

Digital supplementary material to

FIEDLER, K. 2006: Ant-associates of Palaearctic lycaenid butterfly larvae (Hymenoptera: Formicidae; Lepidoptera: Lycaenidae) – a review. – *Myrmecologische Nachrichten* 9: 77-87.

Appendix: List of all reported ant associates of Palaearctic Lycaenidae butterflies that were compiled from a multitude of sources (books, journal articles, websites, personal communications). Associations are only included if (1) observed in the field and (2) the identity was reported (or could be inferred with certainty) from the sources. Ant species identifications that were referred to as not fully precise in the original source are marked as "cf.". Two doubtful cases of ant associations are included for completeness, but marked with "??". Nomenclature of the ants has been adapted to BOLTON (1995) where necessary. For further details on data collation, taxonomy, and geographical delimitations see text. Some extralimital ant-association data are included, but were not considered for analyses. Higher classification of the Lycaenidae adapted from HESSELBARTH & al. (1995). Within higher taxa, lycaenid species are ordered alphabetically. obl – ant association obligatory, (older) larvae practically never without ants, specific host ants used. fac – association facultative, visitors may or may not be present and can be exchanged. par – association parasitic (sensu FIEDLER 1998: caterpillars feed on ant brood or obtain trophallactic feeding). mut – caterpillars are (potential) ant mutualists, i.e., they can deliver nectar secretion from a functional dorsal nectar gland. com – associations are commensalic (neutral), i.e., caterpillars have no functional nectar organ, are (at least occasionally) visited by ants, but also do not feed on ant brood or trophallaxis. If an association is intermediate in its ecological outcome (or not sufficiently well known), the score "mut – com" is used.

References

- BOLTON, B. 1995: A new general catalogue of the ants of the world. – Harvard University Press, Cambridge, MA, 504 pp.
- HESSELBARTH, G., VAN OORSCHOT, H. & WAGENER, S. 1995: Die Tagfalter der Türkei unter Berücksichtigung der angrenzenden Länder, 3 vols. – Verlag S. Wagener, Bocholt, Text volumes 1+2: 1354 pp., 36 colour pls., volume 3: 847 pp., 128 colour pls., 13 b/w pls., 346 maps.
- FIEDLER, K. 1998: Lycaenid-ant interactions of the *Maculinea* type: tracing their historical roots in a comparative framework. – *Journal of Insect Conservation* 2: 3-14.

Subfamily - tribe Genus (subgenus, section)	Species	Type of association	Associated ants
Theclinae - Aphnaeini			
<i>Cigaritis</i>	<i>acamas</i>	obl, par	<i>Crematogaster jehovae</i> , <i>Crematogaster</i> sp.
<i>Cigaritis</i>	<i>allardi</i>	obl, mut – com	<i>Crematogaster auberti</i> , <i>C. antaris</i> , <i>C. scutellaris</i>
<i>Cigaritis</i>	<i>cilissa</i>	obl, mut – com	<i>Crematogaster</i> sp.
<i>Cigaritis</i>	<i>myrmecophila</i>	obl, mut – com	<i>Crematogaster auberti</i> , <i>Cataglyphis</i> cf. " <i>bicolor</i> " ??
<i>Cigaritis</i>	<i>zohra</i>	obl, mut – com	<i>Crematogaster laestrygon</i>
<i>Spindasis</i>	<i>lohita</i>	obl, mut – com	<i>Crematogaster (Acrocoelia) dohrni artifex</i> , <i>Crematogaster (Acrocoelia) rogenhoferi</i>
<i>Spindasis</i>	<i>syama</i>	obl, mut – com	<i>Crematogaster</i> sp.
<i>Spindasis</i>	<i>takanonis</i>	obl, par – com	<i>Crematogaster laboriosa</i> , <i>C. matsumurai</i>
Theclinae - Arhopalini			
<i>Arhopala</i>	<i>japonica</i>	fac, mut	<i>Crematogaster</i> sp.
Theclinae - Theclini			
<i>Artopoetes</i>	<i>pryeri</i>	fac, com	<i>Crematogaster brunnea teranishii</i> , <i>Leptothorax congruus</i> , <i>Dolichoderus sibiricus</i> , <i>Lasius sakagami</i> , <i>Camponotus tokioensis</i> , <i>Paratrechina flavipes</i>

<i>Coreana</i>	<i>raphaelis</i>	fac, com	<i>Lasius niger</i> , <i>L. spathepus</i> , <i>L. hayashii</i>
<i>Laeosopis</i>	<i>roboris</i>	fac, com	<i>Lasius</i> sp.
<i>Neozephyrus</i>	<i>quercus</i>	fac, com	<i>Lasius</i> sp.
<i>Shirozua</i>	<i>jonasi</i>	obl, par	<i>Lasius spathepus</i> , <i>L. fuliginosus</i> , <i>L. (Dendrolasius) morisitai</i>
<i>Thecla</i>	<i>betulae</i>	fac, com	<i>Lasius niger</i> , <i>Lasius grandis</i> , <i>Formica rufibarbis</i>
Theclinae-Remelanini			
<i>Remelana</i>	<i>jangala</i>	fac, mut	<i>Polyrhachis dives</i> , <i>Anoplolepis gracilipes</i>
Theclinae-Tomarini			
<i>Tomares</i>	<i>ballus</i>	fac, mut	<i>Plagiolepis pygmaea</i>
Theclinae-Eumacini			
<i>Satyrium</i>	<i>esculi</i>	fac, mut	<i>Camponotus cruentatus</i>
<i>Satyrium</i>	<i>ilicis</i>	fac, mut	<i>Camponotus aethiops</i> , <i>Crematogaster schmidti</i> , <i>Crematogaster</i> cf. <i>ionia</i>
<i>Satyrium</i>	<i>spini</i>	fac, mut	<i>Lasius niger</i> , <i>Formica</i> sp.
<i>Satyrium</i>	<i>w-album</i>	fac, mut	<i>Formica</i> sp., <i>Lasius</i> cf. <i>fuliginosus</i>
Lycaeninae			
<i>Lycaena</i>	<i>dispar</i>	fac, com	<i>Myrmica rubra</i>
Polyommatinae-Niphandini			
<i>Niphanda</i>	<i>fusca</i>	obl, par	<i>Camponotus japonicus</i>
Polyommatinae-Polyommardini			
<i>Una</i> section <i>Una</i>	<i>rantaizana</i>	obl, par – com	<i>Formica</i> sp.
<i>Lampides</i> section <i>Lampides</i>	<i>boeticus</i>	fac, mut	<i>Camponotus compressus</i> , <i>C. cruentatus</i> , <i>C. sylvaticus</i> , <i>C. foreli</i> , <i>Paratrechina clandestina</i> , <i>Lasius</i> sp., <i>Anoplolepis gracilipes</i> , <i>Plagiolepis</i> sp., <i>Tapinoma melanocephalum</i> , <i>Linepithema humile</i>
<i>Leptotes</i> section <i>Leptotes</i>	<i>pirithous</i>	fac, mut	<i>Lasius</i> sp.
<i>Tarucus</i> section <i>Tarucus</i>	<i>rosaceus</i>	fac, mut	<i>Monomorium salomonis</i> , <i>Plagiolepis pygmaea</i> , <i>Camponotus sicheli</i>
<i>Tarucus</i>	<i>theophrastus</i>	fac, mut	<i>Crematogaster fuentei</i> , <i>Crematogaster</i> cf. <i>scutellaris</i>
<i>Zizeeria</i> section <i>Zizeeria</i>	<i>karsandra</i>	fac, mut	<i>Tapinoma melanocephalum</i> , <i>Leptothorax</i> sp.
<i>Zizeeria</i>	<i>knysna</i>	fac, mut	<i>Pheidole</i> sp.
<i>Zizeeria</i>	<i>maha</i>	fac, mut	<i>Pheidole</i> sp.
<i>Everes</i> section <i>Cupido</i>	<i>lorquinii</i>	fac, mut	<i>Tapinoma erraticum nigerrimum</i> , <i>Plagiolepis pygmaea</i> , <i>Crematogaster</i> sp.
<i>Cupido</i>	<i>minimus</i>	fac, mut	<i>Lasius alienus</i> , <i>L. niger</i> , <i>Formica fusca</i> , <i>F. rufibarbis</i> , <i>Plagiolepis vindobonensis</i> , <i>Myrmica rubra</i>
<i>Cupido</i>	<i>osiris</i>	fac, mut	<i>Lasius alienus</i>
<i>Everes</i>	<i>alcetas</i>	fac, mut	<i>Formica</i> cf. <i>cinerea</i>
<i>Everes</i>	<i>lacturnus</i>	fac, mut	<i>Polyrhachis dives</i>
<i>Pithecopis</i>	<i>fulgens</i>	fac, mut	<i>Camponotus (Myrmanblys) sp.</i> , <i>C. cf. japonicus</i> , <i>Paratrechina</i> cf. <i>flavipes</i>
<i>Lycaenopsis</i> section <i>Actyolepis</i>	<i>puspa</i>	fac, mut	<i>Crematogaster</i> sp., <i>Dolichoderus</i> sp., <i>Polyrhachis dives</i> , <i>Polyrhachis</i> sp.
<i>Celastrina</i>	<i>argiolus</i>	fac, mut	<i>Myrmica</i> sp., <i>Camponotus japonicus</i> , <i>Formica truncorum</i> , <i>F. fusca</i> , <i>Lasius niger</i> , <i>L. fuliginosus</i>

<i>Neopithecops</i>	<i>zalmora</i>	fac, mut	<i>Technomyrmex albipes</i> , <i>Camponotus binghamii</i> , <i>Crematogaster</i> sp.
<i>Glaucopsyche</i> sect. <i>Glaucopsyche</i>	<i>alexis</i>	fac, mut	<i>Myrmica scabrinodis</i> , <i>Crematogaster auberti</i> , <i>Tapinoma erraticum</i> , <i>Formica cinerea</i> , <i>F. selysi</i> , <i>F. fusca</i> , <i>F. subrufa</i> , <i>F. pratensis</i> , <i>F. sanguinea</i> , <i>F. forsslundi</i> , <i>Camponotus aethiops</i> , <i>C. massiliensis</i> , <i>C. cruentatus</i> , <i>Lasius alienus</i>
<i>Glaucopsyche</i>	<i>lycormas</i>	fac, mut	<i>Formica</i> sp.
<i>Glaucopsyche</i>	<i>melanops</i>	fac, mut	<i>Camponotus foreli</i> , <i>C. cruentatus</i> , <i>C. micans</i> , <i>C. sylvaticus</i>
<i>Iolana</i>	<i>iolas</i>	fac, mut	<i>Tapinoma erraticum</i> , <i>Camponotus cruentatus</i>
<i>Lachides</i>	<i>galba</i>	fac, mut	<i>Monomorium destructor</i> , <i>Monomorium dentigerum</i>
<i>Maculinea</i>	<i>alcon / rebeli</i>	obl, par	<i>Myrmica ruginodis</i> , <i>M. rubra</i> , <i>M. scabrinodis</i> , <i>M. vandeli</i> , <i>M. schencki</i> , <i>M. sabuleti</i> , <i>M. sulcinodis</i> , <i>M. lonae</i> , <i>M. salina</i> , <i>M. specioides</i>
<i>Maculinea</i>	<i>arion</i>	obl, par	<i>Myrmica sabuleti</i> , <i>M. scabrinodis</i>
<i>Maculinea</i>	<i>arionides</i>	obl, par	<i>Myrmica</i> cf. " <i>rubra</i> ", <i>Aphaenogaster smythiesii japonica</i>
<i>Maculinea</i>	<i>nausithous</i>	obl, par	<i>Myrmica rubra</i> , <i>Myrmica scabrinodis</i>
<i>Maculinea</i>	<i>teleius</i>	obl, par	<i>Myrmica scabrinodis</i> , <i>M. rubra</i> , <i>M. vandeli</i> , <i>M. sabuleti</i> , <i>M. silvestrii</i> , <i>M. salina</i> , <i>M. specioides</i> , <i>M. gallieni</i> , <i>M. ruginodis</i> , <i>M. rugulosa</i> , <i>Aphaenogaster smythiesii japonica</i>
<i>Phengaris</i>	<i>atroguttata</i>	obl, par	<i>Myrmica kurokii tipuna</i>
<i>Phengaris</i>	<i>daitozana</i>	obl, par	<i>Myrmica</i> sp.
<i>Pseudophilotes</i>	<i>baton</i>	fac, mut	<i>Myrmica scabrinodis</i> , <i>Lasius alienus</i>
<i>Pseudophilotes</i>	<i>panoptes</i>	fac, mut	<i>Camponotus</i> sp.
<i>Pseudophilotes</i>	<i>sinaicus</i>	fac, mut	<i>Lepisiota obtusa</i> , <i>Monomorium niloticum</i>
<i>Scolitantides</i>	<i>orion</i>	fac, mut	<i>Tapinoma erraticum</i> , <i>Camponotus aethiops</i> , <i>C. ligniperda</i> , <i>C. vagus</i> , <i>C. piceus</i> , <i>Formica fusca</i> , <i>F. glauca</i> , <i>Lasius alienus</i> , <i>L. emarginatus</i> , <i>Leptothorax</i> sp., <i>Messor structor</i> ??
<i>Sinia</i>	<i>divina</i>	fac, mut	<i>Camponotus japonicus</i> , <i>Paratrechina sakurae</i>
<i>Euchrysops</i> section <i>Euchrysops</i>	<i>cnejus</i>	fac, mut	<i>Crematogaster</i> sp., <i>Pheidole megacephala</i> , <i>Camponotus compressus</i> , <i>C. sylvaticus</i> , <i>Polyrhachis dives</i> , <i>P. ammon</i>
<i>Polyommatus</i> section <i>Chilades</i>	<i>lajus</i>	fac, mut	<i>Camponotus rubripes</i>
<i>Chilades</i>	<i>pandava</i>	fac, mut	<i>Monomorium floricola</i> , <i>Crematogaster</i> sp., <i>Technomyrmex</i> sp., <i>Paratrechina longicornis</i> , <i>Anoplolepis gracilipes</i>
<i>Chilades</i>	<i>trochylus</i>	fac, mut	<i>Pheidole quadrispinosa</i> , <i>Prenolepis</i> sp., <i>Lepisiota</i> cf. <i>frauenfeldi</i>
<i>Plebejus</i> (<i>Kretania</i>)	<i>eurypilus</i>	fac, mut	<i>Camponotus kiesenwetteri</i> , <i>C. nr. universitatis</i>
<i>Plebejus</i> (<i>Lycaeides</i>)	<i>argyrognomon</i>	fac, mut	<i>Myrmica scabrinodis</i> , <i>M. sabuleti</i> , <i>Lasius alienus</i> , <i>L. niger</i> , <i>Formica pratensis</i> , <i>F. fusca</i> , <i>Camponotus vagus</i>
<i>Plebejus</i> (<i>Lycaeides</i>)	<i>idas</i>	obl, mut	<i>Formica cinerea</i> , <i>F. selysi</i> , <i>F. exsecta</i> , <i>F. lemani</i> , <i>F. pressilabris</i> , <i>F. lugubris</i> , <i>F. rufibarbis</i> , <i>F. cunicularia</i> , <i>F. pratensis</i> , <i>F. lefrancoisi</i> , <i>Lasius niger</i> , <i>L. alienus</i>
<i>Plebejus</i> (<i>Lycaeides</i>)	<i>subsolanus</i>	fac, mut	<i>Lasius japonicus</i> , <i>Formica japonica</i>
<i>Plebejus</i> (<i>Plebejidea</i>)	<i>martini</i>	fac, mut	<i>Crematogaster</i> sp.

<i>Plebejus (Plebejidea)</i>	<i>pylaon</i>	fac, mut	<i>Crematogaster auberti, Formica lugubris, F. lemani, F. subrufa, F. cinerea, F. pratensis, Lasius cf. niger, Lasius cf. alienus, Plagiolepis pygmaea, P. schmitzii, Camponotus cruentatus, C. foreli, C. sylvaticus, C. cf. aethiops, C. cf. laonicus, Tetramorium cf. caespitum, Bothriomyrmex gallicus, Tapinoma simrothi</i>
<i>Plebejus (Plebejus)</i>	<i>argus</i>	obl, mut	<i>Lasius niger, L. alienus</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>admetus</i>	fac, mut	<i>Crematogaster sordidula, Camponotus gestroi, Camponotus cf. lateralis, Tapinoma erraticum</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>aroaniensis</i>	fac, mut	<i>Camponotus gestroi, Crematogaster sordidula</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>damon</i>	fac, mut	<i>Lasius niger, L. alienus, Formica pratensis</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>iphigenia</i>	fac, mut	<i>Lasius alienus</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>juldusa</i>	fac, mut	<i>Lasius flavescens, Myrmica tenuispina</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>ripartii / pelopi</i>	fac, mut	<i>Crematogaster sordidula, Camponotus gestroi, Lasius alienus</i>
<i>Polyommatus (Agrodiaetus)</i>	<i>violetae</i>	fac, mut	<i>Camponotus piceus</i>
<i>Polyommatus (Albulina)</i>	<i>pheretiades</i>	fac, mut	<i>Formica subpilosa</i>
<i>Polyommatus (Aricia)</i>	<i>agestis</i>	fac, mut	<i>Myrmica sabuleti, Lasius alienus, L. flavus</i>
<i>Polyommatus (Aricia)</i>	<i>artaxerxes</i>	fac, mut	<i>Lasius sp.</i>
<i>Polyommatus (Aricia)</i>	<i>eumedon</i>	fac, mut	<i>Myrmica sp., Lasius alienus, Tapinoma sp.</i>
<i>Polyommatus (Aricia)</i>	<i>morroneis</i>	fac, mut	<i>Crematogaster auberti, Tapinoma erraticum, Lasius niger</i>
<i>Polyommatus (Cyaniris)</i>	<i>persephatta</i>	fac, mut	<i>Lasius flavescens</i>
<i>Polyommatus (Cyaniris)</i>	<i>semiargus / helena</i>	fac, mut	<i>Lasius niger, Camponotus aethiops, C. vagus</i>
<i>Polyommatus (Lysandra)</i>	<i>albicans</i>	fac, mut	<i>Tapinoma sp.</i>
<i>Polyommatus (Lysandra)</i>	<i>bellargus</i>	fac, mut	<i>Myrmica sabuleti, M. scabrinodis, Tetramorium caespitum, Tapinoma erraticum, Lasius alienus, L. niger, L. paralienus, L. flavus, Plagiolepis pygmaea, Formica lefrancoisi</i>
<i>Polyommatus (Lysandra)</i>	<i>coridon</i>	fac, mut	<i>Myrmica scabrinodis, M. sabuleti, M. schencki, Aphaenogaster subterranea, Tetramorium caespitum, Leptothorax nr. nigriceps, Tapinoma ambiguum, T. erraticum, Lasius niger, L. paralienus, L. alienus, L. flavus, Plagiolepis vindobonensis, Formica rufa, F. lemani, F. cunicularia</i>
<i>Polyommatus (Lysandra)</i>	<i>hispanus</i>	fac, mut	<i>Plagiolepis pygmaea, Crematogaster sordidula</i>
<i>Polyommatus (Lysandra)</i>	<i>punctiferus</i>	fac, mut	<i>Monomorium salomonis, Crematogaster scutellaris</i>
<i>Polyommatus (Meleageria)</i>	<i>daphnis</i>	fac, mut	<i>Tapinoma erraticum, Formica pratensis, Lasius alienus</i>
<i>Polyommatus (Polyommatus)</i>	<i>amandus</i>	fac, mut	<i>Lasius niger, L. alienus, Tapinoma simrothi, Myrmica specioides, Formica cinerea</i>
<i>Polyommatus (Polyommatus)</i>	<i>dorylas</i>	fac, mut	<i>Myrmica scabrinodis, Lasius alienus, Formica cinerea</i>
<i>Polyommatus (Polyommatus)</i>	<i>eroides</i>	fac, mut	<i>Tapinoma sp.</i>
<i>Polyommatus (Polyommatus)</i>	<i>eros / menelaos</i>	fac, mut	<i>Myrmica gallienii, Formica lemani, Camponotus aethiops</i>
<i>Polyommatus (Polyommatus)</i>	<i>escheri</i>	fac, mut	<i>Myrmica scabrinodis, Formica cinerea, Lasius niger, L. alienus, Plagiolepis sp.</i>
<i>Polyommatus (Polyommatus)</i>	<i>golgus / sagratrox</i>	fac, mut	<i>Tapinoma erraticum nigerrimum, Lasius cf. niger</i>

<i>Polyommatus (Polyommatus)</i>	<i>icadius</i>	fac, mut	<i>Myrmica tarbinskii</i>
<i>Polyommatus (Polyommatus)</i>	<i>icarus</i>	fac, mut	<i>Myrmica sabuleti, Myrmica lobicornis, Myrmica tenuispina, Lasius alienus, Lasius niger, Formica subrufa, Formica subpilosa, Formica rufibarbis, Plagiolepis pygmaea</i>
<i>Polyommatus (Polyommatus)</i>	<i>nivescens</i>	fac, mut	<i>Tapinoma erraticum nigerrimum</i>
<i>Polyommatus (Polyommatus)</i>	<i>thersites</i>	fac, mut	<i>Myrmica scabrinodis, Tapinoma erraticum, Lasius alienus</i>