521			Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc5630d	LOQTF194-10	HM879651			Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc5719-1L	LOQTF247-10	HM879699			Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc7364	LOQTF607-10	HM890027			Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc7364-1L	LOQTB671-07				Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc7365-1L	LOQTB672-07				Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	gvc7371-1L	LOQTB678-07				Australia; Queensland	BIO
Blastobasis sp nr tarda	BOLD:AAA9854	IM08-0068	IMLR234-08				Australia; Queensland	BIO
Blastobasis tarda	BOLD:AAJ8258	CNCLEP00077992	MNAL794-10	HQ965413	MIC5831	M	United States; California	CNC
Blastobasis tarda	BOLD:AAJ8258	CNCLEP00077993	MNAL795-10	HQ965414	MIC5832	F	United States; California	CNC
Blastobasis tarda	BOLD:AAJ8258	TLMF Lep 06879	PHLAG485-12	KF808954			France; Provence-Alpes-Cote d'Azur	TLMF
Blastobasis tarda	BOLD:AAJ8258	TLMF Lep 06881	PHLAG487-12	KF808849			France; Provence-Alpes-Cote d'Azur	TLMF

Blastobasis tarda	BOLD:AAJ8258	USNMENT00656131	MNAL844-10	HQ965439	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656132	MNAL845-10	HQ965440	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656133	MNAL846-10	HQ965441	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656134	MNAL847-10	HQ965442	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656135	MNAL848-10	HQ965443	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656136	MNAL849-10	HQ965444	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656137	MNAL850-10	HQ965445	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656138	MNAL851-10	HQ965446	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656139	MNAL852-10	HQ965447	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656140	MNAL853-10	HQ965448	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656141	MNAL854-10	KF808944	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656142	MNAL855-10	HQ965449	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656143	MNAL856-10	HQ965450	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656144	MNAL857-10	HQ965451	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656145	MNAL858-10	HQ965452	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656146	MNAL859-10	HQ965453	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656147	MNAL860-10	HQ965454	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656148	MNAL861-10	HQ965455	United States; California	USNM
Blastobasis tarda	BOLD:AAJ8258	USNMENT00656149	MNAL862-10	HQ965456	United States; California	USNM
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00486	BBUSA486-09	GU691783	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00497	BBUSA497-09	GU691778	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00523	BBUSA523-09	GU691755	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00574	BBUSA574-09	HQ552827	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00643	BBUSA643-09	HQ552893	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00692	BBUSA692-09	GU691689	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00702	BBUSA702-09	GU691682	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-00716	BBUSA716-09	GU691664	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-02267	BBLSX339-09	HM427699	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	09BBLEP-02486	BBLSX558-09	HM427915	United States; Oklahoma	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01903-C02	BBLOE229-11	KF808700	United States; Texas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01903-C04	BBLOE231-11	KF808879	United States; Texas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01903-E11	BBLOE262-11	KF808576	United States; Texas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01903-H08	BBLOE295-11	KF808919	United States; Texas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01922-H01	BBLOE588-11	KF808875	United States; Texas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01922-H05	BBLOE592-11	KF808815	United States; Texas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01927-F10	BBLOE963-12	KF808620	United States; Florida	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01928-B05	BBLOE720-12	KF808505	United States; Florida	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01928-B07	BBLOE722-12	KF808861	United States; Florida	BIOUG

Blastobasis taurusella	BOLD:AAA7928	BIOUG01928-B12	BBLOE727-12	KF808970			United States; Florida	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01928-C03	BBLOE730-12	KF808596			United States; Florida	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01934-A01	BBLOE799-12	KF808511			United States; Arkansas	BIOUG
Blastobasis taurusella	BOLD:AAA7928	BIOUG01947-F09	BBLOE1057-12	KF808987			United States; Florida	BIOUG
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025525	MNAA252-07	KF808759			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025526	MNAA253-07	KF808705			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025569	MNAA295-07	KF808953	MIC5566	M	United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025571	MNAA297-07	KF809028			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025577	MNAA303-07	KF808513			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025583	MNAA309-07	KF808560			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025589	MNAA315-07	KF808741			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025870	MNAB279-07	KF808724			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025878	MNAB287-07	KF808486			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00025912	MNAB316-07	KF808955			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00026076	MNAC122-07	KF808581			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00026169	MNAC203-07	KF808821			United States; Florida	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00026930	MNAC503-07	KF808824			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00026939	MNAC512-07	KF808682			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00026987	MNAC547-07	KF808602			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00026995	MNAC553-07	KF808997			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00027079	MNAC637-07	KF808744			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00027081	MNAC639-07	KF808504			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00027139	MNAC689-07	KF808506	MIC5582	M	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042324	MNAI041-09	GU693252			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042327	MNAI044-09	GU693247			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042328	MNAI045-09	GU693248			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042329	MNAI046-09	GU693249			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042330	MNAI047-09	GU693250			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042331	MNAI048-09	GU693243			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042387	MNAI104-09	GU693189			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042389	MNAI106-09	GU693191			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042391	MNAI108-09	GU693185			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042393	MNAI110-09	GU693187			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042457	MNAI174-09	GU693131			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042471	MNAI188-09	GU693115			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042475	MNAI192-09	GU693110			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042476	MNAI193-09	GU693111			United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042477	MNAI194-09	GU693112			United States; Maryland	CNC

Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042515	MNAI232-09	GU693072	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042517	MNAI234-09	GU693074	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042518	MNAI235-09	GU693075	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042519	MNAI236-09	GU693068	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042566	MNAI283-09	GU693026	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042568	MNAI285-09	GU693028	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042569	MNAI286-09	GU693021	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042585	MNAI302-09	GU693006	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042586	MNAI303-09	GU693007	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042587	MNAI304-09	GU693008	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042637	MNAI354-09	GU692954	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042651	MNAI368-09	GU692944	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042652	MNAI369-09	GU692945	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042653	MNAI370-09	GU692938	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042655	MNAI372-09	GU692940	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042657	MNAI374-09	GU692934	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042658	MNAI375-09	GU692935	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042659	MNAI376-09	GU692936	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042716	MNAI433-09	GU692882	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042717	MNAI434-09	GU692875	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042738	MNAI455-09	GU692859	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042754	MNAI471-09	GU692845	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042755	MNAI472-09	GU692846	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	CNCLEP00042756	MNAI473-09	GU692847	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	DNA-ATBI-3341	LGSMD567-05	KF808905	United States; Tennessee	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1300	MECB337-05	KF808693	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1301	MECB338-05	KF808745	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1302	MECB339-05	KF808638	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1303	MECB340-05	KF809009	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1305	MECB342-05	KF808656	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1306	MECB343-05	KF808684	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry1308	MECB345-05	KF808927	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry2573	MECD001-06	KF808920	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry2574	MECD002-06	KF808847	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry2575	MECD003-06	KF808939	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry2576	MECD004-06	KF808514	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	jflandry2577	MECD005-06	KF808961	United States; Maryland	CNC
Blastobasis taurusella	BOLD:AAA7928	MDOK-2199	LPOKC122-09	GU800983	United States; Oklahoma	BIOUG

Blastobasis taurusella	BOLD:AAA7928	MDOK-3964	LPOKD885-10	HQ989631			United States; Oklahoma	BIOUG
Caloptilia roscipennella	BOLD:AAK1713	ALrosci1	LNOUC1115-11	KF808540			Czech Republic; South Moravian	LAST
Caloptilia roscipennella	BOLD:AAK1713	ALrosci2	LNOUC1116-11	KF809020			Czech Republic; South Moravian	LAST
Caloptilia roscipennella	BOLD:AAK1713	CLV1524	GRSLO004-10	KF808755			Austria; Tyrol	DEUT
Caloptilia roscipennella	BOLD:AAK1713	CLV1642	GRSLO122-10	JF848254			Austria; Tyrol	DEUT
Caloptilia roscipennella	BOLD:AAK1713	CLV1646	GRSLO126-10	JF848257			Austria; Tyrol	DEUT
Caloptilia roscipennella	BOLD:AAK1713	CLV1798	GRSLO278-10	KF808651			Austria; Carinthia	LMK
Caloptilia roscipennella	BOLD:AAK1713	CLV1819	GRSLO299-10	KF808765			Italy; Cuneo	LMK
Caloptilia roscipennella	BOLD:AAK1713	CLV2666	GRPAL318-11	JN271909			Austria; Upper Austria	DESC
Caloptilia roscipennella	BOLD:AAK1713	CLV2667	GRPAL319-11	JN271910			Austria; Upper Austria	DESC
Caloptilia roscipennella	BOLD:AAK1713	G07rosci	GRACI447-09	KF808789			Czech Republic; South Moravia	LAST
Caloptilia roscipennella	BOLD:AAK1713	MM20539	LEEUA480-11	KF808617		M	France; Alpes-Cote d'Azur	ZMUO
Caloptilia roscipennella	BOLD:AAK1713	STG20	TIPSY399-12	KF808978			Italy; Cuneo	LMK
Caloptilia roscipennella	BOLD:AAK1713	TLMF Lep 06554	PHLAG244-12	KF808713			Austria; Niederosterreich	BUCH
Caloptilia strictella	BOLD:AAC7830	AC005051	LQAC129-06	KF808585			Canada; Quebec	BIOUG
Caloptilia strictella	BOLD:AAC7830	CNCLEP00087244	MNAO914-11	KF808738			United States; Michigan	CNC
Caloptilia strictella	BOLD:AAC7830	jflandry0222	MEC222-04	KF808608	MIC5054	F	Canada; Quebec	CNC
Caloptilia strictella	BOLD:AAC7830	jflandry1821	MECB839-05	KF808982			Canada; Quebec	CNC
Caloptilia strictella	BOLD:AAC7830	jflandry2308	MECC288-06	KF808613			Canada; Quebec	CNC
Caloptilia strictella	BOLD:AAC7830	MDH001943	LQAC019-06	KF808699			Canada; Quebec	BIOUG
Caloptilia strictella	BOLD:AAC7830	MDH001958	LQAC022-06	KF808790			Canada; Quebec	BIOUG
Caloptilia strictella	BOLD:AAC7830	MDH002296	RDLQE293-06	KF808516			Canada; Quebec	HAND
Caloptilia strictella	BOLD:AAC7830	MDH007376	RDLQI875-09	KF808483			Canada; Quebec	HAND
Caloptilia suberinella	BOLD:AAF8460	10-JDWBC-4569	LBCH4569-10	HM866536	MIC6609	F	Canada; British Columbia	CNC
Caloptilia suberinella	BOLD:AAF8460	MM00442	LEFIA040-10	HM396389			Finland; Southern Finland	ZMUO
Caloptilia suberinella	BOLD:AAF8460	MM00445	LEFIA043-10	HM396392			Finland; Eastern Finland	ZMUO
Caloptilia suberinella	BOLD:AAF8460	MM00491	LEFIB127-10	HM871033			Finland; Northern Ostrobothnia	ZMUO
Caloptilia suberinella		USNMENT00657745				F	Norway; Aurland	USNM
Caloptilia suberinella		USNMENT00657775					United States; Virginia	USNM
Carpatolechia aenigma	BOLD:AAV7729	TLMF Lep 04294	PHLAE074-11	JN271065			Italy; Piedmont	TLMF
Carpatolechia aenigma	BOLD:AAV7729	TLMF Lep 04295	PHLAE075-11	JN271066			Italy; Piedmont	TLMF
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00011294	MNAI013-09	KF808542			Canada; Quebec	CNC
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00011295	MNAI014-09	KF808678	JFL1271	F	Canada; Quebec	CNC
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00056223	MNAI001-09	KF808995	JFL787	M	United States; Maine	CNC
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00056224	MNAI002-09	KF808714			United States; Maine	CNC
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00056225	MNAI003-09	KF808748			United States; Maine	CNC
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00056226	MNAI004-09	KF808835			United States; Maine	CNC
Coleophora affiliatella	BOLD:AAC4668	CNCLEP00056227	MNAI005-09	KF808566	BL674	M	Canada; Ontario	CNC

Coleophora affiliatella	BOLD:AAC4668	CNCLEP00056228	MNAI006-09	KF808600	BL657	M	Canada; Ontario	CNC
Coleophora argentula	BOLD:AAI5953	MM09517	LEFIE604-10	HM874327			Finland; Aland Islands	ZMUO
Coleophora argentula	BOLD:AAI5953	MM10174	LEFIE894-10	HM874612			Finland; Lapland	ZMUO
Coleophora argentula	BOLD:AAI5953	MM10330	LEFIE941-10	HM874658			Finland; Lapland	ZMUO
Coleophora argentula	BOLD:AAI5953	MM10332	LEFIE943-10	HM874660			Finland; Lapland	ZMUO
Coleophora argentula	BOLD:AAI5953	MM15597	LEFIG733-10	HM876389			Finland; Southern Ostrobothnia	ZMUO
Coleophora argentula	BOLD:AAI5953	MM21181	LEFIJ1321-11	KF808470			Finland; Uusimaa	ZMUO
Coleophora argentula	BOLD:AAI5953	TLMF Lep 06287	DEEUR262-11	KF808766			Austria; Niederosterreich	BUCH
Coleophora argentula	BOLD:AAI5953	TLMF Lep 06300	DEEUR275-11	KF808750			Austria; Niederosterreich	BUCH
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00002510	LNAEN228-06	KF808495			Canada; Alberta	CNC
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00003140	MNAH049-08	KF808880			Canada; Alberta	CNC
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00003149	MNAH058-08	KF808711	MIC6210	M	Canada; Alberta	CNC
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00018029	MNAH297-08	KF808491	MIC6209	F	Canada; British Columbia	CNC
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00018030	MNAH298-08	KF808597	Col.9125-10	M	Canada; Nova Scotia	NSM
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00019865	TYPEA026-08		MIC1659	F	Canada; Nova Scotia	CNC
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00043611	MNAB528-10	KF808524	MIC6208	F	Canada; Alberta	CNC
Coleophora atriplicis	BOLD:AAD7734	CNCLEP00060366	MNAH995-09	KF808963			Canada; Alberta	CNC
Coleophora atriplicis	BOLD:AAD7734	MM06579	LEFIJ398-10	JF853584			Finland; Northern Ostrobothnia	ZMUO
Coleophora atriplicis	BOLD:AAD7734	MM15584	LEFIG720-10	HM876376			Finland; Uusimaa	ZMUO
Coleophora atriplicis	BOLD:AAD7734	MM18181	LEFIK606-10	JF854184			Finland; Northern Ostrobothnia	ZMUO
Coleophora atriplicis	BOLD:AAD7734	MM18817	LEFIL519-10	JF854633			Finland; Northern Ostrobothnia	ZMUO
Coleophora atriplicis		CNCLEP00043727			MIC6216	M	Denmark	CNC
Coleophora atriplicis		CNCLEP00043728			MIC6217	F	Denmark	CNC
Coleophora atriplicis		USNMENT00657780					Canada; Quebec	USNM
Coleophora atriplicis		USNMENT00657781				F	Germany	USNM
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00028912	MNAB917-11	KF808786			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00028913	MNAB918-11	KF808561	MIC6772	F	Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00028915	MNAB920-11	KF808496			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00028933	MNAB932-11	KF808934			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00028941	MNAB940-11	KF808931			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00028998	MNAB978-11	JN265441			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00029003	MNAB983-11	JN265446			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00029004	MNAB984-11	JN265447	MIC6611	F	Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00029007	MNAB987-11	JN265450			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00029016	MNAB998-11	JN265460			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00029017	MNAB999-11	JN265461	MIC6610	M	Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	CNCLEP00076838	MNAB869-11	KF808649			Canada; Yukon Territory	MZH
Coleophora glitzella	BOLD:ABZ4058	MM03171	LEFIB978-10	HM871851			Finland; Northern Ostrobothnia	ZMUO

Coleophora glitzella	BOLD:ABZ4058	MM04166	LEFIA812-10	HM386953			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM08056	LEFIE005-10	HM873754			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM08057	LEFIE006-10	HM873755			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM08058	LEFIE007-10	HM873756			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM08059	LEFIE008-10	HM873757			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM08060	LEFIE009-10	HM873758			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM13947	LEFIG131-10	HM875811			Finland; Northern Ostrobothnia	ZMUO
Coleophora glitzella	BOLD:ABZ4058	MM18822	LEFIL524-10	KF808690			Finland; Lapland	ZMUO
Coleophora glitzella	BOLD:ABZ4058	TLMF Lep 02363	PHLAC328-10	JF859916			Italy; South Tyrol	TLMF
Coleophora glitzella	BOLD:ABZ4058	TLMF Lep 06509	PHLAG199-12	KF808493			Austria; Niederosterreich	BUCH
Coleophora glitzella		CNCLEP00043801			MIC6622	F	Netherlands; Gelderland	CNC
Coleophora glitzella		CNCLEP00043802			MIC6621	M	Netherlands; Gelderland	CNC
Coleophora glitzella		CNCLEP00098325					Germany	CNC
Coleophora glitzella		CNCLEP00098326					Germany	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00002059	LNAEM218-07	KF808952			United States; Washington	WSU
Coleophora granulatella	BOLD:AAB3655	CNCLEP00003245	MNAH154-08	KF808816			United States; Colorado	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00003246	MNAH155-08	KF808986			United States; Colorado	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00004209	LNAEN546-06	KF808798			United States; Arizona	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00004280	LNAEN612-06	KF808747			United States; Wyoming	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00005030	MNAH190-08	KF808628			United States; Michigan	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00007106	LNAEM247-07	KF808480			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00011987	MNAB472-10	JF858514	MIC3725	M	United States; Colorado	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00011988	MNAB473-10	JF858515	MIC3726	M	United States; Colorado	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00026527	LNAEM440-07	KF808958			Canada; Yukon Territory	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00026529	LNAEM442-07	KF808777			Canada; Yukon Territory	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00026531	LNAEM443-07	KF808959			Canada; Yukon Territory	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00026532	LNAEM444-07	KF808718			Canada; Yukon Territory	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00026757	LNAEM479-07	KF808499			Canada; Yukon Territory	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00028213	LNAEM761-07	KF808548			United States; Colorado	USNM
Coleophora granulatella	BOLD:AAB3655	CNCLEP00028961	MNAB962-11	JN265430	BL858	M	Canada; Yukon Territory	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00028962	MNAB963-11	JN265431	BL861	F	Canada; Yukon Territory	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00028965	MNAB966-11	JN265434	BL867	F	Canada; Yukon Territory	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00028979	MNAE313-11	JN265545			United States; Colorado	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029014	MNAB996-11	JN265458			Canada; Yukon Territory	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029059	MNAE361-11	JN265585			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029061	MNAE363-11	KF808966			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029069	MNAE371-11	JN265593			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029070	MNAE372-11	JN265594			Canada; Ontario	MZH

Coleophora granulatella	BOLD:AAB3655	CNCLEP00029071	MNAE373-11	JN265595			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029072	MNAE374-11	JN265596			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029073	MNAE375-11	JN265597			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029075	MNAE377-11	JN265599			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029076	MNAE378-11	JN265600			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029077	MNAE379-11	JN265601			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029078	MNAE380-11	JN265602			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029079	MNAE381-11	JN265603			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00029092	MNAE394-11	JN265612			Canada; Ontario	MZH
Coleophora granulatella	BOLD:AAB3655	CNCLEP00043806	MPEA483-08	KF809013	MIC2488	F	Denmark; Frederiksborg	CNC
Coleophora granulatella	BOLD:AAB3655	CNCLEP00046745	MNAB585-10	JF858582	BL822	M	United States; Colorado	CNC
Coleophora granulatella	BOLD:AAB3655	JD7768	MNAO740-11	KF808652			Canada; British Columbia	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1562	MECB503-05	KF808803			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1563	MECB504-05	KF808923			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1568	MECB509-05	KF808853	MIC5226	F	Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1569	MECB510-05	KF808487	MIC5225	M	Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1570	MECB511-05	KF808689			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1572	MECB513-05	KF808799			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1574	MECB515-05	KF808805			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1575	MECB516-05	KF808895			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1633	MECB574-05	KF808922			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1637	MECB578-05	KF808545			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	jflandry1638	MECB579-05	KF808828			Canada; Alberta	CNC
Coleophora granulatella	BOLD:AAB3655	MM16421	ELACA031-10	JF847316			Russia; Astrakhan	ZMUO
Coleophora granulatella	BOLD:AAB3655	MM16422	ELACA032-10	JF847317			Russia; Astrakhan	ZMUO
Coleophora granulatella	BOLD:AAB3655	MM16423	ELACA033-10	JF847318			Russia; Volgograd	ZMUO
Coleophora granulatella	BOLD:AAB3655	MM16426	ELACA036-10	JF847321			Russia; Orenburg	ZMUO
Coleophora granulatella	BOLD:AAB3655	MM16484	ELACA094-10	JF847347			Russia; Astrakhan	ZMUO
Coleophora granulatella	BOLD:AAB3655	MM16492	ELACA197-10	JF847375			Russia; Volgograd	ZMUO
Coleophora granulatella	BOLD:AAB3655	TLMF Lep 06623	PHLAH123-12	KF808680			Austria; Niederosterreich	BUCH
Coleophora granulatella		CNCLEP00043805	MPEA482-08				Denmark; Storstrom	CNC
Coleophora granulatella		CNCLEP00098333			MIC6620	M	Denmark	CNC
Coleophora JFL075	BOLD:AAF4208	CNCLEP00004182	LNAEN520-06	KF808921			United States; Arizona	CNC
Coleophora JFL075	BOLD:AAF4208	CNCLEP00004183	LNAEN521-06	KF808871			United States; Arizona	CNC
Coleophora JFL075	BOLD:AAF4208	CNCLEP00004244	LNAEN576-06	KF808802			United States; Arizona	CNC
Coleophora JFL076	BOLD:ABA2602	CNCLEP00004218	LNAEN552-06	KF808707			United States; Arizona	CNC
Coleophora JFL076	BOLD:ABA2602	CNCLEP00082014	MNAO1099-11	KF808478			United States; Washington	CNC

Coleophora mcdunnoughiella	BOLD:AAB8358	1209626n7Jul1998	EHL631-12	KF808584		United States; Washington	WSDA
Coleophora mcdunnoughiella	BOLD:AAB8358	AC005012	LQAC146-06	KF808598		Canada; Quebec	BIOUG
Coleophora mcdunnoughiella	BOLD:AAB8358	BIRD21549	MNAF027-08	KF808848		Canada; Alberta	BIRD
Coleophora mcdunnoughiella	BOLD:AAB8358	BIRD21551	MNAF029-08	KF808616		Canada; Alberta	BIRD
Coleophora mcdunnoughiella	BOLD:AAB8358	CNCLEP00028334	LNAEM881-07	KF808575		Canada; Alberta	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	CNCLEP00029120	MNAE423-11	JN265636		United States; California	MZH
Coleophora mcdunnoughiella	BOLD:AAB8358	CNCLEP00029842	MNAB498-10	KF808728		Canada; Nova Scotia	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	CNCLEP00035878	MNAL522-10	HQ965183		Canada; Ontario	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry1284	MECB321-05	GU096329		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2015	MECB984-05	GU096330		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2397	MECC377-06	KF808605		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2398	MECC378-06	KF808685		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2399	MECC379-06	KF809015		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2400	MECC380-06	KF808801		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2401	MECC381-06	KF808830		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2402	MECC382-06	KF808968		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2403	MECC383-06	KF808760		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2404	MECC384-06	KF808559		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2405	MECC385-06	KF808521		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2406	MECC386-06	KF808864		Canada; Quebec	CNC
Coleophora mcdunnoughiella	BOLD:AAB8358	jflandry2407	MECC387-06	KF808800		Canada; Quebec	CNC
Coleophora murinella	BOLD:AAE1221	CNCLEP00024992	LNAEM138-07	KF808730		Finland; Paijanne Tavastia	CNC
Coleophora murinella	BOLD:AAE1221	MM02490	LEFIB690-10	HM871568		Finland; South Karelia	ZMUO
Coleophora murinella	BOLD:AAE1221	MM02491	LEFIB691-10	HM871569		Finland; South Karelia	ZMUO
Coleophora murinella	BOLD:AAE1221	MM03269	LEFIC038-10	HM871908		Finland; Northern Ostrobothnia	ZMUO
Coleophora murinella	BOLD:AAE1221	MM03270	LEFIC039-10	HM871909		Finland; Northern Ostrobothnia	ZMUO
Coleophora murinella	BOLD:AAE1221	MM18811	LEFIL513-10	JF854630		Finland; Lapland	ZMUO
Coleophora murinella	BOLD:AAE1221	MM18820	LEFIL522-10	JF854636	Mutanen 871	Finland; Northern Ostrobothnia	ZMUO

Coleophora murinella	BOLD:AAE1221	MM19877	LEEUA469-11	KF808643			Finland; Ostrobothnia	ZMUO
Coleophora saxicolella	BOLD:AAD3945	CNCLEP00033974	MPEA300-08	KF808593	MIC5514	F	Sweden; Gotland	CNC
Coleophora saxicolella	BOLD:AAD3945	CNCLEP00033975	MPEA301-08	KF808703	MIC5515	F	Sweden; Bohuslan	CNC
Coleophora saxicolella	BOLD:AAD3945	CNCLEP00033976	MPEA302-08	KF808886	MIC5518	F	Sweden; Skane	CNC
Coleophora saxicolella	BOLD:AAD3945	CNCLEP00056407	MPEA877-09	GU694119	Palmqvist 2179		Sweden; Sodermanland	CNC
Coleophora saxicolella	BOLD:AAD3945	CNCLEP00056408	MPEA878-09	GU694120	Palmqvist 2363		Sweden; Gotland	CNC
Coleophora saxicolella	BOLD:AAD3945	MM02505	LEFIB702-10	HM871580			Finland; South Karelia	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM02508	LEFIB705-10	HM871583			Finland; South Karelia	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM03486	LEFIC141-10	HM871987			Finland; Kymenlaakso	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM03632	LEFIC232-10	HM872076			Finland; Uusimaa	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM12033	LEFIF481-10	HM875166			Finland; Uusimaa	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM12036	LEFIF484-10	HM875169			Finland; Uusimaa	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM12037	LEFIF485-10	HM875170			Finland; Uusimaa	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM13663	LEFIG042-10	HM875721			Finland; Western Finland	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM13664	LEFIG043-10	HM875722			Finland; Western Finland	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM16719	ELACA493-10	KF808863			Finland; Finland Proper	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM16722	ELACA496-10	KF808723	BW 4575/-97		Finland; Finland Proper	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM16724	ELACA498-10	KF808793	BW 4574/-97		Finland; Finland Proper	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM16725	ELACA499-10	KF808858	BW 4577/-97		Finland; Finland Proper	ZMUO
Coleophora saxicolella	BOLD:AAD3945	MM18182	LEFIK607-10	JF854185			Finland; Uusimaa	ZMUO
Coleophora saxicolella	BOLD:AAD3945	TLMF Lep 06294	DEEUR269-11	KF808532			Austria; Niederosterreich	BUCH
Coleophora saxicolella	BOLD:AAD3945	UKLB29B06	CGUKC651-09	KF808599			United Kingdom; England	BMNH
Coleophora sternipennella	BOLD:AAE9649	MM02504	LEFIB701-10	HM871579			Finland; South Karelia	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM02509	LEFIB706-10	HM871584			Finland; South Karelia	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM03176	LEFIB983-10	HM871855			Finland; Northern Ostrobothnia	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM03235	LEFIC023-10	HM871893			Finland; Northern Ostrobothnia	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM06829	LEFID764-10	HM873521			Finland; Aland Islands	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM09519	LEFIE605-10	HM874328			Finland; Aland Islands	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM09520	LEFIE606-10	HM874329			Finland; Aland Islands	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM10059	LEFIE840-10	HM874559			Finland; Lapland	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM13680	LEFIG059-10	HM875738			Finland; Western Finland	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM16715	ELACA489-10	KF808622	BW 4884/ 2001		Finland; Uusimaa	ZMUO
Coleophora sternipennella	BOLD:AAE9649	MM16717	ELACA491-10	KF808900			Finland; Finland Proper	ZMUO
Coleophora texanella	BOLD:AAB7072	BIOUG01949-C04	BBLOE1111-12	KF808788			United States; California	BIOUG
Coleophora texanella	BOLD:AAB7072	CNCLEP00001318	LNAEM238-07	KF808539			United States; California	UCMS
Coleophora texanella	BOLD:AAB7072	CNCLEP00001319	LNAEM239-07	KF808763			United States; California	UCMS
Coleophora texanella	BOLD:AAB7072	CNCLEP00001320	LNAEM240-07	KF808881			United States; California	UCMS
Coleophora texanella	BOLD:AAB7072	CNCLEP00004015	MNAH173-08	KF808888			United States; Florida	CNC

Coleophora texanella	BOLD:AAB7072	CNCLEP00004237	LNAEN569-06	KF808572			United States; Kansas	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00024974	LNAEM120-07	KF808527	BW803	M	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024975	LNAEM121-07	KF809021	BW802	F	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024976	LNAEM122-07	KF808473			United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024977	LNAEM123-07	KF808676			United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024978	LNAEM124-07	KF808623			United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024979	LNAEM125-07	KF808851			United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024980	LNAEM126-07	KF808892			United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024981	LNAEM127-07	KF808962	BL839	M	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024982	LNAEM128-07	KF808661	BL840	F	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024983	LNAEM129-07	KF808668	BL843	M	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024984	LNAEM130-07	KF808769	BL844	F	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00024985	LNAEM131-07	KF808567	BL845	M	United States; California	WAGN
Coleophora texanella	BOLD:AAB7072	CNCLEP00025913	MNAB317-07	KF808772	MIC5597	F	United States; Florida	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00028966	MNAB967-11	JN265435			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028967	MNAB968-11	KF808692			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028968	MNAB969-11	JN265436			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028969	MNAB970-11	KF809007			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028970	MNAB971-11	JN265437			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028972	MNAB973-11	KF808787			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028973	MNAB974-11	JN265438			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00028974	MNAB975-11	KF808710			United States; Florida	MZH
Coleophora texanella	BOLD:AAB7072	CNCLEP00042478	MNAI195-09	GU693113	MIC6194	F	United States; Maryland	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00043589	MNAB505-10	JF858536	MIC3705	M	Mexico; Baja California	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00056140	MNAB626-10	KF808498	WF4101	M	United States; Michigan	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00068767	MNAK371-10	HM887921	MIC6214	M	France; Provence-Alpes-Cote d'Azur	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00068768	MNAK372-10	HM887922	MIC6215	F	France; Provence-Alpes-Cote d'Azur	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00076373	MNAK533-10	HQ964598			United States; Indiana	CNC
Coleophora texanella	BOLD:AAB7072	CNCLEP00076684	MNAD928-11	JN265512			Italy; Gorizia	BLDZ
Coleophora texanella	BOLD:AAB7072	MM21630	ELACA2076-12	KF808522			Greece; Crete	TABE
Coleophora texanella		CNCLEP00097939			MIC3582	M	United States; Ohio	CNC
Coleophora texanella		CNCLEP00098334					United States; California	CNC
Coleophora texanella		CNCLEP00098335					United States; California	CNC
Coleophora texanella		CNCLEP00098336					United States; California	CNC
Coleophora texanella		CNCLEP00098337					United States; California	CNC
Coleophora texanella		CNCLEP00098338					United States; California	CNC
Coleophora texanella		CNCLEP00098339					United States; California	CNC
Coleophora texanella		CNCLEP00098340					United States; California	CNC

Coleophora texanella	CNCLEP00098341				United States; California	CNC
Coleophora texanella	CNCLEP00098342				United States; California	CNC
Coleophora texanella	CNCLEP00098343				United States; California	CNC
Coleophora texanella	CNCLEP00098344				United States; California	CNC
Coleophora texanella	CNCLEP00098345				United States; California	CNC
Coleophora texanella	CNCLEP00098346				United States; California	CNC
Coleophora texanella	CNCLEP00098347				United States; California	CNC
Coleophora texanella	CNCLEP00098348				United States; California	CNC
Coleophora texanella	CNCLEP00098349				United States; California	CNC
Coleophora texanella	CNCLEP00098350		BW933	M	United States; California	CNC
Coleophora texanella	CNCLEP00098351				United States; California	CNC
Coleophora texanella	CNCLEP00098352				United States; California	CNC
Coleophora texanella	CNCLEP00098353				United States; California	CNC
Coleophora texanella	CNCLEP00098354				United States; California	CNC
Coleophora texanella	CNCLEP00098355				United States; California	CNC
Coleophora texanella	CNCLEP00098356				United States; California	CNC
Coleophora texanella	CNCLEP00098357				United States; California	CNC
Coleophora texanella	CNCLEP00098358				United States; California	CNC
Coleophora texanella	CNCLEP00098359				United States; California	CNC
Coleophora texanella	CNCLEP00098360		DK5539	M	United States; California	CNC
Coleophora texanella	CNCLEP00098361				United States; California	CNC
Coleophora texanella	CNCLEP00098362				United States; California	CNC
Coleophora texanella	CNCLEP00098363				United States; California	CNC
Coleophora texanella	CNCLEP00098364				United States; California	CNC
Coleophora texanella	CNCLEP00098365				United States; California	CNC
Coleophora texanella	CNCLEP00098366				United States; California	CNC
Coleophora texanella	CNCLEP00098367		BW932	M	United States; California	CNC
Coleophora texanella	CNCLEP00098368		BW954	F	United States; California	CNC
Coleophora texanella	CNCLEP00098369		JFGC9648	M	United States; California	CNC
Coleophora texanella	CNCLEP00098370		BW686	M	United States; Florida	CNC
Coleophora texanella	CNCLEP00098371		BW685	F	United States; Florida	CNC
Coleophora texanella	CNCLEP00098372				United States; Florida	CNC
Coleophora texanella	CNCLEP00098373				United States; Florida	CNC
Coleophora texanella	CNCLEP00098374				United States; Florida	CNC
Coleophora texanella	CNCLEP00098375				United States; Florida	CNC
Coleophora texanella	CNCLEP00098376				United States; Florida	CNC
Coleophora texanella	CNCLEP00098377				United States; Florida	CNC
Coleophora texanella	CNCLEP00098378				United States; Florida	CNC

Coleophora texanella	CNCLEP00098379			United States; Florida	CNC
Coleophora texanella	CNCLEP00098380			United States; Florida	CNC
Coleophora texanella	CNCLEP00098381			United States; Florida	CNC
Coleophora texanella	CNCLEP00098382			United States; Florida	CNC
Coleophora texanella	CNCLEP00098383			United States; Florida	CNC
Coleophora texanella	CNCLEP00098384			United States; Florida	CNC
Coleophora texanella	CNCLEP00098385	BW963	M	United States; Florida	CNC
Coleophora texanella	CNCLEP00098386			United States; Florida	CNC
Coleophora texanella	CNCLEP00098387			United States; Florida	CNC
Coleophora texanella	CNCLEP00098388			United States; Florida	CNC
Coleophora texanella	CNCLEP00098389			United States; Florida	CNC
Coleophora texanella	CNCLEP00098390			United States; Florida	CNC
Coleophora texanella	CNCLEP00098391			United States; Florida	CNC
Coleophora texanella	CNCLEP00098392			United States; Florida	CNC
Coleophora texanella	CNCLEP00098393			United States; Florida	CNC
Coleophora texanella	CNCLEP00098394			United States; Florida	CNC
Coleophora texanella	CNCLEP00098395	BW359	M	United States; Florida	CNC
Coleophora texanella	CNCLEP00098396	BW360	F	United States; Florida	CNC
Coleophora texanella	CNCLEP00098397			United States; Florida	CNC
Coleophora texanella	CNCLEP00098398			United States; Florida	CNC
Coleophora texanella	CNCLEP00098399			United States; Florida	CNC
Coleophora texanella	CNCLEP00098400	BW946	F	United States; Florida	CNC
Coleophora texanella	CNCLEP00098401	BW962	F	United States; Florida	CNC
Coleophora texanella	CNCLEP00098402			United Kingdom; Bermuda	CNC
Coleophora texanella	CNCLEP00098403			United Kingdom; Bermuda	CNC
Coleophora texanella	CNCLEP00098404	BW691	M	United Kingdom; Bermuda	CNC
Coleophora texanella	CNCLEP00098405			United Kingdom; Bermuda	CNC
Coleophora texanella	CNCLEP00098406			United Kingdom; Bermuda	CNC
Coleophora texanella	CNCLEP00098407			United Kingdom; Bermuda	CNC
Coleophora texanella	CNCLEP00098408	BW938	M	United States; Massachusetts	CNC
Coleophora texanella	CNCLEP00098409			United States; Massachusetts	CNC
Coleophora texanella	CNCLEP00098410			United States; Massachusetts	CNC
Coleophora texanella	CNCLEP00098411	BW939	M	United States; New York	CNC
Coleophora texanella	CNCLEP00098412	BW940	M	United States; New York	CNC
Coleophora texanella	CNCLEP00098413			United States; New York	CNC
Coleophora texanella	CNCLEP00098414			United States; New York	CNC
Coleophora texanella	CNCLEP00098415			United States; New York	CNC
Coleophora texanella	CNCLEP00098416	BW936	M	United States; Virginia	CNC

Coleophora texanella		USNMENT00657782					United States; North Dakota	USNM
Coleophora texanella		USNMENT00657783					United States; North Dakota	USNM
Coleophora vacciniella	BOLD:AAC8751	CNCLEP00043972	MPEA649-08	KF808916			Finland; Paijanne Tavastia	CNC
Coleophora vacciniella	BOLD:AAC8751	MM00074	LEFIA003-10	HM396353			Finland; Lapland	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM00948	LEFIB376-10	HM871275			Finland; Northern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM00949	LEFIB377-10	HM871276			Finland; Northern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM03891	LEFIC364-10	HM872207			Finland; North Karelia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM04167	LEFIA813-10	HM386954			Finland; Lapland	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM06289	LEFID378-10	HM873175		M	Finland; Lapland	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM06290	LEFID379-10	HM873176		M	Finland; Lapland	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM09320	LEFIE502-10	HM874226			Finland; Northern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM09321	LEFIE503-10	HM874227			Finland; Northern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM09322	LEFIE504-10	HM874228			Finland; Northern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM10168	LEFIJ464-10	JF853592			Finland; Northern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM14079	LEFIG198-10	HM875878			Finland; North Karelia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM14080	LEFIG199-10	HM875879			Finland; North Karelia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM14711	LEFIG563-10	HM876234			Finland; Southern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM14712	LEFIG564-10	HM876235			Finland; Southern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM14713	LEFIG565-10	HM876236			Finland; Southern Ostrobothnia	ZMUO
Coleophora vacciniella	BOLD:AAC8751	MM18165	LEFIK590-10	KF808653			Finland; Lapland	ZMUO
Coleophora vacciniella	BOLD:AAC8751	TLMF Lep 06633	PHLAH133-12	KF808882			Austria; Niederosterreich	BUCH
Coleophora vacciniivorella	BOLD:AAJ6705	CNCLEP00028024	MNAD809-07	KF808980			Canada; Quebec	CNC
Coleophora vacciniivorella	BOLD:AAJ6705	CNCLEP00032212	MNAK628-10	HQ964667			Canada; Nova Scotia	CNC
Coleophora vacciniivorella	BOLD:AAJ6705	CNCLEP00055197	MNAB608-10	KF808808	JFL 990	F	United States; Vermont	CNC
Coleophora vacciniivorella	BOLD:AAJ6705	jflandry1595	MECB536-05	GU096402			Canada; Quebec	CNC
Coleophora vacciniivorella	BOLD:AAJ6705	jflandry1596	MECB537-05	GU096401			Canada; Quebec	CNC
Coleophora vacciniivorella	BOLD:AAJ6705	jflandry1597	MECB538-05	GU096403			Canada; Quebec	CNC
Coleophora vitisella	BOLD:AAE1198	09PROBE-09428	CHLEP133-09	HM375683	MIC6155	M	Canada; Manitoba	BIOUG
Coleophora vitisella	BOLD:AAE1198	CNCLEP00026538	LNAEM446-07	KF808708	MIC6156	F	Canada; Yukon Territory	CNC
Coleophora vitisella	BOLD:AAE1198	CNCLEP00028997	MNAB977-11	JN265440			Canada; Yukon Territory	MZH
Coleophora vitisella	BOLD:AAE1198	MM13905	LEFIG112-10	HM875792			Finland; Northern Ostrobothnia	ZMUO
Coleophora vitisella	BOLD:AAE1198	MM13906	LEFIG113-10	HM875793			Finland; Northern Ostrobothnia	ZMUO
Coleophora vitisella	BOLD:AAE1198	MM13907	LEFIG114-10	HM875794			Finland; Northern Ostrobothnia	ZMUO
Coleophora vitisella	BOLD:AAE1198	MM18814	LEFIL516-10	KF808929			Finland; North Karelia	ZMUO
Coleophora vitisella	BOLD:AAE1198	UKLB42C08	CGUKD890-09	KF808819			United Kingdom; England	BMNH
Coleophora vitisella		CNCLEP00043988			MIC2043	M	Netherlands; Limburg	CNC
Coleophora vitisella		CNCLEP00043989			MIC2044	F	Netherlands; Limburg	CNC
Coleophora vitisella		CNCLEP00098327					Netherlands	CNC

Coleophora vitisella		CNCLEP00098328					Netherlands	CNC
Coleophora vitisella		CNCLEP00098329					Germany	CNC
Coleophora vitisella		CNCLEP00098330					Germany	CNC
Coleophora vitisella		CNCLEP00098331			Col.91080	M	?	CNC
Coleophora vitisella		CNCLEP00098332					England; Luton Derbyshire	CNC
Depressaria badiella	BOLD:AAF8243	MM02203	LEFIB561-10	HM871443			Finland; South Karelia	ZMUO
Depressaria badiella	BOLD:AAF8243	MM04821	LEFIC733-10	HM872554			Finland; Finland Proper	ZMUO
Depressaria badiella	BOLD:AAF8243	MM06961	LEFID841-10	HM873598		F	Finland; Northern Ostrobothnia	ZMUO
Depressaria daucella	BOLD:ABY6062	120962618Mar1999	EHL853-12	KF808565		M	United States; Washington	WSDA
Depressaria daucella	BOLD:ABY6062	CNCLEP00077878	MNAL680-10	HQ965324			Canada; British Columbia	CNC
Depressaria depressana	BOLD:AAE7397	CNCLEP00056794	MNAL583-10	HQ965238	MIC6615	M	Canada; Ontario	CNC
Depressaria depressana	BOLD:AAE7397	CNCLEP00068405	MNAK285-10	HM887836	MIC5961	F	Canada; Ontario	CNC
Depressaria depressana	BOLD:AAE7397	CNCLEP00097815	MNAN645-13	KF808469	MIC6212	M	Canada; Quebec	CNC
Depressaria depressana	BOLD:AAE7397	MM02209	LEFIB562-10	HM871444			Finland; South Karelia	ZMUO
Depressaria depressana	BOLD:AAE7397	MM02210	LEFIB563-10	HM871445			Finland; South Karelia	ZMUO
Depressaria depressana	BOLD:AAE7397	MM03497	LEFIC152-10	HM871998			Finland; Uusimaa	ZMUO
Depressaria depressana	BOLD:AAE7397	NW141-13	LEFIA1090-10	KF808477				ZMUO
Depressaria depressana		USNMENT00657804			USNM130379	M	Italy; Piemonte	USNM
Depressaria depressana		USNMENT00657805			USNM130385	F	Italy; Piemonte	USNM
Elatobia carbonella	BOLD:AAI6159	CNCLEP00067824	MNAK010-09	GU694095	MIC6795	F	Canada; British Columbia	CNC
Elatobia carbonella	BOLD:AAI6159	CNCLEP00067825	MNAK011-09	GU694096	MIC6796	M	Canada; British Columbia	CNC
Elatobia carbonella	BOLD:AAI6159	jflandry2634	MECD062-06	KF808509	MIC6793	F	Canada; Quebec	CNC
Elatobia fuliginosella	BOLD:AAK9478	MM08516	LEFIE201-10	HM873945		M	Finland	ZMUO
Elatobia fuliginosella	BOLD:AAK9478	MM18074	LEFIK499-10	KF808774			Finland	ZMUO
Elatobia montelliella	BOLD:AAG0142	08BBLEP-02891	LPAB549-08	KF808872			Canada; Alberta	BIOUG
Elatobia montelliella	BOLD:AAG0142	10BBCLP-3077	BBLPF080-10	KF808589			Canada; Alberta	BIOUG
Elatobia montelliella	BOLD:AAG0142	JD7366	MNAO669-11	KF808898	MIC6791	M	Canada; Alberta	CNC
Elatobia montelliella	BOLD:AAG0142	JD7368	MNAO670-11	KF808942	MIC6792	F	Canada; Alberta	CNC
Elatobia montelliella	BOLD:AAG0142	MM16891	TYPFN059-11				Finland	MZH
Elatobia montelliella	BOLD:AAG0142	USNMENT00656787	MNAM566-10	JN286283			United States; Utah	USNM
Gnorimoschema brachiatum	BOLD:AAC8940	146511176a15Sep2011	EHL441-12	KF808490			United States; Washington	WSDA
Gnorimoschema brachiatum	BOLD:AAC8940	CNCLEP00008544	MNAJ899-09	GU694009	MIC 6129	F	United States; Washington	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	CNCLEP00061414	MNAJ061-09	GU693342			Canada; Yukon Territory	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	CNCLEP00061415	MNAJ062-09	GU693343	MIC5925	M	Canada; Yukon Territory	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	CNCLEP00067446	MNAJ188-09	HQ964547	MIC5918	M	Canada; Saskatchewan	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	CNCLEP00067587	MNAJ350-09	GU693909			United States; Colorado	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	CNCLEP00084426	MNAO197-11	KF808757			Canada; Saskatchewan	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	MZH-LEP00000001	MNAJ820-09	KF808537			Canada; Yukon Territory	CNC

Gnorimoschema brachiatum	BOLD:AAC8940	MZH-LEP00000002	MNAJ821-09	KF808735	Hk5563	F	Canada; Yukon Territory	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	MZH-LEP00000003	MNAJ822-09	GU693449	Hk5542	F	Canada; Yukon Territory	CNC
Gnorimoschema brachiatum	BOLD:AAC8940	POHL-10-00053	MNAK089-10	HM887711			Canada; Yukon Territory	POHL
Gnorimoschema brachiatum	BOLD:AAC8940	POHL-10-00054	MNAK090-10	HM887712			Canada; Yukon Territory	POHL
Gnorimoschema epithymella	BOLD:AAE7091	MM03091	LEFIB940-10	HM871817			Finland; Northern Ostrobothnia	ZMUO
Gnorimoschema epithymella	BOLD:AAE7091	MM06043	LEFID213-10	HM873015			Finland	ZMUO
Gnorimoschema epithymella	BOLD:AAE7091	MM10325	LEFIE937-10	HM874654			Finland	ZMUO
Gnorimoschema epithymella	BOLD:AAE7091	TLMF Lep 02963	PHLAC928-10	JF860397			Austria	TLMF
Gnorimoschema epithymella	BOLD:AAE7091	TLMF Lep 02964	PHLAC929-10	JF860398			Austria	TLMF
Gnorimoschema epithymella	BOLD:AAE7091	TLMF Lep 02965	PHLAC930-10	JF860399			Austria	TLMF
Gnorimoschema jalavai	BOLD:AAI5491	CNCLEP00061422	MNAJ069-09	GU693334			Canada; Yukon Territory	CNC
Gnorimoschema jalavai	BOLD:AAI5491	CNCLEP00061423	MNAJ070-09	GU693335	MIC5930	M	Canada; Yukon Territory	CNC
Gnorimoschema jalavai	BOLD:AAI5491	MZH-LEP00000063	MNAP504-12	KF808884	Hk5293	M	Russia; Altai Krai	MZH
Gnorimoschema jalavai	BOLD:AAI5491	MZH-LEP00000064	MNAP505-12	KF808578			Russia; Buryatiya	MZH
Lyonetia candida	BOLD:AAJ2456	CNCLEP00029454	MNAD545-07	KF808932			Canada; British Columbia	CNC
Lyonetia candida	BOLD:AAJ2456	CNCLEP00077684	LEFIJ1537-12	KF808908			Canada; British Columbia	CNC
Lyonetia ledi	BOLD:AAE8230	MM06406	LEFID465-10	HM873233		M	Finland; Northern Ostrobothnia	ZMUO
Lyonetia ledi	BOLD:AAE8230	MM09672	LEFIE694-10	HM874415			Finland; Northern Ostrobothnia	ZMUO
Lyonetia ledi	BOLD:AAE8230	MM09673	LEFIE695-10	HM874416			Finland; Northern Ostrobothnia	ZMUO
Lyonetia ledi	BOLD:AAE8230	MM15979	LEFIJ375-10	JF853562			Finland; Uusimaa	ZMUO
Lyonetia ledi	BOLD:AAE8230	MM15980	LEFIJ376-10	JF853563			Finland; Uusimaa	ZMUO
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-3415	LBCH3415-10	HM865275			Canada; British Columbia	CNC
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-3717	LBCH3717-10	HM865606			Canada; British Columbia	CNC
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4570	LBCH4570-10	HM866537			Canada; British Columbia	CNC
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4571	LBCH4571-10	HM866539			Canada; British Columbia	CNC
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4941	LBCH4941-10	HM866941	MIC6630	M	Canada; British Columbia	CNC
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4942	LBCH4942-10	HM866942			Canada; British Columbia	PFRC
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4943	LBCH4943-10	HM866943			Canada; British Columbia	SEM
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4944	LBCH4944-10	HM866944			Canada; British Columbia	RBCM
Lyonetia pulverulentella	BOLD:AAH6132	10-JDWBC-4945	LBCH4945-10	HM866945			Canada; British Columbia	RBCM
Lyonetia pulverulentella	BOLD:AAH6132	MM15551	LEFIG687-10	HM876344			Finland; Northern Ostrobothnia	ZMUO
Lyonetia pulverulentella	BOLD:AAH6132	MM15552	LEFIG688-10	HM876345			Finland; Northern Ostrobothnia	ZMUO
Lyonetia pulverulentella	BOLD:AAH6132	MM18128	LEFIK553-10	KF808523			Finland; Northern Ostrobothnia	ZMUO
Nemapogon cloacella	BOLD:ABY6823	CNCLEP00028676	MNAD237-07	KF808615	MIC5376	m	Canada; British Columbia	CNC
Nemapogon cloacella	BOLD:ABY6823	MM02294	LEFIB591-10	HM871470			Finland; South Karelia	ZMUO
Nemapogon cloacella	BOLD:ABY6823	TLMF Lep 02744	PHLAC709-10	JF860263			Switzerland; Graubunden	TLMF
Nemapogon cloacella	BOLD:ABY6823	UKLB31G04	CGUKC899-09	KF808702			United Kingdom; England	BMNH
Nemapogon cloacella	BOLD:ABY6823	UKLB39A12	CGUKD585-09	KF808924			United Kingdom; England	BMNH
Nemapogon cloacella		CNCLEP00069166					Canada; British Columbia	CNC

Nemapogon cloacella		CNCLEP00069525			MIC6614	M	Canada; British Columbia	CNC
Nemapogon cloacella		USNMENT00657748			USNM130382	M	Canada; Alberta	USNM
Nemapogon cloacella		USNMENT00657749			USNM130383	F	Italy; Trentino	USNM
Nemapogon granella	BOLD:AAC5134	CNCLEP00028675	MNAD236-07	KF808546			Canada; British Columbia	CNC
Nemapogon granella	BOLD:AAC5134	CNCLEP00028677	MNAD238-07	KF808556	MIC5346	M	Canada; British Columbia	CNC
Nemapogon granella	BOLD:AAC5134	CNCLEP00028678	MNAD239-07	KF808687			Canada; British Columbia	CNC
Nemapogon granella	BOLD:AAC5134	CNCLEP00028679	MNAD240-07	KF808817			Canada; British Columbia	CNC
Nemapogon granella	BOLD:AAC5134	CNCLEP00028680	MNAD241-07	KF808543			Canada; British Columbia	CNC
Nemapogon granella	BOLD:AAC5134	MM08503	LEFIE188-10	HM873933			Finland; Tavastia Proper	ZMUO
Nemapogon granella	BOLD:AAC5134	MM08504	LEFIE189-10	HM873934			Finland; Tavastia Proper	ZMUO
Nemapogon granella	BOLD:AAC5134	MM18072	LEFIK497-10	JF854104			Finland; Tavastia Proper	ZMUO
Nemapogon granella	BOLD:AAC5134	W608288B2Sep2008	EHL784-12	KF808946			United States; Washington	WSDA
Nemapogon granella		CNCLEP00068955					Canada; British Columbia	CNC
Nemapogon granella		CNCLEP00068956					Canada; British Columbia	CNC
Nemapogon granella		CNCLEP00068957					Canada; British Columbia	CNC
Nemapogon granella		CNCLEP00068958					Canada; British Columbia	CNC
Nemapogon granella		CNCLEP00068959					Canada; British Columbia	CNC
Nemapogon granella		CNCLEP00068960			MIC6613	M	Canada; British Columbia	CNC
Nemapogon variatella	BOLD:AAI3059	1209626E3Jul1997	EHL785-12	KF808688		F	United States; Washington	WSDA
Nemapogon variatella	BOLD:AAI3059	AC005267	LQAC195-07	KF809026			Canada; Quebec	CNC
Nemapogon variatella	BOLD:AAI3059	AC005444	LQAC193-07	KF808492			Canada; Quebec	CNC
Nemapogon variatella	BOLD:AAI3059	MM02633	LEFIA1242-10	KF808956			Finland; South Karelia	ZMUO
Nemapogon variatella	BOLD:AAI3059	MM18073	LEFIK498-10	JF854105			Finland; South Karelia	ZMUO
Nemapogon variatella	BOLD:AAI3059	MM21102	LEFIJ1242-11	KF808859			Finland; Finland Proper	ZMUO
Nemapogon variatella	BOLD:AAI3059	MM21106	LEFIJ1246-11	KF808775			Finland; Finland Proper	ZMUO
Nemaxera betulinella	BOLD:AAF2375	MM00035	LEFIA1244-10	KF808626			Finland; Aland Islands	ZMUO
Nemaxera betulinella	BOLD:AAF2375	MM00036	LEFIB015-10	HM870928			Finland; Aland Islands	ZMUO
Nemaxera betulinella	BOLD:AAF2375	MM09255	LEFIE480-10	HM874204		F	Finland; Finland Proper	ZMUO
Oegoconia caradjai	BOLD:AAE1333	UKLB28H03	CGUKC625-09	KF808515			United Kingdom; England	BMNH
Oegoconia caradjai	BOLD:AAE1333	UKLB29A03	CGUKC637-09	KF808885			United Kingdom; England	BMNH
Oegoconia caradjai	BOLD:AAE1333	UKLB40A11	CGUKD679-09	KF808709			United Kingdom; England	BMNH
Oegoconia deauratella	BOLD:AAB8271	04HBL006878	XAC878-04	GU093507	MIC6623	F	Canada; Ontario	BIOUG
Oegoconia deauratella	BOLD:AAB8271	2005-ONT-1015	XAG431-05	GU091277			Canada; Ontario	BIOUG
Oegoconia deauratella	BOLD:AAB8271	2005-ONT-1418	XAG834-05	GU091278			Canada; Ontario	BIOUG
Oegoconia deauratella	BOLD:AAB8271	2005-ONT-723	XAG139-05	GU091276			Canada; Ontario	BIOUG
Oegoconia deauratella	BOLD:AAB8271	2005-ONT-872	XAG288-05	GU091274			Canada; Ontario	BIOUG
Oegoconia deauratella	BOLD:AAB8271	2005-ONT-958	XAG374-05	GU091279			Canada; Ontario	BIOUG
Oegoconia deauratella	BOLD:AAB8271	2005-ONT-967	XAG383-05	GU091275			Canada; Ontario	BIOUG

Oegoconia deauratella	BOLD:AAB8271	AC005420	LQAC248-07	KF808809			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	AC005484	LQAC249-07	KF808569			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	AC005636	LQAC250-07	KF808701			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	AC005637	LQAC251-07	KF808731			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00027749	MNAD083-07	KF808611			Canada; Ontario	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00027840	MNAD130-07	KF808551	MIC6605	M	Canada; Ontario	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00041333	MNAG182-08	KF808604			Canada; Ontario	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00082258	MNAD968-11	JN285812			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00082259	MNAD969-11	JN285813			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00082260	MNAD970-11	JN285814	MIC6629	M	Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	CNCLEP00082265	MNAD971-11	JN285815			Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	jflandry0870	MEC870-04	GU095961	MIC5260	F	Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	jflandry1091	MECB147-04	GU096520	MIC6771	M	Canada; Quebec	CNC
Oegoconia deauratella	BOLD:AAB8271	MM00327	LEFIA1259-10	KF808553			Finland; Uusimaa	ZMUO
Oegoconia deauratella	BOLD:AAB8271	MM12011	LEFIF472-10	HM875157			Finland; Uusimaa	ZMUO
Oegoconia deauratella	BOLD:AAB8271	MM13576	LEFIF982-10	HM875663			Finland; Western Finland	ZMUO
Oegoconia deauratella	BOLD:AAB8271	MM13577	LEFIF983-10	HM875664			Finland; Western Finland	ZMUO
Oegoconia deauratella	BOLD:AAB8271	TLMF Lep 07434	PHLAG755-12	KF808912			Austria; Tirol	TLMF
Oegoconia deauratella		AC005527			MIC6624	F	Canada; Quebec	CNC
Oegoconia deauratella		AC005528					Canada; Quebec	CNC
Oegoconia deauratella		AC005753					Canada; Quebec	CNC
Oegoconia deauratella		AC005813					Canada; Quebec	CNC
Oegoconia deauratella		USNMENT00657773					United States; South Carolina	USNM
Oegoconia deauratella		USNMENT00657784				M	United States; North Dakota	USNM
Oegoconia deauratella		USNMENT00657785				F	Poland; West-ThŸringen	USNM
Oegoconia deauratella		USNMENT00657786			USNM130386	M	Germany	USNM
Oegoconia novimundi	BOLD:AAH4681	12741115327Jun2011	EHL664-12	KF808947			United States; Washington	WSDA
Oegoconia novimundi	BOLD:AAH4681	BIOUG01925-H02	BBLOE684-11	KF808660			United States; California	BIOUG
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00024663	MNAE011-07	KF809000			United States; California	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00024664	MNAE012-07	KF808736	MIC5269	F	United States; California	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00024665	MNAE013-07	KF808729			United States; California	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00042955	MNAJ729-09	GU693785	MIC5423	M	Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00042956	MNAJ730-09	GU693786			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00068926	MNAD958-11	JN285802			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00069114	MNAD959-11	JN285803			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00069323	MNAD960-11	JN285804			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00069477	MNAD961-11	JN285805			United States; California	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00069665	MNAD962-11	JN285806			Canada; British Columbia	CNC

Oegoconia novimundi	BOLD:AAH4681	CNCLEP00069666	MNAD963-11	JN285807			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00069667	MNAD964-11	JN285808			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00077557	MNAD965-11	JN285809			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00077562	MNAD966-11	JN285810			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00077563	MNAD967-11	JN285811			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00077876	MNAL678-10	HQ965322			Canada; British Columbia	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00078281	MNAD956-11	JN285800			United States; Maryland	CNC
Oegoconia novimundi	BOLD:AAH4681	CNCLEP00082826	MNAD957-11	JN285801			United States; Maryland	CNC
Oegoconia novimundi	BOLD:AAH4681	jflandry2586	MECD014-06	KF808943	MIC5261	F	United States; Maryland	CNC
Oegoconia novimundi	BOLD:AAH4681	MM19577	LEEUA169-11	KF808712			Denmark; Capital	ZMUO
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-0573	LPVIA390-08	KF808964			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-0687	LPVIA488-08	KF808528			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-1493	LPVIB135-08	KF808818			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-1593	LPVIB219-08	KF808893			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-1594	LPVIB220-08	KF808681			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-2017	LPVIB580-08	KF808472			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-2254	LPVIB783-08	KF808612			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	PFC-2006-2573	LPVIC019-08	KF808647			Canada; British Columbia	PFRC
Oegoconia novimundi	BOLD:AAH4681	TLMF Lep 02296	PHLAC261-10	JF859867			Italy; South Tyrol	TLMF
Oegoconia novimundi		CNCLEP00068930					Canada; British Columbia	CNC
Oegoconia novimundi		CNCLEP00069309					Canada; British Columbia	CNC
Oegoconia novimundi		CNCLEP00069310					Canada; British Columbia	CNC
Oegoconia novimundi		CNCLEP00069326					Canada; British Columbia	CNC
Oegoconia novimundi		CNCLEP00069396					Canada; British Columbia	CNC
Oegoconia novimundi		USNMENT00657787					United States; Michigan	USNM
Oegoconia novimundi		USNMENT00657788			USNM10554	M	United States; New Jersey	USNM
Oegoconia novimundi		USNMENT00657789					United States; Virginia	USNM
Oegoconia novimundi		USNMENT00657790			USNM89470	M	United States; New Jersey	USNM
Oegoconia novimundi		USNMENT00657791			USNM10661	M	United States; Pennsylvania	USNM
Oegoconia novimundi		USNMENT00657792					United States; Pennsylvania	USNM
Oegoconia novimundi		USNMENT00657793			USNM130387	F	United States; Pennsylvania	USNM
Oegoconia novimundi		USNMENT00657794			USNM130388	F	United States;	USNM
Oegoconia novimundi		USNMENT00657795			USNM130389	F	United States; Maine	USNM
Oegoconia novimundi		USNMENT00657796			USNM130390	F	United States; Vermont	USNM
Oegoconia novimundi		USNMENT00657797			USNM130391	F	United States; New York	USNM
Oegoconia quadripuncta	BOLD:AAB8272	UKLB30H07	CGUKC819-09	KF808663			United Kingdom; England	BMNH
Oegoconia quadripuncta	BOLD:AAB8272	UKLB33F02	CGUKD076-09	KF808507			United Kingdom; England	BMNH
Oegoconia quadripuncta		USNMENT00657798				M	United States; New York	USNM

Oegoconia quadripuncta		USNMENT00657799			F	Italy	USNM
Olethreutes glaciana	BOLD:AAA6005	07PROBE-00163	LCHP133-07	KF808764		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	07PROBE-03782	LCHP212-07	KF808666		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	07PROBE-03919	LCHP348-07	KF808938		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	07PROBE-10065	LCHP441-07	KF808903		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	07PROBE-10210	LCHP540-07	KF808985		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	07PROBE-10367	LCHP685-07	KF808669		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	07PROBE-10371	LCHP689-07	KF808586		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	08-JDWBC-2228	LBCG2228-09	KF808488		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	08BBLEP-01301	LPMN502-08	KF808901		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	08BBLEP-01841	LPSK273-08	KF808783		Canada; Saskatchewan	BIOUG
Olethreutes glaciana	BOLD:AAA6005	08BBLEP-04071	LPMNB011-09	HM377779		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	08BBLEP-05787	LPMNB114-09	KF808646		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	08BBLEP-05842	LPMNB169-09	HM388011		Canada; Manitoba	BIOUG
Olethreutes glaciana	BOLD:AAA6005	09BBELE-1883	BBLPC883-09	HM415497		Canada; Newfoundland and Labrador	BIOUG
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0335	LBCH335-10	HM865204		Canada; British Columbia	PFRC
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0458	LBCH458-10	HM866548		Canada; British Columbia	SEM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0460	LBCH460-10	HM866570		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0461	LBCH461-10	HM866581		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0463	LBCH463-10	HM866603		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0464	LBCH464-10	HM866614		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-0465	LBCH465-10	HM866625		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-1065	LBCH1065-10	HM862700		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10-JDWBC-2413	LBCH2413-10	HM864179		Canada; British Columbia	RBCM
Olethreutes glaciana	BOLD:AAA6005	10BBCLP-2368	BBLPD370-10	KF809005		Canada; British Columbia	BIOUG
Olethreutes glaciana	BOLD:AAA6005	10BBCLP-2369	BBLPD371-10	KF808732		Canada; British Columbia	BIOUG
Olethreutes glaciana	BOLD:AAA6005	10BBCLP-2791	BBLPD793-10	KF808930		Canada; British Columbia	BIOUG
Olethreutes glaciana	BOLD:AAA6005	10BBCLP-2792	BBLPD794-10	KF808846		Canada; British Columbia	BIOUG
Olethreutes glaciana	BOLD:AAA6005	10BBCLP-3090	BBLPF093-10	KF808814		Canada; Alberta	BIOUG
Olethreutes glaciana	BOLD:AAA6005	C096004B25Jul2008	EHL536-12	KF808918		Canada; British Columbia	WSDA
Olethreutes glaciana	BOLD:AAA6005	CNCLEP00027493	MNAC755-07	KF808670		Canada; Quebec	CNC
Olethreutes glaciana	BOLD:AAA6005	CNCLEP00027559	MNAC818-07	KF808641		Canada; Quebec	CNC
Olethreutes glaciana	BOLD:AAA6005	HLC-23331	LBCD511-05	KF808502		Canada; British Columbia	BIOUG
Olethreutes glaciana	BOLD:AAA6005	jflandry0649	MEC649-04	GU095962		Canada; Quebec	CNC
Olethreutes glaciana	BOLD:AAA6005	KENWR 6641e	ABKWR084-07	KF808972		United States; Alaska	BIOUG
Olethreutes glaciana	BOLD:AAA6005	MDH000032	RDLQC371-06	KF808671		Canada; Quebec	HAND
Olethreutes glaciana	BOLD:AAA6005	MDH001553	RDLQE073-06	KF808971		Canada; Quebec	HAND
Olethreutes glaciana	BOLD:AAA6005	MDH002038	RDLQD035-06	KF808557		Canada; Quebec	HAND

Olethreutes glaciana	BOLD:AAA6005	MDH003140	RDLQI066-09	KF808573			Canada; Quebec	HAND
Olethreutes glaciana	BOLD:AAA6005	MDH003176	RDLQI067-09	HM381983			Canada; Quebec	HAND
Paraswammer damia albicapitella	BOLD:AAN2906	MM17630	LEFIK055-10	JF853926			Finland; Aland	ZMUO
Paraswammer damia albicapitella	BOLD:AAN2906	MM17631	LEFIK056-10	KF808762			Finland; Aland	ZMUO
Paraswammer damia albicapitella	BOLD:AAN2906	PFC-2006-1499	LPVIB141-08	KF808768	MIC6790	M	Canada; British Columbia	PFRC
Paraswammer damia albicapitella	BOLD:AAN2906	UKLB30F09	CGUKC797-09	KF808839			United Kingdom; England	BMNH
Paraswammer damia albicapitella	BOLD:AAN2906	UKLB33G10	CGUKD096-09	KF808975			United Kingdom; England	BMNH
Paraswammer damia albicapitella	BOLD:AAN2906	UKLB39D08	CGUKD617-09	KF808568			United Kingdom; England	BMNH
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001773	LNEL001-06	KF808484			Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001775	LNEL002-06	KF808960			Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001776	LNEL003-06	KF808840			Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001780	LNEL004-06	KF808742			Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001781	LNEL005-06	KF808866			Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001784	LNEL006-06	KF808716	MIC6187	M	Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00001796	LNEL007-06	KF808796	MIC6190	F	Sweden; Lappland	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00098039	MNAP741-13	KF808781		M	Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00098040	MNAP742-13	KF808464		M	Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	CNCLEP00098041	MNAP743-13	KF808891		M	Canada; Quebec	CNC
Paraswammer damia conspersella	BOLD:AAC7755	MM00705	LEFIB242-10	HM871145			Finland; Lapland	ZMUO
Paraswammer damia conspersella	BOLD:AAC7755	MM08039	LEFID993-10	HM873743			Finland; Lapland	ZMUO
Paraswammer damia conspersella	BOLD:AAC7755	MM13595	LEFIF991-10	HM875672			Finland; Western Finland	ZMUO
Paraswammer damia conspersella		CNCLEP00001765					Canada; Quebec	CNC
Paraswammer damia conspersella		CNCLEP00001766					Canada; Quebec	CNC
Paraswammer damia conspersella		CNCLEP00001767					Canada; Quebec	CNC
Paraswammer damia conspersella		CNCLEP00001768					Canada; Quebec	CNC
Paraswammer damia conspersella		CNCLEP00001769					Canada; Quebec	CNC

Paraswammerdamia conspersella		CNCLEP00001770					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001771					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001772					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001774					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001777					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001778					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001779					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001782					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001783					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001785					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001786					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001787					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001788			MIC6188	F	Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001789					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001790			MIC4241	M	Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001791			MIC4242	F	Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001792					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001793					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00001794					Norway	CNC
Paraswammerdamia conspersella		CNCLEP00001795					Norway	CNC
Paraswammerdamia conspersella		CNCLEP00001797	LNEL008-06		MIC6189	M	Sweden; Lappland	CNC
Paraswammerdamia conspersella		CNCLEP00001798					Finland	CNC
Paraswammerdamia conspersella		CNCLEP00001799					Finland	CNC
Paraswammerdamia conspersella		CNCLEP00095481					Canada; Quebec	CNC
Paraswammerdamia conspersella		CNCLEP00095482					Canada; Quebec	CNC
Paraswammerdamia lapponica	BOLD:AAL5955	MM00702	LEFIB240-10	HM871143			Finland; Lapland	ZMUO

Paraswammerdamia lapponica	BOLD:AAL5955	MM18101	LEFIK526-10	JF854123			Finland; Lapland	ZMUO
Paraswammerdamia lapponica	BOLD:AAL5955	MM18102	LEFIK527-10	JF854124			Finland; Lapland	ZMUO
Paraswammerdamia lutarea	BOLD:AAD6974	CNCLEP00077327	MNAO096-11	KF808841			United States; Washington	CNC
Paraswammerdamia lutarea	BOLD:AAD6974	MM02613	LEFIB758-10	HM871635			Finland; South Karelia	ZMUO
Paraswammerdamia lutarea	BOLD:AAD6974	MM06731	LEFID686-10	HM873447			Finland; Aland Islands	ZMUO
Paraswammerdamia lutarea	BOLD:AAD6974	MM09555	LEFIE625-10	HM874348			Finland; Aland Islands	ZMUO
Paraswammerdamia lutarea	BOLD:AAD6974	UBC-2007-0733	LBCS908-07	FJ412869	MIC6780	M	Canada; British Columbia	CNC
Paraswammerdamia lutarea	BOLD:AAD6974	W6661009Q11Jun2010	EHL798-12	KF808698			United States; Washington	WSDA
Parornix betulae	BOLD:AAE3418	AC005294	LQAC221-07	KF808948	MIC6207	F	Canada; Quebec	CNC
Parornix betulae	BOLD:AAE3418	BIOUG02834-D09	PAJUL1062-12	KF808686			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	BIOUG02834-E10	PAJUL1075-12	KF808910			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	BIOUG02834-F09	PAJUL1086-12	KF808552			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	BIOUG02834-F11	PAJUL1088-12	KF808665			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	BIOUG02834-G10	PAJUL1099-12	KF808998			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	BIOUG02834-H08	PAJUL1109-12	KF808512			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	BIOUG02881-D02	PAAUG1269-12	KF808883			Canada; Ontario	BIOUG
Parornix betulae	BOLD:AAE3418	CLV1515	LNOUC451-10	JF855563			Austria; Tyrol	DEUT
Parornix betulae	BOLD:AAE3418	CLV1517	LNOUC453-10	JF855565			Austria; Tyrol	DEUT
Parornix betulae	BOLD:AAE3418	CLV22508	GRACI333-08	KF808471			United Kingdom; Berkshire	INRA
Parornix betulae	BOLD:AAE3418	HLC-23828	LBCE068-05	KF808831	MIC6205	M	Canada; British Columbia	BIOUG
Parornix betulae	BOLD:AAE3418	MM03982	LEFIC432-10	KF809008			Finland; Northern Ostrobothnia	ZMUO
Parornix betulae	BOLD:AAE3418	MM06299	LEFID387-10	HM873184			Finland; Lapland	ZMUO
Parornix betulae	BOLD:AAE3418	MM17974	LEFIK399-10	JF854031			Finland; Lapland	ZMUO
Parornix betulae	BOLD:AAE3418	NK78	GRPAL1122-13	KF808706			Russia; Novosibirsk	SUKA
Parornix betulae	BOLD:AAE3418	STG44	TIPSY423-12	KF808896			Austria; Kaernten	LMK
Parornix betulae	BOLD:AAE3418	TLMF Lep 07386	PHLAG707-12	KF808811			Austria; Tirol	TLMF
Parornix betulae	BOLD:AAE3418	UKLB33G12	CGUKD098-09	KF808904			United Kingdom; England	BMNH
Parornix betulae		CNCLEP00097934			MIC6206	M	Germany; Nieder-Weser	CNC
Parornix betulae		USNMENT00657776					Norway	USNM
Parornix DRD30	BOLD:AAB5855	07PROBE-10338	LCHP657-07	KF808850			Canada; Manitoba	BIOUG
Parornix DRD30	BOLD:AAB5855	10-JDWBC-0639	LBCH639-10	HM868502			Canada; British Columbia	PFRC
Parornix DRD30	BOLD:AAB5855	10-JDWBC-0756	LBCH756-10	HM869774			Canada; British Columbia	RBCM
Parornix DRD30	BOLD:AAB5855	AC005114	LQAC050-06	KF808538			Canada; Quebec	BIOUG
Parornix DRD30	BOLD:AAB5855	AC005204	LQAC222-07	KF809022			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	AC005209	LQAC219-07	KF808715			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	AC005283	LQAC213-07	KF808590			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	AC005382	LQAC218-07	KF808994			Canada; Quebec	CNC

Parornix DRD30	BOLD:AAB5855	AC005483	LQAC212-07	KF808618			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	AC005485	LQAC216-07	KF808695			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	AC005537	LQAC223-07	KF808734			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	BIOUG02834-D07	PAJUL1060-12	KF808804			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02834-E07	PAJUL1072-12	KF808465			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02834-F12	PAJUL1089-12	KF808761			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02834-G07	PAJUL1096-12	KF808510			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02834-H02	PAJUL1103-12	KF808704			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02834-H04	PAJUL1105-12	KF808869			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02881-A04	PAJUL897-12	KF808644			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	BIOUG02881-B03	PAAUG1246-12	KF808637			Canada; Ontario	BIOUG
Parornix DRD30	BOLD:AAB5855	CNCLEP00025193	MNAA021-07	KF808639	MIC5575	M	Canada; British Columbia	CNC
Parornix DRD30	BOLD:AAB5855	CNCLEP00029459	MNAD550-07	KF808476	MIC5416	M	Canada; British Columbia	CNC
Parornix DRD30	BOLD:AAB5855	CNCLEP00038407	MNAL560-10	HQ965220			Canada; Ontario	CNC
Parornix DRD30	BOLD:AAB5855	CNCLEP00038440	MNAI702-09	GU692631			Canada; Ontario	CNC
Parornix DRD30	BOLD:AAB5855	CNCLEP00077305	MNAO037-11	KF809025			Canada; Alberta	CNC
Parornix DRD30	BOLD:AAB5855	jflandry0217	MEC217-04	GU095989			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	jflandry0501	MEC501-04	GU095990			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	jflandry0908	MEC908-04	GU095991	MIC5058	M	Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	jflandry2312	MECC292-06	KF808899			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	jflandry2318	MECC298-06	KF808474			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	jflandry2329	MECC309-06	KF808753			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	jflandry2331	MECC311-06	KF808979			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	MDH004081	LQAC333-07	KF808634			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	MDH004250	LQAC337-07	KF808481			Canada; Quebec	CNC
Parornix DRD30	BOLD:AAB5855	MDH006094	RDLQI836-09	KF808583			Canada; Quebec	HAND
Parornix DRD30	BOLD:AAB5855	MDH006638	RDLQI789-09	KF808489			Canada; Quebec	HAND
Parornix DRD30	BOLD:AAB5855	MDH007288	RDLQI884-09	HM381997			Canada; Quebec	HAND
Parornix DRD30	BOLD:AAB5855	MDH007600	RDLQI861-09	HM381993			Canada; Quebec	HAND
Parornix loganella	BOLD:ABZ2888	MM03972	LEFIC426-10	HQ570310			Finland; South Karelia	ZMUO
Parornix loganella	BOLD:ABZ2888	MM06448	LEFID491-10	HM873256		M	Finland; Northern Ostrobothnia	ZMUO
Parornix loganella	BOLD:ABZ2888	MM08444	LEFIE173-10	HM873919			Finland; Lapland	ZMUO
Parornix loganella	BOLD:ABZ2888	MM10068	LEFIE846-10	HM874565			Finland; Lapland	ZMUO
Phiaris bipunctana	BOLD:AAC2476	07PROBE-03934	LCHP359-07	KF808672	TOR1620	M	Canada; Manitoba	BIOUG
Phiaris bipunctana	BOLD:AAC2476	MM03005	LEFIB902-10	HM871779			Finland; Northern Ostrobothnia	ZMUO
Phiaris bipunctana	BOLD:AAC2476	MM08291	LEFIE106-10	HM873854			Finland; Lapland	ZMUO
Phiaris bipunctana	BOLD:AAC2476	MM08494	LEFIE185-10	HM873930			Finland; Lapland	ZMUO
Phiaris bipunctana	BOLD:AAC2476	MM18286	LEFIK711-10	JF854274			Finland; Lapland	ZMUO

Phiaris bipunctana	BOLD:AAC2476	TLMF Lep 02038	PHLAC003-10	JF859630			Italy; South Tyrol	TLMF
Phiaris bipunctana	BOLD:AAC2476	TLMF Lep 02039	PHLAC004-10	JF859631			Italy; South Tyrol	TLMF
Phiaris bipunctana		CNCLEP00098043			TOR4305	M	Finland	CNC
Phiaris bipunctana		CNCLEP00098417					Germany	CNC
Phiaris bipunctana		CNCLEP00098418					Germany	CNC
Phiaris bipunctana		CNCLEP00098419			TOR4306	F	Finland	CNC
Phiaris bipunctana		CNCLEP00098420					Finland	CNC
Phiaris bipunctana		CNCLEP00098421					Finland	CNC
Phiaris bipunctana		CNCLEP00098422					Finland	CNC
Phiaris bipunctana		CNCLEP00098423					Finland	CNC
Phiaris bipunctana		CNCLEP00098424					Finland	CNC
Phiaris bipunctana		CNCLEP00098425					Sweden	CNC
Phiaris bipunctana		CNCLEP00098426					Sweden	CNC
Phiaris bipunctana		CNCLEP00098427					Sweden	CNC
Phiaris bipunctana		CNCLEP00098428					Sweden	CNC
Phiaris bipunctana		CNCLEP00098429			TOR4327	F	Sweden	CNC
Phiaris bipunctana		CNCLEP00098430					Sweden	CNC
Phiaris bipunctana		CNCLEP00098431					Sweden	CNC
Phiaris bipunctana		CNCLEP00098432					Sweden	CNC
Phiaris bipunctana		USNMENT00657806					Germany	USNM
Phiaris bipunctana		USNMENT00657807					Germany	USNM
Phiaris heinrichana	BOLD:AAA8541	08-JDWBC-1029	LBCG1029-09	KF808632			Canada; British Columbia	SEM
Phiaris heinrichana	BOLD:AAA8541	08BBLEP-01649	LPMN846-08	KF808574			Canada; Manitoba	BIOUG
Phiaris heinrichana	BOLD:AAA8541	08BBLEP-02928	LPAB586-08	KF808635			Canada; Alberta	BIOUG
Phiaris heinrichana	BOLD:AAA8541	MM08290	LEFIE105-10	HM873853			Finland; Lapland	ZMUO
Phiaris heinrichana	BOLD:AAA8541	MM15685	LEFIG821-10	HM876472		F	Finland; Northern Ostrobothnia	ZMUO
Phiaris heinrichana	BOLD:AAA8541	MM15686	LEFIG822-10	HM876473		M	Finland; Northern Ostrobothnia	ZMUO
Phiaris heinrichana	BOLD:AAA8541	NoA-08-376	LEPNO282-08	KF808577			Canada; Alberta	NFRC
Phiaris heinrichana	BOLD:AAA8541	NoA-08-380	LEPNO286-08	KF809024			Canada; Alberta	NFRC
Phyllonorycter lautella	BOLD:AAC7024	CNCLEP00056396	MPEA866-09	GU694124			Sweden; Skane	CNC
Phyllonorycter lautella	BOLD:AAC7024	CNCLEP00056397	MPEA867-09	GU694125			Sweden; Skane	CNC
Phyllonorycter lautella	BOLD:AAC7024	CNCLEP00056398	MPEA868-09	GU694126			Sweden; Skane	CNC
Phyllonorycter lautella	BOLD:AAC7024	CNCLEP00056399	MPEA869-09	GU694127			Sweden; Skane	CNC
Phyllonorycter lautella	BOLD:AAC7024	CNCLEP00056400	MPEA870-09	GU694121			Sweden; Skane	CNC
Phyllonorycter lautella	BOLD:AAC7024	DP09058	GRPAL048-10	HM392555			Belgium; Vlaams-Brabant	PRIN
Phyllonorycter lautella	BOLD:AAC7024	G05laute	GRACI213-08	KF808776			Czech Republic; South Moravia	LAST
Phyllonorycter lautella	BOLD:AAC7024	H02nigre	GRACI581-09	HM392529			Czech Republic; Trebic	SUMP
Phyllonorycter lautella	BOLD:AAC7024	MM09670	LEFIE692-10	HM874413			Finland; Aland Islands	ZMUO

Phyllonorycter lautella	BOLD:AAC7024	MM11153	LEFIF338-10	HM875023			Finland; Aland Islands	ZMUO
Phyllonorycter lautella	BOLD:AAC7024	MM11156	LEFIF340-10	HM875025			Finland; Aland Islands	ZMUO
Phyllonorycter ledella	BOLD:AAD4753	10BBCLP-2348	BBLPD350-10	KF808813			Canada; British Columbia	BIOUG
Phyllonorycter ledella	BOLD:AAD4753	CNCLEP00018525	LNEL057-06	KF808531		F	Canada; British Columbia	CNC
Phyllonorycter ledella	BOLD:AAD4753	CNCLEP00018529	LNEL058-06	KF808890		F	Canada; British Columbia	CNC
Phyllonorycter ledella	BOLD:AAD4753	CNCLEP00025023	LNEL274-06	KF808826			Canada; Quebec	CNC
Phyllonorycter ledella	BOLD:AAD4753	CNCLEP00025024	LNEL275-06	KF808974			Canada; Quebec	CNC
Phyllonorycter ledella	BOLD:AAD4753	CNCLEP00025025	LNEL276-06	KF808957			Canada; Quebec	CNC
Phyllonorycter ledella	BOLD:AAD4753	CNCLEP00025026	LNEL277-06	KF808770			Canada; Quebec	CNC
Phyllonorycter ledella	BOLD:AAD4753	USNMENT00656451	MNAM221-10	KF808582			United States; Michigan	USNM
Phyllonorycter ledella	BOLD:AAD4753	USNMENT00656452	MNAM222-10	KF808518			United States; Michigan	USNM
Phyllonorycter ledella	BOLD:AAD4753	USNMENT00656453	MNAM223-10	KF808897			United States; Michigan	USNM
Phyllonorycter ledella	BOLD:AAD4753	USNMENT00656454	MNAM224-10	JN280403			United States; Michigan	USNM
Phyllonorycter maestingella	BOLD:AAH8496	A04maest	GRACI499-09	HM392481			Czech Republic; Olomouc	LAST
Phyllonorycter maestingella	BOLD:AAH8496	CLV1640	GRSLO120-10	JF848252			Austria; Tyrol	DEUT
Phyllonorycter maestingella	BOLD:AAH8496	CLV1670	GRSLO150-10	JF848280			Austria; Tyrol	DEUT
Phyllonorycter maestingella	BOLD:AAH8496	CLV1692	GRSLO172-10	JF848299			Austria; Tyrol	DEUT
Phyllonorycter maestingella	BOLD:AAH8496	CLV1844	GRSLO324-10	JF848408			Austria; Carinthia	LMK
Phyllonorycter maestingella	BOLD:AAH8496	CLV1873	GRSLO353-10	JF848432			Austria; Carinthia	LMK
Phyllonorycter maestingella	BOLD:AAH8496	CLV1893	GRSLO373-10	JF848450			Austria; Carinthia	LMK
Phyllonorycter maestingella	BOLD:AAH8496	CLV2239	GRSLO624-11	JN299433			Austria; Carinthia	LMK
Phyllonorycter maestingella	BOLD:AAH8496	CLV2343	GRPAL185-11	KF808874			France; Midi-Pyrenees	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CLV2371	GRPAL213-11	KF808844			France;Indre et Loire	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CLV2380	GRPAL222-11	JN280226			France;Indre et Loire	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CLV2557	GRPAL494-11	KF808526			United Kingdom;	SIMM
Phyllonorycter maestingella	BOLD:AAH8496	CLV2560	GRPAL497-11	KF808877			United Kingdom;	SIMM
Phyllonorycter maestingella	BOLD:AAH8496	CLV2735	GRPAL387-11	KF808533			Austria; Upper Austria	DESC
Phyllonorycter maestingella	BOLD:AAH8496	CLV2738	GRPAL390-11	JN280331			Turkey; Bolu	DESC
Phyllonorycter maestingella	BOLD:AAH8496	CLV2739	GRPAL391-11	JN280332			Turkey; Samsun	DESC
Phyllonorycter maestingella	BOLD:AAH8496	CLV2740	GRPAL392-11	JN280333			Turkey; Samsun	DESC
Phyllonorycter maestingella	BOLD:AAH8496	CLV5739	GRPAL997-12	KF808564			France;Indre et Loire	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CLV5763	GRPAL1021-12	KF808935			France;Indre et Loire	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CLV5764	GRPAL1022-12	KF808773			France;Indre et Loire	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CLV5791	GRPAL1049-12	KF808694			France;Indre et Loire	CAMA
Phyllonorycter maestingella	BOLD:AAH8496	CNCLEP00029451	MNAD542-07	KF808475	MIC6211	F	Canada; British Columbia	CNC
Phyllonorycter maestingella	BOLD:AAH8496	DP09061	GRPAL051-10	HM392557			Belgium; Namur	PRIN
Phyllonorycter maestingella	BOLD:AAH8496	MM17626	LEFIK051-10	KF808554			Sweden; Skane	ZMUO
Phyllonorycter maestingella	BOLD:AAL6962	CLV280711	GRPAL554-11	KF808981	1328	M	United States	DESC

Phyllonorycter maestingella	BOLD:AAL6962	CLV280811	GRPAL555-11	KF808822			United States	DESC
Phyllonorycter maestingella		USNMENT00657746					Germany; Nieder-Weser	USNM
Phyllonorycter maestingella		USNMENT00657777					Germany; Nieder-Weser	USNM
Phyllonorycter maestingella		USNMENT00657778				M	Germany; Nieder-Weser	USNM
Plutella geniatella	BOLD:AAF0057	TLMF Lep 00134	PHLAA094-09	HM432300			Italy; Piedmont	TLMF
Plutella geniatella	BOLD:AAF0057	TLMF Lep 00615	PHLAA575-09	HM381451			Italy; Veneto	TLMF
Plutella geniatella	BOLD:AAF0057	TLMF Lep 01055	PHLAB255-10	HM381615			Italy; South Tyrol	TLMF
Plutella geniatella	BOLD:AAF0057	TLMF Lep 01056	PHLAB256-10	HM381616			Italy; South Tyrol	TLMF
Plutella haasi	BOLD:AAL0297	MM05830	LEFID118-10	HM872928			Russia; Ural	ZMUO
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043302	MNAG256-08	KF808679	MIC6192	F	Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043303	MNAG257-08	KF808587			Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043304	MNAG258-08	KF808725			Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043309	MNAG263-08	KF808771			Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043310	MNAG264-08	KF370628			Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043311	MNAG265-08	KF808536	MIC6204	F	Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043312	MNAG266-08	KF370666	MIC6191	M	Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043314	MNAG268-08	KF808562			Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	CNCLEP00043315	MNAG269-08	KF808619			Canada; Nunavut	CNC
Plutella hyperboreella	BOLD:AAC3387	MM03435	LEFIC108-10	HQ570299			Finland; Lapland	ZMUO
Plutella hyperboreella	BOLD:AAC3387	MM04154	LEFIA800-10	HM386941			Finland; Lapland	ZMUO
Plutella hyperboreella	BOLD:AAC3387	MM04155	LEFIA801-10	HM386942			Finland; Lapland	ZMUO
Plutella hyperboreella		CNCLEP00001718					Canada; Quebec	CNC
Plutella hyperboreella		CNCLEP00001719					Canada; Quebec	CNC
Plutella hyperboreella		CNCLEP00001720			MIC6193	M	Sweden	CNC
Plutella hyperboreella		CNCLEP00001721					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001722					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001723					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001724					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001725					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001726					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001727					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001728					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001729					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001730					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001731					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001732					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001733					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001734			MIC5241	M	Canada; Northwest Territories	CNC

Plutella hyperboreella		CNCLEP00001735					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001736					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001737					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001738					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001739					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001740					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001741					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001742					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001743			MIC5242	F	Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001744					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001745					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001746					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001747					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001748					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001749					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001750					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001751					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001752					Canada; Northwest Territories	CNC
Plutella hyperboreella		CNCLEP00001753					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001754					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001755					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001756					Canada; Yukon Territory	CNC
Plutella hyperboreella		CNCLEP00001757					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001758					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001759					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001760					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001761					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001762					Canada; Nunavut	CNC
Plutella hyperboreella		CNCLEP00001763					Canada; Nunavut	CNC
Plutella hyperboreella		USNMENT00657779					Italy; Trentino	USNM
Prochoreutis inflatella	BOLD:AAF5207	MDH001308	RDLQC225-06	KF808785			Canada; Quebec	HAND
Prochoreutis inflatella	BOLD:AAF5207	MDOK-2476	LPOKC399-09	GU801376			United States; Oklahoma	BIOUG
Prochoreutis myllerana	BOLD:AAF0403	MM05852	LEFIA1314-10	KF808497		M	Finland; Satakunta	ZMUO
Prochoreutis myllerana	BOLD:AAF0403	MM15747	LEFIG883-10	HM876528			Finland; Uusimaa	ZMUO
Prochoreutis myllerana	BOLD:AAF0403	MM15748	LEFIG884-10	HM876529			Finland; Uusimaa	ZMUO
Prochoreutis myllerana	BOLD:AAF0403	UKLB41D12	CGUKD811-09	KF808648			United Kingdom; England	BMNH
Scardia amurensis	BOLD:AAG4818	06-BLLOC-1332	LOCBB392-06	KF808631			United States; Virginia	BIOUG
Scardia amurensis	BOLD:AAG4818	06-JKA-0699	LSEU699-06	KF808609			United States; Georgia	BIOUG

Scardia amurensis	BOLD:AAG4818	06-JKA-0700	LSEU700-06	KF808630			United States; Georgia	BIOUG
Scardia amurensis	BOLD:AAG4818	USNMENT00656589	MNAM363-10	JF858661	JFL1693	F	United States; Maryland	USNM
Scardia amurensis	BOLD:AAG4818	USNMENT00656591	MNAM365-10	JF858662			United States; Maryland	USNM
Scardia amurensis	BOLD:AAG4818	USNMENT00656592	MNAM366-10	JF858663			United States; Maryland	USNM
Scardia amurensis	BOLD:AAG4818	USNMENT00656594	MNAM368-10	JF858664			United States; Maryland	USNM
Scardia amurensis	failed	USNMENT00656588	MNAM362-10		JFL1701	M	United States; Maryland	USNM
Scardia amurensis	failed	USNMENT00656590	MNAM364-10				United States; Maryland	USNM
Scardia amurensis	failed	USNMENT00656595	MNAM369-10		JFL1692	M	United States; Maryland	USNM
Scardia amurensis	failed	USNMENT00656596	MNAM370-10		JFL1702	F	United States; Maryland	USNM
Scardia amurensis		USNMENT00657753					Germany	USNM
Scardia amurensis		USNMENT00657754					United States; Maryland	USNM
Scardia amurensis		USNMENT00657755					United States; Mississippi	USNM
Scardia amurensis		USNMENT00657756					United States; Mississippi	USNM
Scardia amurensis		USNMENT00657757					United States; Texas	USNM
Scardia amurensis		USNMENT00657758					United States; New Jersey	USNM
Scardia amurensis		USNMENT00657759					United States; Virginia	USNM
Scardia amurensis		USNMENT00657760					United States; Maryland	USNM
Scardia amurensis		USNMENT00657761					United States; Georgia	USNM
Scardia amurensis		USNMENT00657762					United States; Georgia	USNM
Scardia amurensis		USNMENT00657763					United States; Georgia	USNM
Scardia amurensis		USNMENT00657764					United States; Georgia	USNM
Scardia amurensis		USNMENT00657765					United States; Georgia	USNM
Scardia amurensis		USNMENT00657766					United States; Georgia	USNM
Scardia amurensis		USNMENT00657767					United States; Georgia	USNM
Scardia amurensis		USNMENT00657768					United States; Georgia	USNM
Scardia amurensis		USNMENT00657769					United States; Georgia	USNM
Scardia amurensis		USNMENT00657770					United States; Georgia	USNM
Scardia amurensis		USNMENT00657771					United States; Georgia	USNM
Scardia amurensis		USNMENT00657772					United States; Georgia	USNM
Scardia anatomella	BOLD:AAF2322	CNCLEP00027317	MNAA820-07	KF808976	MIC6059	M	United States; Tennessee	CNC
Scardia anatomella	BOLD:AAF2322	CNCLEP00077369	MNAO925-11	KF808550			United States; Georgia	CNC
Scardia anatomella	BOLD:AAF2322	CNCLEP00083077	MNAO001-11	KF808917			Canada; Ontario	CNC
Scardia anatomella	BOLD:AAF2322	DNA-ATBI-2902	LGSMC902-05	GU089241			United States; Tennessee	BIOUG
Scardia anatomella	BOLD:AAF2322	jflandry2631	MECD059-06	KF808650	MIC5334	F	United States; Maryland	CNC
Scardia anatomella		USNMENT00657747					United States; Pennsylvania	USNM
Scardia anatomella		USNMENT00657774					Poland	USNM
Scardia boletella	BOLD:AAI0669	MM01762	LEFIA1352-10	KF808636	JFL1698		Finland; South Karelia	ZMUO
Scardia boletella	BOLD:AAI0669	MM14679	LEFIG541-10	HM876214			Finland; North Karelia	ZMUO

Scardia boletella	BOLD:AAI0669	MM14680	LEFIG542-10	HM876215	JFL1699		Finland; North Karelia	ZMUO
Scrobipalpa acuminatella	BOLD:AAC1644	0102-ONT-0174	XAI174-06	KF808664			Canada; Ontario	BIOUG
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00020437	LNEL241-06	KF808991	MIC6617	M	Finland; Paijanne Tavastia	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00067527	MNAJ287-09	GU693696			Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00067700	MNAJ547-09	GU693575	MIC6489	F	Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00077457	MNAO1039-11	KF808855			Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00077473	MNAO1114-11	KF808780			Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00077474	MNAO1115-11	KF808993			Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	CNCLEP00086238	MNAO514-11	KF808696			Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	jflandry2281	MECC261-06	KF808610	MIC5203	M	Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	jflandry2680	MECD108-06	KF808951	MIC5204	M	Canada; Quebec	CNC
Scrobipalpa acuminatella	BOLD:AAC1644	MDH6164	MNAK283-10	HM887834			Canada; Quebec	HAND
Scrobipalpa acuminatella	BOLD:AAC1644	MM02537	LEFIB720-10	HM871598			Finland; South Karelia	ZMUO
Scrobipalpa acuminatella	BOLD:AAC1644	MM03835	LEFIC330-10	HM872174			Finland; Aland Islands	ZMUO
Scrobipalpa acuminatella	BOLD:AAC1644	MM14050	LEFIG182-10	HM875862			Finland; North Karelia	ZMUO
Scrobipalpa acuminatella	BOLD:AAC1644	MM17275	LEFIJ650-10	JF853745			Finland; Uusimaa	ZMUO
Scrobipalpa acuminatella	BOLD:AAC1644	MM21125	LEFIJ1265-11	KF808535			Finland; South Karelia	ZMUO
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 00600	PHLAA560-09	HM381440			Italy; Veneto	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 00775	PHLAA735-09	HM381466			Austria; Steiermark	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 00902	PHLAB102-10	HM381474			Austria; Vorarlberg	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 01494	PHLAB694-10	HQ968708			Italy; Abruzzi	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 01495	PHLAB695-10	HQ968709			Italy; Abruzzi	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 03764	PHLAD589-11	JN271016			Italy; Piedmont	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 03765	PHLAD590-11	JN271017			Italy; Piedmont	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	TLMF Lep 05336	PHLAF166-11	KF809002			Macedonia; Mavrovo	TLMF
Scrobipalpa acuminatella	BOLD:AAC1644	UKLB29F01	CGUKC693-09	KF808779			United Kingdom; England	BMNH
Scrobipalpa acuminatella	BOLD:AAC1644	UKLB31F04	CGUKC887-09	KF808782			United Kingdom; England	BMNH
Scrobipalpa acuminatella	BOLD:AAC1644	UKLB34C07	CGUKD140-09	KF808989			United Kingdom; England	BMNH
Scrobipalpa acuminatella	BOLD:AAC1644	UKLB42F04	CGUKD922-09	KF808482			United Kingdom; England	BMNH
Scrobipalpa acuminatella		USNMENT00657808					Italy; Liguria	USNM
Scrobipalpa acuminatella		USNMENT00657809			USNM130381	F	Italy; Liguria	USNM
Scrobipalpa atriplicella	BOLD:AAA9252	MM02577	LEFIB740-10	HM871618			Finland; South Karelia	ZMUO
Scrobipalpa atriplicella	BOLD:AAA9252	MM05979	LEFID187-10	HM872993			Finland; Aland Islands	ZMUO
Scrobipalpa atriplicella	BOLD:AAA9252	MM09527	LEFIE612-10	HM874335			Finland; Aland Islands	ZMUO
Scrobipalpa atriplicella	BOLD:AAA9252	MM13622	LEFIG009-10	HM875689			Finland; Western Finland	ZMUO
Scrobipalpa atriplicella	BOLD:AAA9252	MM17311	LEFIJ686-10	JF853772			Finland; Finland Proper	ZMUO
Scrobipalpa murinella	BOLD:AAH9720	MM15633	LEFIG769-10	HM876421			Finland; North Karelia	ZMUO
Scrobipalpa murinella	BOLD:AAH9720	MM15634	LEFIG770-10	HM876422			Finland; North Karelia	ZMUO

Scrobipalpa murinella	BOLD:AAH9720	MM17702	LEFIK127-10	KF808914	Finland; Aland	ZMUO
Scrobipalpa murinella	BOLD:AAH9720	MM17937	LEFIK362-10	JF853997	Finland; South Karelia	ZMUO
Scrobipalpa murinella	BOLD:AAH9720	TLMF Lep 02847	PHLAC812-10	JX034595	France; Provence-Alpes-Cote d'Azur	TLMF
Scrobipalpa murinella	BOLD:AAH9720	TLMF Lep 02848	PHLAC813-10	JX034624	France; Provence-Alpes-Cote d'Azur	TLMF
Scrobipalpa murinella	BOLD:AAH9720	TLMF Lep 02849	PHLAC814-10	JX034587	France; Provence-Alpes-Cote d'Azur	TLMF
Scythris immaculatella	BOLD:AAB9331	09PROBE-09625	CHLEP330-09	HM430270	Canada; Manitoba	BIOUG
Scythris immaculatella	BOLD:AAB9331	10BBCLP-2388	BBLPD390-10	KF808810	Canada; British Columbia	BIOUG
Scythris immaculatella	BOLD:AAB9331	10BBCLP-2389	BBLPD391-10	KF808627	Canada; British Columbia	BIOUG
Scythris immaculatella	BOLD:AAB9331	10BBCLP-3101	BBLPF104-10	KF808594	Canada; Alberta	BIOUG
Scythris immaculatella	BOLD:AAB9331	CNCLEP00027446	MNAC715-07	KF808743	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	CNCLEP00056276	MNAI637-09	GU692691	United States; Montana	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0035	MEC035-04	GU096075	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0675	MEC675-04	GU096069	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0676	MEC676-04	GU096070	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0677	MEC677-04	GU096068	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0719	MEC719-04	GU096071	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0720	MEC720-04	GU096066	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0721	MEC721-04	GU096072	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0722	MEC722-04	GU096073	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0723	MEC723-04	GU096074	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry0724	MEC724-04	GU096067	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	jflandry2654	MECD082-06	KF808984	Canada; Quebec	CNC
Scythris immaculatella	BOLD:AAB9331	POHL-10-00072	MNAK108-10	HM887729	Canada; Yukon Territory	POHL
Scythris immaculatella	BOLD:AAB9331	POHL-10-00114	MNAK145-10	HM887763	Canada; Yukon Territory	POHL
Scythris limbella	BOLD:AAB4510	0102-ONT-0160	XAI160-05	KF808547	Canada; Ontario	BIOUG
Scythris limbella	BOLD:AAB4510	CNCLEP00042833	MNAG210-08	KF808675	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	CNCLEP00042847	MNAG224-08	KF808751	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	CNCLEP00042848	MNAG225-08	KF808621	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	CNCLEP00042862	MNAG412-08	KF808937	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry0239	MEC239-04	GU096076	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry0991	MECB047-04	GU096579	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry1274	MECB311-05	GU096578	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry2029	MECC009-06	KF808726	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry2040	MECC020-06	KF808640	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry2070	MECC050-06	KF808832	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry2652	MECD080-06	KF808867	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	jflandry2653	MECD081-06	KF808508	Canada; Quebec	CNC
Scythris limbella	BOLD:AAB4510	MDH000482	RDLQD455-06	KF808945	Canada; Quebec	HAND

Scythris limbella	BOLD:AAB4510	MDH000806	RDLQC209-06	KF809012			Canada; Quebec	HAND
Scythris limbella	BOLD:AAB4510	MDH002219	RDLQE216-06	KF808854			Canada; Quebec	HAND
Scythris limbella	BOLD:AAB4510	MDH002220	RDLQE217-06	KF808719			Canada; Quebec	HAND
Scythris limbella	BOLD:AAB4510	MDH002541	RDLQE538-06	KF808907			Canada; Quebec	HAND
Scythris limbella	BOLD:AAB4510	MDH006572	RDLQI950-09	HM382004			Canada; Quebec	HAND
Scythris limbella	BOLD:AAB4510	MM00322	LEFIA1358-10	KF808778			Finland; Northern Ostrobothnia	ZMUO
Scythris limbella	BOLD:AAB4510	MM02173	LEFIB547-10	HQ570274			Finland; South Karelia	ZMUO
Scythris limbella	BOLD:AAB4510	MM02174	LEFIB548-10	HQ570275			Finland; South Karelia	ZMUO
Scythris sinensis	BOLD:ABA2267	CNCLEP00077336	MNAO160-11	KF809023	MIC6784	F	United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077337	MNAO161-11	KF808836			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077338	MNAO162-11	KF808950			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077339	MNAO163-11	KF809001	MIC6783	M	United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077340	MNAO164-11	KF808754			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077341	MNAO165-11	KF809014			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077342	MNAO166-11	KF808462			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077343	MNAO167-11	KF808737			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077344	MNAO168-11	KF808752			United States; Pennsylvania	CNC
Scythris sinensis	BOLD:ABA2267	CNCLEP00077345	MNAO169-11	KF809011			United States; Pennsylvania	CNC
Sophronia gelidella	BOLD:AAF4739	CNCLEP00026569	MNAA407-07	KF808941	MIC5492	M	Canada; Yukon Territory	CNC
Sophronia gelidella	BOLD:AAF4739	MM00080	LEFIA009-10	HM396359			Finland; Lapland	ZMUO
Sophronia gelidella	BOLD:AAF4739	MM04192	LEFIC488-10	HQ570311			Finland; Lapland	ZMUO
Sophronia gelidella	BOLD:AAF4739	MM04193	LEFIC489-10	HQ570312			Finland; Lapland	ZMUO
Sophronia gelidella	BOLD:AAF4739	POHL-10-00081	MNAK117-10	HM887738			Canada; Yukon Territory	POHL
Sophronia gelidella		USNMENT00657810			USNM130378	M	Sweden	USNM
Sophronia humerella	BOLD:AAF4746	MM06625	LEFID611-10	HM873376			Finland; North Karelia	ZMUO
Sophronia humerella	BOLD:AAF4746	MM06626	LEFID612-10	HM873377			Finland; North Karelia	ZMUO
Sophronia humerella	BOLD:AAF4746	MM06627	LEFID613-10	HM873378			Finland; North Karelia	ZMUO
Sophronia humerella	BOLD:AAF4746	TLMF Lep 03805	PHLAD630-11	JN271039			Italy; Piedmont	TLMF
Sophronia humerella	BOLD:AAF4746	TLMF Lep 03806	PHLAD631-11	JN271040			Italy; Piedmont	TLMF
Sophronia humerella	BOLD:AAF4746	TLMF Lep 03807	PHLAD632-11	JN271041			Italy; Piedmont	TLMF
Sophronia humerella	BOLD:AAF4746	TLMF Lep 03808	PHLAD633-11	JN271042			Italy; Piedmont	TLMF
Sophronia primella	BOLD:AAP5418	SL0367	GONA164-10	JF848145		F	United States; Alabama	MEM
Tinea columbariella	BOLD:AAD5191	CNCLEP00077643	MNAO006-11	KF809018			Canada; British Columbia	CNC
Tinea columbariella	BOLD:AAD5191	MM08512	LEFIE197-10	HM873942		M	Finland; Finland Proper	ZMUO
Tinea columbariella	BOLD:AAD5191	MM08513	LEFIE198-10	HM873943		F	Finland; Finland Proper	ZMUO
Tinea columbariella	BOLD:AAD5191	TLMF Lep 06588	PHLAG278-12	KF808659		M	Austria; Oberoesterreich	BUCH
Tinea pellionella	BOLD:AAB9203	CNCLEP00027669	MNAD009-07	KF808479			Canada; Quebec	CNC
Tinea pellionella	BOLD:AAB9203	CNCLEP00027693	MNAD033-07	KF808461			Canada; Quebec	CNC

Tinea pellionella	BOLD:AAB9203	CNCLEP00028681	MNAD242-07	KF808717			Canada; British Columbia	CNC
Tinea pellionella	BOLD:AAB9203	CNCLEP00042825	MNAG202-08	KF808806			Canada; Quebec	CNC
Tinea pellionella	BOLD:AAB9203	jflandry1673	MECB614-05	GU096615			Canada; Quebec	CNC
Tinea pellionella	BOLD:AAB9203	jflandry1674	MECB615-05	GU096614	MIC5321	F	Canada; Quebec	CNC
Tinea pellionella	BOLD:AAB9203	jflandry2647	MECD075-06	KF808633			Canada; Quebec	CNC
Tinea pellionella	BOLD:AAB9203	MM06611	LEFIA1398-10	KF808797		M	Finland; North Karelia	ZMUO
Tinea pellionella	BOLD:AAB9203	MM06612	LEFID600-10	HM873365		M	Finland; North Karelia	ZMUO
Tinea pellionella	BOLD:AAB9203	MM10377	LEFIE966-10	HM874683			Finland; Aland Islands	ZMUO
Tinea pellionella	BOLD:AAB9203	UKLB27H02	CGUKC530-09	KF808541			United Kingdom; England	BMNH
Tinea pellionella	BOLD:AAB9203	UKLB28B08	CGUKC559-09	KF808501			United Kingdom; England	BMNH
Tinea pellionella	BOLD:AAB9203	UKLB32H11	CGUKD014-09	KF808673			United Kingdom; England	BMNH
Tinea pellionella	BOLD:AAB9203	UKLB39B02	CGUKD587-09	KF808654			United Kingdom; England	BMNH
Tinea svenssoni	BOLD:AAG0125	CNCLEP00027522	MNAC784-07	KF808834	MIC5577	M	Canada; Quebec	CNC
Tinea svenssoni	BOLD:AAG0125	MM00468	LEFIB116-10	HM871023			Finland; Northern Ostrobothnia	ZMUO
Tinea svenssoni	BOLD:AAG0125	MM10140	LEFIE872-10	HM874590			Finland; Northern Ostrobothnia	ZMUO
Tinea svenssoni	BOLD:AAG0125	MM15525	LEFIG661-10	HM876322			Finland; Finland Proper	ZMUO
Tinea svenssoni	BOLD:AAG0125	MM17325	LEFIJ700-10	KF808933			Finland; Finland Proper	ZMUO
Tinea svenssoni	BOLD:AAG0125	MM17326	LEFIJ701-10	JF853779			Finland; Finland Proper	ZMUO
Tinea svenssoni	BOLD:AAG0125	MM18823	LEFIL525-10	JF854638			Finland; Northern Ostrobothnia	ZMUO
Tinea svenssoni		USNMENT00657750			USNM130384	M	Italy; Trentino	USNM
Tinea svenssoni		USNMENT00657751			USNM130227	F	Sweden; Dalarna	USNM
Triaxomera fulvimitrella	BOLD:AAE8582	MM04084	LEFIC486-10	HM872318			Finland; Finland Proper	ZMUO
Triaxomera fulvimitrella	BOLD:AAE8582	MM08509	LEFIE194-10	HM873939		M	Finland; Northern Ostrobothnia	ZMUO
Triaxomera fulvimitrella	BOLD:AAE8582	MM14273	LEFIG309-10	HM875988			Finland; Aland Islands	ZMUO
Triaxomera parasitella	BOLD:AAD9379	CNCLEP00028686	MNAD247-07	KF808795	MIC5366	M	Canada; British Columbia	CNC
Triaxomera parasitella	BOLD:AAD9379	CNCLEP00067772	MNAJ958-09	GU694049			Canada; British Columbia	CNC
Triaxomera parasitella	BOLD:AAD9379	CNCLEP00067773	MNAJ959-09	GU693919			Canada; British Columbia	CNC
Triaxomera parasitella	BOLD:AAD9379	CNCLEP00068873	MNAO003-11	KF809017			Canada; British Columbia	CNC
Triaxomera parasitella	BOLD:AAD9379	CNCLEP00077375	MNAO935-11	KF808645			Netherlands; Zuid-Holland	CNC
Triaxomera parasitella	BOLD:AAD9379	CNCLEP00077657	MNAO002-11	KF808727	MIC6619	F	Canada; British Columbia	CNC