Depressariidae

Microlepidoptera of Europe

VOLUME 10

Depressariidae

By

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Cover illustration: *Agonopterix cervariella*, Austria, Gumpoldskirchen, larva 25.v.2013 from *Peucedanum cervaria*, moth emerged 20.vii.2013.

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Dedicated to everyone interested in microlepidoptera,
in the hope that a better knowledge of the species will also contribute
to their protection and that of their habitats.

Contents

Abstract

This volume reviews the European genera and species of the gelechioid family Depressariidae.[1] 192 species are described (including two with no European records) and figures of whole moths, male and female genitalia are given. Information is provided on life histories and distribution of the species. Distribution data are summarised in a table showing the records for each European country and the larger islands.

Six new species are described: *Agonopterix paracervariella* sp. n. (Switzerland, Italy, Slovenia); *Agonopterix richteri* sp. n. (Bulgaria, Greece); *Agonopterix galicicensis* sp. n. (North Macedonia); *Agonopterix langmaidi* sp. n. (Sicily and Crete); *Agonopterix uralensis* sp. n. (Russia); *Depressaria hansjoachimi* sp. n. (Sicily, Croatia, Greece, Turkey, Armenia). In addition one new subspecies is described: *Agonopterix putridella* subsp. *scandinaviensis* subsp. n. (Norway, Sweden, Finland).

The following nomenclatural innovations are introduced: *Luquetia osthelderi* (Rebel, 1936) comb. n. for *Epigraphia osthelderi* Rebel, 1936, a lectotype is designated for this species; *Levipalpus* Hannemann, 1953 syn. n. of *Exaeretia* Stainton, 1849; *Exaeretia nigromaculata* Hannemann, 1989 syn. n. of *Exaeretia thurneri* (Rebel, 1941); *Depressaria exquisitella* Caradja, 1920 syn. n. and *Exaeretia amurella* Lvovsky, 1990 syn. n. of *Exaeretia mongolicella* (Christoph, 1882); *Agonopterix crassiventrella* (Rebel, 1891) syn. n. of *Agonopterix adspersella* (Kollar, 1832); *Agonopterix inoxiella* Hannemann, 1959 syn. n. of *Agonopterix nodiflorella* (Millière, 1866); *Agonopterix banatica* Georgesco, 1965 syn. n. of *Agonopterix purpurea* (Haworth, 1811); *Agonopterix kotalella* Amsel, 1972 syn. n. of *Agonopterix curvipunctosa* (Haworth, 1811); *Agonopterix dictamnephaga* Rymarczyk, Dutheil & Nel, 2012 syn. n. of *Agonopterix pupillana* (Wocke, 1887); *Depressaria echinopella* Chrétien, 1907 syn. n and *Agonopterix mendesi* Corley, 2002 syn. n. of *Agonopterix straminella* (Staudinger, 1859); *Agonopterix budashkini* Lvovsky, 1998 syn. n. of *Agonopterix squamosa* (Mann, 1864); *Agonopterix seneciovora* Fujisawa, 1985 syn. n. of *Agonopterix cotoneastri* (Nickerl, 1864), *Depressaria cyrniella* Rebel, 1929 syn. n. and *Depressaria genistell*a Walsingham, 1903 syn. n. of *Agonopterix scopariella* (Heinemann, 1970); *Depressaria perstrigella* Chrétien, 1925 syn. n. of *Agonopterix nervosa* (Haworth, 1811); *Depressaria duplicatella* Chrétien, 1915 syn. n., *Depressaria adustatella* Turati, 1927 syn. n., *Depressaria delphinias* Meyrick, 1936 syn. n. and *Depressaria subtenebricosa* Hannemann, 1953 syn. n. of *Depressaria radiosquamella* Walsingham, 1903; *Depressaria venustella* Hannemann, 1990 syn. n. of *Depressaria manglisiella* Lvovsky,

1 Depressariidae as defined in this book contains just five European genera. Some recent classifications of Lepidoptera include other groups in the family. Our reasons for excluding these are discussed in the section on Classification of Depressariidae.

1981; *Depressaria corticinella* Zeller, 1854 syn. n. of *Depressaria badiella* (Hübner, 1796); *Depressaria fusconigerella* Hannemann, 1990 syn. n. of *Depressaria subnervosa* Oberthür, 1888. *Depressaria pavida* Meyrick, 1913 is reduced to subspecies of *Agonopterix adspersella*; *Depressaria tenerifae* Walsingham, 1908 and *Depressaria rungsiella* Hannemann, 1953 are restored to species status. A neotype has been chosen for *Depressaria beckmanni* Heinemann, 1870.

Introduction: Depressariidae through the Years

Some depressariids have been known since the earliest years of scientific interest in Microlepidoptera. *Agonopterix heracliana* and *A. alstromeriana* were described respectively by Linnaeus in 1758 and Clerck in 1759. These are species with larvae that are easily found and reared in early summer; their adults hibernate and in winter are frequently disturbed by human activity such as taking an armful of firewood from the woodshed. By the end of the 18th century 21 European species had been described, many by Denis & Schiffermüller (1775). In the 19th century an additional 88 species were described, initially from the north and central parts of the continent with a number of important contributors including Haworth (1811), Treitschke (1835) followed by Zeller and Stainton and others in the middle part of the century. At this time some species were also described from South Europe notably by Zeller (1847) and Staudinger (1859) but knowledge of the South European fauna always lagged behind central and northern areas. By the end of the century and into the early years of the 20th century increasing numbers of species were being described from the Balkan countries and the Canary Islands, particularly by Rebel over a long period of time. North African species were being described by Chrétien.

The first comprehensive study of genitalia in the family started in 1953 by Hannemann followed by numerous papers including some North African and Asian species, up to 1990. He was able to bring some much needed order to the family with the recognition of numerous synonyms. Towards the end of the century Lvovsky added several species mainly from Russia. In northern Europe there were regional publications covering the family in the Netherlands (Van Laar, 1961, 1964) and Fennoscandia (Palm, 1989). Hannemann (1995) treated the species of Germany, actually covering a much wider area of Central Europe. By the end of the century 160 of the species recognised in the present work were known.

The present century has seen a substantial number of new species described, bringing the European total to 190, many as a result of work for this book, but also by several other authors including Šumpich & Skyva (2012), Šumpich (2013), Rymarczyk, Dutheil & Nel (2013) and Vives & Gastón (2017).

The project to write this book was initiated around 20 years ago when Ole Karsholt asked MC if he would consider the idea. MC was fully aware that he would have limited time and that he lacked the required skills in photography and in making quality genitalia preparations. Nevertheless he accepted the challenge. Initially Ian Thirlwell volunteered to provide the required photographs. Specimens were borrowed from Ian's neighbour, John Langmaid who also had a keen interest in Depressariidae and from the Natural History Museum, London for description.

Before long, Ian's circumstances changed and he was obliged to withdraw from the project. It gradually became clear that the project was likely to fail. Fortunately

in 2010 Peter Huemer had the idea that PB should collaborate with MC as he had all the skills that MC lacked.

PB's work on the project has involved the examination of thousands of specimens, genitalia preparations of many hundreds and visits to most of the major natural history museums in Europe. He has also examined many specimens from outside Europe, allowing a better understanding of the European species. He has contributed all the photographs and the distribution table. MC is responsible for most of the descriptive text, but other parts are a collaborative effort.

From the outset we expected to discover previously unknown species from southern Europe, but it was more surprising to find that the well-worked fauna of central Europe also contained undescribed and misidentified species.

While we have been able to solve many problems in the European depressariid fauna, we are aware that there are still unresolved questions and probably some species complexes that need to be untangled. The *Depressaria douglasella* group is likely to include further species and there are probably additional species related to *D. libanotidella.* Resolution of these problem groups will entail the study of specimens from many geographical areas, establishing which males and females are conspecific and more information on host-plants.

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We are indebted to Peter Huemer for bringing us together as a team and to Ole Karsholt for initiating the project. They have been the most important contacts for questions that arose again and again during the preparation of the manuscript. Likewise we thank Marko Mutanen who joined the editorial team and has provided invaluable insight into matters relating to DNA barcoding.

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We particularly thank Jan Správce and Zdenek Laštůvka, who reviewed the completed manuscript.

We are most grateful to Cornelia Schlup-Sonderegger for permission to use the wing venation drawings made by her late father, Peter Sonderegger. Peter was working on a book on Depressariidae of Switzerland for which he had excellent illustrations and much bionomic information on which we have drawn heavily, but his untimely death left that project unfinished.

Frédéric Rymarczyk and Monique Dutheil have very generously allowed us to use their extensive data on host-plants of Depressariidae resulting from their fieldwork in France.

Mark Shaw, NMSE, Edinburgh, United Kingdom obligingly wrote the paragraph on parasitoids in the chapter on Bionomics.

Only the help of many colleagues has made it possible to complete the present volume, whether as curators of public collections or as private collectors. They enabled access to specimens of the European species under their care, for photography, preparation of genitalia slides and genetic studies, and helped with finding all the scientific literature needed. Only museum collections could provide specimens of species which have declined or not been found in Europe for decades. On the other hand, for genetic examination relatively fresh specimens are necessary, these were easier to find in private collections. Studies of the range of variation in each species, both externally and in genital characteristics made it necessary to examine many individuals of a species, preferably spread over its entire distribution area. This provided data on host-plants, phenology and overall distribution. In order to understand the relationships of some groups of species, it was also necessary to include non-European species in the studies.

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Abbreviations of Museums and Private Research Collections

Note: the mentioned private collections were correct at the time the specimens were checked (years 2013–2021). Such specimens may have been transferred into a public collection since then or will be transferred in the future.

AAFC/AAC	Agriculture and Agri-Food, Ottawa, Canada
BAS-IBER	Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia, Bulgaria
ECKU	Collection of Ecology-Centre, Kiel University, Kiel, Germany
HNHM	Hungarian Natural History Museum, Budapest, Hungary
KLM	Kärntner Landesmuseum, Klagenfurt, Austria
LDM	Latvijas Dabas Muzejs, Riga, Latvia
MFSN	Museo Friulano di Storia Naturale, Udine, Italy
MGAB	"Grigore Antipa" National Museum of Natural History, Bucharest, Romania
MHNG	Naturkunde Museum Genf, Switzerland
MNCN	Museo Nacional de Ciencias Naturales, Madrid
MNHN	Muséum National d'Histoire Naturelle, Paris, France
MTD	Museum für Tierkunde, Dresden, Germany
NHMUK	Natural History Museum, London, United Kingdom
NHMW	Naturhistorisches Museum, Wien, Austria
NLMB	Staatliches Naturhistorisches Museum, 3Landesmuseen Braunschweig, Germany
NMBE	Naturhistorisches Museum, Bern, Switzerland
NMPC	National Museum, Prague, Czechia
NMSE	National Museums of Scotland, Edinburgh, United Kingdom
OUMNH	Oxford University Natural History Museum, Oxford, United Kingdom
RCAM	Research Collection of Anton Mayr, Feldkirch, Austria
RCAS	Research Collection of Andreas Stübner, Germany
RCAW	Research Collection of Andreas Werno, Nunkirchen, Germany
RCBB	Research Collection of Bengt Å. Bengtsson
RCBZ	Research Collection of Boyan Zlatkov, Sofia, Bulgaria
RCCM	Research Collection of Carlo Morandini, Italy
RCCP	Research Collection of Colin Plant, Bishops Stortford, United Kingdom
RCCS	Research Collection of Csaba Szabóky, Budapest, Hungary
RCEP	Research Collection of Eivind Palm, Højer, Denmark
RCEV	Research Collection of Ebbe Vesterhede, Denmark
RCFG	Research Collection of Friedmar Graf, Bautzen, Germany

RCFT	Research Collection of Franz Theimer, Berlin, Germany
RCFV	Research Collection of Francesca Vegliante, Langebrück, Germany
RCGB	Research Collection of Günter Baisch, Biberach, Germany
RCGD	Research Collection of Georg Derra, Reckendorf, Germany
RCGF	Research Collection of Gyulay Fábián, Budapest, Hungary
RCGFi	Research Collection of Gabriele Fiumi, Forli, Italy
RCHB	Research Collection of Hans Blackstein, Rathenow, Germany
RCHD	Research Collection of Helmut Deutsch, Bannberg, Austria
RCHR	Research Collection of Hans Retzlaff, Lage, Germany
RCIR	Research Collection of Ignac Richter, Malá Čausa, Slovakia
RCIvR	Research Collection of Ivan Richter, Prievidza, Slovakia
RCJB	Research Collection of Jan-Olov Björklund, Sweden
RCJJ	Research Collection of Jari Junnilainen, Vantaa, Finland
RCJK	Research Collection of Jari-Pekka Kaitila, Finland
RCJN	Research Collection of Jacques Nel, La Ciotat, France
RCJT	Research Collection of Jukka Tabell, Hartola, Finland
RCKB	Research Collection of Knud Bech, Denmark
RCKL	Research Collection of Knud Larsen, Dyssegård, Denmark
RCLM	Research Collection of Lucio Morin, Monfalcone, Italy
RCLS	Research Collection of Ľubomír Srnka, Lehota pod Vtáčnikom, Slovakia
RCMC	Research Collection of Martin Corley, Faringdon, United Kingdom
RCMM	Research Collection of Marko Mutanen, Oulu, Finland
RCOR	Research Collection of Oliver Rist, Graz, Austria
RCPB	Research Collection of Peter Buchner, Schwarzau am Steinfeld, Austria
RCRD	Research Collection of Frédéric Rymarczyk & Monique Dutheil, Nice, France
RCRH	Research Collection of Robert Heckford, Plympton, United Kingdom
RCRK	Research Collection of Rudolf Keller, Dachau, Germany
RCRM	Research Collection of Rolf Mörtter, Kronau, Germany
RCRS	Research Collection of Rudi Seliger, Schwalmtal, Germany
RCSG	Research Collection of Stanislav Gomboc, Kranj, Slovenia
RCTG	Research Collection of Theo Grünewald, Landhut, Germany
RCTN	Research Collection of Timo Nupponen, Espoo, Finland
RCWS	Research Collection of Wolfgang Stark, Trübensee bei Tulln, Austria
RCWSc	Research Collection of Willibald Schmitz, Bergisch Gladbach, Germany
RCWW	Research Collection of Wolfgang Wittland, Wegberg, Germany
RCZK	Research Collection of Zoltan Kovacs, Miercurea Ciuc, Romania
RCZT	Research Collection of Zdenko Tokár, Šaľa, Slovakia
RMNH	Naturalis Biodiversity Center, Leiden, The Netherlands
SDAU	Shandong Agricultural University, Tai'an, China
SMNK	Staatliches Museum für Naturkunde, Karlsruhe, Germany

TLMF	Tiroler Landesmuseum Ferdinandeum, Innsbruck, Austria
TUEE	Tartu University, Estonia
ZfBS	Zentrum für Biodokumentation Saarland, Reden, Germany
ZIN	Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
ZMHB	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen, Denmark
ZMUH	Zoology Museum, University of Helsinki, Helsinki, Finland
ZSM	Zoologische Staatssammlung, München, Germany