

ECOLOGY AND
BEHAVIOUR OF THE
LADYBIRD BEETLES
(COCCINELLIDAE)

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LADYBIRD BEETLES
(COCCINELLIDAE)

Edited by I. Hodek, H.F. van Emden and A. Honěk

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To all those scientists
who have now passed on
and who laid the foundation
of our present knowledge of Coccinellidae,
particularly to Michael Majerus
who intended to be one of authors
of this volume.

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PREFACE

For more than a decade, no volume on the general aspects of ladybirds has been published, although the predaceous major part of this coleopteran family represents an important component of the natural enemies of Sternorrhyncha (aphids, coccids, aleyrodids and psyllids). These sucking insects are among the most dangerous pests of crops, as under suitable conditions their populations increase exponentially, especially when parthenogenesis and viviparity occur.

Although classical biological control with coccinellids has recently been mostly abandoned, the increasing concern about chemical pest control has increased the need for modern types of biological control, mostly involving conservation and augmentation, within the framework of integrated pest management. For the success of these sophisticated methods of control, precise knowledge of behaviour and ecological relations is indispensable.

Such knowledge, particularly in the areas of ethology and molecular genetics, has accumulated in the last decade and reviewing these areas is an important novel contribution of this book. We hope that, at this stage, it will help to improve conservation and augmentation control, but also that it will stimulate further research.

The book was very unfortunately interrupted by the premature death of Professor Michael Majerus, Department of Genetics, Cambridge University, who was our proposed author for Chapters 2 and 8. We were extremely lucky to find very able successors, John Sloggett (Chapter 2), and Helen Roy and Remy Poland

(for parasites and pathogens in Chapter 8), who fulfilled their task with great success. Many thanks!

We should like to thank the other authors of chapters for contributing their expertise so readily and for reacting so positively and constructively to our suggestions for revision. We are also grateful for the expert help we have received with taxonomic nomenclature: Dr O. Nedvěd of the University of South Bohemia, Czech Republic, and from the UK Drs V.F. Eastop, C.H. Lyal and D.J. Williams (Natural History Museum), Drs R.T.V. Fox and S.L. Jury (University of Reading) and Professor D.L.J. Quicke (Imperial College). Dr Lyal deserves additional thanks for his advice in relation to Chapter 1.

We should also like to thank Dr Ward Cooper of Wiley-Blackwell for enthusiastically agreeing to publish our book and Mr Kelvin Matthews for his help with the publication process. We should also like to thank the other Wiley-Blackwell staff who have worked so helpfully and efficiently on the production of this book.

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INTRODUCTION

The reader may find the following information helpful in order to use the book more easily.

To keep the flow of the text unbroken and to save repetition and space, taxonomic affiliations of organisms and species authorities are given only in the Taxonomic Glossary (following section, while the Subject Index is at the end of book, as usual). Readers should also note that the Latin names as given in this glossary are used in the text and tables, and therefore may not be the same as the older Latin names given in the original papers cited. However, because the species names

have usually not changed, and the older names are also listed in the glossary, any confusion will be avoided.

The very common generic names are always abbreviated as follows throughout the text of all chapters: *A.* for *Adalia*; *C.*, *Coccinella*; *Cer.*, *Ceratomegilla*; *Chil.*, *Chilocorus*; *Col.*, *Coleomegilla*; *Har.*, *Harmonia*; *Hip.*, *Hippodamia*; *P.*, *Propylea*.

Some phenomena are discussed in more than one chapter in the book, but from different angles; the reader's attention is directed to this by cross-references to the section number.

TAXONOMIC GLOSSARY

With common names where appropriate

Coleoptera: Family Coccinellidae

Synonyms [in square brackets] as well as currently valid names are listed in alphabetical order.

Adalia bipunctata (L.) – two spot ladybird [*Adalia fasciatopunctata* (Faldermann)]
Adalia conglomerata (L.)
Adalia decempunctata (L.) – ten spot ladybird
Adalia deficiens Mulsant
[*Adalia fasciatopunctata* (Faldermann)] = *Adalia bipunctata* (L.)
[*Adalia flavomaculata* (De Geer)] = *Lioadalia flavomaculata* (De Geer)
Adalia tetraspilota (Hope)
[*Adonia*] = *Hippodamia*
[*Adonia arctica* (Schneider)] = *Hippodamia arctica* (Schneider)
[*Adonia variegata* (Goeze)] = *Hippodamia variegata* (Goeze)
Afidenta misera (Weise) [*Afidenta mimetica* Dieke]
Aphidentula bisquadripunctata (Gyllenhal) [*Epilachna bisquadripunctata* (Gyllenhal)]
Afissula rana Kapur
Afissula sanscrita (Crotch)
Aiolocaria hexaspilota (Hope) [*Aiolocaria mirabilis* (Motschulsky)]
[*Aiolocaria mirabilis* (Motschulsky)] = *Aiolocaria hexaspilota* (Hope)
Alloneda dodecaspilota (Hope)
Anatis halonis Lewis
Anatis labiculata (Say) – fifteen spotted lady beetle
Anatis mali (Say) – eyespotted lady beetle
Anatis ocellata (L.) – eyed ladybird

Anatis quindecimpunctata (DeGeer)
Anegleis cardoni (Weise)
[*Anisolemnia dilatata* (F.)] = *Megalocaria dilatata* (F.)
Anisolemnia tetrasticta Fairmaire
Anisosticta bitriangularis (Say)
Anisosticta novemdecimpunctata (L.) – water ladybird
Anisosticta sibirica Bielawski
Aphidecta oblitterata (L.) – larch ladybird
Apolinus lividigaster (Mulsant) [*Scymnodes lividigaster* (Mulsant)]
Axinoscymnus cardilobus Ren & Pang
[*Azya trinitatis* (Marshall)] = *Pseudoazyg trinitatis* (Marshall)
Azya orbigera Mulsant
Brachiacantha quadripunctata Melsheimer
Brachiacantha ursina (F.)
Brumoides septentrionis (Weise)
Brumoides suturalis (F.) – three-striped lady beetle
[*Brumus suturalis* (Mani)]
[*Brumus quadripustulatus* (L.)] = *Exochomus quadripustulatus* (L.)
[*Brumus suturalis* (Mani)] = *Brumoides suturalis* (F.)
Bulaea lichatschovi (Hummel)
Callicaria superba (Mulsant)
Calvia albida Bielawski
Calvia decemguttata (L.)
Calvia duodecimmaculata Gebler
Calvia muiri Timberlake [*Eocaria muiri* Timberlake]
Calvia quatuordecimguttata (L.) – cream-spot ladybird
Calvia quindecimguttata (F.)
Calvia shiva Kapur
Calvia shiva pasupati Kapur
Calvia shiva pinaki Kapur
Calvia shiva trilochana Kapur
Ceratomegilla barovskii kiritschenkoi (Semenov-Tian-Shanski) [*Spiladelphia barovskii kiritschenkoi* Semenov-Tian-Shanski]

- Ceratomegilla notata* (Laicharting)
Ceratomegilla undecimnotata (Schneider) [*Semiadalia undecimnotata* (Schneider)]
Cheilomenes lunata (F.)
Cheilomenes propinqua vicina (Mulsant) [*Cheilomenes vicina* (Mulsant), *Cydonia vicina nilotica* Mulsant]
 [*Cheilomenes sexmaculata* (F.)] = *Menochilus sexmaculatus* (F.)
Cheilomenes sulphurea (Olivier)
 [*Cheilomenes vicina*] = *Cheilomenes propinqua vicina* (Mulsant)
 [*Chilocorus baylei* (Blackburn)] = *Chilocorus malasiae* Crotch
Chilocorus bijugus Mulsant
Chilocorus bipustulatus (L.) – heather ladybird
Chilocorus braeti Weise
Chilocorus cacti (L.)
Chilocorus circumdatus (Gyllenhal)
Chilocorus discoideus Crotch
Chilocorus distigma Klug
Chilocorus geminus Zaslavsky
Chilocorus hauseri Weise
Chilocorus hexacyclus Smith
Chilocorus infernalis Mulsant
Chilocorus inornatus Weise
Chilocorus kuwanae Silvestri
Chilocorus malasiae Crotch [*Chilocorus baylei* (Blackburn)]
Chilocorus nigripes Mader
Chilocorus nigrinus (F.)
Chilocorus orbis Casey
Chilocorus quadrimaculatus (Weise)
Chilocorus renipustulatus (Scriba) – kidney-spot ladybird
Chilocorus rubidus Hope
Chilocorus similis (Rossi)
Chilocorus stigma (Say) – twice-stabbed lady beetle
Chilocorus tricyclus Smith
Chnootriba similis (Thunberg)
Cleobora mellyi (Mulsant) – Tasmanian ladybird
Clitostethus arcuatus (Rossi)
Clitostethus oculatus (Blatchley) [*Nephaspis oculatus* (Blatchley)]
Coccidophilus citricola Brèthes
Coccidula rufa (Herbst)
Coccidula scutellata (Herbst)
 [*Coccinella algerica* Kovář] = *Coccinella septempunctata algerica* Kovář
Coccinella californica Mannerheim
Coccinella explanata Miyatake
Coccinella hieroglyphica L. – hieroglyphic ladybird
Coccinella leonina transversalis F. [*Coccinella repanda* Thunberg, *Coccinella transversalis* F.]
Coccinella luteopicta (Mulsant)
Coccinella magnifica Redtenbacher – scarce seven spot ladybird [*Coccinella divaricata* Olivier]
Coccinella monticola Mulsant
Coccinella nigrovittata Kapur [*Tytthaspis trilineata* (Weise)]
Coccinella novemnotata Herbst – nine-spotted lady beetle
Coccinella quinquepunctata L. – five spot ladybird
Coccinella reitteri Weise
 [*Coccinella repanda* Thunberg] = *Coccinella leonina* F.
Coccinella septempunctata L. – seven spot ladybird
Coccinella septempunctata algerica Kovář [*Coccinella algerica* Kovář]
Coccinella septempunctata brucki Mulsant
 [*Coccinella sinuatomarginata* Faldermann] = *Coccinella sinuatomarginata* (Faldermann)
 [*Coccinella transversalis* F.] = *Coccinella leonina transversalis* F.
Coccinella transversoguttata Faldermann – transverse lady beetle
Coccinella transversoguttata richardsoni Brown
Coccinella trifasciata L. – three-banded lady beetle
Coccinella undecimpunctata L. – eleven spot ladybird
 [*Coccinella undecimpunctata aegyptiaca* Reiche] = *Coccinella undecimpunctata menetriesi* Mulsant
Coccinella undecimpunctata menetriesi Mulsant
 [*Coccinella undecimpunctata aegyptiaca* Reiche]
Coccinula crotchii (Lewis)
Coccinula quatuordecimpustulata (L.)
Coccinula redimita (Weise)
Coccinula sinensis (Weise)
Coccinula sinuatomarginata (Faldermann) [*Coccinella sinuatomarginata* Faldermann]
Coelophora biplagiata Swartz [*Lennia biplagiata* (Swartz)]
Coelophora bissellata Mulsant
Coelophora duvaucelii (Mulsant)
Coelophora inaequalis (F.) – common Australian lady beetle
Coelophora mulsanti (Montrouzier)
Coelophora quadrivittata Fauvel
Coelophora saucia Mulsant
Coleomegilla maculata (DeGeer) – spotted lady beetle
Coleomegilla maculata fuscilabris (Mulsant)

- Coleomegilla maculata lengi* Timberlake – twelve spotted ladybeetle
Coleomegilla quadrifasciata (Schoenherr)
Cryptognatha simillima Sicard
Cryptognatha nodiceps Marshall
Cryptognatha signata Korschefsky
Cryptogonus ariasi (Mulsant)
Cryptogonus kapuri Ghorpade
Cryptogonus orbiculus (Gyllenhal)
Cryptogonus postmedialis Kapur
Cryptogonus quadriguttatus (Weise)
Cryptolaemus montrouzieri Mulsant – mealybug destroyer
Curinus coeruleus Mulsant – metallic blue lady beetle
Cycloneda ancoralis (Germar)
Cycloneda limbifer Casey
Cycloneda munda (Say) – polished lady beetle
Cycloneda polita Casey
Cycloneda sanguinea (L.) – blood-red lady beetle
[Cydonia vicina nilotica Mulsant] = Cheilomenes propinqua vicina (Mulsant)
Declivitata spp.
Delphastus catalinae (Horn)
Delphastus pusillus (LeConte)
Diomus austrinus Gordon
Diomus hennesseyi Fürsch
Diomus pumilio Weise
Diomus seminulus (Mulsant)
Diomus thoracicus F.
[Eocaria muiri Timberlake] = Calvia muiri (Timberlake)
Epilachna admirabilis Crotch
[Epilachna bisquadripunctata (Gyllenhal)] = Aphidentula bisquadripunctata (Gyllenhal)
[Epilachna boisduvali (Mulsant)] = Henosepilachna boisduvali Mulsant
Epilachna borealis (F.) – squash beetle
Epilachna canina (F.)
[Epilachna 'chrysolina' (F.)]; used variably either for Henosepilachna argus (Geoffroy) or *Henosepilachna elaterii* (Rossi) or *Henosepilachna vigintioctopunctata* (F.)
[Epilachna cucurbitae] = Henosepilachna sumbana Bielawski
Epilachna defecta Mulsant
Epilachna dregei Mulsant – potato ladybird
Epilachna dumerili Mulsant
Epilachna eckloni Mulsant
[Epilachna enneasticta Mulsant] = Henosepilachna enneasticta (Mulsant)
Epilachna eusema (Weise)
- Epilachna karisimbica* Weise
Epilachna marginella (F.)
Epilachna marginicollis (Hope)
Epilachna mexicana (Guérin-Méneville)
Epilachna mystica Mulsant
Epilachna nigrolimbata Thomson
[Epilachna niponica Lewis] = Henosepilachna niponica (Lewis)
Epilachna paenulata (Germar)
[Epilachna philippinensis Dieke] = Henosepilachna vigintisexpunctata (Boisduval)
[Epilachna pusillanima Mulsant] = Henosepilachna pusillanima (Mulsant)
[Epilachna pustulosa Kôno] = Henosepilachna pustulosa (Kôno)
Epilachna quadricollis (Dieke)
[Epilachna septima Dieke] = Henosepilachna septima (Dieke)
[Epilachna sparsa orientalis Dieke] = Henosepilachna vigintioctopunctata (F.)
Epilachna undecimvariolata (Boisduval)
Epilachna varivestis Mulsant – mexican bean beetle
[Epilachna vigintioctomaculata Motschulsky] = Henosepilachna vigintioctomaculata (Motschulsky)
[Epilachna vigintioctomaculata Motschulsky] = Henosepilachna vigintioctomaculata (Motschulsky)
Epilachna vigintisexpunctata (Boisduval)
[Epilachna yasutomii (Katakura)] = Henosepilachna yasutomii Katakura
Epiverta chelonia (Mader)
Eriopis connexa (Germar)
Exochomus childreni Mulsant
[Exochomus concavus Fürsch] = Parexochomus troberti concavus (Fürsch)
Exochomus flavipes (Thunberg)
Exochomus flaviventris Mader
Exochomus fulvimanus Weise
[Exochomus lituratus (Gorham)] = Priscibrum lituratus (Gorham)
[Exochomus melanocephalus (Zoubkoff)] = Parexochomus melanocephalus (Zoubkoff)
[Exochomus nigromaculatus (Goeze) = Parexochomus nigromaculatus (Goeze)
Exochomus quadripustulatus (L.) – pine ladybird
[Brumus quadripustulatus (L.)]
[Exochomus troberti Mulsant] = Parexochomus troberti (Mulsant)
Halmus chalybeus (Boisduval) – steelblue lady beetle
[Orcus chalybeus (Boisduval)]
[Halysia hauseri (Mader)] = Macroilleis hauseri (Mader)

- Halyzia sanscrita* Mulsant
Halyzia sedecimguttata (L.) – orange ladybird
Halyzia straminea (Hope)
Halyzia tschitscherini Semenov
Harmonia antipoda (Mulsant in White) – antipodean ladybird
Harmonia axyridis (Pallas) – harlequin ladybird or Asian multi-colored ladybeetle
[*Harmonia breiti* Mader] = *Harmonia expallata* Sicard
Harmonia conformis (Boisduval)
Harmonia dimidiata (F.) [*Leis dimidiata* (F.)]
Harmonia eucharis (Mulsant)
Harmonia expallata Sicard [*Harmonia breiti* Mader]
Harmonia quadripunctata (Pontoppidan) – cream-streaked ladybird
Harmonia octomaculata (F.)
Harmonia sedecimnotata (F.)
Harmonia yedoensis (Takizawa)
Henosepilachna argus (Geoffroy) – bryony ladybird
Henosepilachna bifasciata (L.)
Henosepilachna boisduvali (Mulsant) [*Epilachna boisduvali* Mulsant]
Henosepilachna dodecastigma (Wiedemann)
Henosepilachna elaterii (Rossi) [*Epilachna chrysomelina* (F.)]
Henosepilachna emeasticta (Mulsant) [*Epilachna emeasticta* Mulsant]
Henosepilachna guttatopustulata (F.)
Henosepilachna indica (Mulsant)
Henosepilachna niponica (Lewis) [*Epilachna niponica* Lewis]
Henosepilachna ocellata (Redtenbacher)
Henosepilachna processa Li
Henosepilachna pusillanima (Mulsant) [*Epilachna pusillanima* Mulsant]
Henosepilachna pustulosa (Kôno) [*Epilachna pustulosa* Kôno]
Henosepilachna septima (Dieke) [*Epilachna septima* Dieke]
Henosepilachna sumbana Bielawski [*Epilachna cucurbitae* Richards, *Henosepilachna cucurbitae* Richards]
Henosepilachna vigintioctomaculata (Motschulsky) [*Epilachna vigintioctomaculata* Motschulsky]
Henosepilachna vigintioctopunctata (F.) [*Epilachna vigintioctopunctata* (F.), *Epilachna sparsa orientalis* Dieke]
Henosepilachna vigintisex punctata (Boisduval) [*Epilachna philippinensis* Dieke]
Henosepilachna yasutomii Katakura [*Epilachna yasutomii* (Katakura)]
- Hippodamia arctica* (Schneider) [*Adonia arctica* (Schneider)]
Hippodamia caseyi Johnson
Hippodamia convergens Guerin – convergent ladybeetle
Hippodamia glacialis (F.) – glacial lady beetle
Hippodamia parenthesis (Say) – parenthesis lady beetle
Hippodamia quinquesignata (Kirby)
Hippodamia quinquesignata punctulata Le Conte [*Hippodamia quinquesignata ambigua* LeConte]
Hippodamia septemmaculata (DeGeer)
Hippodamia sinuata Mulsant
Hippodamia tredecimpunctata (L.) – thirteen spot ladybird
Hippodamia variegata (Goeze) – Adonis ladybird, variegated lady beetle [*Adonia variegata* (Goeze)]
Hyperaspis aestimabilis Mader
Hyperaspis bigeminata (Randall)
Hyperaspis binotata (Say)
Hyperaspis campestris (Herbst)
[*Hyperaspis congressis* Watson] = *Hyperaspis conviva* Casey
Hyperaspis conviva Casey [*Hyperaspis congressis* Watson]
Hyperaspis desertorum Weise
Hyperaspis lateralis Mulsant
Hyperaspis notata Mulsant
Hyperaspis pantherina Fürsch
Hyperaspis raynevali Mulsant
Hyperaspis reppensis (Herbst)
Hyperaspis senegalensis Mulsant
Hyperaspis senegalensis hottentotta Mulsant
Hyperaspis sphaeridioides Mulsant
Hyperaspis undulata (Say)
Illeis bielawskii Ghorpade
Illeis cincta (F.)
Illeis galbula (Mulsant) [*Leptothea galbula* (Mulsant)]
Illeis koebelei Timberlake
Jauravia quadrinotata Kapur
[*Leis dimidiata* (F.)] = *Harmonia dimidiata* (F.)
[*Leis*] = *Harmonia*
[*Lemnia biplagiata* (Swartz)] = *Coelophora biplagiata* Swartz
[*Leptothea galbula* (Mulsant)] = *Illeis galbula* (Mulsant)
Lindorus lophanthae (Blaisdell) [*Rhyzobius lophanthae* (Blaisdell), *Rhyzobius lorophanthae* (Blaisdell)]
Lioadalia flavomaculata (De Geer) [*Adalia flavomaculata* (De Geer)]
Macroilleis hauseri (Mader) [*Halyzia hauseri* (Mader)]
Macronaemia hauseri (Weise)

- Megalocaria dilatata* (F.) [*Anisolemnia dilatata* (F.)]
[*Menochilus quadriplagiatus* (Swartz)] = *Menochilus sexmaculatus* (F.)
- Menochilus sexmaculatus* (F.) [*Cheilomenes sexmaculata* (F.), *Menochilus quadriplagiatus* (Swartz)]
- Micraspis allardi* (Mulsant)
- Micraspis discolor* (F.)
- Microweisea* sp.
- Mulsantina hudsonica* (Casey)
- Mulsantina picta* (Randall)
- Myrrha octodecimguttata* (L.) – eighteen spot ladybird
- Myzia oblongoguttata* (L.) – striped ladybird
- Myzia subvittata* (Mulsant)
- Neda marginalis* Mulsant
- Neocalvia anastomozans* Crotch
- [*Nephaspis oculatus* (Blatchley)] = *Clitostethus oculatus* (Blatchley)
- Nephus bilucernarius* (Mulsant)
- Nephus bisignatus* (Boheman)
- Nephus flavifrons* (Melsheimer) [*Scymnus flavifrons* Melsheimer, North America, not *Scymnus flavifrons* Blackburn, Australia]
- Nephus guttulatus* (LeConte) [*Scymnus guttulatus* LeConte]
- Nephus includens* (Kirsch)
- Nephus kiesenwetteri* (Mulsant) [*Scymnus kiesenwetteri* Mulsant]
- Nephus ornatus* (LeConte) [*Scymnus ornatus* LeConte]
- Nephus quadrimaculatus* (Herbst) [*Scymnus quadrimaculatus* (Herbst)]
- Nephus redtenbacheri* (Mulsant)
- Nephus soudanensis* (Sicard) [*Scymnus soudanensis* Sicard]
- Oenopia billieti* (Mulsant)
- Oenopia conglobata* (L.) [*Synharmonia conglobata* (L.)]
- Oenopia kirbyi* Mulsant
- Oenopia lyncea* (Olivier)
- Oenopia sexareata* (Mulsant)
- [*Olla abdominalis* (Say)] = *Olla v-nigrum* (Mulsant)
- Olla v-nigrum* (Mulsant) – ash-gray lady beetle [*Olla abdominalis* (Say)]
- Orcus australasiae* (Boisduval)
- [*Orcus chalybeus* (Boisduval)] = *Halmus chalybeus* (Boisduval)
- Palaeoneda auriculata* (Mulsant) [*Paleoneda miniata* (Hope)]
- [*Paleoneda miniata* (Hope)] = *Palaeoneda auriculata* (Mulsant)
- Pania luteopustulata* Mulsant
- Paranaemia vittigera* (Mannerheim)
- Parastethorus nigripes* (Kapur) [*Stethorus loxtoni* Britton & Lee]
- Parexochomus melanocephalus* (Zoubkoff) [*Exochomus melanocephalus* (Zoubkoff)]
- Parexochomus nigromaculatus* (Goeze) [*Exochomus nigromaculatus* (Goeze)]
- Parexochomus troberti* (Mulsant) [*Exochomus troberti* (Mulsant)]
- Parexochomus troberti concavus* (Fuersch) [*Exochomus concavus* Fuersch]
- Pentilia insidiosa* Mulsant
- Pharoscymnus anchorago* (Fairmaire)
- Pharoscymnus numidicus* (Pic)
- Pharoscymnus ovoideus* Sicard
- Phymatosternus lewisii* (Crotch)
- Platynaspis luteorubra* (Goeze)
- Priscibrumum lituratus* (Gorham) [*Exochomus lituratus* (Gorham)]
- Priscibrumum uropygialis* (Mulsant)
- Propylea dissecta* (Mulsant)
- Propylea japonica* (Thunberg)
- Propylea quatuordecimpunctata* (L.) – fourteen spot ladybird [*Propylaea quatuordecimpunctata* (L.)]
- Pseudoazya trinitatis* (Marshall) [*Azya trinitatis* (Marshall)]
- [*Pseudoscymnus tsugae*] Sasaji & McClure] = *Sasajiscymnus tsugae* (Sasaji & McClure)
- [*Pseudoscymnus kurohime* (Mityake)] = *Sasajiscymnus kurohime* (Miyatake)
- Psyllobora confluens* (F.)
- Psyllobora vigintiduopunctata* (L.) – twenty two spot ladybird [*Thea vigintiduopunctata* (L.)]
- Psyllobora vigintimaculata* (Say) – twenty-spotted lady beetle
- [*Pullus auritus* (Thunberg)] = *Scymnus auritus* Thunberg
- [*Pullus mediterraneus* (F.)] = *Scymnus marinus* (Mulsant)
- [*Pullus subvillosus* (Goeze)] = *Scymnus subvillosus* (Goeze)
- Rhyzobius litura* (F.)
- [*Rhyzobius lophanthae* (Blaisdell)] = *Lindorus lophanthae* (Blaisdell)
- [*Rhyzobius lorophanthae* (Blaisdell)] = *Lindorus lophanthae* (Blaisdell)
- Rhyzobius ventralis* (Erichson) – black lady beetle
- Rodatus major* (Blackburn)
- Rodolia cardinalis* (Mulsant) – vedalia beetle
- Rodolia fumida* Mulsant
- Rodolia guerini* (Crotch)

- Rodolia iceryae* Janson
Rodolia occidentalis Weise
Sasajiscymnus kurohime (Miyatake) [*Pseudoscymnus kurohime* (Miyatake)]
 [Sasajiscymnus ningshanensis (Sasaji & McClure)] = *Scymnus ningshanensis* Yu & Yao
Sasajiscymnus tsugae (Sasaji & McClure)
 [*Pseudoscymnus tsugae* Sasaji & McClure]
Scymnodes lividigaster (Mulsant) = *Apolinus lividigaster* (Mulsant)
Scymnus abietis (Paykull)
 [*Scymnus aeneipennis* Sicard] = *Zagloba aeneipennis* (Sicard)
Scymnus apetzi Mulsant
Scymnus ater Kugelann
Scymnus auritus Thunberg [*Pullus auritus* (Thunberg)]
Scymnus coccivora Ayyar
Scymnus creperus Mulsant
Scymnus dorcatomoides Weise
Scymnus flavifrons Blackburn (Australia)
 [*Scymnus flavifrons* Melsheimer] (North America) = *Nephus flavifrons* (Melsheimer)
Scymnus frontalis (F.)
 [*Scymnus guttulatus* LeConte] = *Nephus guttulatus* (LeConte)
Scymnus haemorrhoidalis Herbst
Scymnus hilaris Motschulsky
Scymnus hoffmanni Weise
Scymnus impexus Mulsant
Scymnus interruptus (Goeze)
 [*Scymnus kiesenwetteri* Mulsant] = *Nephus kiesenwetteri* (Mulsant)
Scymnus lacustris LeConte
Scymnus levaillanti Mulsant
Scymnus loewii Mulsant – dusky lady beetle
Scymnus louisianae Chapin
Scymnus marginicollis Mannerheim
Scymnus marinus (Mulsant) [*Scymnus mediterraneus* Iablokoff-Khnzorian, *Pullus mediterraneus* (Iablokoff-Khnzorian)]
 [*Scymnus mediterraneus*] = *Scymnus marinus* (Mulsant)
Scymnus morelleti Mulsant
Scymnus nigrinus Kugelann
Scymnus ningshanensis Yu & Yao [*Sasajiscymnus ningshanensis* (Sasaji & McClure)]
 [*Scymnus ornatus* LeConte] = *Nephus ornatus* (LeConte)
Scymnus otohime Kamiya
Scymnus posticalis Sicard
Scymnus postpictus Casey
Scymnus pyrocheilus Mulsant
Scymnus quadrillum Motschulsky
 [*Scymnus* (*Nephus*) *quadrifaculatus* (Herbst)] = *Nephus quadrifaculatus* (Herbst)
Scymnus rubromaculatus (Goeze)
Scymnus sinuanodulus Yu & Yao
Scymnus smithianus Silvestri
Scymnus soudanensis Sicard
Scymnus subvillosus (Goeze) [*Pullus subvillosus* (Goeze)]
Scymnus suturalis Thunberg
Scymnus syriacus (Marsuel)
Scymnus tardus Mulsant
 [*Semiadalia undecimnotata* (Schneider)] = *Ceratomegilla undecimnotata* (Schneider)
Serangium parcesetosum Sicard
 [*Sidis*] = *Nephus*
 [*Spiladelphia barovskii kiritschenkoi* Semenov-Tian-Shanski] = *Ceratomegilla barovskii kiritschenkoi* (Semenov-Tian-Shanski)
Sospita vigintiguttata (L.)
Stethorus bifidus Kapur
Stethorus gilvifrons (Mulsant)
Stethorus japonicus Kamiya
 [*Stethorus loxtoni* Britton & Lee] = *Parastethorus nigripes* (Kapur)
Stethorus madecassus Chazeau
 [*Stethorus picipes* Casey] = *Stethorus punctum picipes* Casey
 [*Stethorus punctillum* Weise] = *Stethorus pusillus* (Herbst)
Stethorus punctum (LeConte) – spider-mite destroyer
Stethorus punctum picipes Casey [*Stethorus picipes* Casey]
Stethorus pusillus (Herbst) [*Stethorus punctillum* (Weise)]
Stethorus tridens Gordon
Stethorus vegans (Blackburn)
Subcoccinella vigintiquatuorpunctata (L.) – twenty four spot ladybird
 [*Synharmonia conglobata* (L.)] = *Oenopia conglobata* (L.)
Synona obscura Poorani, Ślipiński & Booth
Synonycha grandis (Thunberg)
Thalassa saginata Mulsant
 [*Thea vigintiduopunctata* (L.)] = *Psyllobora vigintiduopunctata* (L.)
Tytthaspis sedecimpunctata (L.) – sixteen spot ladybird
 [*Tytthaspis trilineata* (Weise)] = *Coccinella nigrovittata* Kapur
 [*Verania*] = *Micraspis*

Vibidia duodecimguttata (Poda)
Zagloba aeneipennis (Sicard) [*Scymnus aeneipennis*
 Sicard]

OTHER ORGANISMS

In alphabetical order within each taxon, and with Family given in italics within brackets after the authority

OTHER INSECTS

Dermaptera

Anechura harmandi (Burr) (*Forficulidae*) – hump earwig
Forficula auricularia L. (*Forficulidae*) – European earwig

Hemiptera: Heteroptera

Calocoris norvegicus (Gmelin) (*Miridae*) – strawberry bug
Campylomma verbasci (Meyer) (*Miridae*) – mullein bug
Caternaltiella rugosa (Schoutenden) (*Plataspidae*)
Eurygaster integriceps Puton (*Pentatomidae*) – sunn pest or corn bug
Geocoris punctipes (Say) (*Lygaeidae*) – big-eyed bug
Hyaliodes vitripennis (Say) (*Miridae*)
Lygus hesperus (Knight) (*Miridae*) – western plant bug
Lygus lineolaris (Palidot de Beauvois) (*Miridae*) – tarnished plant bug
Lygus (*Miridae*)
Nabis (Reduviolus) americoferus Carayon (*Nabidae*) – common damsel bug
Nysius huttoni White (*Lygaeidae*) – wheat bug
Orius insidiosus (Say) (*Anthicoridae*) – insidious flower bug
Podisus maculiventris (Say) (*Pentatomidae*) – spined soldier bug
Pyrrhocoris apterus (L.) (*Pyrrhocoridae*) – firebug
Sidnia kinbergi (Stål) (*Miridae*)

Hemiptera: Auchenorrhyncha

Homalodisca vitripennis (Germar) (*Cicadellidae*) – glassy-winged sharpshooter

Nilaparvata lugens (Stål) (*Delphacidae*) – brown planthopper
Philaenus spumarius (L.) (*Cercopidae*) – common froghopper or meadow spittlebug

Hemiptera: Sternorrhyncha: Aphidoidea

(Synonyms are in square brackets)

Acyrtosiphon caraganae (Cholodkovsky) (*Aphididae*)
Acyrtosiphon ignotum Mordvilko (*Aphididae*)
Acyrtosiphon kondoi Shinji (*Aphididae*) – blue alfalfa aphid
 [*Acyrtosiphon nipponicum* (Essig & Kuwana)] = *Neoaulacorthum nipponicum* (Essig & Kuwana) (*Aphididae*)
Acyrtosiphon pisum (Harris) (*Aphididae*) – pea aphid
Adelges cooleyi (Gillette) (*Adelgidae*) – Cooley spruce gall adelgid
Adelges laticis Vallot (*Adelgidae*) – larch adelgid
Adelges nordmannianae (Eckstein) (*Adelgidae*)
 [*Adelges nusslini* (Boerner)] = *Adelges nordmannianae* (Eckstein) (*Adelgidae*)
Adelges piceae (Ratzeburg) (*Adelgidae*) – balsam woolly adelgid
Adelges tsugae Annand (*Adelgidae*) – hemlock woolly adelgid
Aphis carduella Walsh (*Aphididae*)
 [*Aphis cirsiacanthoidis* Boerner] = *Aphis fabae cirsiacanthoidis* Scopoli (*Aphididae*)
Aphis craccivora Koch (*Aphididae*) – cowpea aphid or groundnut aphid
Aphis cytisorum cytisorum Hartig (*Aphididae*)
Aphis fabae Scopoli (*Aphididae*) – black bean aphid
Aphis fabae cirsiacanthoidis Scopoli (*Aphididae*)
Aphis farinosa J.F.Gmelin (*Aphididae*)
Aphis glycines Matsumura (*Aphididae*) – soybean aphid
Aphis gossypii Glover (*Aphididae*) – cotton aphid or melon aphid
Aphis hederæ Kaltenbach (*Aphididae*)
 [*Aphis helianthi* Monell] = *Aphis carduella* Walsh (*Aphididae*)
Aphis jacobaeae Schrank (*Aphididae*)
 [*Aphis laburni* Kaltenbach] = *Aphis cytisorum cytisorum* Hartig (*Aphididae*)
Aphis nerii Boyer de Fonscolombe (*Aphididae*) – oleander aphid
Aphis pomi De Geer (*Aphididae*) – green apple aphid
Aphis punicae Passerini (*Aphididae*)

- Aphis sambuci* L. (*Aphididae*) – elder aphid
Aphis spiraeicola Patch (*Aphididae*) – spiraea aphid or green citrus aphid
Aphis spiraeophaga F.P. Müller (*Aphididae*)
Aphis spiraeophila Patch (*Aphididae*)
Aphis urticata J.F. Gmelin (*Aphididae*)
 [Aulacorthum magnoliae (Essig & Kuwana)] = *Neaulacorthum magnoliae* (Essig & Kuwana) (*Aphididae*)
Aulacorthum solani (Kaltenbach) (*Aphididae*) – glasshouse potato aphid or foxglove aphid
Betulaphis brevipedunculata (Kaltenbach) (*Aphididae*)
Betulaphis quadrituberculata (Kaltenbach) (*Aphididae*)
Brachycaudus helichrysi (Kaltenbach) (*Aphididae*) – leaf-curling plum aphid
Brachycaudus persicae (Passerini) (*Aphididae*) – black peach aphid
Brachycaudus prunicola (Kaltenbach) (*Aphididae*)
Brachycaudus tragopogonis (Kaltenbach) (*Aphididae*)
Brevicoryne brassicae (L.) (*Aphididae*) – cabbage aphid
Callipterinella calliptera (Hartig) (*Aphididae*)
Capitophorus elaeagni (Del Guercio) (*Aphididae*)
Cavariella konoi Takahashi (*Aphididae*)
Ceratovacuna lanigera Zehntner (*Aphididae*) – sugar cane woolly aphid
Cervaphis quercus Takahashi (*Aphididae*)
Chaetosiphon fragaefolii (Cockerell) (*Aphididae*) – strawberry aphid
Chaitophorus capreae (Mosley) (*Aphididae*)
Chaitophorus leucomelas Koch (*Aphididae*)
 [Chaitophorus versicolor Koch] = *Chaitophorus leucomelas* Koch (*Aphididae*)
Chromaphis juglandicola (Kaltenbach) (*Aphididae*) – walnut aphid
Cinara palaestinae Hille Ris Lambers (*Aphididae*)
Delphiniobium junackianum (Karsch) (*Aphididae*)
Diuraphis noxia (Kurdjumov) (*Aphididae*) – Russian wheat aphid
Drepanosiphum platanoidis (Schrank) (*Aphididae*) – sycamore aphid
Dysaphis crataegi (Kaltenbach) (*Aphididae*) – hawthorn–parsnip aphid
Dysaphis devectora (Walker) (*Aphididae*) – rosy leaf-curling aphid
Dysaphis plantaginea (Passerini) (*Aphididae*) – rosy apple aphid
Elatobium abietinum (Walker) (*Aphididae*) – spruce aphid
Eriosoma lanigerum (Hausmann) (*Aphididae*) – woolly apple aphid
Eucallipterus tiliae (L.) (*Aphididae*) – lime aphid
Euceraphis betulae (Koch) (*Aphididae*)
Euceraphis punctipennis (Zetterstedt) (*Aphididae*)
Hyalopterus pruni (Geoffroy) (*Aphididae*) – mealy plum aphid
Hyperomyzus carduellinus (Theobald) (*Aphididae*)
Hyperomyzus lactucae (L.) (*Aphididae*) – blackcurrant–sowthistle aphid
Laingia psammae Theobald (*Aphididae*)
Liosomaphis berberidis (Kaltenbach) (*Aphididae*)
Lipaphis pseudobrassicae (Davis) (*Aphididae*) – turnip aphid or mustard aphid
 [Longiunguis donacis (Passerini)] = *Melanaphis donacis* (Passerini) (*Aphididae*)
Macrosiphoniella artemisiae (Boyer de Fonscolombe) (*Aphididae*)
Macrosiphoniella sanborni (Gillette) (*Aphididae*) – chrysanthemum aphid
Macrosiphum albifrons Essig (*Aphididae*) – lupin aphid
Macrosiphum euphorbiae (Thomas) (*Aphididae*) – potato aphid
 [Macrosiphum ibarae (Matsumura)] = *Sitobion ibarae* (Matsumura) (*Aphididae*)
Macrosiphum rosae (L.) (*Aphididae*) – rose aphid
Megoura viciae Buckton (*Aphididae*) – vetch aphid
Melanaphis donacis (Passerini) (*Aphididae*)
Metopolophium dirhodum (Walker) (*Aphididae*) – rose–grain aphid.
Metopolophium festucae (Theobald) (*Aphididae*) – fescue aphid
Microlophium carnosum (Buckton) (*Aphididae*)
Microsiphoniella artemisiae (Gillette) (*Aphididae*)
Mindarus abietinus Koch (*Aphididae*)
Myzocallis boernerii Stroyan (*Aphididae*)
Myzocallis carpini (Koch) (*Aphididae*)
Myzocallis castanicola Baker (*Aphididae*)
Myzocallis coryli (Goetze) (*Aphididae*) – hazel aphid or filbert aphid
Myzus cerasi (F.) (*Aphididae*) – cherry blackfly
Myzus persicae (Sulzer) (*Aphididae*) – peach–potato aphid
Myzus persicae nicotianae Blackman (*Aphididae*)
Neaulacorthum magnoliae (Essig & Kuwana) (*Aphididae*)
Neaulacorthum nipponicum (Essig & Kuwana) (*Aphididae*)
Neomyzus circumflexus (Buckton) (*Aphididae*)
Neophyllaphis podocarpi Takahashi (*Aphididae*)
Periphyllus californiensis (Shinji) (*Aphididae*)
Periphyllus lyropictus (Kessler) (*Aphididae*)

- Periphyllus testudinaceus* (Fernie) (*Aphididae*)
Phorodon humuli (Schrank) (*Aphididae*) – damson–hop aphid
Phyllaphis fagi (L.) (*Aphididae*)
Phylloxera glabra (von Heyden) (*Phylloxeridae*)
Pineus pini (Macquart) (*Adelgidae*)
Pseudoregma alexanderi (Takahashi) (*Aphididae*)
Pseudoregma bambucicola (Takahashi) (*Aphididae*)
Pterocallis alni (deGeer) (*Aphididae*)
Rhopalosiphum maidis (Fitch) (*Aphididae*) – corn leaf aphid
Rhopalosiphum padi (L.) (*Aphididae*) – bird cherry–oat aphid
Schizaphis graminum (Rondani) (*Aphididae*) – greenbug
Schizolachnus pineti (F.) (*Aphididae*)
Schizolachnus piniradiatae (Davidson) (*Aphididae*)
Sitobion akebiae (Shinji) (*Aphididae*)
Sitobion avenae (F.) (*Aphididae*) – grain aphid
Sitobion ibarae (Matsumura) (*Aphididae*)
Symydobius oblongus (von Heyden) (*Aphididae*)
Thelaxes dryophila (Schrank) (*Aphididae*)
[*Therioaphis maculata* (Buckton)] = *Therioaphis trifolii* (Monell) (*Aphididae*) – spotted alfalfa aphid
Therioaphis trifolii (Monell) (*Aphididae*) – spotted alfalfa aphid
Toxoptera aurantii (Boyer de Fonscolombe) (*Aphididae*) – black citrus aphid or tea aphid
Toxoptera citricidus (Kirkaldy) (*Aphididae*) – brown citrus aphid
[*Toxoptera graminum* (Rondani)] = *Schizaphis graminum* (Rondani) (*Aphididae*) – greenbug
Tuberculatus annulatus (Hartig) (*Aphididae*)
Tuberolachnus salignus (J.F. Gmelin) (*Aphididae*) – willow aphid
Uroleucon aeneum (Hille Ris Lambers) (*Aphididae*)
Uroleucon ambrosiae (Thomas) (*Aphididae*)
Uroleucon cichorii (Koch) (*Aphididae*)
Uroleucon cirsii (L.) (*Aphididae*)
Uroleucon compositae (Theobald) (*Aphididae*)
Uroleucon formosanum (Takahashi) (*Aphididae*)
Uroleucon jaceae (L.) (*Aphididae*)
Uroleucon nigrotuberculatum (Olive) (*Aphididae*)
Vesiculaphis caricis (Fullaway) (*Aphididae*)
- Hemiptera: other Sternorrhyncha**
- Abgrallaspis cyanophylli* (Signoret) (*Diaspididae*)
Acutaspis umbonifera (Newstead) (*Diaspididae*)
- Agonoscena pistaciae* Burckhardt et Lauterer (*Psyllidae*)
Aleurodicus cocois (Curtis) (*Aleyrodidae*)
Aleurodicus dispersus Russell (*Aleyrodidae*) – spiralling whitefly
Aleurotuba jelinekii (Frauenfeld) (*Aleyrodidae*)
Aleyrodes prolella (L.) (*Aleyrodidae*)
Aonidiella aurantii (Maskell) (*Diaspididae*) – California red scale
Aonidiella orientalis (Newstead) (*Diaspididae*)
Aonidimytilus albus (Cockerell) (*Diaspididae*) – cassava scale
Aspidiotus destructor Signoret (*Diaspididae*) – coconut scale
Aspidiotus nerii Bouché (*Diaspididae*)
Asterolecanium sp. (*Asterolecaniidae*)
Aulacaspis tegalensis (Zehntner) (*Diaspididae*) – sugar cane scale
Aulacaspis tubercularis Newstead (*Diaspididae*)
Bemisia tabaci (Gennadius) (*Aleyrodidae*)
[*Bemisia argentifolii* Bellows] = *Bemisia tabaci* Gennadius (*Aleyrodidae*)
Chionaspis alnus Kuwana (*Diaspididae*)
Chionaspis salicis (L.) (*Diaspididae*)
Chrysomphalus aonidum (L.) (*Diaspididae*) – Florida red scale
Chrysomphalus bifasciculatus Ferris (*Diaspididae*)
Coccus hesperidum L. (*Coccidae*) – soft brown scale
Coccus viridis (Green) (*Coccidae*) – green coffee scale or soft green scale
Dactylopius opuntiae (Cockerell) (*Dactylopiidae*)
Diaphorina citri Kuwayama (*Psyllidae*) – Asian citrus psyllid
Diaspidiotus perniciosus (Comstock) (*Diaspididae*)
Dysmicoccus (*Pseudococcidae*)
Eriococcus coriaceus Maskell (*Eriococcidae*)
Eulecanium caraganae Borchsenius (*Coccidae*)
Ferrisia virgata (Cockerell) (*Pseudococcidae*) – striped mealybug
Hemberlesia lataniae (Signoret) (*Diaspididae*)
Heteropsylla cubana Crawford (*Psyllidae*)
Icerya purchasi Maskell (*Monophlebidae*) – cottony cushion scale
Lepidosaphes beekii (Newman) (*Diaspididae*) – citrus mussel scale
Lepidosaphes cornutus Ramakrishna Ayyar (*Diaspididae*)
Lepidosaphes ulmi (L.) (*Diaspididae*) – mussel scale or oystershell scale
Maconellicoccus hirsutus (Green) (*Pseudococcidae*) – pink hibiscus mealybug

Matsucoccus feytaudi Ducassee (*Matsucoccidae*)
Matsucoccus josephi Bodenheimer & Harpaz
 (*Matsucoccidae*)
Matsucoccus matsumurae (Kuwana) (*Matsucoccidae*)
Melanaspis glomerata (Green) (*Diaspididae*)
Monophlebulus pilosior (Maskell) (*Monophlebidae*)
Orthezia urticae (L.) (*Ortheziidae*)
Parlatoria blanchardi (Tergioni Tozzetti) (*Diaspididae*)
Phenacoccus herreni Cox & Williams (*Pseudococcidae*)
Phenacoccus madeirensis Green (*Pseudococcidae*)
Phenacoccus manihoti Matile-Ferrero (*Pseudococcidae*)
 – cassava mealybug
Phoenicococcus marlatti (Cockerell) (*Phoenicococcidae*)
Pinaspis buxi (Bouché) (*Diaspididae*)
Planococcus citri (Risso) (*Pseudococcidae*) – citrus
 mealybug
Planococcus minor (Maskell) (*Pseudococcidae*)
Pseudochermes fraxini (Kaltenbach) (*Eriococcidae*)
Pseudococcus cryptus Hempel (*Pseudococcidae*)
Pseudococcus maritimus (Ehrhorn) (*Pseudococcidae*)
Pseudococcus viburni (Signoret) (*Pseudococcidae*)
Psylla alni (L.) (*Psyllidae*)
Psylla jucunda Tuthill (*Psyllidae*)
Psylla mali (Schmidberger) (*Psyllidae*) – apple sucker
Psylla ulmi Forster (*Psyllidae*)
Psylla uncatoides (Ferris et Clyver) (*Psyllidae*)
Pulvinaria psidii Maskell (*Coccidae*) – green shield scale
Pulvinaria urbicola (Cockerell) (*Coccidae*)
Pulvinaria vitis (L.) (*Coccidae*) – woolly vine scale
Rastrococcus invadens Williams (*Pseudococcidae*)
Saissetia coffeae (Walker) (*Coccidae*) – helmet scale
Saissetia oleae (Olivier) (*Coccidae*) – olive scale
Siphoninus phillyreae (Haliday) (*Aleyrodidae*)
Trialeurodes vaporariorum (Westwood) (*Aleyrodidae*)
 – glasshouse whitefly
Unaspis citri (Comstock) (*Diaspididae*) – citrus snow scale
Unaspis euonymi (Comstock) (*Diaspididae*)
Unaspis yanonensis Kuwana (*Diaspididae*)

Thysanoptera

Thrips tabaci Lindeman (*Thripidae*) – onion thrips or
 tobacco thrips

Neuroptera

Chrysopa Leach (*Chrysopidae*)
Chrysopa oculata Say (*Chrysopidae*) – golden-eyed
 lacewing

Chrysopa perla (L.) (*Chrysopidae*)
Chrysopa sinica (Tjeder) (*Chrysopidae*)
Chrysoperla carnea (Stephens) (*Chrysopidae*) – green
 lacewing
Chrysoperla plorabunda Fitch (*Chrysopidae*)
Chrysoperla rufilabris (Burmeister) (*Chrysopidae*)

Lepidoptera

Acraea encedon (L.) (*Nymphalidae*)
 [*Anagasta kuehniella* (Zeller)] = *Ephestia kuehniella*
 Zeller (*Pyralidae*)
Arctia (*Arctiidae*) – tiger moths
Choristoneura pinus Freeman (*Tortricidae*) – jack pine
 budworm
Danaus plexippus (L.) (*Nymphalidae*) – monarch
 butterfly
Ephestia kuehniella Zeller (*Pyralidae*) – Mediterranean
 flour moth
Galleria mellonella (L.) (*Pyralidae*) – wax moth
Helicoverpa armigera (Hübner) (*Noctuidae*) – cotton
 bollworm
Helicoverpa zea (Boddie) (*Noctuidae*) – corn earworm
Heliothis virescens (F.) (*Noctuidae*) – tobacco budworm
Hyphantria cunea (Drury) (*Arctiidae*) – fall webworm
Ostrinia nubilalis (Hübner) (*Crambidae*) – European
 corn borer
Pectinophora gossypiella (Saunders) (*Gelechiidae*) – pink
 bollworm
Phthorimaea operculella (Zeller) (*Gelechiidae*) – potato
 tuber moth
Pieris rapae (L.) (*Pieridae*) – small cabbage white
 butterfly
Plutella xylostella (L.) (*Plutellidae*) – diamondback
 moth
Sitotroga cerealella (Olivier) (*Gelechiidae*) – Angoumois
 grain moth
Spodoptera litura (F.) (*Noctuidae*) – common
 cutworm
Trichoplusia ni (Hübner) (*Noctuidae*) – cabbage looper
 or ni moth
Tyria (*Arctiidae*) – cinnabar moths

Diptera

Anopheles quadrimaculatus Say (*Culicidae*)
Aphidoletes aphidimyza (Rondani) (*Cecidomyiidae*)
Boettcheria latisterna Parker (*Sarcophagidae*)

Chetogena claripennis (Macquart) (*Tachinidae*)
Chrysotachina slossonae (Coquillett) (*Tachinidae*)
Contarinia nasturtii (Kieffer) (*Cecidomyiidae*) – swede
 midge
Cryptochaetum iceryae (Williston) (*Cryptochaetidae*)
Culex quinquefasciatus Say (*Culicidae*) – southern
 house mosquito
 [*Degeeria luctuosa* (Meigen)] = *Medina luctuosa*
 (Meigen) (*Tachinidae*)
 [*Doryphorophaga doryphorae*] = *Myiopharus doryphorae*
 (Riley) (*Tachinidae*)
Drosophila melanogaster Meigen (*Drosophilidae*)
Episyrphus balteatus (DeGeer) (*Syrphidae*) –
 marmalade hover fly
Euthelyconychia epilachnae (Aldrich) (*Tachinidae*)
 [*Exoristoides slossonae* Coquillett] = *Chrysotachina*
slossonae (Coquillett) (*Tachinidae*)
Helicobia rapax (Walker) (*Sarcophagidae*)
Lydinolydella metallica Townsend (*Tachinidae*)
 [*Lypha slossonae* (Coquillett)] = *Chrysotachina slossonae*
 (Coquillett) (*Tachinidae*)
Medina collaris (Fallén) (*Tachinidae*)
Medina funebris (Meigen) (*Tachinidae*)
Medina luctuosa (Meigen) (*Tachinidae*)
Medina melania (Meigen) (*Tachinidae*)
Medina separata (Meigen) (*Tachinidae*)
Megaselia (*Phoridae*)
Myiopharus doryphorae (Riley) (*Tachinidae*)
 [*Paradexodes epilachnae* Aldrich] = *Euthelyconychia*
epilachnae (Aldrich) (*Tachinidae*)
Phalacrotophora Enderlein (*Phoridae*)
Phalacrotophora berolinensis Schmitz (*Phoridae*)
Phalacrotophora beuki Disney (*Phoridae*)
Phalacrotophora decimaculata Liu (*Phoridae*)
Phalacrotophora delageae Disney (*Phoridae*)
Phalacrotophora fasciata (Fallén) (*Phoridae*)
Phalacrotophora indiana Colyer (*Phoridae*)
Phalacrotophora nedae (Malloch) (*Phoridae*)
Phalacrotophora philaxyridis Disney (*Phoridae*)
Phalacrotophora quadrimaculata Schmitz (*Phoridae*)
Policheta unicolor (Fallén) (*Tachinidae*)
Pseudebenia epilachnae Shima & Han (*Tachinidae*)
Ravinia errabunda (Wulp) (*Sarcophagidae*)
 [*Sarcophaga helcis* Townsend] = *Helicobia rapax*
 (Walker) (*Sarcophagidae*)
 [*Sarcophaga latisterna* (Parker)] = *Boettcheria latisterna*
 Parker (*Sarcophagidae*)
 [*Sarcophaga reinhardii* Hall] = *Ravinia errabunda* (Wulp)
 (*Sarcophagidae*)
Strongygaster triangulifera (Loew) (*Tachinidae*)

Hymenoptera

[*Aminellus Masi*] = *Cowperia* Girault (*Encyrtidae*)
 [*Aminellus sumatraensis* Kerrich] = *Cowperia*
sumatraensis (Kerrich) (*Encyrtidae*)
Anagyrus Howard (*Encyrtidae*)
Anagyrus australiensis (Howard) (*Encyrtidae*)
Anagyrus kamali Moursi (*Encyrtidae*)
Anagyrus lopezi (De Santis) (*Encyrtidae*)
Anagyrus pseudococci (Girault) (*Encyrtidae*)
Anastatus Motschulsky (*Eupelmidae*)
 [*Anisotylus* Timberlake] = *Homalotylus* Mayr
 (*Encyrtidae*)
Aphanogmus Thomson (*Ceraphronidae*)
Aphidius colemani Viereck (*Braconidae*)
Aphidius eadyi Starý (*Braconidae*)
Aphidius ervi Haliday (*Braconidae*)
Apis mellifera L. (*Apidae*) – European honey bee
Aprostocetus Westwood (*Eulophidae*)
Aprostocetus esurus (Riley) (*Eulophidae*)
Aprostocetus neglectus (Domenichini) (*Eulophidae*)
 [*Atritomellus* Kieffer] = *Dendrocercus* (*Megaspilidae*)
Austroterobia Girault (*Pteromalidae*)
Aximopsis Ashmead (*Eurytomidae*)
Azteca instabilis (Smith) (*Formicidae*)
Baryscapus Foerster (*Eulophidae*)
Baryscapus thanasimi (Ashmead) (*Eulophidae*)
Brachymeria carinatifrons Gahan (*Chalcididae*)
Catolaccus Thomson (*Pteromalidae*)
Centistes scymni Ferrière (*Braconidae*)
Centistes subsulcatus (Thomson) (*Braconidae*)
Centistina nipponicus (Belokobylskij) (*Braconidae*)
Cerchysiella Girault [*Zeteticontus* Silvestri] (*Encyrtidae*)
Chartocerus subaeneus (Foerster) (*Signiphoridae*)
Cheiloneurus carinatus Compere (*Encyrtidae*)
Cheiloneurus cyanonotus Waterston (*Encyrtidae*)
Cheiloneurus liorhipnusi (Risbec) (*Encyrtidae*)
Cheiloneurus orbitalis Compere (*Encyrtidae*)
Chrysocharis johnsoni Subba Rao (*Eulophidae*)
Chrysonotomyia appannai (Chandy Kurian)
 (*Eulophidae*)
Coccidoctonus trinidadensis Crawford (*Encyrtidae*)
Conura Spinola (*Chalcididae*)
Conura paranensis (Schrottky) (*Chalcididae*)
Conura petioliventris (Cameron) (*Chalcididae*)
Conura porteri (Brèthes) (*Chalcididae*)
Cowperia Girault (*Encyrtidae*)
Cowperia areolata (Walker) (*Encyrtidae*)
Cowperia indica (Kerrich) (*Encyrtidae*)
Cowperia punctata Girault (*Encyrtidae*)

- Cowperia subnigra* Li (*Encyrtidae*)
Cowperia sumatraensis (Kerrich) (*Encyrtidae*)
Crematogaster Lund (*Formicidae*)
Crematogaster lineolata (Say) (*Formicidae*)
Dendrocerus (*Megaspilidae*)
Dendrocerus ergensis (Guesquiere) (*Megaspilidae*)
Dibrachys cavus (Walker) (*Pteromalidae*)
Dinocampus Foerster (*Braconidae*)
Dinocampus coccinellae (Schrank) (*Braconidae*)
 [Dinocampus nipponicus Belokobylskij] = *Centistina nipponicus* (Belokobylskij) (*Braconidae*)
 [Dinocampus terminatus (Nees)] = *Dinocampus coccinellae* (Schrank) (*Braconidae*)
Dolichoderus bidens L. (*Formicidae*)
 [Echthroplectis Foerster] = *Homalotylus* Mayr (*Encyrtidae*)
Elasmus Westwood (*Eulophidae*)
Encarsia sophia (Girault & Dodd) (*Aphelinidae*)
 [Epidinocarsus lopezi (De Santis)] = *Anagyrus lopezi* (De Santis) (*Encyrtidae*)
Eretmocerus mundus Mercet (*Aphelinidae*)
Eupelmus Dalman (*Eupelmidae*)
Eupelmus urozonus Dalman (*Eupelmidae*)
Eupelmus vermai (Bhatnagar) (*Eupelmidae*)
 [Eupteromalus Kurdjumov] = *Trichomalopsis* Crawford (*Pteromalidae*)
Formica L. (*Formicidae*)
Formica obscuripes Forel (*Formicidae*)
Formica polyctena Foerster (*Formicidae*) – European red wood ant
Formica rufa L. (*Formicidae*) – wood ant
Formica rufibarbis F. (*Formicidae*) – red-barbed ant
Gelis Thunberg (*Ichneumonidae*)
Gelis agilis (F.) (*Ichneumonidae*)
 [Gelis instabilis (Förster)] = *Gelis agilis* (F.) (*Ichneumonidae*)
Gelis melanocephalus (Schrank) (*Ichneumonidae*)
 [Hemaenasioidea Girault] = *Homalotylus* Mayr (*Encyrtidae*)
Homalotyloidea dahlbomii (Westwood) (*Encyrtidae*)
Homalotylus Mayr (*Encyrtidae*)
Homalotylus affinis Timberlake (*Encyrtidae*)
Homalotylus africanus Timberlake (*Encyrtidae*)
Homalotylus agarwali Anis & Hayat (*Encyrtidae*)
Homalotylus albiclavatus (Agarwal) (*Encyrtidae*)
Homalotylus albifrons (Ishii) (*Encyrtidae*)
Homalotylus albitarsus Gahan (*Encyrtidae*)
Homalotylus aligarhensis (Shafee & Rizvi) (*Encyrtidae*)
Homalotylus balchanensis Myartseva (*Encyrtidae*)
Homalotylus brevicauda Timberlake (*Encyrtidae*)
 [Homalotylus californicus (Say)] = *Homalotylus terminalis* (Say) (*Encyrtidae*)
Homalotylus cockerelli Timberlake (*Encyrtidae*)
Homalotylus ephippium (Ruschka) (*Encyrtidae*)
Homalotylus eytelweinii (Ratzeburg) (*Encyrtidae*)
Homalotylus ferrierei Hayat, Alam & Agarwal (*Encyrtidae*)
Homalotylus flaminus Dalman (*Encyrtidae*)
Homalotylus hemipterinus (De Stefani) (*Encyrtidae*)
Homalotylus formosus Anis & Hayat (*Encyrtidae*)
Homalotylus himalayensis Liao (*Encyrtidae*)
Homalotylus hybridus Hoffer (*Encyrtidae*)
Homalotylus hyperaspicola Tachikawa (*Encyrtidae*)
Homalotylus hyperaspidis Timberlake (*Encyrtidae*)
Homalotylus hypnos Noyes
Homalotylus indicus (Agarwal) (*Encyrtidae*)
Homalotylus latipes Girault (*Encyrtidae*)
Homalotylus longicaudus Xu & He (*Encyrtidae*)
Homalotylus longipedicellus (Shafee & Fatma) (*Encyrtidae*)
Homalotylus mexicanus Timberlake (*Encyrtidae*)
Homalotylus mirabilis (Brèthes) (*Encyrtidae*)
Homalotylus mundus Gahan (*Encyrtidae*)
Homalotylus nigricornis Mercet (*Encyrtidae*)
Homalotylus oculatus (Girault) (*Encyrtidae*)
Homalotylus pallentipes (Timberlake) (*Encyrtidae*)
Homalotylus platynaspidis Hoffer (*Encyrtidae*)
Homalotylus punctifrons Timberlake (*Encyrtidae*)
Homalotylus quaylei Timberlake (*Encyrtidae*)
Homalotylus rubricornis Sharkov (*Encyrtidae*)
Homalotylus scutellaris Tan & Zhao (*Encyrtidae*)
Homalotylus scymnivorus Tachikawa (*Encyrtidae*)
Homalotylus shuvakhinae Trjapitzin & Triapitsyn (*Encyrtidae*)
Homalotylus similis Ashmead (*Encyrtidae*)
Homalotylus sinensis Xu & He (*Encyrtidae*)
Homalotylus singularis Hoffer (*Encyrtidae*)
Homalotylus terminalis (Say) (*Encyrtidae*)
Homalotylus trisubalbus Xu & He (*Encyrtidae*)
Homalotylus turkmenicus Myartseva (*Encyrtidae*)
Homalotylus vicinus Silvestri (*Encyrtidae*)
Homalotylus yunnanensis Tan & Zhao (*Encyrtidae*)
Homalotylus zhaoi Xu & He (*Encyrtidae*)
Inkaka quadridentata Girault (*Pteromalidae*)
Iridomyrmex Mayr (*Formicidae*)
Isodromus niger Ashmead (*Encyrtidae*)
Lasius claviger (Roger) (*Formicidae*)
Lasius japonicus Santschi (*Formicidae*) – Japanese ant
Lasius niger (L.) (*Formicidae*) – black ant or garden ant
Lasius umbratus (Nylander) (*Formicidae*)

[*Lepidaphycus* Blanchard] = *Homalotylus* Mayr
(*Encyrtidae*)

Linepithema humile (Mayr) (*Formicidae*) – Argentine
ant

[*Lygocerus* Foerster] = *Dendrocerus* (*Megaspilidae*)

Lysiphlebus fabarum (Marshall) (*Braconidae*)

Lysiphlebus testaceipes (Cresson) (*Braconidae*)

[*Mendozaaniella* Brethes] = *Homalotylus* Mayr
(*Encyrtidae*)

Merismoclea rojasi De Santis (*Pteromalidae*)

Mesopolobus Westwood (*Pteromalidae*)

Mesopolobus secundus (Crawford) (*Pteromalidae*)

[*Mestocharis lividus* Girault] = *Pediobius foveolatus*
(Crawford) (*Eulophidae*)

Metastenus Walker (*Pteromalidae*)

Metastenus caliginosus Szelényi (*Pteromalidae*)

Metastenus concinnus Walker (*Pteromalidae*)

Metastenus indicus Sureshan & Narendran
(*Pteromalidae*)

Metastenus sulcatus (Dodd) (*Pteromalidae*)

Metastenus townsendi (Ashmead) (*Pteromalidae*)

Microctonus Wesmael (*Braconidae*)

Monomorium minimum (Buckley) (*Formicidae*) – little
black ant

Myrmica ruginodis Nylander (*Formicidae*)

Myrmica rugulosa Nylander (*Formicidae*)

[*Neoenasioidea* Agarwal] = *Homalotylus* Mayr
(*Encyrtidae*)

[*Neotainania* Husain & Agarwal] = *Uga* Girault
(*Chalcididae*)

[*Nobrimus* Thomson] = *Homalotylus* Mayr (*Encyrtidae*)

Nothoserphus Brues (*Proctotrupidae*)

Nothoserphus admirabilis Lin (*Proctotrupidae*)

Nothoserphus aequalis Townes (*Proctotrupidae*)

Nothoserphus afissae (Watanabe) (*Proctotrupidae*)

Nothoserphus boops (Thomson) (*Proctotrupidae*)

Nothoserphus debilis Townes (*Proctotrupidae*)

Nothoserphus epilachnae (Pschorn-Walcher)
(*Proctotrupidae*)

Nothoserphus fuscipes Lin (*Proctotrupidae*)

Nothoserphus mirabilis Brues (*Proctotrupidae*)

Nothoserphus partitus Lin (*Proctotrupidae*)

Nothoserphus scymni (Ashmead) (*Proctotrupidae*)

Nothoserphus townesi Lin (*Proctotrupidae*)

Omphale Haliday (*Eulophidae*)

[*Omphale epilachni* Singh & Khan] = *Chrysonotomyia*
appannai (Chandy Kurian) (*Eulophidae*)

Ooencyrtus azul Prinsloo (*Encyrtidae*)

Ooencyrtus bedfordi Prinsloo (*Encyrtidae*)

Ooencyrtus camerounensis (Risbec) (*Encyrtidae*)

Ooencyrtus distatus Prinsloo (*Encyrtidae*)

Ooencyrtus epilachnae Annecke (*Encyrtidae*)

[*Ooencyrtus epulus* Annecke] = *Ooencyrtus*
camerounensis (Risbec) (*Encyrtidae*)

Ooencyrtus polyphagus (Risbec) (*Encyrtidae*)

Ooencyrtus puparum Prinsloo (*Encyrtidae*)

Ooencyrtus sinis Prinsloo (*Encyrtidae*)

Oomyzus Rondani (*Eulophidae*)

Oomyzus mashhoodi (Khan & Shafee) (*Eulophidae*)

Oomyzus scaposus (Thomson) (*Eulophidae*)

Oomyzus sempronius (Erdoes) (*Eulophidae*)

Ophelosia bifasciata Girault (*Pteromalidae*)

Oricoruna Boucek (*Pteromalidae*)

Ophelosia crawfordi Riley (*Pteromalidae*)

Oricoruna orientalis (Crawford) (*Pteromalidae*)

Pachyneuron Walker (*Pteromalidae*)

Pachyneuron albutius Walker (*Pteromalidae*)

Pachyneuron altiscuta Howard (*Pteromalidae*)

Pachyneuron chilocori Domenichini (*Pteromalidae*)

[*Pachyneuron concolor* Förster] = *Pachyneuron*
muscarum (L.) (*Pteromalidae*)

Pachyneuron muscarum (L.) (*Pteromalidae*)

[*Pachyneuron siculum* Delucchi] = *Pachyneuron*
muscarum (L.) (*Pteromalidae*)

Pachyneuron solitarium (Hartig) (*Pteromalidae*)

[*Pachyneuron syrphi* (Ashmead)] = *Pachyneuron*
albutius Walker (*Pteromalidae*)

Parachrysocharis Girault (*Eulophidae*)

Paratrechina Motschulsky (*Formicidae*)

Pediobius Walker (*Eulophidae*)

Pediobius amaurocoelus (Waterston) (*Eulophidae*)

[*Pediobius epilachnae* (Rohwer)] = *Pediobius foveolatus*
(Crawford) (*Eulophidae*)

Pediobius foveolatus (Crawford) (*Eulophidae*)

[*Pediobius mediopunctata* (Waterston)] = *Pediobius*
foveolatus (Crawford) (*Eulophidae*)

Pediobius nishidai Hansson (*Eulophidae*)

[*Pediobius simiolus* (Takahashi)] = *Pediobius foveolatus*
(Crawford) (*Eulophidae*)

[*Perilitus americanus* Riley] = *Dinocampus coccinellae*
(Schrank) (*Braconidae*)

[*Perilitus coccinellae* (Schrank)] = *Dinocampus*
coccinellae (Schrank) (*Braconidae*)

Perilitus rutilus (Nees) (*Braconidae*)

Perilitus stuardoi Porter (*Braconidae*)

[*Perilitus terminatus* (Nees)] = *Dinocampus coccinellae*
(Schrank) (*Braconidae*)

Pheidole megacephala (F.) (*Formicidae*) – big-headed
ant

Phygadeuon subfuscus Cresson (*Ichneumonidae*)

[*Pleurotropis* Foerster] = *Pediobius* Walker (*Eulophidae*)

Pnigalio agraulis (Walker) (*Eulophidae*)

Praon volucre (Haliday) (*Braconidae*)
Pristomyrmex pungens Mayr (*Formicidae*)
Prochiloneurus aegyptiacus (Mercet) (*Encyrtidae*)
Prochiloneurus nigriflagellum (Girault) (*Encyrtidae*)
Pseudocatolaccus Masi (*Pteromalidae*)
Quadrastichus ovulorum (Ferrière) (*Eulophidae*)
 [*Scymnophagus* Ashmead] = *Metastenus* Walker
 (*Pteromalidae*)
 [*Scymnophagus mesnili* Ferrière] = *Metastenus*
concinus Walker (*Pteromalidae*)
Sigmoepilachna indica Khan, Agnihotri & Sushil
 (*Eulophidae*)
Solenopsis invicta Buren (*Formicidae*) – red imported
 fire ant
 [*Syntomosphyrus taprobanes* Waterston] = *Oomyzus*
scaposus (Thomson) (*Eulophidae*)
Syrphoctonus tarsatorius (Panzer) (*Ichneumonidae*)
Tamarixia radiata (Waterston) (*Eulophidae*)
Tapinoma nigerrimum (Nylander) (*Formicidae*)
Tetramorium caespitum (L.) (*Formicidae*)
Tetrastichus Haliday (*Eulophidae*)
 [*Tetrastichus coccinellae* Kurdjumov] = *Oomyzus*
scaposus (Thomson) (*Eulophidae*)
Tetrastichus cydoniae Risbec (*Eulophidae*)
Tetrastichus decrescens Graham (*Eulophidae*)
Tetrastichus epilachnae (Giard) (*Eulophidae*)
 [*Tetrastichus melanis* Burks] = *Oomyzus scaposus*
 (Thomson) (*Eulophidae*)
Tetrastichus orissaensis Husain & Khan (*Eulophidae*)
 [*Tetrastichus sexmaculatus* Chandy Kurian] = *Oomyzus*
scaposus (Thomson) (*Eulophidae*)
 [*Thomsonina* Hellen] = *Nothoserphus* Brues
 (*Proctotrupidae*)
Trichogramma Westwood (*Trichogrammatidae*)
Trichogramma evanescens Westwood
 (*Trichogrammatidae*)
Trichomalopsis Crawford (*Pteromalidae*)
Trichomalopsis acuminata (Graham) (*Pteromalidae*)
Trichomalopsis dubia (Ashmead) (*Pteromalidae*)
 [*Tripolycystus* Dodd] = *Metastenus* Walker
 (*Pteromalidae*)
Uga Girault [*Neotainania* Husain & Agarwal]
 (*Chalcididae*)
Uga colliscutellum (Girault) (*Chalcididae*)
Uga coriacea Kerrich (*Chalcididae*)
Uga digitata Qian & He (*Chalcididae*)
Uga hemicarinata Qian & Li (*Chalcididae*)
Uga javanica Kerrich (*Chalcididae*)
Uga menoni Kerrich (*Chalcididae*)
Uga sinensis Kerrich (*Chalcididae*)
Wasmannia auropunctata (Roger) (*Formicidae*)

[*Watanabeia* Masner] = *Nothoserphus* Brues
 (*Proctotrupidae*)

Coleoptera (other than Coccinellidae)

Agelastica coerulea (Baly) (*Chrysomelidae*) – alder leaf
 beetle
Agonum dorsale (Pontoppidan) (*Carabidae*)
Chrysomela populi L. (*Chrysomelidae*) – poplar leaf
 beetle
Chrysophtharta bimaculata (Olivier) (*Chrysomelidae*)
 – eucalyptus leaf beetle
Diabrotica virgifera LeConte (*Chrysomelidae*) – western
 corn rootworm
Dicranolaius bellulus (Guérin-Méneville) (*Melyridae*)
Dytiscus sp. (*Dytiscidae*)
Galeruca interrupta arminiaca Weise (*Chrysomelidae*)
Galerucella lineola (F.) (*Chrysomelidae*)
Galerucella pusilla Duftschmid (*Chrysomelidae*)
 – golden loosestrife beetle
Galerucella sagittariae Gyllenhal (*Chrysomelidae*)
 – cloudberry beetle
Harpalus pennsylvanicus (De Geer) (*Carabidae*)
Hypera postica (Gyllenhal) (*Curculionidae*) – alfalfa
 weevil
Laricobius nigrinus Fender (*Derodontidae*)
Leptinotarsa decemlineata (Say) (*Chrysomelidae*) –
 Colorado potato beetle
 [*Melasoma populi* (L.)] = *Chrysomela populi* L.
 (*Chrysomelidae*)
Melolontha sp. (*Scarabaeidae*)
Plagioderma versicolora (Laicharting) (*Chrysomelidae*)
Platynus dorsalis (Pontopiddan) (*Carabidae*)
Pterostichus melanarius (Illiger) (*Carabidae*)
 [*Pyrrhalla luteola* (Muller)] = *Xanthogaleruca luteola*
 (Muller) (*Chrysomelidae*)
Sitona discoideus Gyllenhal (*Curculionidae*)
Stenotarsus rotundus Arrow (*Endomychidae*)
Tachyporus sp. (*Staphylinidae*)
Xanthogaleruca luteola (Muller) (*Chrysomelidae*) – elm
 leaf beetle

PARASITIC MITES

Coccipolipus Husband (*Podapolipidae*)
Coccipolipus africanae Husband (*Podapolipidae*)
Coccipolipus arturi Haitlinger (*Podapolipidae*)
Coccipolipus benoiti Husband (*Podapolipidae*)
Coccipolipus bifasciatae Husband (*Podapolipidae*)

Coccipolipus cacti Husband (*Podapolipidae*)
Coccipolipus camerouni Husband (*Podapolipidae*)
Coccipolipus chilocori Husband (*Podapolipidae*)
Coccipolipus cooremani Husband (*Podapolipidae*)
Coccipolipus epilachnae Smiley (*Podapolipidae*)
Coccipolipus hippodamiae (McDaniel & Morrill)
 (*Podapolipidae*)
Coccipolipus macfarlanei Husband (*Podapolipidae*)
Coccipolipus micraspisi Husband (*Podapolipidae*)
Coccipolipus oconnori Husband (*Podapolipidae*)
Coccipolipus solanophilae (Cooreman) (*Podapolipidae*)
Hemisarcoptes Lignieres (*Hemisarcoptidae*)
Hemisarcoptes cooremani Thomas (*Hemisarcoptidae*)
Leptus ignotus (Oudemans) (*Erythraeidae*)

ARACHNIDA (other than parasitic mites)

Agistemus longisetus Gonzalez (*Stigmaeidae*)
Amblyseius andersoni (Chant) (*Phytoseidae*)
Amblyseius fallacis (Garman) (*Phytoseidae*)
Amphitetranynchus viennensis (Zacher) (*Tetranychidae*)
 – hawthorn spider mite or fruit tree spider mite
Araneus diadematus (Clerck) (*Araneidae*)
Bryobia praetiosa Koch (*Tetranychidae*) – clover mite
Bryobia rubrioculus (Scheuten) (*Tetranychidae*)
 – brown mite or brown apple mite
Cheiracanthium (*Miturgidae*)
Clubiona reclusa O.P.- Cambridge (*Clubionidae*)
 [*Metatetranychus ulmi* (Koch)] = *Panonychus ulmi*
 (Koch) (*Tetranychidae*)
Misumenops tricuspidatus (F.) (*Thomisidae*)
Panonychus mori Yokovama (*Tetranychidae*)
Panonychus ulmi (Koch) (*Tetranychidae*) – red spider
 mite or European red mite
Tetranychus evansi Baker & Pritchard (*Tetranychidae*)
Tetranychus lintearius Dufour (*Tetranychidae*) – gorse
 spider mite
Tetranychus mcdanieli McGregor (*Tetranychidae*)
 [*Tetranychus telarius* (L.)] = *Tetranychus urticae* Koch
 (*Tetranychidae*)
Tetranychus urticae Koch (*Tetranychidae*) – two-spotted
 spider mite
Thanatus Koch (*Philodromidae*)

NEMATODES

[*Coccinellermis* Rubtzov] = *Hexameris* Steiner
 (*Mermithidae*)

Hexameris Steiner (*Mermithidae*)
Howardula Cobb (*Allantonematidae*)
Mermis Dujardin (*Mermithidae*)
Parasitlenchus coccinellinae Iperti & van Waerebeke
 (*Allantonematidae*)

MOLLUSCA

Arion ater (L.) (*Arionidae*) – European black slug
Arion hortensis (Férussac) (*Arionidae*) – garden slug
Deroceras reticulatum (Müller) (*Limacidae*) – grey field
 slug or grey garden slug
Tandonia budapestensis (Hazay) (*Milacidae*) – Budapest
 slug

AVES

Acrocephalus schoenobaenus (L.) (*Sylviidae*) – sedge
 warbler
Alauda arvensis L. (*Alaudidae*) – sky lark
Anthus campestris (L.) (*Motacillidae*) – tawny pipit
Anthus pratensis (L.) (*Motacillidae*) – meadow pipit
Anthus trivialis (L.) (*Motacillidae*) – tree pipit
Apus apus (L.) (*Apodidae*) – common swift
Calandrella cinerea (Gmelin) (*Alaudidae*) – red-capped
 lark
Coturnix coturnix L. (*Phasianidae*) – quail
Coturnix japonicus Temminck & Schlegel (*Phasianidae*)
 – Japanese quail
Cuculus canorus L. (*Cuculidae*) – common cuckoo
Cyanistes caeruleus (L.) (*Paridae*) – blue tit
Delichon urbica (L.) (*Hirundinidae*) – house martin
Dendrocopos medius (L.) (*Picidae*) – middle spotted
 woodpecker
Ficedula parva (Bechstein) (*Muscicapidae*) – red-headed
 flycatcher
Hippolais icterina (Vieillot) (*Sylviidae*) – icterine
 warbler
Hirundo rustica L. (*Hirundinidae*) – barn swallow
Luscinia luscinia (L.) (*Muscicapidae*) – thrush
 nightingale
Luscinia svecica (L.) (*Muscicapidae*) – bluethroat
Melanocorypha calandra (L.) (*Alaudidae*) – Calandra lark
Motacilla flava L. (*Motacillidae*) – blue-headed wagtail
Muscicapa striata (Pallas) (*Muscicapidae*) – spotted
 flycatcher
Oenanthe oenanthe (L.) (*Muscicapidae*) – northern
 wheatear

Parus major L. (*Paridae*)
Passer domesticus (L.) (*Passeridae*) – house sparrow
Passer montanus (L.) (*Passeridae*) – tree sparrow
Phoenicurus ochruros (Gmelin) (*Muscicapidae*) – black redstart
Phoenicurus phoenicurus (L.) (*Muscicapidae*) – common redstart
Phylloscopus collybita (Vieillot) (*Phylloscopidae*) – common chiffchaff
Phylloscopus trochilus (L.) (*Phylloscopidae*) – willow warbler
Saxicola rubicola (L.) (*Muscicapidae*) – common stonechat
Sitta europaea L. (*Sittidae*) – wood nuthatch
Sturnus vulgaris L. (*Sturnidae*) – common starling
Sylvia atricapilla (L.) (*Sylviidae*) – blackcap
Sylvia borin (Boddaert) (*Sylviidae*) – garden warbler
Sylvia communis Latham (*Sylviidae*) – common whitethroat
Sylvia curruca (L.) (*Sylviidae*) – lesser whitethroat
Sylvia nisoria (Bechstein) (*Sylviidae*) – barred warbler
Turdus philomelos (Turton) (*Turdidae*) – song thrush
Turdus merula L. (*Turdidae*) – Eurasian blackbird

FUNGI

Alternaria Nees (*Pleosporaceae*)
Beauveria bassiana (Balsamo) Vuillemin (*Cordycipitaceae*)
Cladosporium Link (*Davidiellaceae*)
Erysiphe polygoni DC. (*Erisiphaceae*) – powdery mildew
Erysiphe cichoracearum DC (*Erisiphaceae*)
Hesperomyces Thaxter (*Laboulbeniaceae*)
Hesperomyces chilomenis (Thaxter) Thaxter (*Laboulbeniaceae*)
Hesperomyces coccinelloides (Thaxter) Thaxter (*Laboulbeniaceae*)
Hesperomyces hyperaspidis Thaxter (*Laboulbeniaceae*)
Hesperomyces virescens Thaxter (*Laboulbeniaceae*)
Isaria farinosa (Holmskiöld ex S. F. Gray) Fries (*Cordycipitaceae*)
Isaria fumosorosea Wize (*Cordycipitaceae*)
Lecanicillium lecanii (Zimmerman) Zare & Gams (*Cordycipitaceae*)
[*Lecanicillium longisporum* (Zimmerman) Zare & Gams – as ‘Vertalec’] = *Lecanicillium lecanii* (Zimmerman) Zare & Gams (*Cordycipitaceae*)
Metarhizium anisopliae (Metschnikoff) Sorokin (*Clavicipitaceae*)

Microsphaera alphitoides Griffon & Maublanc (*Erisiphaceae*)
Microsphaera pulchra Cooke & Peck (*Erisiphaceae*)
Neotyphodium lolii Latch et al. (*Clavicipitaceae*)
Nosema coccinellae Lipa (*Nosematidae*)
Nosema epilachnae Brooks, Hazard & Becnel (*Nosematidae*)
Nosema henosepilachnae Toguebaye & Marchand (*Nosematidae*)
Nosema hippodamiae Lipa & Steinhaus (*Nosematidae*)
Nosema tracheophila Cali & Briggs (*Nosematidae*)
Nosema varivestis Brooks, Hazard & Becnel (*Nosematidae*)
Tubulnosema hippodamiae Bjornson, Le, Saito & Wang (*Nosematidae*)
Oidium monilioides (Nees) Link (*Erisiphaceae*)
[*Paecilomyces farinosus* (Holmskiöld ex S. F. Gray) Brown & Smith] = *Isaria farinosa* (Holmskiöld ex S. F. Gray) Fries (*Cordycipitaceae*)
[*Paecilomyces fumosoroseus* (Wize) Brown & Smith] = *Isaria fumosorosea* Wize (*Cordycipitaceae*)
Pandora neoaphidis (Remaudière & Hennebert) Humber (*Entomophthoraceae*)
Phyllactinia moricola (Hennebert) Homma (*Erisiphaceae*)
Podosphaera leucotricha (Ellis & Everhart) E.S. Salmon (*Erisiphaceae*) – apple powdery mildew
Podosphaera tridactyla (Wallroth) de Bary (*Erisiphaceae*) – plum powdery mildew
Puccinia Pers. (*Pucciniaceae*)
Saccharomyces fragilis Kudrjawzew (*Saccharomycetaceae*)
Sphaerotheca castagnei Léverrier (*Erisiphaceae*) – hop powdery mildew
Sphaerotheca cucurbitae (Jaczewski) Z.Y. Zhao (*Erisiphaceae*)
Sphaerotheca pannosa (Wallroth) de Bary (*Erisiphaceae*) – rose powdery mildew
[*Verticillium lecanii* (Zimmerman) Viegas] = *Lecanicillium lecanii* (Zimmerman) Zare & Gams (*Cordycipitaceae*)

PROTISTS

Anisobolus indicus Haldar, Ray & Bose (*Gregarinidae*)
Brustiospora indicola Kundu & Haldar (*Brustiophoridae*)
Gregarina Dufour (*Gregarinidae*)
Gregarina barbarara Watson (*Gregarinidae*)

Gregarina californica Lipa (*Gregarinidae*)
Gregarina chilocori Obata (*Gregarinidae*)
Gregarina coccinellae Lipa (*Gregarinidae*)
Gregarina dasguptai Mandal, Rai, Pranhan, Gurung,
 Sharma, Rai & Mandal (*Gregarinidae*)
Gregarina fragilis Watson (*Gregarinidae*)
Gregarina hyashii Sengupta & Haldar (*Gregarinidae*)
Gregarina katherina Watson (*Gregarinidae*)
Gregarina ruzskowskii Lipa (*Gregarinidae*)
Gregarina straeleni Theodorides & Jolivet
 (*Gregarinidae*)

BACTERIA

Alcaligenes paradoxus Davis (*Alcaligenaceae*)
Bacillus thuringiensis Berliner (*Bacillaceae*)
Flavobacterium Bergey (*Flavobacteriaceae*)
Rickettsia da Rocha-Lima (*Rickettsiaceae*)
Spiroplasma Saglio, Lhospital, Lafleche, Dupont, Bove,
 Tully & Freundt (*Spiroplasmataceae*)
Wolbachia Hertig (*Rickettsiaceae*)

PLANTS

Abies balsamea (L.) Miller (*Pinaceae*) – balsam fir
Abutilon theophrasti Medikus (*Malvaceae*) – Chinese
 jute or Indian Mallow
Acacia Miller (*Fabaceae*)
Acalypha ostryaefolia Riddell (*Euphorbiaceae*)
Aconitum L. (*Ranunculaceae*)
Aframomum melegueta (Roscoe) K. Schum
 (*Zingiberaceae*) – grains of paradise or melegueta
 pepper
Agropyron desertorum (Link) Schultes (*Poaceae*)
 – crested wheatgrass
Alnus japonica (Thunberg) Steudel (*Betulaceae*)
Amaranthus hybridus L. (*Amaranthaceae*)
Ambrosia artemisiifolia L. (*Asteraceae*) – hogbrake
Anethum graveolens L. (*Apiaceae*) – dill
Artemisia tridentata Nuttall (*Asteraceae*) – sagebrush
Artemisia vulgaris L. (*Asteraceae*) – wormwood
Atriplex sagittata Borkhausen (*Chenopodiaceae*)
Benthamidia florida (L.) Spach (*Cornaceae*)
Berberis vulgaris L. (*Berberidaceae*) – common
 barberry
Beta vulgaris L. (*Chenopodiaceae*) – sugar beet and
 garden beet

Betula populifolia Marshall (*Betulaceae*)
Brassica campestris L. (*Brassicaceae*)
Brassica napus L. (*Brassicaceae*) – rape
Brassica napus L. subsp. *oleifera* DC Metzger
 (*Brassicaceae*) – oil seed rape
Brassica nigra (L.) Koch (*Brassicaceae*) – black (or
 brown) mustard
Brassica oleracea L. Italica group (*Brassicaceae*)
 – broccoli
Brassica oleracea L. (*Brassicaceae*)
Calotropis procera (Aiton) Aiton (*Apocynaceae*)
Caltha palustris L. (*Ranunculaceae*)
Cannabis sativa L. (*Cannabaceae*) – Indian hemp
Carduus crispus L. (*Asteraceae*)
Carpinus caroliniana Walter (*Betulaceae*) – American
 hickory
Caulophyllum robustum Maximowicz (*Berberidaceae*)
Centaurea jacea L. (*Asteraceae*)
Centrosema pubescens Benthham (*Fabaceae*)
Chamerion angustifolium (L.) Holub (*Onagraceae*)
 – fireweed
Chenopodium L. (*Chenopodiaceae*)
Cirsium arvense (L.) Scopoli (*Asteraceae*) – creeping
 thistle
Cirsium kagamontanum Nakai (*Asteraceae*)
Cirsium kamtschaticum De Candolle (*Asteraceae*)
Citrus sinensis (L.) Osbeck (*Rutaceae*) – sweet orange
Clematis L. (*Ranunculaceae*)
Coriandrum sativum L. (*Apiaceae*) – coriander
Cosmos (*Asteraceae*)
Cotoneaster integerrima Medikus (*Rosaceae*)
Cotoneaster tomentosus Lindley (*Rosaceae*)
Crotalaria striata De Candolle (*Fabaceae*)
Cucurbita maxima Duchesne (*Cucurbitaceae*) – squash
 or pumpkin
Cymbopogon citratus (De Candolle) Stapf (*Poaceae*)
 – lemon grass
Dendrocalamus giganteus Munro (*Poaceae*) – giant
 bamboo
Elytrigia repens (L.) Nevski (*Poaceae*) – couch grass
Erythrina corallodendron L. (*Fabaceae*)
Euonymus japonicus Thunberg (*Celastraceae*)
Euphorbia L. (*Euphorbiaceae*)
Eurotia ceratoides Meyer (*Chenopodiaceae*)
Genista L. (*Fabaceae*)
Glochidion ferdinandi (Müller Argiovensis) Bailey
 (*Euphorbiaceae*)
Helianthus annuus L. (*Asteraceae*) – sunflower
Hibiscus L. (*Malvaceae*)
Juglans cinerea L. (*Juglandaceae*) – butternut

- Juniperus virginiana* L. (*Cupressaceae*) – red cedar or Virginian pencil cedar
- Lapsana communis* L. (*Asteraceae*) – nipplewort
- Leontopodium alpinum* Cassini (*Asteraceae*) – edelweiss
- Leucaena* Bentham (*Fabaceae*)
- Ligustrum* L. (*Oleaceae*)
- Lolium multiflorum* Lamarck (*Poaceae*) – Italian rye grass
- Lolium perenne* L. (*Poaceae*) – rye grass
- Lonicera periclymenum* L. (*Caprifoliaceae*) – honeysuckle
- Lupinus luteus* L. (*Fabaceae*) – yellow lupin
- Lupinus mutabilis* Sweet (*Fabaceae*)
- Malus pumila* Miller (*Rosaceae*) – apple
- Manihot esculenta* Crantz (*Euphorbiaceae*)
- Manihot zapota* (L.) P. Royen (*Sapotaceae*) – sapodilla
- Medicago sativa* L. (*Fabaceae*) – alfalfa (or often lucerne in UK)
- Mercurialis annua* L. (*Euphorbiaceae*) – annual mercury
- Momordica charantia* L. (*Cucurbitaceae*) – bitter melon
- Morus australis* Poir. (*Moraceae*)
- Nerium oleander* L. (*Apocynaceae*) – oleander
- Nitraria* L. (*Nitrariaceae*)
- Onoclea sensibilis* L. (*Onocleaceae*)
- Oryzopsis hymenoides* (Roemer & Schultes) Piper (*Poaceae*) – Indian ricegrass
- Paederia foetida* L. (*Rutaceae*)
- Pastinaca sativa* L. (*Apiaceae*) – parsnip
- Phaseolus vulgaris* L. (*Fabaceae*) – French bean or haricot bean
- Physalis alkekengi* L. (*Solanaceae*) – Chinese lantern
- Picea schrenkiana* Fischer & Meyer (*Pinaceae*)
- Pinus armandii* Franchet (*Pinaceae*) – Chinese white pine
- Pinus sylvestris* L. (*Pinaceae*) – Scots pine
- Pisonia* L. (*Nyctaginaceae*)
- Pisum sativum* L. (*Fabaceae*) – garden pea
- Pittosporum tobira* Aiton (*Pittosporaceae*)
- Populus* L. (*Salicaceae*)
- Prunus avium* (L.) L. (*Rosaceae*) – gean or wild cherry
- Prunus cerasus* L. (*Rosaceae*) – morello cherry or amarelle cherry
- Prunus persica* (L.) (*Rosaceae*) – peach or nectarine Batsch
- Pterostyrax hispidus* Siebold & Zuccarini (*Styracaceae*)
- Pyracantha coccinea* M.H. Roemer (*Rosaceae*) – firethorn
- Quercus rubra* L. (*Fagaceae*) – red oak
- Raphanus sativus* L. (*Brassicaceae*) – radish
- Robinia pseudoacacia* L. (*Fabaceae*)
- Rosa multiflora* Thunberg (*Rosaceae*)
- Rubus occidentalis* L. (*Rosaceae*)
- Salix* L. (*Salicaceae*)
- Sambucus nigra* L. (*Caprifoliaceae*) – elder
- Sambucus racemosa* L. subsp. *sieboldiana* (Miquel) H. Hara (*Caprifoliaceae*)
- Schizopepon bryoniaefolius* Maximowicz (*Cucurbitaceae*)
- Senecio jacobaea* L. (*Asteraceae*) – ragwort
- Senecio vulgaris* L. (*Asteraceae*) – groundsel
- Sinapis alba* L. (*Brassicaceae*) – white (or yellow) mustard
- Solanum japonense* Nakai (*Solanaceae*)
- Solanum nigrum* L. (*Solanaceae*) – black nightshade
- Solanum tuberosum* L. (*Solanaceae*) – potato
- Solidago canadensis* L. (*Asteraceae*)
- Spartium junceum* L. (*Fabaceae*) – Spanish broom
- Spiraea* (*Rosaceae*)
- Styrax* L. (*Styracaceae*)
- Symphoricarpos rivularis* Sucksdorf (*Caprifoliaceae*)
- Talinum triangulare* (Jacquin) Willdenow (*Portulacaceae*)
- Tamarix* L. (*Tamaricaceae*)
- Tanacetum vulgare* L. (*Asteraceae*) – tansy
- Taraxacum officinale* Weber (*Asteraceae*) – dandelion
- Trichosanthes kirilowii* Maximowicz (*Cucurbitaceae*)
- Tripleurospermum maritimum* (L.) Koch (*Asteraceae*)
- Triticum* L. (*Poaceae*) – wheat
- Tsuga* Carrière (*Pinaceae*)
- Typha latifolia* L. (*Typhaceae*) – bullrush
- Ulmus* (*Ulmaceae*)
- Urtica dioica* L. (*Urticaceae*) – stinging nettle
- Verbascum thapsus* L. (*Scrophulariaceae*) – Aaron's rod
- Vicia faba* L. (*Fabaceae*) – broad bean or faba bean
- Vicia sativa* L. (*Fabaceae*) – vetch or tare
- Vigna unguiculata* (L.) Walpers subsp. *cylindrica* (L.) Verdcourt (*Fabaceae*)
- Withania somnifera* (L.) Dunal (*Solanaceae*)
- Zea mays* L. (*Poaceae*) – maize (corn in USA)
- Zingiber officinale* Roscoe (*Zingiberaceae*) – ginger