

## SUPPORTING INFORMATION

### Appendix S1: Species list and sequencing success

Species list of Bavarian geometrids, sequencing success, sample size and supplementary material; \* = submitted and under analysis; mfl = maximum fragment length (number of base pairs); n = sample size (number of sequences)

#### Archiearinae

Species	mfl	n	origins supplementary material (mfl)
<i>Archiearis parthenias</i>	407	1	
<i>Boudinotiana notha</i>	658	1	

#### Ennominae

Species	mfl	n	origins supplementary material (mfl)
<i>Abraxas grossulariata</i>	/	0	Finland, Italy, France etc. (658)
<i>Abraxas sylvata</i>	658	1	
<i>Aethalura punctulata</i>	658	4	
<i>Agriopis aurantiaria</i>	658	6	
<i>Agriopis bajaria</i>	616	1	
<i>Agriopis leucophaearia</i>	658	2	
<i>Agriopis marginaria</i>	658	7	
<i>Alcis bastelbergeri</i>	658	1	
<i>Alcis jubata</i>	/	0	Austria, Finland (658)
<i>Alcis repandata</i>	658	15	
<i>Aleucis distinctata</i>	/	0	Bavaria*, France (658)
<i>Alsophila aceraria</i>	/	0	absent from BOLD
<i>Alsophila aescularia</i>	658	5	
<i>Angerona prunaria</i>	658	4	
<i>Apeira syringaria</i>	658	5	
<i>Apocheima hispidaria</i>	658	1	
<i>Apocheima pilosaria</i>	658	3	
<i>Arichanna melanaria</i>	658	2	

<i>Artiora evonymaria</i>	/	0	Austria* (/)
<i>Ascotis selenaria</i>	/	0	Bavaria*, Italy, France etc. (658)
<i>Aspitates gilvaria</i>	658	2	
<i>Biston betularia</i>	658	8	
<i>Biston strataria</i>	658	4	
<i>Bupalus piniaria</i>	658	2	
<i>Cabera exanthemata</i>	658	11	
<i>Cabera leptographa</i>	/	0	Poland* (/)
<i>Cabera pusaria</i>	658	6	
<i>Campaea honoraria</i>	/	0	Italy (658)
<i>Campaea margaritaria</i>	658	5	
<i>Cepphis advenaria</i>	658	5	
<i>Charissa ambiguata</i>	658	2	
<i>Charissa glaucinaria</i>	658	3	
<i>Charissa intermedia</i>	565	1	
<i>Charissa obscurata</i>	658	2	
<i>Charissa pullata</i>	658	1	
<i>Chiasmia clathrata</i>	658	4	
<i>Cleora cinctaria</i>	658	1	
<i>Cleorodes lichenaria</i>	/	0	Italy, Finland (658)
<i>Colotois pennaria</i>	658	6	
<i>Crocallis elinguaris</i>	658	6	
<i>Crocallis tusciaria</i>	/	0	Italy, Hungary, Greece etc. (658)
<i>Deileptenia ribeata</i>	658	5	
<i>Ectropis crepuscularia</i>	658	39	
<i>Elophos caelibaria</i>	658	1	
<i>Elophos dilucidaria</i>	658	6	
<i>Elophos serotinaris</i>	/	0	Austria (658)
<i>Elophos vittaria</i>	658	1	
<i>Elophos zelleraria</i>	609	2	
<i>Ematurga atomaria</i>	618	2	

<i>Ennomos alniaria</i>	658	2	
<i>Ennomos autumnaria</i>	658	2	
<i>Ennomos erosaria</i>	658	6	
<i>Ennomos fuscantaria</i>	/	0	Bavaria*, Italy, Finland (658)
<i>Ennomos quercinaria</i>	658	5	
<i>Epione repandaria</i>	658	4	
<i>Epione vespertaria</i>	658	1	
<i>Epirranthis diversata</i>	/	0	Finland (658)
<i>Erannis defoliaria</i>	658	9	
<i>Fagivorina arenaria</i>	658	1	
<i>Glacies alpinata</i>	658	2	
<i>Glacies canaliculata</i>	658	1	
<i>Glacies coracina</i>	658	1	
<i>Glacies noricana</i>	658	1	
<i>Gnophos furvata</i>	658	2	
<i>Gnophos obfuscata</i>	658	5	
<i>Heliomata glarearia</i>	/	0	Bavaria*, France, Italy etc. (658)
<i>Hylaea fasciaria</i>	658	10	
<i>Hypomecis punctinalis</i>	658	6	
<i>Hypomecis roboraria</i>	658	4	
<i>Hypoxystis pluviaria</i>	658	3	
<i>Isturgia limbaria</i>	658	2	
<i>Isturgia murinaria</i>	/	0	France, Bosnia, Turkey etc. (658)
<i>Isturgia roraria</i>	658	1	
<i>Ligdia adustata</i>	658	8	
<i>Lomaspilis marginata</i>	658	2	
<i>Lomographa bimaculata</i>	658	5	
<i>Lomographa temerata</i>	658	3	
<i>Lycia alpina</i>	/	0	Austria, Italy (658)
<i>Lycia hirtaria</i>	658	12	
<i>Lycia isabellae</i>	/	0	Austria (407)

<i>Lycia pomonaria</i>	/	0	Finland (658)
<i>Lycia zonaria</i>	/	0	France, Hungary, Turkey (658)
<i>Macaria alternata</i>	658	2	
<i>Macaria artesiaria</i>	658	2	
<i>Macaria brunneata</i>	658	4	
<i>Macaria fusca</i>	532	1	
<i>Macaria liturata</i>	658	6	
<i>Macaria notata</i>	658	8	
<i>Macaria signaria</i>	658	4	
<i>Macaria wauaria</i>	658	5	
<i>Odontopera bidentata</i>	658	5	
<i>Opisthograptis luteolata</i>	658	3	
<i>Ourapteryx sambucaria</i>	658	2	
<i>Pachycnemia hippocastanaria</i>	658	2	
<i>Paradarisa consonaria</i>	658	3	
<i>Parectropis similaria</i>	658	3	
<i>Perconia strigillaria</i>	/	0	Italy, Finland (658)
<i>Peribatodes rhomboidaria</i>	658	10	
<i>Peribatodes secundaria</i>	658	4	
<i>Petrophora chlorosata</i>	658	4	
<i>Plagodis dolabraria</i>	658	4	
<i>Plagodis pulveraria</i>	658	6	
<i>Pseudopanthera macularia</i>	658	2	
<i>Psodos quadrifaria</i>	658	2	
<i>Pungeleria capreolaria</i>	658	2	
<i>Sciadia tenebraria</i>	658	4	
<i>Selenia dentaria</i>	658	3	
<i>Selenia lunularia</i>	658	3	
<i>Selenia tetralunaria</i>	658	5	
<i>Selidosema brunnearia</i>	/	0	Germany, Italy, Greece etc. (658)
<i>Siona lineata</i>	658	4	

<i>Stegania cararia</i>	/	0	Bavaria* (/)
<i>Stegania trimaculata</i>	658	1	
<i>Synopsia sociaria</i>	/	0	Italy, Turkey (658)
<i>Tephronia sepiaria</i>	/	0	France, Italy, Spain etc. (658)
<i>Theria primaria</i>	658	2	
<i>Theria rupicapraria</i>	658	2	

### Geometrinae

Species	mfl	n	origins supplementary material (mfl)
<i>Aplasta ononaria</i>	/	0	Italy*, Israel (658)
<i>Chlorissa cloraria</i>	586	1	
<i>Chlorissa viridata</i>	658	1	
<i>Comibaena bajularia</i>	658	4	
<i>Geometra papilionaria</i>	658	3	
<i>Hemistola chrysoprasaria</i>	658	5	
<i>Hemithea aestivaria</i>	658	4	
<i>Jodis lactearia</i>	658	3	
<i>Jodis putata</i>	658	1	
<i>Pseudoterpna pruinata</i>	658	1	
<i>Thalera fimbrialis</i>	658	3	
<i>Thetidia smaragdaria</i>	658	3	

### Larentiinae

Species	mfl	n	origins supplementary material (mfl)
<i>Acasis appensata</i>	/	0	Austria, Finland, Italy (658)
<i>Acasis viretata</i>	658	4	
<i>Anticlea badiata</i>	658	6	
<i>Anticlea derivata</i>	658	3	
<i>Anticollix sparsata</i>	658	4	
<i>Aplocera efformata</i>	658	5	
<i>Aplocera plagiata</i>	658	1	
<i>Aplocera praeformata</i>	658	3	

<i>Asthena albulata</i>	658	2	
<i>Asthena anseraria</i>	658	3	
<i>Baptria tibiale</i>	658	1	
<i>Camptogramma bilineata</i>	658	6	
<i>Carsia sororiata</i>	658	1	
<i>Cataclysmes riguata</i>	288	2	
<i>Catarhoe cuculata</i>	658	3	
<i>Catarhoe rubidata</i>	658	2	
<i>Chesias legatella</i>	548	2	
<i>Chesias rufata</i>	/	0	Italy, Spain (658)
<i>Chloroclysta miata</i>	252	1	
<i>Chloroclysta siterata</i>	658	19	
<i>Chloroclystis v-ata</i>	658	7	
<i>Cidaria fulvata</i>	658	6	
<i>Coenocalpe lapidata</i>	/	0	Finland, Turkey (658)
<i>Coenotephria salicata</i>	658	4	
<i>Coenotephria tophaceata</i>	658	2	
<i>Colostygia aptata</i>	658	4	
<i>Colostygia aqueata</i>	633	1	
<i>Colostygia austriacaria</i>	/	0	Austria, Italy (658)
<i>Colostygia kollariaria</i>	658	1	
<i>Colostygia multistrigaria</i>	/	0	Germany, Italy (658)
<i>Colostygia olivata</i>	658	6	
<i>Colostygia pectinataria</i>	658	3	
<i>Colostygia puengeleri</i>	/	0	Bavaria*, Austria, Switzerland (658)
<i>Colostygia turbata</i>	658	2	
<i>Cosmorhoe ocellata</i>	658	3	
<i>Costaconvexa polygrammata</i>	/	0	Italy, Turkey, Israel (658)
<i>Dysstroma citrata</i>	658	3	
<i>Dysstroma truncata</i>	658	18	
<i>Ecliptopera capitata</i>	658	6	

<i>Ecliptopera silaceata</i>	658	10	
<i>Electrophaes corylata</i>	658	7	
<i>Entephria caesiata</i>	658	7	
<i>Entephria cyanata</i>	658	2	
<i>Entephria flavata</i>	658	2	
<i>Entephria flavicinctata</i>	658	1	
<i>Entephria infidaria</i>	658	1	
<i>Entephria nobiliaria</i>	658	2	
<i>Epirrhoe alternata</i>	658	10	
<i>Epirrhoe galiata</i>	658	4	
<i>Epirrhoe hastulata</i>	594	2	
<i>Epirrhoe molluginata</i>	658	4	
<i>Epirrhoe pupillata</i>	/	0	Finland, China (658)
<i>Epirrhoe rivata</i>	658	2	
<i>Epirrhoe tristata</i>	658	5	
<i>Epirrita autumnata</i>	658	7	
<i>Epirrita christyi</i>	658	17	
<i>Epirrita dilutata</i>	626	4	
<i>Euchoeca nebulata</i>	658	4	
<i>Eulithis mellinata</i>	/	0	Bavaria*, Finland (658)
<i>Eulithis populata</i>	658	4	
<i>Eulithis prunata</i>	658	6	
<i>Eulithis testata</i>	/	0	Bavaria*, Finland, Canada (658)
<i>Euphyia adumbraria</i>	654	1	
<i>Euphyia biangulata</i>	654	1	
<i>Euphyia frustata</i>	657	1	
<i>Euphyia scripturata</i>	658	1	
<i>Euphyia unangulata</i>	658	2	
<i>Eupithecia abbreviata</i>	658	3	
<i>Eupithecia abietaria</i>	658	3	
<i>Eupithecia absinthiata</i>	658	12	

<i>Eupithecia actaeata</i>	658	2	
<i>Eupithecia analoga</i>	632	1	
<i>Eupithecia assimilata</i>	658	8	
<i>Eupithecia cauchiata</i>	658	3	
<i>Eupithecia centaureata</i>	658	2	
<i>Eupithecia conterminata</i>	658	3	
<i>Eupithecia denotata</i>	658	2	
<i>Eupithecia denticulata</i>	/	0	Turkey (601)
<i>Eupithecia distinctaria</i>	658	4	
<i>Eupithecia dodoneata</i>	658	6	
<i>Eupithecia egenaria</i>	658	2	
<i>Eupithecia exiguata</i>	658	9	
<i>Eupithecia expallidata</i>	658	2	
<i>Eupithecia extraversaria</i>	658	1	
<i>Eupithecia extremata</i>	/	0	Turkey, Israel (658)
<i>Eupithecia goossensiata</i>	658	3	
<i>Eupithecia haworthiata</i>	658	5	
<i>Eupithecia icterata</i>	658	6	
<i>Eupithecia immundata</i>	658	2	
<i>Eupithecia impurata</i>	658	2	
<i>Eupithecia indigata</i>	658	4	
<i>Eupithecia innotata</i>	615	2	
<i>Eupithecia insigniata</i>	658	1	
<i>Eupithecia intricata</i>	658	11	
<i>Eupithecia inturbata</i>	658	10	
<i>Eupithecia irriguata</i>	/	0	Finland, Israel, Lebanon (658)
<i>Eupithecia lanceata</i>	658	6	
<i>Eupithecia laquaearia</i>	/	0	Bavaria*, Italy (658)
<i>Eupithecia lariciata</i>	658	4	
<i>Eupithecia linariata</i>	658	2	
<i>Eupithecia millefoliata</i>	/	0	Bavaria*, Finland (658)

<i>Eupithecia nanata</i>	658	4	
<i>Eupithecia ochridata</i>	/	0	Germany, Italy, Bulgaria (658)
<i>Eupithecia orphnata</i>	658	1	
<i>Eupithecia pimpinellata</i>	641	2	
<i>Eupithecia plumbeolata</i>	658	4	
<i>Eupithecia pulchellata</i>	658	1	
<i>Eupithecia pusillata</i>	658	4	
<i>Eupithecia pygmaeata</i>	/	0	Finland (658)
<i>Eupithecia pyreneata</i>	581	2	
<i>Eupithecia satyrata</i>	658	4	
<i>Eupithecia selinata</i>	658	3	
<i>Eupithecia semigraphata</i>	658	5	
<i>Eupithecia silenata</i>	658	1	
<i>Eupithecia simpliciata</i>	/	0	Finland (658)
<i>Eupithecia sinuosaria</i>	658	1	
<i>Eupithecia subfuscata</i>	658	26	
<i>Eupithecia subumbrata</i>	658	4	
<i>Eupithecia succenturiata</i>	240	1	
<i>Eupithecia tantillaria</i>	658	15	
<i>Eupithecia tenuiata</i>	658	5	
<i>Eupithecia tripunctaria</i>	658	14	
<i>Eupithecia trisignaria</i>	658	2	
<i>Eupithecia undata</i>	/	0	Italy (658)
<i>Eupithecia valerianata</i>	658	3	
<i>Eupithecia venosata</i>	658	3	
<i>Eupithecia veratraria</i>	658	6	
<i>Eupithecia virgaureata</i>	658	20	
<i>Eupithecia vulgata</i>	658	9	
<i>Eustroma reticulata</i>	658	6	
<i>Gagitodes sagittata</i>	658	3	
<i>Gandaritis pyraliata</i>	658	3	

<i>Gymnoscelis ruffasciata</i>	658	7	
<i>Horisme aemulata</i>	658	2	
<i>Horisme aquata</i>	/	0	Mongolia, China, Russia* (658)
<i>Horisme corticata</i>	/	0	Turkey, Greece (609)
<i>Horisme radicularia</i>	658	4	
<i>Horisme tersata</i>	658	2	
<i>Horisme vitalbata</i>	658	3	
<i>Hydrelia flammeolaria</i>	658	4	
<i>Hydrelia sylvata</i>	658	3	
<i>Hydriomena furcata</i>	658	4	
<i>Hydriomena impluviata</i>	658	5	
<i>Hydriomena ruberata</i>	658	3	
<i>Lampropteryx otregiata</i>	658	4	
<i>Lampropteryx suffumata</i>	658	4	
<i>Larentia clavaria</i>	/	0	Denmark, Italy, Finland etc. (658)
<i>Lithostege farinata</i>	/	0	Greece, Austria, Russia* (658)
<i>Lithostege griseata</i>	/	0	U.K., Russia, Ukraine (658)
<i>Lobophora halterata</i>	658	10	
<i>Lythria cruentaria</i>	/	0	Finland, Italy* (641)
<i>Lythria plumularia</i>	/	0	Switzerland (607)
<i>Lythria purpuraria</i>	/	0	Turkey, Iran, Italy*, Greece* (658)
<i>Martania taeniata</i>	658	2	
<i>Melanthia alaudaria</i>	658	1	
<i>Melanthia procellata</i>	658	8	
<i>Mesoleuca albicillata</i>	658	5	
<i>Mesotype didymata</i>	658	2	
<i>Mesotype parallelolineata</i>	577	2	
<i>Mesotype verberata</i>	658	5	
<i>Minoa murinata</i>	648	3	
<i>Nebula achromaria</i>	/	0	Austria, Italy (658)
<i>Nebula nebulata</i>	658	3	

<i>Nothocasis sertata</i>	658	7	
<i>Odezia atrata</i>	658	4	
<i>Operophtera brumata</i>	658	12	
<i>Operophtera fagata</i>	658	3	
<i>Orthonama obstipata</i>	658	4	
<i>Orthonama vittata</i>	658	5	
<i>Pareulype berberata</i>	658	5	
<i>Pasiphila chloerata</i>	658	3	
<i>Pasiphila debiliata</i>	658	1	
<i>Pasiphila rectangulata</i>	658	13	
<i>Pelurga comitata</i>	624	1	
<i>Pennithera firmata</i>	658	7	
<i>Perizoma affinitata</i>	658	3	
<i>Perizoma albulata</i>	658	3	
<i>Perizoma alchemillata</i>	658	16	
<i>Perizoma bifaciata</i>	615	3	
<i>Perizoma blandiata</i>	658	3	
<i>Perizoma flavofasciata</i>	658	4	
<i>Perizoma hydrata</i>	658	1	
<i>Perizoma incultaria</i>	658	1	
<i>Perizoma lugdunaria</i>	/	0	Bavaria* (/)
<i>Perizoma minorata</i>	658	3	
<i>Perizoma obsoletata</i>	658	2	
<i>Phibalapteryx virgata</i>	658	3	
<i>Philereme transversata</i>	658	2	
<i>Philereme vetulata</i>	658	5	
<i>Plemyria rubiginata</i>	658	1	
<i>Pterapherapteryx sexalata</i>	658	2	
<i>Rheumaptera cervinalis</i>	658	7	
<i>Rheumaptera hastata</i>	658	3	
<i>Rheumaptera subhastata</i>	/	0	Bavaria*, Finland (658)

<i>Rheumaptera undulata</i>	658	3	
<i>Scotopteryx bipunctaria</i>	658	2	
<i>Scotopteryx chenopodiata</i>	658	4	
<i>Scotopteryx coarctaria</i>	/	0	Turkey, Italy* (658)
<i>Scotopteryx luridata</i>	658	2	
<i>Scotopteryx moeniata</i>	658	3	
<i>Scotopteryx mucronata</i>	/	0	Bavaria*, Turkey, Italy* etc. (612)
<i>Spargania luctuata</i>	658	2	
<i>Thera britannica</i>	658	3	
<i>Thera cembrae</i>	658	1	
<i>Thera cognata</i>	658	2	
<i>Thera juniperata</i>	658	4	
<i>Thera obeliscata</i>	658	28	
<i>Thera variata</i>	658	13	
<i>Thera vetustata</i>	658	1	
<i>Trichopteryx carpinata</i>	658	4	
<i>Trichopteryx polycommata</i>	658	5	
<i>Triphosa dubitata</i>	658	4	
<i>Triphosa sabaudiata</i>	658	2	
<i>Venusia blomeri</i>	658	4	
<i>Venusia cambrica</i>	658	1	
<i>Xanthorhoe biriviata</i>	658	6	
<i>Xanthorhoe decoloraria</i>	658	1	
<i>Xanthorhoe designata</i>	658	5	
<i>Xanthorhoe ferrugata</i>	658	13	
<i>Xanthorhoe fluctuata</i>	658	12	
<i>Xanthorhoe incurvata</i>	658	1	
<i>Xanthorhoe montanata</i>	658	5	
<i>Xanthorhoe quadrifasiata</i>	658	7	
<i>Xanthorhoe spadicearia</i>	658	8	

## Sterrhinae

Species	mfl	n	origins supplementary material (mfl)
<i>Cyclophora albipunctata</i>	658	2	
<i>Cyclophora annularia</i>	636	1	
<i>Cyclophora linearia</i>	658	2	
<i>Cyclophora pendularia</i>	475	1	
<i>Cyclophora porata</i>	/	0	Italy, Spain (658)
<i>Cyclophora punctaria</i>	658	4	
<i>Cyclophora pupillaria</i>	/	0	Italy, Spain, Turkey etc. (658)
<i>Cyclophora quercimontaria</i>	/	0	Bavaria*, Italy*, Turkey* (/)
<i>Cyclophora ruficiliaria</i>	/	0	Bavaria*, Italy (658)
<i>Idaea aureolaria</i>	658	1	
<i>Idaea aversata</i>	658	4	
<i>Idaea biselata</i>	658	5	
<i>Idaea contiguaria</i>	/	0	absent from BOLD
<i>Idaea degeneraria</i>	/	0	Bavaria*, Italy, Turkey etc. (658)
<i>Idaea deversaria</i>	/	0	Italy, Spain, Finland etc. (658)
<i>Idaea dilutaria</i>	658	1	
<i>Idaea dimidiata</i>	658	4	
<i>Idaea emarginata</i>	658	3	
<i>Idaea fuscovenosa</i>	658	3	
<i>Idaea humiliata</i>	658	2	
<i>Idaea inquinata</i>	658	6	
<i>Idaea laevigata</i>	/	0	Italy, Spain* (633)
<i>Idaea moniliata</i>	/	0	Bavaria*, Italy, Turkey etc. (658)
<i>Idaea muricata</i>	658	2	
<i>Idaea ochrata</i>	/	0	Bavaria*, Italy, Greece etc. (658)
<i>Idaea pallidata</i>	417	2	
<i>Idaea rufaria</i>	/	0	Bavaria*, Italy, Iran (658)
<i>Idaea rusticata</i>	/	0	Italy, Iran (658)
<i>Idaea seriata</i>	658	6	

<i>Idaea serpentata</i>	658	2	
<i>Idaea straminata</i>	658	5	
<i>Idaea subsericeata</i>	/	0	Italy, Turkey etc. (658)
<i>Idaea sylvestraria</i>	658	5	
<i>Idaea trigeminata</i>	/	0	Italy, Greece, Turkey etc. (658)
<i>Rhodometra sacraria</i>	/	0	Italy, Greece, Turkey etc. (658)
<i>Rhodostrophia vibicaria</i>	658	3	
<i>Scopula caricaria</i>	/	0	France, Finland (658)
<i>Scopula decorata</i>	/	0	Italy, Portugal, Turkey etc. (658)
<i>Scopula floslactata</i>	658	6	
<i>Scopula immorata</i>	658	4	
<i>Scopula immutata</i>	658	2	
<i>Scopula incanata</i>	658	2	
<i>Scopula marginepunctata</i>	658	2	
<i>Scopula nemoraria</i>	/	0	absent from BOLD
<i>Scopula nigropunctata</i>	658	4	
<i>Scopula ornata</i>	658	5	
<i>Scopula rubiginata</i>	658	4	
<i>Scopula subpunctaria</i>	658	1	
<i>Scopula ternata</i>	658	1	
<i>Scopula umbelaria</i>	658	1	
<i>Scopula virgulata</i>	/	0	Bosnia, China, Mongolia (658)
<i>Timandra comae</i>	658	7	

Species total: 407

Species with sequences: 400

Species with barcodes (>500 bp): 399

Species with full fragments (658 bp): 393

Bavarian vouchers with sequences: 1395 (331 species)

Bavarian vouchers with barcodes (>500 bp): 1321 (325 species)

Bavarian vouchers with full fragments (658 bp): 912 (303 species)