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LEPIDOPTERA OF THE PREALPI GIULIE NATURAL PARK (FRIULI VENEZIA GIULIA, NORTH-EAST ITALY)

LEPIDOPTERA DEL PARCO NATURALE DELLE PREALPI GIULIE
(FRIULI VENEZIA GIULIA, ITALIA NORD-ORIENTALE)

Abstract - The results of researches on the lepidopteran fauna of the Prealpi Giulie Natural Park (Province of Udine, Friuli Venezia Giulia) are presented. The research was mainly conducted in two types of mountain habitats of the Park, the beech woods and the meadows-pastures, as well as in other various habitats. A total of 1489 species of lepidoptera have been recorded, a number of species that may be regarded as extraordinary, with probably almost about 50% of the estimated regional fauna of Lepidoptera. The lepidopterological communities of the main environmental typologies investigated are analyzed from an ecological and faunistic point of view. From a chorological point of view, the importance of the European faunal elements is corroborated by a considerable diversity of 36 alpine endemics, which are of particular conservational value. Six species are protected by annex 2 and/or 4 of the Fauna-Flora-Habitat Directive of the EU. *Leucoptera lathyrifoliella* is new to the Italian fauna, while *Agonopterix lidiae* was recognized as new to Science.

Key words: Lepidoptera, NE Italy, Friuli Venezia Giulia, South-Eastern Alps, New records.

Riassunto - Nel presente lavoro vengono riportati i risultati di una ricerca pluriennale sulla lepidotterofauna del Parco Naturale delle Prealpi Giulie (Provincia di Udine, Friuli Venezia Giulia). La ricerca è stata condotta principalmente in due tipologie di habitat montani del Parco, le faggete e i prati-pascoli, oltre che in altri vari habitat. Sono state registrate complessivamente 1489 specie di lepidotteri, un numero straordinario che raccoglie probabilmente il 50% dell'intera lepidotterofauna del Friuli Venezia Giulia. Vengono analizzate sotto il profilo ecologico e faunistico le comunità lepidotterologiche delle principali tipologie ambientali indagate. Per ciò che riguarda l'aspetto corologico, si evidenzia una importante componente di specie europee, che includono 36 endemiti alpini, un elemento di particolare valore conservazionistico. Sei specie risultano inserite negli allegati 2 e 4 della Direttiva Habitat. *Leucoptera lathyrifoliella* è risultata essere nuova per la fauna italiana, mentre *Agonopterix lidiae* è stata riconosciuta come nuova per la Scienza.

Parole chiave: Lepidoptera, Italia nord-orientale, Friuli Venezia Giulia, Prealpi Giulie, Nuove segnalazioni.

1. Introduction

Lepidopterans are one of the major insect orders, a well-known and popular group of insects that have proven to be excellent indicators for changes in ecosystems and landscapes, also as model organisms for other insect populations (ERHARDT & THOMAS 1991; THOMAS 2005; VAN SWAAY & VAN STRIEN 2005).

In the context of the high biodiversity showed by this entomological group in the Italian territory (BALLETO et al. 2014), lepidoptera of the South-Eastern Alps in Italy includes rare and endangered species as well as several south-eastern alpine endemics and internationally protected species. Nevertheless, in Italy the lepidopterological fauna of the Julian Alps has only been studied sporadically and literature related to this area is rather poor (BUCHNER 2020; DEUTSCH 2019; HUEMER & TARMANN 1989, [1992]; HUEMER & SATTLER 1989; KUSDAS & THURNER 1957; PINKER 1953; ZELLER 1868a, 1868b). Despite of this gap in faunistic research,

very interesting material was already published in the above mentioned papers, indicating for this part of Eastern Alps a lepidopterological coenosis of particular value concerning faunistics and biogeography. In various studies it was already proved that the area is of particular interest within Italy, due to the presence of alpine, mediterranean and illyric chorological elements.

A more detailed exploration of the lepidopterological communities within characteristic habitats of the Julian Alps was therefore of high scientific interest. In this aim, the Museo Friulano di Storia Naturale in Udine organised a research scientific program in the territory of the Parco Naturale delle Prealpi Giulie¹⁾, a protected site located in the north-eastern portion of the Friuli Venezia Giulia Region, in the province of Udine.

1) The researches presented here were conducted on the basis of an agreement between the Museo Friulano di Storia Naturale and the Parco Naturale delle Prealpi Giulie.

The Park territory represent a priority area for nature and biodiversity conservation, and the scarce anthropization characterizing the area allowed the preservation of the Alpine traditional landscape.

Most of the Park area belong to Natura 2000 Network (ZSC IT33212 "Prealpi Giulie Settentrionali").

The aim of the study was a survey of a representative portion of the species communities of lepidoptera and several other entomological groups, focusing on faunistics but also on conservational aspects. The research was conducted from 2001 to 2008 in the Park territory and its surroundings, exploring in two sessions the north and south part of the Park. In this paper the results of the research on lepidopterological fauna are presented.

2. Methods

2.1 Study area

The Parco Naturale delle Prealpi Giulie covers about 100 km² and splits in two distinct geographical units: the Julian Alps (Monte Canin Group) and the Julian Prealps (Monte Plauris Group and Monti Musi). The mountain area covered extends from 300 m above sea level, at the bottom of the Val Resia and Val Fella, up to 2587 m a.s.l. at the top of Monte Canin (fig. 1).

From a geolithological point of view, the most widespread rock formation in the area is the Noric dolomite, which forms the base of the Monte Plauris chain and the Canin massif. Only in some sectors of the area, such as in the Val Ucea, there are Meso-Cenozoic flysch deposits given by alternating marl and sandstone.

The prevailing climate in the Park area is humid temperate, with two peaks of equinoctial rainfall (in May-June and October-November) with average values among the highest in Europe and included, proceeding from west to east, between 2000 and 3000 mm per year. Average annual temperatures are between 11 °C in Venzone and 8-9 °C in Saletto (Chiusaforte).

From a vegetational point of view, the Park area is characterized by the dominance, in the submontane and lower mountain plan, of thermophilic broadleaf woods, thermophilic beech woods and pine forests, while in the upper mountain plan mesophilic and microthermal beech woods are generally found, often with the participation of *Abies alba* and *Picea abies*, accompanied by pines and alders. Thermophilic forests are present in the pre-Alpine belt on slopes exposed to the sun, mostly characterized by rather poor, permeable and shallow soils, and are made up in most cases of *Ostrya carpinifolia* and *Fraxinus ornus*, sometimes accompanied by *Fagus sylvatica*. Beech forests dominate at higher altitudes and on more developed soils, while on primitive soils the pine forests of *Pinus nigra* prevail, partly as result of reforestation. Finally, the alpine belt alternates areas of rubble colonized by pioneer vegetation with more compact and extensive formations of meadows and pastures at high altitudes (SIMONETTI & MAINARDIS 1996).

As mentioned above, the research program included two research sessions. In the first session, that covered the first 3 years of the program (from 2001 to 2003), the northern part of the Park was explored; in the second research session the southern part of the Park was studied during the vegetation periods 2006 and 2007, partially already in 2004 and 2005 or earlier.

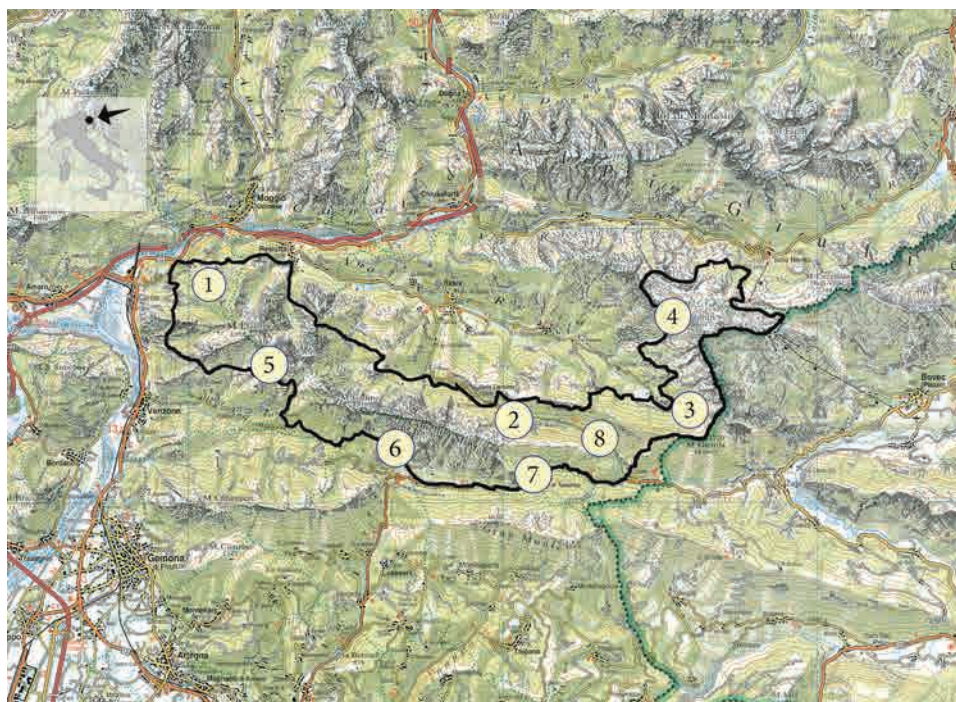


Fig. 1 - Map of the Prealpi Giulie Natural Park, with the stations showed (see text for station numbers).

- Mappa del Parco Naturale delle Prealpi Giulie, con le stazioni indagate (si veda il testo per i numeri relativi alle stazioni).

Due to the limited resources of specialist, the research focused on some of the most representative locations, with special emphasis on the beech woods and various meadows and pastures up to the alpine zone. Anyway, in the second session (southern area) the research was extended to wider stations, also including other representative habitats of the Park territory.

Research stations are listed below, visible on the map in fig. 1. For each station the location, the altitude, the vegetation and geomorphological characteristics are described. First research session includes stations 1-4, while the second session includes stations 5-8. In addition to the main stations, constantly monitored, the researches were occasionally extended to other stations scattered in the neighbouring area, both in northern and southern part of the Park.

- Station 1: Stavoli Cuel Lung Alto (Tugliezzo), 600 m above sea level, slopes of the Monte Zovet. This is the most western station, characterised by beech woods mixed with *Ostrya carpinifolia* and periodically mowed pastures used for cattle rearing.
- Station 2: Sella Carnizza, 1077 m a.s.l., on the watershed Val Resia Valley – Valle di Ucea – Val Torre. The marginal position of the Canin mountainous group south and of the pre-alpine chains north reflect the mesophilous aspects of this station. Almost pure beechwoods are present, and thermophilous stations in the southern slopes alternate with micro-thermic ones in the northern sites.
- Station 3: Clen – Casera Coot, 950 m a.s.l. Micro-thermic bottom valley station, placed along the slopes of the range of the Canin mountainous group. It is characterized by wide pastures, limited by cold type beechwoods, mixed with spruce.
- Station 4: Sella di Grubia (by Marussich Camp), 2040 m a.s.l., on the Monte Canin karstic plateau. A sub-alpine biotope, placed above the arboreal vegetation limit. It is marked by a thick and wide area with almost continuous meadowy vegetation of *Carex firma*, inserted in a wider range of scree systems and of semi-permanent snowfields variously colonised by pioneer vegetation below the Canin glacier.
- Station 5: Gruppo del Monte Plauris (ca. 650-1300 m a.s.l.). The southern part of the Monte Plauris-group is dominated by rather steep slopes on limestone. The vegetation is characterised by thermophilous beech forests at lower altitudes, partially developed as *Ostryo-Fagetum*. A subsite is situated at lower altitudes of Val Venzonassa between about 650 m and 700 m, while the mountainous sites in the surroundings of Malga Confin and Casera Ungarina are situated at about 1300 m.
- Station 6: Alta Val Torre: Plan di Tapou e dint. Tanataviele (ca. 600-900 m). Situated in the south-western part of Monte Musi and in the east of Val Venzonassa, this area is dominated by carbonatic ground-surface, with the conspicuous presence of dry meadows and pastures, also with mountain scree. Most of these pastures are nowadays abandoned and increasingly recaptured by woody plants, e.g. *Fraxinus ornus*. The arboreal vegetation is characterised by mountain beech forests (*Ostryo-Fagetum*), partially intermixed with *Pinus nigra*.
- Station 7: Passo di Tanamea (ca. 850 – 1000 m). The area north of Passo Tanamea is characterised by southern-exposed, steep rocks and scree on carbonatic ground-surface. Partially the rocks are covered with a typical flora of e.g. *Potentilla caulescens* and *Spiraea procumbens*. Furthermore, thermophilous beech woods are characteristic for the slopes, frequently intermixed with *Ostrya carpinifolia* (*Ostryo-Fagetum*) and conifers. Steppic grassland is also represented fragmentarily.
- Station 8: Valle di Ucea (ca. 850 – 1000 m). The valley of the river Ucea is predominantly covered by beech forests, with only minimal anthropogenic influence. Due to high precipitation and humid conditions, the *Dentario pentaphylli-Fagetum* is dominant, with the presence of *Abies alba*. Steep and southern-exposed limestone-rocks with a petrophilous flora of *Silene saxifraga*, *Saxifraga hostii* and others are mainly found in the central part of the valley between 700 and 800 m, on the orographically left-hand side.

2.2 Collecting methods

The collecting methods were selected to enable a registration of a maximum amount of species within a limited number of excursions.

Due to the night activity of about 85% of Central European lepidoptera, mainly light-trapping methods were chosen, but also traditional sampling methods during day-time:

- illuminated white sheet (light source 125W UV)
- light tower (light source 15W-20W UV)
- automatic light-traps (light source 8W UV)
- usage of a dip net
- visual registration of day-active species
- visual registration of larvae and leaf-miners.

In general, an illuminated white sheet and 2 light towers were used simultaneously. Light traps were only taken on rare occasions, mainly in sites not well accessible.

Sampling material is mainly preserved in the collections of the Museo Friulano di Storia Naturale, Udine (MFSN), and partially in the collections of the Tiroler Landesmuseum Ferdinandeum, Innsbruck (TLMF).

3. Results

3.1 Species diversity - overview

The species inventory of the Prealpi Giulie Natural Park and its surrounding resulting from the research here presented revealed 1489 species of Lepidoptera, included in 65 families, listed in Tab. 1. The systematic and nomenclature follows LEPIFORUM E.V., with exception for some groups of Gelechioidea which have been elevated to family rank (see ŠUMPICH et al. 2022). During the first session (northern area) a number of 1049 species could be counted, while the second research session in the southern part of the Park this diversity is even exceeded with records of 1280 species of Lepidoptera. Taking into consideration the limited number of visited sites and excursions the total number could even be increased with further efforts. However, despite of the incompleteness the inventory can already be regarded as representative for the whole area.

The inventory of Lepidoptera in the region Friuli Venezia Giulia is still fragmentary, despite of some considerable improvements during the last two decades. Therefore, the species diversity of Friuli Venezia Giulia, similar to the nearby North Italian province of South Tyrol (HUEMER 1997), probably exceeds more than 3000 taxa and hence the number of species in the Prealpi Giulie Nature Park may be regarded as extraordinary, with almost about 50% of the estimated Friulian fauna of Lepidoptera.

The inventory includes 65 families. 44 families, following modern phylogenetic approach, are grouped within the so-called “Microlepidoptera” (Fig. 3). 21 families belong to the so-called “Macrolepidoptera”. This last group is regarded as monophyletic whereas the “Microlepidoptera” are paraphyletic. Microlepidoptera comprise 703 species or about 47% of the entire inventory whereas 786 species belong to the “Macrolepidoptera”. In general species of “Microlepidoptera” should reach about 60% of a regional fauna in Central Europe which clearly shows still existing deficits in the faunistic exploration of the Nature Park. Probably several additional species can be found in

future. Species of a few families such as e.g. Sesiidae are barely recorded due to methodological problems.

The most diverse families of “Microlepidoptera” are Tortricidae (190 spp.), Gelechiidae (83 spp.), Crambidae (90 spp.) and Pyralidae (54 spp.). Furthermore, several groups of “Macrolepidoptera” are well represented in the area. Butterflies and Skippers with 95 species are of particular interest from a conservational aspect (5 out of 6 species protected by the Fauna-Flora-Habitat Directive of the EU are butterflies). However, the highest diversity on family level is represented by the Geometridae (282 spp.) curtly followed by the Noctuidae (251 spp.). In general, the species-diversity of Noctuidae in Central Europe exceeds Geometridae. The importance of the latter in Prealpi Giulie reflects the dominance of afforested areas, which are typical biotopes for most Geometrids.

In the total biodiversity analysis, it's important to point out that this species diversity is only partially reflected by the observed species due to methodological problems, particularly the low number of samplings during the first research session. In particular, the stations 1-3 have been explored irregularly and non-uniform, clearly reflected by the moderately low numbers of observed species. This is evident if compared with the higher number of species recorded in the southern part. Considering this, the highest number of species was detected in the areas of Monte Plauris (station 5) and Valle di Ucea (station 8), two areas exceptionally rich in observed species diversity. In Valle di Ucea, in particular, on one occasion 344 species were recorded within a single night. This element can probably be linked to the high environmental diversification and the good state of conservation of the habitats of these two sectors of the Julian Prealps. The importance for regional biodiversity of Monte Plauris is regarded as extraordinary as this area represents a highly specialised species community with a very limited geographical extension of several species, both horizontally and vertically. Furthermore, in the case of Val Ucea, the orientation of the valley towards neighbouring Slovenia and the Balkans probably allows the presence of species from the Illyrian area, contributing to increase the species diversity present in this area.

Fig. 2 - Photos of main investigated stations. A – Pastures at Cuel Lung Alto (station 1), photo by G. Governatori; B – Sella di Grubia, M. Canin (station 4), photo by G. Governatori; C – Beechwood near Clen (station 3), photo by G. Governatori; D – Pastures at S. Anna di Carnizza (station 2), photo by G. Governatori; E – Dry meadows near Tanatavie, Alta Val Torre (station 6), photo by P. Huemer; F – Southern slopes of M. Plauris-Lavara (station 5), photo by P. Glerean; G – Beechwood near Stavoli Rasuga, Val Ucea (staz. 8), photo by P. Glerean; Grasslands and rocks near Passo Tanamea (station 7), photo by I. Pecile.

- Foto delle principali stazioni indagate. A – Pascoli presso Cuel Lung Alto (staz. 1), foto G. Governatori; B – Sella di Grubia, M. Canin (staz. 4), foto G. Governatori; C – Faggeta presso Clen (Staz. 3), foto G. Governatori; D – Pascoli presso S. Anna di Carnizza (staz. 2), foto G. Governatori; E – Praterie aride presso Tanatavie, Alta Val Torre (staz. 6), foto P. Huemer; F – Versante meridionale del Gruppo M. Plauris-Lavara (staz. 5), foto P. Glerean; G – Faggeta presso Stavoli Rasuga, Val Ucea (staz. 8), foto P. Glerean; Prati e versanti rocciosi presso Passo Tanamea (staz. 7), foto I. Pecile.



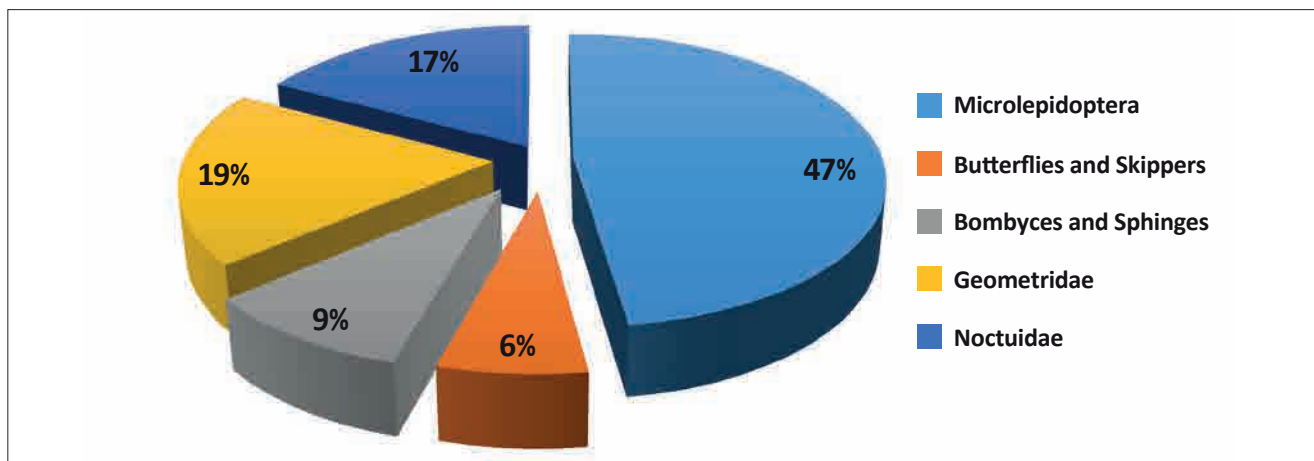


Fig. 3 - Species diversity of Lepidoptera attributed to "classical" groups. Bombyces and Sphinges include: Sesiidae, Limacodidae, Zygaenidae, Endromidae, Saturniidae, Lasiocampidae, Sphingidae, Erebididae, Notodontidae.

- *Diversità della lepidopterofauna suddivisa nei gruppi lepidotterologici classici. Bombici e Sfinigidi includono: Sesiidae, Limacodidae, Zygaenidae, Endromidae, Saturniidae, Lasiocampidae, Sphingidae, Erebididae, Notodontidae.*

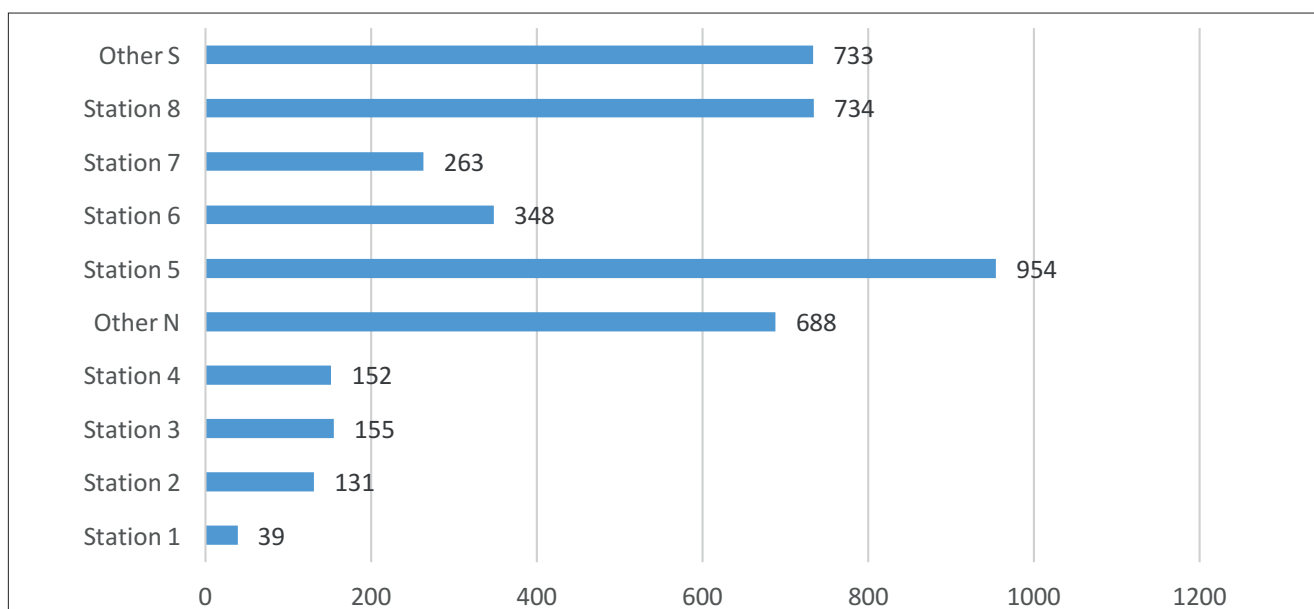


Fig. 4 - Number of species for main investigated stations (see text for details).

- *Numero di specie rinvenute nelle principali stazioni indagate (si veda il testo per i dettagli).*

3.2 Habitat specific species-diversity

Lepidoptera are in general mobile and the observation of an alate adult is by itself insufficient for a conclusion to its larval habitat. Hence, the linkage of species to habitats is a critical task which needs some expertise. Particularly habitats exclusively defined by vegetation are not necessarily concordant with a characteristic coenosis of Lepidoptera. Instead ecological guilds, related or unrelated species with similar ecological habits, are used in this study. The species assignment to ecological guilds was primarily concluded from the ecological habits of single species, e.g. larval host-plants.

The determination and definition of ecological guilds is defined as follows (Fig. 5):

- *hyg/tyr* (*hygrophilous species of woodless landscape*): hygrophilous, wetland species of various types of woodless moorland and fens including tyrphophilous habitats. Species diversity: 54 spp.
- *meswl* (*mesophilous species of woodless landscape*): mesophilous species of woodless grassland. Species diversity: 217 spp.
- *mesec* (*mesophilous species of ecotones*): mesophilous species of herbaceous forestal margins and ecotones. Species diversity: 194 spp.
- *mesfo* (*mesophilous species of arboreous habitats*): mesophilous species of arboreous habitats. Species diversity: 515 spp.
- *xerwl* (*xerophilous species of woodless landscape*): thermophilous-xerophilous species of dry, woodless

grassland, sandy places or rock formations. Species diversity: 198 spp.

- *xersh* (*xerophilous species of arboreous habitats*): xerophilous species of dry, thermophilous arboreous habitats including thermophilous hedgerows. Species diversity: 52 spp.
- *mon* (*montane species*): species of montane forests including dwarf-shrub zone, grassland and rock-formations below the natural timber line. Species diversity: 151 spp.
- *alp* (*alpine species*): species of alpine grassland, rock-formations and scree above the natural timber line. Species diversity: 42 spp.
- *ubiq* (*ubiquitous species*): unspecialised species of grassland or forested landscape, including synanthropic species. Species: 65 spp.

The major types of investigated habitats in the Nature Park are beech forests on one hand and meadows and pastures of the montane region on the other. The actual species number for these major ecosystems in the Park cannot be stated accurately since several species occur in a large variety of habitats. However, species of the ecological guilds *mesfo*, *mesec* and *xersh* are mainly attributed to beech forests and related forests, whereas species subsumed in ecological guilds *meswl*, *hyg/tyr* and *xerwl* mainly inhabit meadows and pastures. Some of the alpine species are occurring in pastures and meadows close to or above the timberline, but the majority of alpine species prefers alpine scree and rocks – a habitat for its own. Similarly, several montane species live in habitats which are not covered by meadows, pastures or forests, though several species also occur in these types of habitats. Ubiquitous on the contrary may occur in almost all types of habitats.

This site-specific diversity reflects a mixture of different habitats present at each target-site. Therefore, the majority of species is represented in more than one site. However, the proportion of species/ecological guild on the entire species-inventory per site varies characteristically between the different sites.

3.2.1 Species diversity of beech-woods

Beech-woods and related habitats are widely distributed throughout the southern part of the Nature Park, particularly at altitudes of up to about 1300 m. The species diversity of Lepidoptera is mainly depending on the vegetation structure of the sites. Uniform forests of old *Fagus*-trees are less diverse as such of different age and varying structure. Also the exposition and humidity of the sites is of some influence for the Lepidoptera coenosis. Thermophilous and southern exposed forests are settled by a more diverse thermophilous fauna as humid forest, which however, are perfect habitats for a number of hygrophilous taxa from woodland areas. Numerous of the altogether 515 species of woodland habitats and the 194 species of ecotones are potentially living in beech-woods and related habitats. Moreover, 52 species of xerophilous shrubland habitats may be partially attributed to beech-wood. Bioindicator species of beech-wood habitats includes several monophagous taxa on *Fagus* such as *Stigmella hemargyrella*, *Parornix fagivora*, *Phyllonorycter mastingella* and *Argyresthia semitestacella* or oligophagous species on *Fagaceae* such as *Ancylis mitterbacheriana*, *Drymonia oblitterata* and *Watsonalla cultraria*. Furthermore, species like *Agria tau* and *Operophtera fagata* favour beech-woods, though they can also live in other afforested habitats. In more thermophilous stations e.g. at lower altitudes of Val Venzonassa (station 5) an increasing number of thermophilous

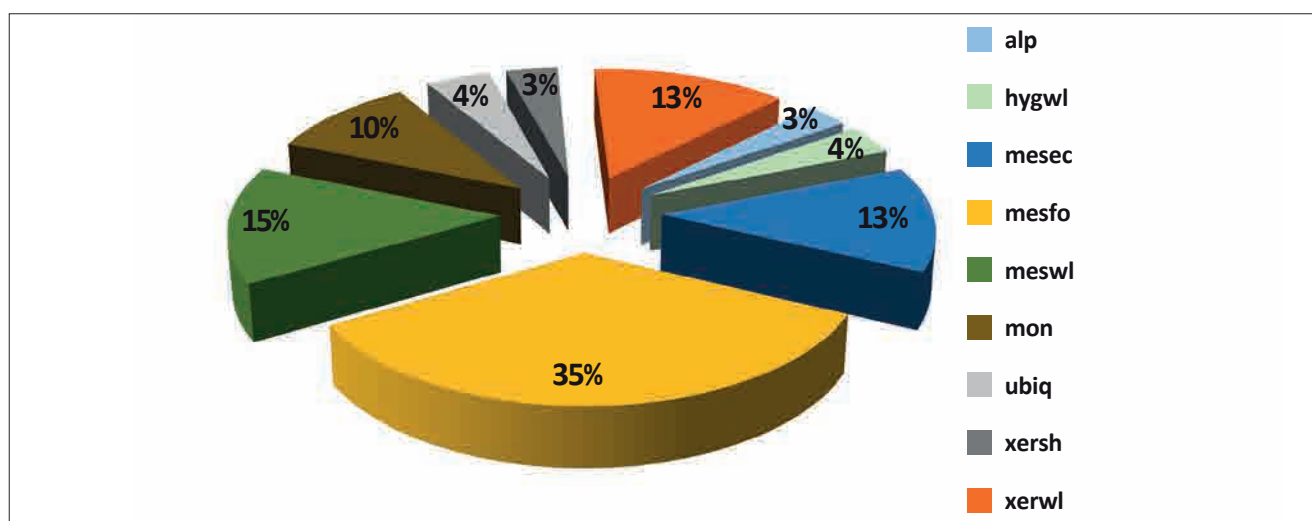


Fig. 5 - Ecological guilds (all sites summarised). See text for acronyms.

- Percentuali relative alle categorie ecologiche riscontrate nel popolamento complessivo (si veda il testo per gli acronimi).

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Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Diasemia reticularis</i> (Linnaeus, 1761)					x				x		EUR	herbs:Plantago,Hieracium etc	meswl		
<i>Dolicharthria punctalis</i> (Denis & Schiffermüller, 1775)									x		CAE	herbs	xerwl		
<i>Ebulea crocealis</i> (Hübner, 1796)					x	x		x	x	x	ASE	Asteraceae;Teucrium	meswl		
<i>Ecpyrorrhoe rubiginalis</i> (Hübner, 1796)					x	x					CAE	Lamiaceae:Stachys,Ballota	meswl		x
<i>Euchromius bella</i> (Hübner, 1796)										x	TUE	decaying leaves	xerwl		
<i>Eudonia lacustrata</i> (Panzer, 1804)					x	x			x	x	EUR	moss	mesfo		
<i>Eudonia phaeoleuca</i> (Zeller, 1846)					x	x	x		x	x	SEU	?moss	mon		
<i>Eudonia sudetica</i> (Zeller, 1839)					x	x					EUR	moss	alp		
<i>Eudonia truncicolella</i> (Stainton, 1849)		x	x			x	x	x	x	x	SIE	moss	mesfo		
<i>Eurrhyncha hortulata</i> (Linnaeus, 1758)						x				x	ASE	herbs:Urtica,Stachys,Mentha	mesec		
<i>Eurrhyncha pollinalis</i> (Denis & Schiffermüller, 1775)					x	x		x		x	EUM	Fabaceae:Ononis,Cytisus	xerwl		
<i>Evergestis aenealis</i> (Denis & Schiffermüller, 1775)		x				x				x	EUR	Brassicaceae	xerwl		x
<i>Evergestis pallidata</i> (Hufnagel, 1767)									x		HOL	Brassicaceae:Brassica,Barbarea etc	hygw		
<i>Evergestis sophialis</i> (Fabricius, 1787)					x	x		x	x	x	TUE	Brassicaceae	xerwl		
<i>Harpadispis diffusalis</i> (Guenée, 1854)						x					MED	unknown	xerwl		
<i>Hellula undalis</i> (Fabricius, 1781)						x				x	SCO	Brassicaceae	xerwl		
<i>Loxostege sticticalis</i> (Linnaeus, 1761)						x				x	HOL	herbs	meswl		
<i>Mecyna flavalis</i> (Denis & Schiffermüller, 1775)					x	x			x	x	ASE	herbs:Galium,Urtica etc	xerwl		
<i>Metasia ophialis</i> (Treitschke, 1829)						x					SEU	unknown	xersh		
<i>Metaxmeste phrygialis</i> (Hübner, 1796)				x							SIE	herbs	mon		
<i>Metaxmeste schrankiana</i> (Hochenwarth, 1785)				x							SIE	Ericaceae	mon		
<i>Nomophila noctuella</i> (Denis & Schiffermüller, 1775)		x				x	x		x	x	PAL	herbs,grass	ubiq		
<i>Oreana alpestralis</i> (Fabricius, 1794)				x							SEU	herbs	alp		
<i>Ostrinia nubilalis</i> (Hübner, 1796)					x	x				x	SCO	herbs:esp. Zea	meswl		
<i>Palpita vitrealis</i> (Rossi, 1794)									x		SCO	herbs,deciduous shrubs	ubiq		
<i>Parapoynx stratiotata</i> (Linnaeus, 1758)					x						CEU	unknown	mesfo		
<i>Paratalanta pandalis</i> (Hübner, 1825)						x	x	x	x	x	ASE	herbs	meswl		
<i>Patania ruralis</i> (Scopoli, 1763)		x	x			x	x	x	x	x	ASE	herbs:Filipendula,Urtica etc	meswl		
<i>Pediasia contaminella</i> (Hübner, 1796)					x		x		x	x	TUE	Poaceae	xerwl		
<i>Platytes alpinella</i> (Hübner, 1813)						x		x	x		WPA	moss	xerwl		
<i>Platytes cerussella</i> (Denis & Schiffermüller, 1775)										x	EUR	Poaceae,moss	xerwl		
<i>Pyrausta aerealis</i> (Hübner, 1793)					x						PAL	herbs	meswl		
<i>Pyrausta aurata</i> (Scopoli, 1763)					x	x	x		x		PAL	Lamiaceae:Mentha,Origanum,Salvia etc	meswl		x
<i>Pyrausta castalis</i> Treitschke, 1829										x	SEU	Satureja montana	xerwl		x
<i>Pyrausta cingulata</i> (Linnaeus, 1758)					x						CAE	Lamiaceae	meswl		
<i>Pyrausta coracinalis</i> Leraut, 1982			x						x		SEU	Lamiaceae:Salvia,Satureja	mon		
<i>Pyrausta despicata</i> (Scopoli, 1763)					x	x				x	ASE	herbs:Plantago,Salvia etc	meswl		
<i>Pyrausta falcatalis</i> Guenée, 1854					x	x	x		x		SEU	Salvia glutinosa	mesfo		
<i>Pyrausta nigrata</i> (Scopoli, 1763)					x						EUR	Lamiaceae	meswl		
<i>Pyrausta purpuralis</i> (Linnaeus, 1758)		x				x	x		x		EUR	Lamiaceae:Mentha,Origanum,Thymus etc	meswl		x
<i>Scoparia ambigualis</i> (Treitschke, 1829)									x		HOL	moss	mesfo		
<i>Scoparia ancipitella</i> (La Harpe, 1855)										x	EUR	moss	mesfo		
<i>Scoparia basistrigalis</i> Knaggs, 1866					x		x	x	x	x	EUR	moss	mesfo		
<i>Scoparia conicella</i> (La Harpe, 1863)										x	EUR	moss	mesfo		
<i>Scoparia ingratella</i> (Zeller, 1846)		x				x	x	x	x	x	EUR	moss	meswl		
<i>Scoparia italica</i> Turati, 1919					x	x			x	x	ALP	?moss	xerwl		
<i>Scoparia manifestella</i> (Herrich-Schäffer, 1848)					x	x			x	x	ALP	?moss	mon		
<i>Scoparia pyralella</i> (Denis & Schiffermüller, 1775)					x	x	x			x	EUR	moss	meswl		
<i>Scoparia subfusca</i> Haworth, 1811		x				x	x	x	x	x	EUR	Asteraceae:Picris,Tussilago	meswl		
<i>Sitochroa palealis</i> (Denis & Schiffermüller, 1775)					x						ASE	Apiaceae	meswl		
<i>Sitochroa verticalis</i> (Linnaeus, 1758)										x	PAL	herbs:Cirsium,Atriplex etc.	meswl		
<i>Sitochroa verticalis</i> (Linnaeus, 1758)					x						ASE	herbs	meswl		
<i>Thisanotia chrysonuchella</i> (Scopoli, 1763)									x	x	TUE	Poaceae	xerwl		
<i>Udea alpinalis</i> (Denis & Schiffermüller, 1775)					x	x					EUR	herbs	mon		x
<i>Udea carniolica</i> Huemer & Tarmann, 1989				x							ALP	?Viola biflora	alp		
<i>Udea cyanalis</i> (La Harpe, 1855)					x	x			x	x	SEU	unknown	mon		

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[illegible]

	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
Species															
<i>Leucoma salicis</i> (Linnaeus, 1758)						x			x	x	HOL	Salicaceae:Populus,Salix	mesfo		
<i>Lithosia quadra</i> (Linnaeus, 1758)		x		x		x	x	x	x	x	ASE	lichens	mesfo		
<i>Lygephila cracca</i> (Denis & Schiffermüller, 1775)					x	x	x		x	x	ASE	Fabaceae:Vicia,Coronilla,Astragalus	meswl	x	
<i>Lygephila pastinum</i> (Treitschke, 1826)							x				ASE	Fabaceae:Vicia,Coronilla,Astragalus	meswl		
<i>Lygephila viciae</i> (Hübner, 1822)					x	x			x	x	ASE	Fabaceae:Vicia,Coronilla,Astragalus	meswl		
<i>Lymantria dispar</i> (Linnaeus, 1758)					x	x				x	HOL	deciduous trees/shrubs:esp.Quercus,conifers	mesfo		
<i>Lymantria monacha</i> (Linnaeus, 1758)	x	x				x	x	x	x	x	ASE	conifers:esp.Picea,Pinus,deciduous trees/shrubs	mesfo		
<i>Metachrostis dardouini</i> (Boisduval, 1840)						x					SEU	Anthericum ramosum	xerwl		
<i>Miltochrista miniata</i> (Forster, 1771)					x	x	x	x	x	x	ASE	lichens	mesfo		
<i>Orgyia antiqua</i> (Linnaeus, 1758)						x				x	HOL	deciduous trees/shrubs:Salix,Fagus,Quercus,Prunus	mesfo		
<i>Paracolax tristalis</i> (Fabricius, 1794)					x	x			x	x	SIE	Corylus	mesfo		
<i>Pechipogo strigilata</i> (Linnaeus, 1758)					x	x	x		x	x	ASE	deciduous trees/shrubs:Quercus,Betula,Alnus,Corylus	mesec		
<i>Phragmatobia fuliginosa</i> (Linnaeus, 1758)					x	x			x	x	HOL	herbs	meswl		
<i>Phyllophila oblitterata</i> (Rambur, 1833)										x	SEU	Artemisia	xerwl		
<i>Phytometra viridaria</i> (Clerck, 1759)	x					x		x		x	ASE	Polygala	meswl		
<i>Polypogon gryphalis</i> (Herrich-Schäffer, 1851)	x						x			x	ASE	unknown	?hygw		
<i>Polypogon plumigeralis</i> (Hübner, 1825)						x				x	TUE	deciduous shrubs,herbs	mesec		
<i>Polypogon tentacularia</i> (Linnaeus, 1758)					x	x	x		x	x	ASE	?decaying leaves,?herbs	meswl		
<i>Rivula sericealis</i> (Scopoli, 1763)	x									x	ASE	Poaceae	ubiq		
<i>Schrankia costaestrigalis</i> (Stephens, 1834)					x					x	EUM	herbs	hygw		
<i>Setina irrorella</i> (Linnaeus, 1758)					x	x				x	SIE	lichens	mon		
<i>Spilarctia lutea</i> (Hufnagel, 1766)					x				x		ASE	herbs	meswl		
<i>Spilosoma lubricipeda</i> (Linnaeus, 1758)									x		ASE	herbs	meswl		
<i>Zanclognatha lunalis</i> (Scopoli, 1763)					x	x		x	x	x	ASE	decaying leaves	mesfo		
<i>Zanclognatha tarsipennalis</i> (Treitschke, 1835)					x						ASE	decaying leaves	mesfo		
Eriocraniidae															
<i>Dyseriocrania subpurpurella</i> (Haworth, 1828)						x					EUR	Quercus	mesfo		
Ethmiidae															
<i>Ethmia bipunctella</i> (Fabricius, 1775)					x						CAE	Boraginaceae	xerwl		
<i>Ethmia quadrillella</i> (Goeze, 1783)									x		WPA	Boraginaceae:Symphytum,Pulmonaria etc	mesfo		
<i>Ethmia terminella</i> Fletcher, 1938									x		EUR	Echium	xerwl		
Gelechiidae															
<i>Acompsia cinerella</i> (Clerck, 1759)					x	x	x		x	x	SIE	moss	mesec		
<i>Acompsia tripunctella</i> (Denis & Schiffermüller, 1775)					x	x			x	x	CEU	?moss	mon		
<i>Altenia scriptella</i> (Hübner, 1796)									x	x	EUR	Acer	mesfo		
<i>Anacamptis populella</i> (Clerck, 1759)										x	PAL	Salicaceae:Salix,Populus tremula	mesfo		
<i>Anacamptis timidella</i> (Wocke, 1887)					x	x					SEU	Quercus	mesfo		
<i>Anarsia spartiella</i> (Schrank, 1802)					x	x		x	x	x	CAE	Fabaceae	xerwl	x	
<i>Anaspaltis renigerellus</i> (Zeller, 1839)						x			x		CEU	Lamiaceae:Melissa,Melittis	xerwl		
<i>Apodia bifractella</i> (Duponchel, 1843)										x	WPA	Asteraceae:Pulicaria,Inula	meswl		
<i>Aproaerema anthyllidella</i> (Hübner, 1813)					x	x			x	x	PAL	Fabaceae:Anthyllis,Onobrychis,Trifolium	meswl	x	
<i>Aproaerema sangiella</i> (Stainton, 1863)					x						EUR	Fabaceae	meswl		
<i>Aproaerema taeniolella</i> (Zeller, 1839)	x					x			x		EUR	Fabaceae:Lotus,Trifolium,Medicago	meswl	x	
<i>Aproaerema vinella</i> (Banks, 1898)										x	EUR	Fabaceae:Astragalus,Coronilla,Dorycnium	xerwl		
<i>Aproaerema cinctella</i> (Clerck, 1759)					x						ASE	Fabaceae	meswl		
<i>Argolamprotes micella</i> (Denis & Schiffermüller, 1775)							x				ASE	Rubus	mesec		
<i>Athrips mouffetella</i> (Linnaeus, 1758)					x				x		HOL	Lonicera	mesec		
<i>Brachmia blandella</i> (Fabricius, 1798)					x					x	EUR	Fabaceae	hygw		
<i>Bryotropha senectella</i> (Zeller, 1839)	x					x					SIE	moss	xerwl		
<i>Bryotropha terrella</i> (Denis & Schiffermüller, 1775)	x					x	x				WPA	Poaceae	meswl		
<i>Carpatolechia decorella</i> (Haworth, 1812)						x				x	WPA	deciduous trees/shrubs:Quercus,Cotinus	mesfo		
<i>Carpatolechia fugacella</i> (Zeller, 1839)					x						SEU	Ulmus minor	xersh		
<i>Carpatolechia fugitivella</i> (Zeller, 1839)									x		HOL	Ulmus	mesfo		
<i>Caryocolum leucomelanella</i> (Zeller, 1839)					x	x	x	x		x	EUR	Dianthus,Petrorhagia	xerwl		
<i>Caryocolum leucothoracellum</i> (Klimesch, 1953)						x					WPA	Dianthus	xerwl		
<i>Caryocolum mucronatella</i> (Chrétien, 1900)						x					CEU	Minuartia	mon		

Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Caryocolum petrophilum</i> (Priessecker, 1914)						x	x				EUR	Cerastium, Stellaria	xerwl		
<i>Caryocolum petryi</i> (O. Hofmann, 1899)						x	x				SIE	Gypsophila repens	mon		
<i>Caryocolum saginella</i> (Zeller, 1868)							x		x		SEU	Silene saxifraga	mon		
<i>Caryocolum tischeriella</i> (Zeller, 1839)							x			x	CAE	Silene nutans	xerwl		
<i>Caryocolum trauniella</i> (Zeller, 1868)						x					ALP	?Silene	mon		
<i>Caryocolum vicinella</i> (Douglas, 1851)						x	x			x	EUR	Caryophyllaceae: Silene, Petrorhagia	xerwl		
<i>Chionodes electella</i> (Zeller, 1839)							x		x	x	EUR	Picea	mesfo		
<i>Chionodes fumatella</i> (Douglas, 1850)										x	SIE	moss	meswl		
<i>Chionodes nebulosella</i> (Heinemann, 1870)				x			x				CEU	unknown	mon		
<i>Dichomeris marginella</i> (Fabricius, 1781)						x	x				EUR	Juniperus communis	xersh		
<i>Dichomeris ustalella</i> (Fabricius, 1794)						x	x		x	x	ASE	deciduous trees/shrubs	mesfo		
<i>Exoteleia dodecella</i> (Linnaeus, 1758)						x	x			x	PAL	Pinaceae: Pinus, Picea, Abies	mesfo		
<i>Exoteleia succinctella</i> (Zeller, 1872)							x				CEU	Pinus mugo	mon		
<i>Gelechia muscosella</i> Zeller, 1839									x	x	EUR	Salix	mesfo		
<i>Gelechia sabinellus</i> (Zeller, 1839)							x	x		x	EUR	Juniperus	mesec		
<i>Gnorimoschema hoefneri</i> (Rebel, 1909)					x						ALP	unknown	alp		
<i>Helcystogramma lutatella</i> (Herrich-Schäffer, 1854)						x	x			x	EUR	Poaceae: Calamagrostis, Dactylis etc	xerwl		
<i>Helcystogramma rufescens</i> (Haworth, 1828)						x	x	x		x	ASE	Poaceae: Poa, Arrhenatherum etc	mesec		
<i>Hypatima rhomboidella</i> (Linnaeus, 1758)	x						x			x	SIE	deciduous trees/shrubs: Betula, Alnus, Populus, Corylus	mesfo		
<i>Klimeschiopsis kiningrella</i> (Duponchel, 1843)		x									EUR	unknown	mon		
<i>Mesophleps silacella</i> (Hübner, 1796)							x				WPA	Helianthemum	xerwl		
<i>Metzneria metzneriella</i> (Stainton, 1851)					x		x	x	x	x	EUR	Centaurea	xerwl		
<i>Metzneria neuropterella</i> (Zeller, 1839)						x	x	x		x	PAL	Asteraceae: Carlina, Cirsium, Centaurea	xerwl		x
<i>Metzneria santolinella</i> (Amsel, 1936)						x					CAE	Anthemis	xerwl		
<i>Mirificarma cytisella</i> (Treitschke, 1833)							x			x	EUR	Fabaceae	xerwl		x
<i>Mirificarma lentiginosella</i> (Zeller, 1839)						x	x				EUR	Fabaceae: Genista, Laburnum, Chamaecytisus	xersh		x
<i>Mirificarma maculatella</i> (Hübner, 1796)						x	x				TUE	Coronilla emerus, C. varia	xersh		
<i>Monochroa cytisella</i> (Curtis, 1837)						x	x				ASE	Pteridium aquilinum	mesec		
<i>Monochroa tenebrella</i> (Hübner, 1817)						x				x	EUR	Rumex acetosella	meswl		
<i>Neofaculta ericetella</i> (Geyer, 1832)						x	x		x	x	SIE	Ericaceae: Calluna, Erica, Rhododendron	mon		
<i>Neofaculta infernella</i> (Herrich-Schäffer, 1854)					x		x	x		x	HOL	deciduous trees/shrubs: Ericaceae, Betulaceae	mon		
<i>Nothris lemniscellus</i> (Zeller, 1839)						x	x			x	SIE	herbs: Globularia, Anthyllis	xerwl		
<i>Nothris verbasella</i> (Denis & Schiffermüller, 1775)							x			x	PAL	Verbasicum	xerwl		x
<i>Oxypteryx atrella</i> (Denis & Schiffermüller, 1775)						x	x	x		x	EUR	Hypericum	meswl		x
<i>Oxypteryx superbella</i> (Zeller, 1839)						x					CAE	herbs	xerwl		
<i>Oxypteryx unicolorella</i> (Duponchel, 1843)						x	x	x		x	EUR	unknown	meswl		
<i>Parachronistis albiceps</i> (Zeller, 1839)						x	x	x		x	HOL	Apiaceae: Daucus, Carum, Pimpinella etc	meswl		
<i>Paranarsia joannisiella</i> Ragonot, 1895						x	x			x	SEU	Erica	xersh		
<i>Prolita sexpunctella</i> (Fabricius, 1794)						x					SIE	Ericaceae	mon		
<i>Pseudotelphusa paripunctella</i> (Thunberg, 1794)						x			x	x	SIE	deciduous trees/shrubs	mesfo		
<i>Pseudotelphusa tessella</i> (Linnaeus, 1758)						x				x	SEU	Berberis vulgaris	xersh		
<i>Psoricoptera gibbosella</i> (Zeller, 1839)						x	x			x	SIE	deciduous trees/shrubs	mesfo		
<i>Psoricoptera speciosella</i> Teich, 1893						x	x			x	EUR	Salix caprea	mesfo		
<i>Recurvaria leucataella</i> (Clerck, 1759)						x	x		x	x	ASE	Rosaceae: Crataegus, Prunus, Pyrus etc	mesfo		
<i>Recurvaria nanella</i> (Denis & Schiffermüller, 1775)						x	x				PAL	Rosaceae: Malus, Prunus	mesfo		
<i>Scrobipalpa acuminatella</i> (Sircom, 1850)						x	x				CAE	Asteraceae	meswl		
<i>Scrobipalpa proclivella</i> (Fuchs, 1886)					x						EUR	Asteraceae	xerwl		
<i>Sitotroga cerealella</i> (Olivier, 1789)						x				x	SCO	Poaceae	ubiq		
<i>Sophronia sicariellus</i> (Zeller, 1839)						x		x		x	EUR	Asteraceae	xerwl		
<i>Stenolechia gemmella</i> (Linnaeus, 1758)						x	x			x	EUR	Quercus	mesfo		
<i>Teleiodes flavimaculella</i> (Herrich-Schäffer, 1854)										x	EUR	?Quercus	mesfo		
<i>Teleiodes italicus</i> Huemer, 1992						x			x	x	CEU	?deciduous trees/shrubs	mesfo		
<i>Teleiodes luculella</i> (Hübner, 1813)							x				EUR	Quercus	mesfo		
<i>Teleiodes saltuum</i> (Zeller, 1878)										x	SIE	Larix, ?Pinus	mesfo		
<i>Teleiodes sequax</i> (Haworth, 1828)						x	x			x	WPA	Helianthemum	xerwl		x
<i>Teleiodes wgae</i> (Nowicki, 1860)										x	EUR	Corylaceae: Corylus, Ostrya	mesfo		

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Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagatum	Bioindicator pastures
<i>Cyclophora porata</i> (Linnaeus, 1767)					x						EUR	deciduous trees	mesfo		
<i>Cyclophora punctaria</i> (Linnaeus, 1758)					x						EUR	deciduous trees	mesfo		
<i>Dyscia raunaria</i> (Freyer, 1851)						x				x	EME	herbs	xerwl		
<i>Dysstroma citrata</i> (Linnaeus, 1761)			x			x	x		x	x	HOL	deciduous trees/shrubs,herbs	mesec		
<i>Dysstroma truncata</i> (Hufnagel, 1767)			x			x	x	x	x	x	HOL	deciduous trees/shrubs,herbs	mesec		
<i>Earophila badiata</i> (Denis & Schiffermüller, 1775)					x						CAE	Rosa	mesec		
<i>Ecliptopera capitata</i> (Herrich-Schäffer, 1839)									x		SIE	Impatiens noli-tangere	mesfo		
<i>Ecliptopera silaceata</i> (Denis & Schiffermüller, 1775)						x			x		HOL	herbs:Impatiens,Epilobium,Lythrum	mesfo		
<i>Ectropis crepuscularia</i> (Denis & Schiffermüller, 1775)		x				x	x		x	x	HOL	deciduous trees/shrubs,conifers,herbs	mesec		
<i>Electrophaes corylata</i> (Thunberg, 1792)						x	x	x	x	x	SIE	deciduous trees/shrubs:Tilia,Betula,Prunus,Sorbus	mesfo		
<i>Elophos caelibaria</i> (Heydenreich, 1851)				x							CEU	herbs	alp		
<i>Ematurga atomaria</i> (Linnaeus, 1758)					x	x				x	ASE	Fabaceae,Centaurea,Artemisia	meswl		
<i>Ennomos fuscantaria</i> (Haworth, 1809)										x	SIE	Oleaceae:Fraxinus,Ligustrum	mesfo		
<i>Ennomos quercinaria</i> (Hufnagel, 1767)			x			x			x		TUE	deciduous trees/shrubs:Quercus,Alnus,Salix,Ulmus etc	mesfo	x	
<i>Entephria caesiata</i> (Denis & Schiffermüller, 1775)				x		x		x			HOL	Vaccinium	mesfo		
<i>Entephria cyanata</i> (Hübner, 1809)				x						x	SEU	Arabis	mon		
<i>Entephria flavata</i> (Osthelder, 1929)						x					ALP	Dryas octopetala	alp		
<i>Entephria flavicinctata</i> (Hübner, 1813)			x	x		x		x	x	x	EUR	Saxifragaceae,Rosaceae,Crassulaceae	mon		
<i>Entephria infidaria</i> (de La Harpe, 1853)										x	SEU	herbs	mon		
<i>Entephria nobiliaria</i> (Herrich-schäffer, 1852)			x	x							SIE	Saxifraga	alp		
<i>Epione repandaria</i> (Hufnagel, 1767)		x				x				x	SIE	deciduous trees/shrubs:Salix,Populus,Alnus,Prunus	mesfo		
<i>Epione vespertaria</i> (Linnaeus, 1767)						x	x	x	x	x	ASE	deciduous trees/shrubs:Salix,Populus,Betula,Corylus	mesfo		
<i>Epirrhoe alternata</i> (Müller, 1764)		x	x			x	x	x	x	x	HOL	Galium	meswl		
<i>Epirrhoe galiata</i> (Denis & Schiffermüller, 1775)			x	x		x	x	x	x	x	TUE	Galium	mesec		
<i>Epirrhoe hastulata</i> (Hübner, 1790)					x					x	ASE	Rubiaceae:Galium,Asperula	mesec		
<i>Epirrhoe molluginata</i> (Hübner, 1813)				x		x	x	x	x		EUR	Galium	mon		
<i>Epirrhoe rivata</i> (Hübner, 1813)						x	x	x	x	x	EUR	Galium	mesec		
<i>Epirrhoe tristata</i> (Linnaeus, 1758)				x		x	x		x	x	ASE	Galium	meswl		
<i>Epirrita christyi</i> (Allen, 1906)						x					EUR	deciduous trees/shrubs:Acer,Betula,Ulmus,Salix etc	mesfo		
<i>Epirrita dilutata</i> (Denis & Schiffermüller, 1775)	x	x	x							x	EUR	deciduous trees/shrubs	mesfo	x	
<i>Erannis defoliaria</i> (Clerck, 1759)										x	ASE	deciduous trees/shrubs	mesfo		
<i>Euchoeca nebulata</i> (Scopoli, 1763)					x				x	x	ASE	Betulaceae:Alnus,rarely Betula	mesfo		
<i>Eulithis populata</i> (Linnaeus, 1758)			x			x					HOL	Ericaceae:Vaccinium,Salicaceae	mesfo		
<i>Euphyia adumbraria</i> (Herrich-Schäffer, 1852)									x		SEU	herbs:Galium,Moehringia	mon		
<i>Euphyia frustata</i> (Treitschke, 1828)			x			x		x	x	x	SEU	herbs:esp.Caryophyllaceae	mon		
<i>Euphyia mesembrina</i> (Rebel, 1927)						x				x	SEU	Silene saxifraga	mon		
<i>Euphyia unangulata</i> (Haworth, 1809)					x						ASE	herbs	mesfo		
<i>Eupithecia abietaria</i> (Goeze, 1781)						x					SIE	Pinaceae:Pinus,Picea	mesfo		
<i>Eupithecia absinthiata</i> (Clerck, 1759)						x	x		x	x	HOL	Asteraceae	mesec		
<i>Eupithecia addictata</i> Dietze, 1908						x				x	ASE	Thalictrum	mesec		
<i>Eupithecia assimilata</i> Doubleday, 1856					x						ASE	deciduous shrubs,herbs	mesec		
<i>Eupithecia carpophagata</i> Staudinger, 1871						x				x	SEU	Silene saxifraga,S. rupestris	xerwl		
<i>Eupithecia cauchiata</i> (Duponchel, 1831)										x	EUR	Asteraceae:esp. Solidago	mesec		
<i>Eupithecia cretaceata</i> (Packard, 1874)				x		x				x	HOL	Veratrum album	mon		x
<i>Eupithecia denotata</i> (Hübner, 1813)					x	x					CAE	Campanula rotundifolia,C. trachelium	mesec		
<i>Eupithecia distinctaria</i> Herrich-Schäffer, 1848					x	x	x	x	x	x	TUE	Lamiaceae:Thymus,Origanum	xerwl		
<i>Eupithecia dodoneata</i> Guénée, 1858						x					WPA	Quercus	mesfo		
<i>Eupithecia egenaria</i> Herrich-Schäffer, 1848						x					EUR	Tilia	mesfo		
<i>Eupithecia ericeata</i> (Rambur, 1833)					x	x					SEU	Juniperus	xersh		
<i>Eupithecia expallidata</i> Doubleday, 1856						x				x	EUR	Asteraceae:Solidago,Senecio	mesec		
<i>Eupithecia extravarsaria</i> Herrich-Schäffer, 1852					x	x		x	x	x	CAE	Apiaceae:Peucedanum,Pimpinella	meswl		
<i>Eupithecia gueneata</i> Millière, 1862						x					TUM	Pimpinella saxifraga	xerwl		
<i>Eupithecia haworthiata</i> Doubleday, 1856					x	x			x	x	EUR	Clematis vitalba	mesfo		
<i>Eupithecia icterata</i> (de Villers, 1789)	x	x	x			x	x		x	x	CAE	Asteraceae	mesec		
<i>Eupithecia impurata</i> (Hübner, 1813)					x	x	x		x	x	SIE	Campanula rotundifolia	mon		
<i>Eupithecia indigata</i> (Hübner, 1813)						x	x		x	x	SIE	Pinaceae,Cupressaceae	mesfo		

Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Eupithecia innotata</i> (Hufnagel, 1767)						x	x				WPA	deciduous trees/shrubs,herbs	ubiq		
<i>Eupithecia intricata</i> (Zetterstedt, 1839)							x				HOL	Juniperus	mesfo		
<i>Eupithecia inturbata</i> (Hübner, 1817)					x					x	EUR	Acer campestre,A. platanoides	xersh		
<i>Eupithecia lariciata</i> (Freyer, 1841)					x	x		x			HOL	Larix	mesfo		
<i>Eupithecia nanata</i> (Hübner, 1813)					x	x		x	x	x	EUR	Calluna vulgaris	mesec		
<i>Eupithecia pauxillaria</i> Boisduval, 1840					x		x				SEU	Scrophulariaceae:Odontites,Euphrasia	xerwl		
<i>Eupithecia pimpinellata</i> (Hübner, 1813)		x				x		x			PAL	Asteraceae,Apiaceae	xerwl	x	
<i>Eupithecia plumbeolata</i> (Haworth, 1809)						x					CAE	Scrophulariaceae:Rhinanthus,Melampyrum	meswl		
<i>Eupithecia pusillata</i> (Denis & Schiffermüller, 1775)	x					x			x	x	HOL	Juniperus	mesfo		
<i>Eupithecia pyreneata</i> Mabille, 1871					x				x		EUR	Digitalis grandiflora,D. lutea	mesec		
<i>Eupithecia satyrata</i> (Hübner, 1813)				x		x	x		x		HOL	herbs	mesec		
<i>Eupithecia selinata</i> Herrich-Schäffer, 1861						x	x		x	x	CAE	Apiaceae:Angelica,Peucedanum etc	mesec		
<i>Eupithecia semigraphata</i> Bruand, 1850						x	x		x	x	SEU	Lamiaceae:Thymus,Origanum etc	xerwl		
<i>Eupithecia silenata</i> Assmann, 1848					x						TUE	Silene vulgaris	mon		
<i>Eupithecia subfuscata</i> (Haworth, 1809)						x	x	x	x	x	HOL	herbs,deciduous shrubs	mesec		
<i>Eupithecia subumbata</i> (Denis & Schiffermüller, 1775)					x		x	x		x	ASE	herbs	meswl		
<i>Eupithecia tantillaria</i> Boisduval, 1840									x	x	CAE	Pinaceae:esp. Picea abies	mesfo		
<i>Eupithecia tenuiata</i> (Hübner, 1813)								x		x	EUR	Salix caprea	mesfo		
<i>Eupithecia tripunctaria</i> Herrich-Schäffer, 1852							x		x	x	SIE	Sambucus,Apiaceae	mesec		
<i>Eupithecia trisignaria</i> Herrich-Schäffer, 1848					x			x		x	SIE	Apiaceae:Angelica,Heracleum etc	mesec		
<i>Eupithecia valerianata</i> (Hübner, 1813)							x			x	EUR	Valeriana officinalis	mesfo		
<i>Eupithecia venosata</i> (Fabricius, 1787)			x			x		x	x	x	CAE	Silene	meswl		
<i>Eupithecia veratraria</i> Herrich-Schäffer, 1848					x		x		x	x	CAE	Veratrum album	mon	x	
<i>Eupithecia virgaureata</i> Doubleday, 1861							x		x		SIE	Rosaceae:Crataegus,Prunus,Asteraceae	mesec		
<i>Eupithecia vulgata</i> (Haworth, 1809)							x		x		CAE	herbs,decaying leaves	mesec		
<i>Fagivorina arenaria</i> (Hufnagel, 1767)						x	x		x	x	EUR	deciduous trees/shrubs	mesfo		
<i>Gagitodes sagittata</i> (Fabricius, 1787)				x			x				ASE	Thalictrum	mesec		
<i>Gandaritis pyraliata</i> (Denis & Schiffermüller, 1775)	x						x			x	ASE	Galium,?Geum rivale	hygw	x	
<i>Geometra papilionaria</i> (Linnaeus, 1758)						x	x	x		x	ASE	deciduous trees/shrubs:Betula,Alnus,Salix,Tilia etc	mesfo		
<i>Glossotrophia confinaria</i> (Herrich-Schäffer, 1847)				x			x		x	x	MED	withered/decaying leaves	xerwl		
<i>Gnophos furvata</i> (Denis & Schiffermüller, 1775)							x			x	SEU	herbs	xerwl		
<i>Gnophos obfuscata</i> (Denis & Schiffermüller, 1775)						x	x		x	x	EUR	herbs	mon		
<i>Gymnoscelis rufifasciata</i> (Haworth, 1809)						x	x	x	x	x	CEM	Eupatorium,Clematis,Crataegus etc	mesec		
<i>Heliomata glarearia</i> (Denis & Schiffermüller, 1775)										x	CAE	Fabaceae	xerwl		
<i>Hemistola chrysoprasaria</i> (Esper, 1795)						x	x		x	x	ASE	Clematis	mesec		
<i>Hemithea aestivaria</i> (Hübner, 1789)						x	x			x	HOL	deciduous trees/shrubs:Quercus,Betula,Alnus,Rhamnus	mesfo		
<i>Horisme aemulata</i> (Hübner, 1813)						x	x	x		x	CAE	Clematis	mon		
<i>Horisme calligraphata</i> (Herrich-Schäffer, 1838)						x	x				TUE	Thalictrum	mon		
<i>Horisme radicularia</i> (de La Harpe, 1855)							x			x	SEU	Clematis	mesfo		
<i>Horisme tersata</i> (Denis & Schiffermüller, 1775)						x	x	x	x	x	ASE	Ranunculaceae:Clematis vitalba,Anemone	mesfo		
<i>Horisme vitalbata</i> (Denis & Schiffermüller, 1775)						x	x			x	ASE	Clematis vitalba	mesfo		
<i>Hydrelia flammeolaria</i> (Hufnagel, 1767)							x	x		x	ASE	deciduous trees/shrubs	mesfo		
<i>Hydrelia sylvata</i> (Denis & Schiffermüller, 1775)						x				x	ASE	Betulaceae:Alnus,?Betula,?Salicaceae	mesfo		
<i>Hydria undulata</i> (Linnaeus, 1758)						x					HOL	deciduous trees/shrubs	mesfo		
<i>Hydriomena furcata</i> (Thunberg, 1784)		x	x				x	x	x	x	HOL	Salix,Vaccinium	mesec		
<i>Hydriomena impluviata</i> (Denis & Schiffermüller, 1775)						x				x	HOL	deciduous trees/shrubs:Alnus,Tilia,Fagus,Vaccinium	mesfo		
<i>Hydriomena ruberata</i> (Freyer, 1831)					x		x			x	HOL	Salix	mon		
<i>Hylaea fasciaria</i> (Linnaeus, 1758)						x				x	CAE	Pinaceae	mesfo		
<i>Hypomecis punctinalis</i> (Scopoli, 1763)						x	x	x	x	x	ASE	deciduous trees/shrubs,conifers	mesfo		
<i>Hypomecis roboraria</i> (Denis & Schiffermüller, 1775)						x	x	x		x	ASE	deciduous trees/shrubs:Quercus,Ulmus,Betula,Malus	mesfo		
<i>Idaea aversata</i> (Linnaeus, 1758)						x	x	x	x	x	PAL	withered leaves	mesfo		
<i>Idaea biselata</i> (Hufnagel, 1767)		x					x	x		x	ASE	dry leaves,herbs,grass	mesfo		
<i>Idaea degeneraria</i> (Hübner, 1799)						x	x	x	x	x	CAM	herbs,deciduous trees/shrubs	mesec		
<i>Idaea deversaria</i> (Herrich-Schäffer, 1847)						x	x	x	x	x	CAE	herbs,deciduous trees/shrubs	mesec		
<i>Idaea dilutaria</i> (Hübner, 1799)						x	x		x	x	EUR	withered/decaying leaves	xerwl		
<i>Idaea humiliata</i> (Hufnagel, 1767)						x					EUM	herbs	xerwl		

Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Idaea moniliata</i> (Denis & Schiffermüller, 1775)						x	x			x	TUE	herbs	xersh		
<i>Idaea muricata</i> (Hufnagel, 1767)						x	x			x	ASE	herbs:Galium,Potentilla etc	hygwl		
<i>Idaea pallidata</i> (Denis & Schiffermüller, 1775)							x			x	SIE	withered/decaying leaves	mesec		
<i>Idaea seriata</i> (Schränk, 1802)										x	EUR	withered/decaying leaves,moss	ubiq		
<i>Idaea straminata</i> (Borkhausen, 1794)							x	x	x	x	PAL	herbs	mesec		
<i>Idaea sylvestriaria</i> (Hübner, 1799)						x				x	SIE	herbs,Ericaceae	xerwl		
<i>Isturgia arenacearia</i> (Denis & Schiffermüller, 1775)							x				SEU	Fabaceae	xerwl		
<i>Isturgia limbaria</i> (Fabricius, 1775)				x		x				x	SEU	Fabaceae	mon		
<i>Jodis lactearia</i> (Linnaeus, 1758)						x	x			x	ASE	deciduous trees/shrubs:Betula,Quercus,Vaccinium	mesfo		
<i>Jodis putata</i> (Linnaeus, 1758)						x					SEU	Vaccinium	mesfo		
<i>Lampropteryx suffumata</i> (Denis & Schiffermüller, 1775)				x		x				x	CAE	Galium	mesec		
<i>Ligdia adustata</i> (Denis & Schiffermüller, 1775)						x	x				CAE	Euonymus	mesfo		
<i>Lobophora halterata</i> (Hufnagel, 1767)									x		ASE	deciduous trees/shrubs:Populus,Betula	mesfo		
<i>Lomasipis marginata</i> (Linnaeus, 1758)		x	x			x	x	x	x	x	ASE	deciduous trees/shrubs:Salix,Populus,Betula,Corylus	mesfo		
<i>Lomographa bimaculata</i> (Fabricius, 1775)							x	x	x	x	ASE	deciduous trees/shrubs:Prunus,Betula,Quercus etc	mesfo		
<i>Lomographa temerata</i> (Denis & Schiffermüller, 1775)						x	x	x	x	x	ASE	deciduous trees/shrubs:Prunus,Salix,Quercus etc	mesfo		
<i>Lycia hirtaria</i> (Clerck, 1759)						x	x	x	x	x	ASE	deciduous trees/shrubs	mesfo	x	
<i>Macaria alternata</i> (Denis & Schiffermüller, 1775)						x	x	x		x	ASE	deciduous trees/shrubs:Salix,Alnus,Quercus,Prunus	mesfo		
<i>Macaria artesiaria</i> (Denis & Schiffermüller, 1775)						x				x	CAE	Salix	hygwl		
<i>Macaria liturata</i> (Clerck, 1759)		x					x	x	x	x	ASE	Pinaceae,Cupressaceae	mesfo		
<i>Macaria notata</i> (Linnaeus, 1758)										x	ASE	deciduous trees/shrubs:Quercus,Betula,Alnus,Salix	mesfo		
<i>Macaria signaria</i> (Hübner, 1809)									x	x	HOL	Picea abies,?Calluna	mesfo		
<i>Melanthia alaudaria</i> (Freyer, 1846)							x			x	CEU	Clematis	mon		
<i>Melanthia procellata</i> (Denis & Schiffermüller, 1775)						x	x	x	x	x	ASE	Clematis vitalba	mesfo		
<i>Menophra abruptaria</i> (Thunberg, 1792)							x				SEU	deciduous trees/shrubs,esp.Oleaceae	mesec		
<i>Mesoleuca albicillata</i> (Linnaeus, 1758)						x	x	x	x	x	ASE	Rubus	mesec		
<i>Mesotype parallelineata</i> (Retzius, 1783)							x				CAE	herbs	mon		
<i>Mesotype verberata</i> (Scopoli, 1763)				x							EUR	herbs	mon		
<i>Minoa murinata</i> (Scopoli, 1763)						x	x			x	CAE	Euphorbia cyparissias	meswl		
<i>Nebula achromaria</i> (de La Harpe, 1853)							x			x	TUE	Rubiaceae:esp.Galium	mon		
<i>Nebula nebulata</i> (Treitschke, 1828)				x		x	x			x	EUR	Rubiaceae:esp.Galium	mon		
<i>Nothocasis sertata</i> (Hübner, 1817)						x	x			x	EUR	Acer pseudo-platanus	mesfo		
<i>Nycterosea obstipata</i> (Fabricius, 1794)						x		x			SCO	herbs	ubiq		
<i>Odontognophos dumetata</i> (Treitschke, 1827)						x	x			x	TUE	herbs	xerwl		
<i>Odontopera bidentata</i> (Clerck, 1759)						x	x			x	ASE	deciduous trees/shrubs,conifers,herbs	mesfo		
<i>Operophtera brumata</i> (Linnaeus, 1758)										x	ASE	deciduous trees/shrubs	mesfo		
<i>Operophtera fagata</i> (Scharfenberg, 1805)										x	EUR	deciduous trees/shrubs	mesfo	x	
<i>Opisthograptis luteolata</i> (Linnaeus, 1758)			x				x			x	CAE	deciduous trees/shrubs:Lonicera,Salix,Crataegus etc	mesfo		
<i>Ourapteryx sambucaria</i> (Linnaeus, 1758)							x				CAE	deciduous shrubs	mesfo		
<i>Paradarisa consonaria</i> (Hübner, 1799)						x	x		x	x	ASE	Quercus	mesfo		
<i>Parectropis similaria</i> (Hufnagel, 1767)						x	x	x		x	ASE	herbs:Lamiaceae,Asteraceae	meswl		
<i>Pareulype berberata</i> (Denis & Schiffermüller, 1775)						x	x			x	ASE	deciduous trees/shrubs	mesfo	x	
<i>Pasiphila rectangulata</i> (Linnaeus, 1758)										x	ASE	woody Rosaceae	mesfo		
<i>Penmithera firmata</i> (Hübner, 1822)						x					EUR	Pinus	mesfo		
<i>Perconia strigillaria</i> (Hübner, 1787)							x			x	CAE	herbs	mesec		
<i>Peribatodes rhomboidaria</i> (Denis & Schiffermüller, 1775)						x	x	x	x	x	CEM	deciduous trees/shrubs,herbs	mesec		
<i>Peribatodes secundaria</i> (Denis & Schiffermüller, 1775)		x					x	x	x	x	EUR	Pinaceae,Cupressaceae	mesfo		
<i>Perizoma affinitata</i> (Stephens, 1831)						x					EUR	Silene	mon		
<i>Perizoma albulata</i> (Denis & Schiffermüller, 1775)						x	x	x		x	SIE	Rhinanthus	meswl	x	
<i>Perizoma alchemillata</i> (Linnaeus, 1758)			x				x	x	x	x	SIE	Lamiaceae	mesec		
<i>Perizoma blandiata</i> (Denis & Schiffermüller, 1775)		x	x				x	x	x	x	SIE	Euphrasia	meswl	x	
<i>Perizoma flavofasciata</i> (Thunberg, 1792)								x		x	CAE	Silene	mesec		
<i>Perizoma hydrata</i> (Treitschke, 1829)						x	x	x		x	CAE	Caryophyllaceae:Silene,Lychnis	mon		
<i>Perizoma incultaria</i> (Herrich-Schäffer, 1848)						x					SEU	herbs	mon		
<i>Perizoma minorata</i> (Treitschke, 1828)		x	x	x			x			x	EUR	Euphrasia	meswl	x	
<i>Perizoma obsoletata</i> (Herrich-Schäffer, 1838)							x				SEU	Gentiana	mon	x	

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[illegible]

	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
Species															
<i>Pyrgus andromedae</i> (Wallengren, 1853)				x							EUR	Potentilla	mon		
<i>Pyrgus carthami</i> (Hübner, 1813)					x						CAE	Potentilla	xerwl		
<i>Pyrgus malvae</i> (Linnaeus, 1758)					x	x			x	x	ASE	Rosaceae:Filipendula,Fragaria,Potentilla	meswl		
<i>Spialia sertorius</i> (Hoffmannsegg, 1804)										x	CEM	Sanguisorba minor	xerwl		
<i>Thymelicus lineola</i> (Ochsenheimer, 1808)					x				x	x	HOL	Poaceae:Festuca,Dactylis,Arrhenatherum	meswl		
<i>Thymelicus sylvestris</i> (Poda, 1761)	x					x			x		EUR	Poaceae:Festuca,Phleum,Deschampsia	meswl		
Incurvariidae															
<i>Incurvaria pectinea</i> Haworth, 1828									x	x	SIE	deciduous trees/shrubs	mesfo		
<i>Incurvaria praelatella</i> (Denis & Schiffermüller, 1775)									x		EUR	Rosaceae:esp. Fragaria	mesfo		
<i>Incurvaria stangei</i> Rebel, 1903				x							ALP	unknown	alp		
<i>Incurvaria triglavensis</i> Hauser, 1912				x							ALP	unknown	alp		
<i>Lampronia corticella</i> (Linnaeus, 1758)						x					SIE	Rubus	mesfo		
<i>Lampronia flavimitrella</i> (Hübner, 1817)						x					EUR	Rubus	mesfo		
<i>Lampronia luzella</i> (Hübner, 1817)					x						SIE	Rubus	mesec		
<i>Lampronia rupella</i> (Denis & Schiffermüller, 1775)					x						SIE	Adenostyles	mon		
<i>Lampronia splendidella</i> (Heinemann, 1870)				x							CAE	unknown	alp		
Lasiocampidae															
<i>Dendrolimus pini</i> (Linnaeus, 1758)	x	x				x	x	x	x	x	CAE	Pinaceae:esp. Pinus sylvestris	mesfo		
<i>Euthrix potatoria</i> (Linnaeus, 1758)				x						x	SIE	Poaceae:Phragmites,Calamagrostis,Carex	hygw		
<i>Lasiocampa quercus</i> (Linnaeus, 1758)				x	x	x			x	x	CAE	Salix,Quercus,Rubus,Calluna etc	mesec		
<i>Macrothylacia rubi</i> (Linnaeus, 1758)				x	x					x	CAE	herbs,Rubus,Quercus etc	meswl		
<i>Malacosoma alpicola</i> Staudinger, 1870				x							CAE	herbs	mon		
<i>Malacosoma neustria</i> (Linnaeus, 1758)				x							PAL	deciduous trees/shrubs	mesfo		
<i>Odonestis pruni</i> (Linnaeus, 1758)	x					x	x		x	x	ASE	deciduous trees/shrubs:Prunus,Alnus,Quercus,Salix	xersh		
<i>Phyllosma tremulifolia</i> (Hübner, 1810)	x					x		x	x		TUE	deciduous trees/shrubs:Quercus,Fagus,Fraxinus,Sorbus	xersh	x	
<i>Poecilocampa populi</i> (Linnaeus, 1758)										x	ASE	deciduous trees/shrubs:Fraxinus,Alnus,Salix,Quercus	mesfo		
<i>Trichiura crataegi</i> (Linnaeus, 1758)						x				x	EUR	deciduous trees/shrubs:Quercus,Prunus,Betula,Salix	mesfo		
Lecithoceridae															
<i>Lecithocera nigra</i> (Duponchel, 1836)						x					SEU	decaying leaves	xersh		
Limacodidae															
<i>Apoda limacodes</i> (Hufnagel, 1766)					x	x	x		x	x	EUR	deciduous trees/shrubs:esp. Quercus	mesfo	x	
<i>Heterogenea asella</i> (Denis & Schiffermüller, 1775)					x	x			x	x	EUR	deciduous trees/shrubs	mesfo	x	
Lycaenidae															
<i>Agriades orbitulus</i> (De Prunner, 1798)				x							EUR	Fabaceae:Astragalus,Oxytropis,Hedysarum	alp		
<i>Aricia agestis</i> (Denis & Schiffermüller, 1775)					x	x					ASE	Cistaceae,Geranicaceae	xerwl		x
<i>Aricia artaxerxes</i> (Fabricius, 1793)				x							EUR	Cistaceae,Geranicaceae	mon		
<i>Callophrys rubi</i> (Linnaeus, 1758)					x	x				x	ASE	herbs,deciduous shrubs	mesec		
<i>Celastrina argiolus</i> (Linnaeus, 1758)					x	x	x		x	x	HOL	herbs,deciduous trees/shrubs	mesec		
<i>Cupido minimus</i> (Fuessly, 1775)					x	x	x	x	x	x	ASE	Fabaceae	mon		
<i>Cyaniris semiargus</i> (Rottemburg, 1775)				x		x	x		x		ASE	Fabaceae:Anthyllis,Trifolium,Melilotus	mesec		
<i>Favonia quercus</i> (Linnaeus, 1758)						x					EUR	Quercus	mesfo		
<i>Glaucopsyche alexis</i> (Poda, 1761)						x					SIE	Fabaceae	mesec		
<i>Lycaena alciphron</i> (Rottemburg, 1775)					x	x				x	CEM	Rumex scutatus,R. acetosa	xerwl		
<i>Lycaena tityrus</i> (Poda, 1761)					x	x			x		ASE	Rumex	meswl		x
<i>Lycaena virgaureae</i> (Linnaeus, 1758)					x				x		CAE	Rumex acetosa	meswl		x
<i>Lysandra bellargus</i> (Rottemburg, 1775)					x					x	EUR	Fabaceae	xerwl		x
<i>Lysandra coridon</i> (Poda, 1761)	x	x	x			x	x	x	x	x	EUR	Fabaceae	xerwl		x
<i>Plebejus argus</i> (Linnaeus, 1758)					x						ASE	Fabaceae	meswl		
<i>Polyommatus icarus</i> (Rottemburg, 1775)					x	x	x			x	CEM	Fabaceae:Lotus,Trifolium,Medicago etc	meswl		
<i>Satyrion spini</i> (Denis & Schiffermüller, 1775)					x						EUR	Prunus spinosa,Rhamnus cathartica	xersh		
<i>Scolitantides orion</i> (Pallas, 1771)						x			x		ASE	Sedum	xerwl		
Lyoniidae															
<i>Leucoptera laburnella</i> (Stainton, 1851)					x						EUR	Laburnum	xersh		
<i>Leucoptera sinuella</i> (Reutti, 1853)										x	EUR	Populus	mesfo		
<i>Leucoptera spartifoliella</i> (Hübner, 1813)				x		x					EUR	Cytisus,Cytisanthus	xersh		
<i>Lyonieta clerella</i> (Linnaeus, 1758)						x					PAL	woody Rosaceae,Betulaceae	mesfo		

[illegible]

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Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Cosmia trapezina</i> (Linnaeus, 1758)		x	x	x		x	x	x	x	x	CAE	deciduous trees/shrubs:Quercus,Tilia,Ulmus,Salix etc	mesfo		
<i>Craniophora ligustri</i> (Denis & Schiffermüller, 1775)					x	x	x	x	x	x	ASE	Oleaceae:Fraxinus,Ligustrum	mesfo		
<i>Cryphia algae</i> (Fabricius, 1775)						x					TEM	lichens	mesfo		
<i>Crypsedra gemmea</i> (Treitschke, 1825)		x	x			x				x	EUR	Poaceae	mon		
<i>Cucullia absinthii</i> (Linnaeus, 1761)						x					CAE	Artemisia	xerwl		
<i>Cucullia campanulae</i> Freyer, 1831						x					TUE	Campanula	xerwl		
<i>Cucullia lucifuga</i> (Denis & Schiffermüller, 1775)						x					ASE	Asteraceae:Sonchus,Lactuca,Prenanthes	mesec		
<i>Cucullia lychnitis</i> Rambur, 1833						x					TUE	Scrophulariaceae:Scrophularia,Verbascum	xerwl		
<i>Cucullia prenanthis</i> Boissduval, 1840					x	x					TUE	Scrophulariaceae:Scrophularia,Verbascum	xerwl		
<i>Cucullia umbratica</i> (Linnaeus, 1758)					x	x					ASE	Asteraceae:Sonchus,Cichorium,Hieracium	meswl		
<i>Cucullia verbasci</i> (Linnaeus, 1758)						x					TEM	Scrophulariaceae:Scrophularia,Verbascum	xerwl		x
<i>Deltote deceptor</i> (Scopoli, 1763)					x	x			x		SIE	Poaceae	mesec		
<i>Denticucullus pygmaea</i> (Haworth, 1809)					x					x	CEM	Juncaceae,Cyperaceae,Poaceae	hygw		
<i>Diachrysis chrysis</i> (Linnaeus, 1758)			x			x			x	x	TUE	herbs:Urtica,Stachys,Lamium	mesec		
<i>Diachrysis chryson</i> (Esper, 1789)										x	ASE	herbs:Salvia,Eupatorium	mesec		
<i>Diarsia brunnea</i> (Denis & Schiffermüller, 1775)			x			x	x	x	x	x	HOL	grass,herbs,deciduous shrubs	mesec		
<i>Diarsia mendica</i> (Fabricius, 1775)			x			x	x	x			SIE	herbs	mesec		
<i>Dichagyris candelisequa</i> (Denis & Schiffermüller, 1775)						x					CAE	herbs	xerwl		
<i>Dichonia convergens</i> (Denis & Schiffermüller, 1775)						x					SEU	Quercus	xersh		
<i>Diloba caeruleocephala</i> (Linnaeus, 1758)	x					x				x	EUR	deciduous trees/shrubs:esp.Rosaceae	xersh		
<i>Dryobotodes eremita</i> (Fabricius, 1775)						x					WPA	Quercus	xersh		
<i>Egira conspiciaris</i> (Linnaeus, 1758)					x	x			x		WPA	grass,herbs,deciduous shrubs	mesec		
<i>Epilecta linogrisea</i> (Denis & Schiffermüller, 1775)					x	x				x	EUR	herbs	xerwl		
<i>Epimecia ustula</i> (Freyer, 1835)					x					x	SEU	herbs	xerwl		
<i>Epipsilia grisescens</i> (Fabricius, 1794)				x							EUR	herbs	mon		
<i>Epipsilia latens</i> (Hübner, 1809)					x						EUR	herbs	xerwl		
<i>Episema glaucina</i> (Esper, 1789)										x	TEM	Liliaceae:Muscari,Anthericum,Ornithogalum	xerwl		
<i>Eremodrina gilva</i> (Donzel, 1837)			x			x	x	x	x	x	SEU	herbs	mon		
<i>Eriopygodes imbecilla</i> (Fabricius, 1794)			x			x			x		CAE	herbs	mon		x
<i>Eucarta virgo</i> (Treitschke, 1835)					x				x		ASE	herbs,deciduous shrubs	meswl		
<i>Euchalcia modestoides</i> Poole, 1989					x						ASE	Pulmonaria	mesec		
<i>Euchalcia variabilis</i> (Piller, 1783)				x		x	x		x	x	CAE	Ranunculaceae:Aconitum,Thalictrum	mon		
<i>Euclydia glyphica</i> (Linnaeus, 1758)					x	x				x	ASE	Fabaceae:Trifolium,Lotus,Medicago,Vicia	meswl		
<i>Eugnorisma depuncta</i> (Linnaeus, 1761)			x			x			x	x	EUR	herbs	mesec		
<i>Eugraphe sigma</i> (Denis & Schiffermüller, 1775)					x	x	x	x		x	ASE	herbs,deciduous shrubs	mesec		
<i>Euplexia lucipara</i> (Linnaeus, 1758)					x	x	x		x	x	PAL	herbs:Impatiens,Rubus etc	mesfo		
<i>Eupsilia transversa</i> (Hufnagel, 1766)		x	x			x			x	x	ASE	deciduous trees/shrubs:Quercus,Tilia,Salix,Acer etc	mesfo		
<i>Eurois occulta</i> (Linnaeus, 1758)						x					HOL	herbs,esp. Vaccinium	hygw		
<i>Euxoa birivia</i> (Denis & Schiffermüller, 1775)										x	CAE	grass	xerwl		
<i>Euxoa decora</i> (Denis & Schiffermüller, 1775)		x				x			x	x	ASE	grass,herbs	mon		
<i>Euxoa nigricans</i> (Linnaeus, 1761)						x					SIE	grass,herbs	xerwl		
<i>Gortyna flavago</i> (Denis & Schiffermüller, 1775)					x					x	WPA	herbs	hygw		
<i>Graphiphora augur</i> (Fabricius, 1775)					x						ASE	herbs	mesfo		
<i>Hada plebeja</i> (Linnaeus, 1761)				x		x					ASE	herbs	mon		
<i>Hadena albimacula</i> (Borkhausen, 1792)					x	x			x		CAE	Silene nutans	xerwl		x
<i>Hadena bicurris</i> (Hufnagel, 1766)									x		WEU	Caryophyllaceae:Silene,Saponaria	meswl		
<i>Hadena caesia</i> (Denis & Schiffermüller, 1775)					x	x			x	x	EUR	Silene vulgaris,S. nutans	mon		
<i>Hadena compta</i> (Denis & Schiffermüller, 1775)					x	x			x	x	ASE	Caryophyllaceae:Silene,Lychnis etc.	xerwl		x
<i>Hadena confusa</i> (Hufnagel, 1766)			x			x			x		ASE	Caryophyllaceae:Silene,Lychnis etc.	meswl		
<i>Hadena filograna</i> (Esper, 1788)						x			x		CAE	Silene vulgaris,S. nutans	xerwl		
<i>Hadena luteocincta</i> (Rambur, 1834)									x		SEU	Caryophyllaceae:Silene,Dianthus	xerwl		
<i>Helicoverpa armigera</i> (Hübner, 1808)	x					x		x	x	x	SCO	herbs	ubiq		
<i>Heliothis nubigera</i> Herrich-Schäffer, 1851				x		x					AIM	herbs	ubiq		
<i>Heliothis peltigera</i> (Denis & Schiffermüller, 1775)					x	x			x	x	SCO	herbs	ubiq		
<i>Hoplodrina alsinides</i> (Costantini, 1922)			x			x	x	x	x	x	ASE	herbs:Ranunculus,Primula etc	mesec		
<i>Hoplodrina ambigua</i> (Denis & Schiffermüller, 1775)					x	x			x	x	CEM	herbs:Galium,Rumex,Lamium	meswl		

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Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Orthosia cerasi</i> (Fabricius, 1775)					x	x		x	x	x	EUR	deciduous trees/shrubs: Quercus, Tilia, Populus, Prunus	mesfo		
<i>Orthosia cruda</i> (Denis & Schiffermüller, 1775)						x			x	x	ASE	deciduous trees/srubs	mesfo		
<i>Orthosia gothica</i> (Linnaeus, 1758)					x	x			x	x	ASE	deciduous trees/shrubs, herbs	mesfo		
<i>Orthosia gracilis</i> (Denis & Schiffermüller, 1775)						x					ASE	Lysimachia, Filipendula, Rubus, Salix etc	hygw		
<i>Orthosia incerta</i> (Hufnagel, 1766)					x	x		x	x	x	ASE	deciduous trees/srubs	mesfo		
<i>Orthosia populeti</i> (Fabricius, 1775)						x					EUR	Populus	mesfo		
<i>Pachetra sagittigera</i> (Hufnagel, 1766)					x	x		x	x	x	SIE	herbs, grass	mesfo		
<i>Panchrysia v-argenteum</i> (Esper, 1798)			x			x				x	SEU	Thalictrum	mon		
<i>Panemeria tenebrata</i> (Scopoli, 1763)						x					EUR	Caryophyllaceae: Cerastium, Stellaria	hygw		
<i>Panolis flammea</i> (Denis & Schiffermüller, 1775)										x	SIE	Pinaceae: Pinus, Picea	mesfo		
<i>Panthea coenobita</i> (Esper, 1785)					x				x		SIE	Pinaceae: Picea, Pinus, Abies, Larix	mesfo		
<i>Papestra biren</i> (Goeze, 1781)				x		x		x		x	HOL	herbs	mon		
<i>Parastichtis suspecta</i> (Hübner, 1817)					x						HOL	herbs	mon		
<i>Peridroma saucia</i> (Hübner, 1808)	x					x					SCO	herbs, deciduous shrubs	ubiq		
<i>Perigrapha munda</i> (Denis & Schiffermüller, 1775)										x	ASE	deciduous trees/srubs	mesfo		
<i>Phlogophora meticulosa</i> (Linnaeus, 1758)	x	x	x			x		x	x	x	EUM	herbs, deciduous shrubs	ubiq		
<i>Phlogophora scita</i> (Hübner, 1790)		x				x	x		x		EUR	ferns, herbs, deciduous shrubs	mesfo	x	
<i>Photedes captiuncula</i> (Treitschke, 1825)					x	x		x			EUR	Cyperaceae, Poaceae	mon		
<i>Photedes minima</i> (Haworth, 1809)						x					ASE	Poaceae	hygw		
<i>Polia bombycina</i> (Hufnagel, 1766)			x			x	x		x		ASE	deciduous trees/shrubs, herbs	mesec		
<i>Polia hepatica</i> (Clerck, 1759)					x	x		x	x		ASE	deciduous trees/shrubs, herbs	mesec		
<i>Polia nebulosa</i> (Hufnagel, 1766)			x	x		x	x		x	x	ASE	deciduous trees/shrubs, herbs	mesec		
<i>Polychrysia moneta</i> (Fabricius, 1787)						x			x	x	SIE	Ranunculaceae: Aconitum, Trollius	mon		
<i>Polymixis xanthomista</i> (Hübner, 1819)	x					x				x	SEU	herbs	xerwl		
<i>Polyphaenis sericata</i> (Esper, 1787)					x						SEU	deciduous trees/shrubs	mesec		
<i>Protodeltote pygarga</i> (Hufnagel, 1766)					x	x	x	x	x	x	ASE	grass, Rubus, Lonicera etc	mesfo		
<i>Pseudeustrotia candidula</i> (Denis & Schiffermüller, 1775)						x			x		ASE	grass, herbs	hygw		
<i>Pyrrhia umbra</i> (Hufnagel, 1766)						x			x		HOL	Ononis, Geranium etc, Laubholzschößlinge	meswl		
<i>Rhyacia helvetina</i> (Boisduval, 1833)				x		x				x	CAM	herbs, grass	alp		
<i>Rhyacia lucipeta</i> (Denis & Schiffermüller, 1775)				x					x		TEM	herbs	xerwl		
<i>Rhyacia simulans</i> (Hufnagel, 1766)					x						CEM	herbs, grass	xerwl		
<i>Rusina ferruginea</i> (Esper, 1785)			x			x	x	x	x	x	EUR	herbs: Viola, Rubus, Taraxacum	mesec		
<i>Scoliopteryx libatrix</i> (Linnaeus, 1758)			x			x		x	x	x	HOL	Salicaceae: Salix, Populus	mesfo		
<i>Sideridis lampira</i> (Schawerda, 1913)						x		x	x	x	CAE	herbs	xerwl		
<i>Sideridis rivularis</i> (Fabricius, 1775)			x						x		ASE	Caryophyllaceae: Silene, Lychnis etc.	meswl		
<i>Sideridis turbida</i> (Esper, 1790)					x						ASE	herbs, deciduous shrubs	xerwl		
<i>Spodoptera exigua</i> (Hübner, 1808)					x	x			x	x	SCO	herbs	ubiq		
<i>Standfussiana lucerneae</i> (Linnaeus, 1758)				x							TUE	herbs	alp		
<i>Sunira circellaris</i> (Hufnagel, 1766)	x	x	x			x			x	x	EUR	deciduous trees/shrubs: Salix, Populus, Betula, Quercus	mesfo	x	
<i>Sympistis nigrita</i> (Boisduval, 1840)				x							ALP	Dryas octopetala	alp		
<i>Syngrapha ain</i> (Hochenwarth, 1785)					x	x					ASE	Larix	mesfo		
<i>Syngrapha interrogationis</i> (Linnaeus, 1758)					x	x					HOL	Vaccinium, ?Urtica	mesfo		
<i>Thalophila matura</i> (Hufnagel, 1766)					x	x				x	EUR	Poaceae: Poa, Lolium etc	meswl		
<i>Tholera decimalis</i> (Poda, 1761)					x						CAE	Poaceae	meswl		
<i>Tiliacea aurago</i> (Denis & Schiffermüller, 1775)	x	x	x			x				x	EUR	deciduous trees/shrubs: Quercus, Tilia, Populus, Salix	mesfo	x	
<i>Tiliacea citrigo</i> (Linnaeus, 1758)	x									x	EUR	Tilia	mesfo		
<i>Trachea atriplicis</i> (Linnaeus, 1758)									x		ASE	herbs	meswl		
<i>Trigonophora flammea</i> (Esper, 1785)	x					x					SEU	Ranunculus ficaria, R. repens	xerwl		
<i>Trisateles emortualis</i> (Denis & Schiffermüller, 1775)					x	x	x	x	x	x	SIE	decaying leaves, esp. Quercus	mesfo		
<i>Tyta luctuosa</i> (Denis & Schiffermüller, 1775)					x						CEM	herbs	xerwl		
<i>Xanthia togata</i> (Esper, 1788)			x			x			x	x	HOL	Salix-catkens, later herbs	mesfo		
<i>Xestia ashworthii</i> (Doubleday, 1855)				x		x	x	x	x	x	CAE	herbs, deciduous shrubs	mon		
<i>Xestia baja</i> (Denis & Schiffermüller, 1775)			x			x	x		x	x	ASE	herbs, deciduous shrubs	mesec		
<i>Xestia castanea</i> (Esper, 1798)					x	x				x	EUR	herbs: esp. Ericaceae	mesfo		
<i>Xestia c-nigrum</i> (Linnaeus, 1758)	x	x	x			x	x	x	x	x	HOL	herbs	ubiq		
<i>Xestia ditrapezium</i> (Denis & Schiffermüller, 1775)					x	x	x	x	x	x	SIE	herbs, deciduous shrubs	mesec		

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Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Erebia ligea</i> (Linnaeus, 1758)						x	x	x	x	x	SIE	Cyperaceae,Poaceae	mesfo		
<i>Erebia manto</i> (Denis & Schiffermüller, 1775)				x							SEU	Poaceae	mon		
<i>Erebia medusa</i> (Denis & Schiffermüller, 1775)			x	x		x			x		CAE	Poaceae	meswl		
<i>Erebia oeme</i> (Hübner, 1804)			x			x	x		x	x	SEU	Poaceae	mon	x	
<i>Erebia pandrose</i> (Borkhausen, 1788)				x							ASE	Poaceae	alp		
<i>Erebia pronoe</i> (Esper, 1780)				x		x					SEU	Poaceae:esp.Festuca	alp	x	
<i>Erebia stirijs</i> (Godart, 1824)					x	x					ALP	Poaceae	xerwl		
<i>Erebia styx</i> (Freyer, 1834)						x				x	SEU	Sesleria varia	xerwl		
<i>Euphydryas aurinia</i> (Rottemburg, 1775)				x		x					ASE	Dipsacaceae:Scabiosa,Succisa	hygwl		
<i>Fabriciana adippe</i> (Denis & Schiffermüller, 1775)					x	x				x	ASE	Viola	mesfo		
<i>Fabriciana niobe</i> (Linnaeus, 1758)	x						x				CAE	Viola	mesfo		
<i>Hipparchia fagi</i> (Scopoli, 1763)					x	x	x				TUE	Poaceae	xersh		
<i>Issoria lathonia</i> (Linnaeus, 1758)					x						PAL	Viola	meswl		
<i>Lasiommata maera</i> (Linnaeus, 1758)			x			x	x		x	x	CAE	Poaceae	mesec		
<i>Lasiommata petropolitana</i> (Fabricius, 1787)					x	x					SIE	Poaceae	mon		
<i>Limenitis camilla</i> (Linnaeus, 1764)					x	x	x		x	x	ASE	Caprifoliaceae:Lonicera,Symphoricarpos	mesfo		
<i>Lopinga achine</i> (Scopoli, 1763)					x	x	x			x	ASE	Poaceae	mesfo		
<i>Maniola jurtina</i> (Linnaeus, 1758)					x	x					WPA	Poaceae:Bromus,Festuca,Poa,Holcus etc	meswl		
<i>Melanargia galathea</i> (Linnaeus, 1758)		x				x		x	x	x	EUR	PoaceaeBromus,Poa,Brachypodium	meswl	x	
<i>Melitaea athalia</i> (Rottemburg, 1775)		x				x			x	x	ASE	herbs:Plantago,Veronica etc	meswl		
<i>Melitaea diamina</i> (Lang, 1789)					x						ASE	herbs	hygwl		
<i>Melitaea didyma</i> (Esper, 1778)					x	x	x		x	x	PAL	herbs:Stachys,Veronica etc	xerwl		
<i>Melitaea phoebe</i> (Denis & Schiffermüller, 1775)						x				x	PAL	herbs:Scabiosa,Cirsium,Plantago	xerwl		
<i>Minois dryas</i> (Scopoli, 1763)					x	x				x	ASE	Cyperaceae,Poaceae	hygwl		
<i>Neptis rivularis</i> (Scopoli, 1763)					x	x	x	x		x	ASE	Rosaceae:esp.Aruncus	mesfo	x	
<i>Nymphalis antiopa</i> (Linnaeus, 1758)									x	x	HOL	deciduous trees/shrubs:Salix,Betula	mesfo		
<i>Nymphalis polychloros</i> (Linnaeus, 1758)			x						x	x	CEM	deciduous trees/shrubs:Prunus,Malus,Ulmus,Salix etc	mesfo		
<i>Pararge aegeria</i> (Linnaeus, 1758)					x	x	x	x	x	x	EUM	Cyperaceae,Poaceae	mesfo		
<i>Polygonia c-album</i> (Linnaeus, 1758)			x	x		x	x		x	x	ASE	deciduous trees/shrubs:Ribes,Ulmus,herbs	mesfo		
<i>Satyrus ferula</i> (Fabricius, 1793)					x	x					CAE	Poaceae	xerwl		
<i>Speyeria aglaja</i> (Linnaeus, 1758)					x	x	x	x		x	ASE	herbs:Viola,Polygonum	mesfo		
<i>Vanessa atalanta</i> (Linnaeus, 1758)			x	x		x	x	x	x	x	HOL	Urtica	ubiq		
<i>Vanessa cardui</i> (Linnaeus, 1758)	x	x	x			x	x		x	x	SCO	Urtica,Carduus,Tussilago etc	ubiq		
Oecophoridae															
<i>Batia internella</i> Jäckh, 1972						x					EUR	rotten wood	mesfo		
<i>Batia lambdella</i> (Donovan, 1793)					x	x		x		x	TEM	rotten wood	mesfo		
<i>Bisigna procerella</i> (Denis & Schiffermüller, 1775)						x			x		SIE	lichens on trees	mesfo		
<i>Crassa unitella</i> (Hübner, 1796)					x	x	x		x	x	EUR	rotten wood	mesfo		
<i>Decantha borkhauseni</i> (Zeller, 1839)					x						EUR	rotten wood	xersh		
<i>Harpella forficella</i> (Scopoli, 1763)					x	x	x		x		EUR	rotten wood	mesfo		
<i>Metalampra italica</i> Baldizzone, 1977										x	SEU	rotten wood	mesfo		
<i>Oecophora bractella</i> (Linnaeus, 1758)					x	x	x	x	x	x	EUR	rotten wood	mesfo		
Opostegidae															
<i>Pseudopostega crepusculella</i> (Zeller, 1839)							x			x	SIE	?Mentha	hygwl		
Papilionidae															
<i>Iphiclides podalirius</i> (Linnaeus, 1758)					x	x				x	CEM	Rosaceae:Prunus,Crataegus,Amelanchier	xersh		
<i>Papilio machaon</i> Linnaeus, 1758					x	x	x		x	x	HOL	herbs	mon		
<i>Parnassius apollo</i> (Linnaeus, 1758)					x	x			x		CAE	Sedum	xerwl		
<i>Parnassius mnemosyne</i> (Linnaeus, 1758)			x	x		x			x		CAE	Corydalis	mesfo		
Peleopodidae															
<i>Carcina quercana</i> (Fabricius, 1775)	x					x	x	x	x	x	WPA	deciduous trees/shrubs:Quercus,Tilia,Sorbus,Rubus	mesfo	x	
Pieridae															
<i>Anthocharis cardamines</i> (Linnaeus, 1758)			x			x		x	x	x	ASE	Brassicaceae:Cardamine,Alliaria,Arabis etc	mesec		
<i>Aporia crataegi</i> (Linnaeus, 1758)					x	x	x		x	x	PAL	Rosaceae:Prunus,Sorbus,Crataegus;Betula	mesec		
<i>Colias croceus</i> (Fourcroy, 1785)			x	x		x				x	CEM	Fabaceae:Lotus,Medicago,Onobrychis etc	ubiq		
<i>Gonepteryx rhamni</i> (Linnaeus, 1758)			x	x		x	x	x	x	x	PAL	Frangula alnus	mesec		

	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
Species															
<i>Leptidea sinapis/juvernica</i> complex					x	x		x	x	x	ASE	Fabaceae:Lotus,Lathyrus,Trifolium etc	meswl		
<i>Pieris brassicae</i> (Linnaeus, 1758)						x	x		x	x	ASE	Brassicaceae	ubiq		
<i>Pieris bryoniae</i> (Hübner, 1806)			x	x		x				x	ASE	Brassicaceae:Biscutella,Cardamine,Thlaspi	mon	x	
<i>Pieris mannii</i> (Mayer, 1851)					x	x				x	TUE	Brassicaceae	xerwl		
<i>Pieris napi</i> (Linnaeus, 1758)					x	x	x	x	x	x	HOL	Brassicaceae:esp. Cardamine,Alliaria	meswl		
<i>Pieris rapae</i> (Linnaeus, 1758)				x		x	x		x	x	PAL	Brassicaceae	ubiq		
Plutellidae															
<i>Eidophasia messingiella</i> (Fischer von Röslerstamm, 1840)						x	x	x	x		EUR	Brassicaceae:esp. Cardamine	mesec		
<i>Plutella geniatella</i> Zeller, 1839				x							ALP	Brassicaceae	alp		
<i>Plutella xylostella</i> (Linnaeus, 1758)	x		x	x		x	x		x	x	SCO	Brassicaceae	ubiq		
Praydidae															
<i>Prays fraxinella</i> (Bjerkander, 1784)					x	x	x	x	x	x	EUR	Fraxinus	mesfo		
<i>Prays ruficeps</i> (Heinemann, 1854)							x	x			EUR	Fraxinus	mesfo		
Psychidae															
<i>Bijugis bombycella</i> (Denis & Schiffermüller, 1775)					x	x	x		x	x	EUR	decaying leaves,herbs	xerwl		
<i>Canephora hirsuta</i> (Poda, 1761)									x		CAE	Poaceae,herbs	meswl		
<i>Dahlica triquetrella</i> (Hübner, 1813)						x					HOL	lichens,algae,moss	mesec		
<i>Leptopterix hirsutella</i> (Denis & Schiffermüller, 1775)									x		EUR	dead vegetable matter,herbs	meswl		
<i>Megalophanes viciella</i> (Denis & Schiffermüller, 1775)					x	x	x		x	x	ASE	herbs,grass	hygw		
<i>Postsolenobia juliella</i> (Rebel, 1919)						x			x		ALP	lichens,algae	mon		
<i>Psyche casta</i> (Pallas, 1767)					x				x	x	HOL	herbs,grass,deciduous shrubs	meswl		
<i>Sterrhopterix fusca</i> (Haworth, 1809)						x		x	x	x	EUR	deciduous trees/shrubs	mesfo		
<i>Taleporia tubulosa</i> (Retzius, 1783)						x			x	x	EUR	lichens,decaying leaves	mesfo		
<i>Typhonia ciliaris</i> (Ochsenheimer, 1810)						x					SEU	decaying leaves,herbs,grass	alp		
Pterophoridae															
<i>Adaina microdactyla</i> (Hübner, 1813)					x	x			x	x	PAL	Eupatorium	hygw		
<i>Amblyptilia acanthadactyla</i> (Hübner, 1813)							x		x		WPA	herbs	meswl		
<i>Amblyptilia punctidactyla</i> (Haworth, 1811)					x	x	x		x	x	EUR	herbs	mesec		
<i>Emmelina monodactyla</i> (Linnaeus, 1758)			x			x				x	SCO	Convolvulus	meswl		
<i>Gillmeria pallidactyla</i> (Haworth, 1811)					x	x	x		x		HOL	Achillea	meswl	x	
<i>Hellinsia carphodactyla</i> (Hübner, 1813)						x			x		WPA	Inula	hygw		
<i>Hellinsia carphodactyla</i> (Hübner, 1813)					x						WPA	Inula	meswl		
<i>Hellinsia osteodactylus</i> (Zeller, 1841)						x	x		x		ASE	Asteraceae:Solidago,Senecio,Aster	meswl		
<i>Hellinsia tephrodactyla</i> (Hübner, 1813)						x					EUR	Asteraceae:Solidago,Aster,Bellis	mesec		
<i>Merrifieldia baliodactylus</i> (Zeller, 1841)						x			x		EUR	Origanum vulgare	xerwl		
<i>Merrifieldia leucodactyla</i> (Denis & Schiffermüller, 1775)					x	x			x	x	WPA	herbs:esp. Thymus	meswl		
<i>Merrifieldia tridactyla</i> (Linnaeus, 1758)									x		EUR	Thymus	xerwl		
<i>Oidaematophorus lithodactyla</i> (Treitschke, 1833)						x				x	EUR	Asteraceae:Inula,Pulicaria	xerwl		
<i>Oxyptilus tristis</i> (Zeller, 1841)					x						CAE	Hieracium	meswl		
<i>Platyptilia calodactyla</i> (Denis & Schiffermüller, 1775)					x						ASE	Asteraceae	mon		
<i>Platyptilia farfarellus</i> Zeller, 1867										x	SIE	Asteraceae:esp.Senecio	mesec		
<i>Platyptilia gonodactyla</i> (Denis & Schiffermüller, 1775)					x	x					SIE	Asteraceae:Tussilago,Petasites	mesec		
<i>Pselnophorus heterodactyla</i> (Müller, 1764)					x						EUR	Asteraceae:Prenanthes,Mycelis	mesfo		
<i>Pterophorus pentadactyla</i> (Linnaeus, 1758)						x					ASE	Convolvulaceae	meswl		
<i>Stenoptilia bipunctidactyla</i> (Scopoli, 1763)			x								PAL	herbs	meswl		
<i>Stenoptilia coprodactylus</i> (Stainton, 1851)				x		x					SEU	Gentiana	mon	x	
<i>Stenoptilia plagiodactylus</i> (Stainton, 1851)				x							SEU	unknown	mon		
<i>Stenoptilia pterodactyla</i> (Linnaeus, 1761)				x	x	x		x	x		HOL	Veronica	hygw	x	
<i>Stenoptilia stigmatodactylus</i> (Zeller, 1852)						x					EUR	Thymus	xerwl	x	
Pyrilidae															
<i>Achroia grisella</i> (Fabricius, 1794)					x						COS	dead organic matter	ubiq		
<i>Acrobasis advenella</i> (Zincken, 1818)					x	x	x	x		x	EUR	Rosaceae:Crataegus,Prunus spinosa,Sorbus	xersh		
<i>Acrobasis consociella</i> (Hübner, 1813)						x					EUR	Quercus	mesfo		
<i>Acrobasis glaucella</i> Staudinger, 1859						x					TUE	Quercus	xersh		
<i>Acrobasis legathea</i> (Haworth, 1811)						x	x			x	TUE	Rhamnaceae	mesec		
<i>Acrobasis sodalella</i> Zeller, 1848					x		x				EUR	Quercus	mesfo		

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	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
Species															
<i>Scythris obscura</i> (Scopoli, 1763)					x	x	x		x	x	CAE	herbs,grass	mon		
<i>Scythris sappadensis</i> Bengtsson, 1992				x		x					ALP	Helianthemum	mon		
Sesiidae															
<i>Pennisetia hylaeiformis</i> (Laspeyres, 1801)			x								SIE	Rubus idaeus	mesec		
Sphingidae															
<i>Acherontia atropos</i> (Linnaeus, 1758)						x					SCO	Oleaceae,Solanaceae	ubiq		
<i>Agrius convolvuli</i> (Linnaeus, 1758)					x	x			x		SCO	Convolvulus	ubiq		
<i>Deilephila elpenor</i> (Linnaeus, 1758)				x							ASE	herbs	meswl		
<i>Deilephila porcellus</i> (Linnaeus, 1758)	x					x	x	x	x	x	WPA	herbs:Galium,Epilobium	meswl		
<i>Hemaris fuciformis</i> (Linnaeus, 1758)					x					x	PAL	Caprifoliaceae:esp. Lonicera	mesec		
<i>Hemaris tityus</i> (Linnaeus, 1758)					x					x	CEM	Dipsacaceae	meswl	x	
<i>Hyles vespertilio</i> (Esper, 1780)					x	x			x		SEU	Epilobium dodonaei	xerwl		
<i>Laothoe populi</i> (Linnaeus, 1758)			x			x			x	x	CEM	Salicaceae:Salix,Populus	mesec		
<i>Macroglossum stellatarum</i> (Linnaeus, 1758)				x		x			x	x	PAL	Galium	ubiq		
<i>Mimas tiliae</i> (Linnaeus, 1758)					x	x		x	x	x	SIE	deciduous trees/shrubs:Tilia,Quercus,Betula,Ulmus	mesfo		
<i>Smerinthus ocellatus</i> (Linnaeus, 1758)					x				x	x	PAL	Salicaceae:Salix,Populus,Rosaceae	mesec		
<i>Sphinx ligustri</i> Linnaeus, 1758					x		x				PAL	Oleaceae:esp.Fraxinus,Caprifoliaceae	mesfo		
<i>Sphinx pinastri</i> Linnaeus, 1758					x	x					ASE	Pinaceae:Pinus,Picea etc	mesfo		
Stathmopodidae															
<i>Stathmopoda pedella</i> (Linnaeus, 1761)					x				x		EUR	Alnus	mesfo		
Thyrididae															
<i>Thyris fenestrella</i> (Scopoli, 1763)					x	x					CAE	Clematis	mesec		
Tineidae															
<i>Eudarcia pagenstecherella</i> (Hübner, 1825)						x					SEU	algae	mon		
<i>Monopis laevigella</i> (Denis & Schiffermüller, 1775)						x			x	x	HOL	dead organic matter	ubiq		
<i>Monopis monachella</i> (Hübner, 1796)	x										SIE	dead organic matter	ubiq		
<i>Monopis obviella</i> (Denis & Schiffermüller, 1775)					x	x	x		x	x	EUR	rotten wood,fungi	mesfo		
<i>Montescardia tessulatella</i> (Lienig & Zeller, 1846)					x						SIE	rotten wood	mesfo		
<i>Morophaga choragella</i> (Denis & Schiffermüller, 1775)						x				x	EUR	rotten wood,fungi	mesfo		
<i>Nemapogon clematella</i> (Fabricius, 1781)					x		x		x	x	EUR	rotten wood,fungi	mesfo		
<i>Nemapogon koenigi</i> Capuse, 1967										x	EUR	rotten wood,fungi	mesfo		
<i>Nemaxera betulinella</i> (Fabricius, 1787)						x					EUR	rotten wood,fungi	mesfo		
<i>Tinea semifulvella</i> Haworth, 1828	x					x			x	x	WPA	dead organic matter	ubiq		
<i>Tinea trinotella</i> Thunberg, 1794						x			x		EUR	dead organic matter	ubiq		
Tischeriidae															
<i>Coptotriche angusticollella</i> (Duponchel, 1843)						x					WPA	Rosa	xersh		
<i>Tischeria ekebladella</i> (Bjerkander, 1795)						x					SCO	Quercus	mesfo		
Tortricidae															
<i>Acleris bergmanniana</i> (Linnaeus, 1758)						x					SIE	deciduous shrubs:Rosa,Rhamnus	mesfo		
<i>Acleris cristana</i> (Denis & Schiffermüller, 1775)					x	x	x		x	x	PAL	Rosaceae:Crataegus,Prunus spinosa,Malus	mesfo		
<i>Acleris emargana</i> (Fabricius, 1775)					x	x			x	x	HOL	deciduous trees/shrubs:Salix,Populus,Quercus	mesfo		
<i>Acleris ferrugana</i> (Denis & Schiffermüller, 1775)					x				x		EUR	Fagaceae:Quercus,Salicaceae:Salix	mesfo	x	
<i>Acleris forsskaeana</i> (Linnaeus, 1758)					x	x		x			EUR	Acer pseudoplatanus,A.campestre	mesfo		
<i>Acleris hyemana</i> (Haworth, 1811)						x				x	EUR	Ericaceae	mesec		
<i>Acleris kochiella</i> (Goeze, 1783)					x					x	SIE	Ulmus	mesfo		
<i>Acleris quercinana</i> (Zeller, 1849)										x	TUE	deciduous trees:esp.Quercus	mesfo		
<i>Acleris rhombana</i> (Denis & Schiffermüller, 1775)	x					x			x	x	WPA	deciduous trees/shrubs	mesfo		
<i>Acleris schalleriana</i> (Linnaeus, 1761)						x					HOL	Viburnum	mesfo		
<i>Acleris sparsana</i> (Denis & Schiffermüller, 1775)	x		x			x				x	EUR	deciduous trees/shrubs:esp.Quercus	mesfo	x	
<i>Acleris variegana</i> (Denis & Schiffermüller, 1775)	x		x			x			x	x	HOL	deciduous trees/shrubs:esp. Rosaceae	mesfo		
<i>Aethes ardezana</i> (Müller-Rutz, 1922)					x	x	x		x	x	CEU	unknown	mon		x
<i>Aethes aurofasciana</i> (Mann; 1855)				x							ALP	Gentiana	mon		
<i>Aethes cnicana</i> (Westwood, 1854)					x	x					SIE	Asteraceae:Cirsium,Carduus	meswl		
<i>Aethes dilucidana</i> (Stephens, 1852)								x			WPA	Apiaceae:Heracleum,Pastinaca,Peucedanum	xerwl		x
<i>Aethes francillana</i> (Fabricius, 1794)										x	WPA	Apiaceae:Eryngium,Daucus,Pastinaca etc	meswl		
<i>Aethes hartmanniana</i> (Clerck, 1759)					x				x		EUR	Dipsacaceae	meswl		

Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagatum	Bioindicator pastures
<i>Aethes moribundana</i> (Staudinger, 1859)						x					CAE	unknown	xerwl		
<i>Aethes rubigana</i> (Treitschke, 1830)					x	x					EUR	Asteraceae:Arctium,Cirsium oleraceum	meswl		
<i>Aethes rutilana</i> (Hübner, 1817)					x						HOL	Juniperus	xersh		
<i>Aethes smeathmanniana</i> (Fabricius, 1781)					x	x	x			x	HOL	Asteraceae:Achillea,Centaurea,Anthemis	xerwl	x	
<i>Agapeta hamana</i> (Linnaeus, 1758)								x			WPA	Asteraceae:Carduus,Cirsium	xerwl	x	
<i>Agapeta zoegana</i> (Linnaeus, 1767)					x	x	x	x	x	x	WPA	Centaurea	meswl	x	
<i>Aleimma loeflingiana</i> (Linnaeus, 1758)						x					WPA	deciduous trees/shrubs:esp.Quercus,Carpinus,Acer	mesfo		
<i>Ancylis apicella</i> (Denis & Schiffermüller, 1775)					x					x	SIE	deciduous trees/shrubs:Frangula,Betula,Prunus	mesfo		
<i>Ancylis badiana</i> (Denis & Schiffermüller, 1775)	x	x				x	x		x	x	ASE	Fabaceae:Vicia,Lathyrus,Trifolium	meswl	x	
<i>Ancylis comptana</i> (Frölich, 1828)									x		HOL	herbs:Potentilla,Teucrium	meswl		
<i>Ancylis diminutana</i> (Haworth, 1811)						x				x	EUR	Salix	mesfo		
<i>Ancylis geminana</i> (Donovan, 1806)				x		x			x	x	PAL	Salix	mesfo		
<i>Ancylis laetana</i> (Fabricius, 1775)					x					x	SIE	Populus tremula	mesfo		
<i>Ancylis mitterbacheriana</i> (Denis & Schiffermüller, 1775)						x		x	x		EUR	Fagaceae:Quercus,Fagus	mesfo	x	
<i>Ancylis myrtillana</i> (Treitschke, 1830)				x							SIE	Juniperus	mon		
<i>Ancylis obtusana</i> (Haworth, 1811)					x	x			x	x	ASE	Rosaceae,Rhamnaceae	mesec		
<i>Ancylis unculana</i> (Haworth, 1811)					x					x	ASE	Rhamnaceae:Frangula,Rhamnus	mesec		
<i>Aphelia unitana</i> (Hübner, 1799)									x		PAL	herbs	meswl		
<i>Aphelia viburnana</i> (Denis & Schiffermüller, 1775)					x	x			x		SIE	deciduous trees/shrubs,conifers,herbs	meswl		
<i>Apotomis capreana</i> (Hübner, 1817)	x					x	x		x	x	HOL	Salix caprea	mesfo		
<i>Apotomis infida</i> (Heinrich, 1926)					x						HOL	Salix	meswl		
<i>Apotomis sauciana</i> (Frölich, 1828)						x			x	x	EUR	Vaccinium	mon		
<i>Apotomis turbidana</i> Hübner, 1825					x	x			x		SIE	Betula	mesfo		
<i>Archips crataegana</i> (Hübner, 1799)						x	x		x	x	PAL	deciduous trees/shrubs	mesfo		
<i>Archips oporana</i> (Linnaeus, 1758)									x		HOL	Pinaceae:Pinus,Picea,Cupressaceae	mesfo		
<i>Archips podana</i> (Scopoli, 1763)					x	x	x		x		EUR	deciduous trees/shrubs,conifers,herbs	mesfo		
<i>Archips rosana</i> (Linnaeus, 1758)					x	x	x		x	x	PAL	deciduous trees/shrubs	mesfo		
<i>Archips xylosteana</i> (Linnaeus, 1758)					x	x			x	x	ASE	deciduous trees/shrubs,conifers,herbs	mesfo		
<i>Argyroplote noricana</i> (Herrich-schäffer, 1854)					x						EUR	Dryas octopetala	alp		
<i>Argyrotaenia ljugiana</i> (Thunberg, 1797)					x	x	x	x		x	PAL	herbs,deciduous trees/shrubs,conifers	mesec		
<i>Aterpia corticana</i> (Denis & Schiffermüller, 1775)				x							EUR	herbs,deciduous shrubs	mon		
<i>Bactra lancealana</i> (Hübner, 1799)	x								x		HOL	Juncaceae,Cyperaceae:Eleocharis,Cyperus	hygw		
<i>Bactra venosana</i> (Zeller, 1847)						x					AIM	?Juncaceae,Cyperaceae	hygw		
<i>Brevicornutia pallidana</i> (Zeller, 1847)				x		x		x	x	x	WPA	Asteraceae	meswl		
<i>Capua vulgana</i> (Frölich, 1828)						x	x	x	x	x	PAL	deciduous trees/shrubs:Quercus,Alnus,Sorbus etc	mesfo		
<i>Celypha aurofasciana</i> (Haworth, 1811)					x	x			x		SIE	moss on old trees	mesfo		
<i>Celypha cespitana</i> (Hübner, 1817)					x						HOL	herbs,deciduous shrubs	meswl		
<i>Celypha flavipalpana</i> (Herrich-Schäffer, 1851)					x	x		x	x	x	SIE	herbs	xerwl		
<i>Celypha lacunana</i> (Denis & Schiffermüller, 1775)			x			x	x	x	x	x	SIE	herbs,deciduous trees/shrubs	ubiq		
<i>Celypha rivulana</i> (Scopoli, 1763)					x					x	SIE	herbs,deciduous trees/shrubs	meswl		
<i>Celypha rufana</i> (Scopoli, 1763)					x			x	x	x	ASE	herbs:Tanacetum,Artemisia	xerwl		
<i>Celypha striana</i> (Denis & Schiffermüller, 1775)						x	x	x			SIE	Taraxacum	meswl		
<i>Celypha woodiana</i> (Barrett, 1882)					x						EUR	Viscum album	mesfo		
<i>Clepsia pallidana</i> (Fabricius, 1776)					x						PAL	herbs,deciduous shrubs	xerwl		
<i>Clepsia rurinana</i> (Linnaeus, 1758)					x	x	x	x	x	x	ASE	deciduous trees/shrubs	mesfo		
<i>Clepsia senecionana</i> (Hübner, 1819)					x	x					SIE	deciduous shrubs,herbs	mesec		
<i>Clepsia steineriana</i> (Hübner, 1799)					x						SEU	herbs	mon		
<i>Cnephasia alticolana</i> (Herrich-Schäffer, 1851)						x					SIE	herbs	mon		
<i>Cnephasia asseclana</i> (Denis & Schiffermüller, 1775)									x		WPA	herbs,grass,Holzgewächse	ubiq		
<i>Cochylidia rupicola</i> (Curtis, 1834)									x		EUR	Asteraceae:Eupatorium,Aster,Lycopus	mesec		
<i>Cochylimorpha perfusana</i> (Guenée, 1845)						x					SEU	Centaurea stoebe,C. triumfettii	xerwl	x	
<i>Cochylis roseana</i> (Haworth, 1811)					x					x	WPA	herbs	meswl		
<i>Cydia amplana</i> (Hübner, 1800)						x	x				TUE	Corylaceae,Fagaceae,Juglandaceae	mesfo		
<i>Cydia fagiglandana</i> (Zeller, 1841)	x					x	x	x	x	x	EUR	Fagus,Quercus,in fruits	mesfo	x	
<i>Cydia pomonella</i> (Linnaeus, 1758)					x	x					SCO	Rosaceae:esp.Malus,Juglandaceae,Fagaceae	mesfo		
<i>Cydia splendana</i> (Hübner, 1799)					x	x				x	EUR	Fagaceae:Quercus,Castanea,Juglandaceae	mesfo		

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Species	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
<i>Falseuncaria ruficiliana</i> (Haworth, 1811)		x									WPA	Fabaceae	meswl		
<i>Grapholita pallifrontana</i> Lienig & Zeller, 1846							x		x		SIE	Astragalus	xerwl		
<i>Grapholita jungiella</i> (Clerck, 1759)					x						ASE	Fabaceae	meswl		
<i>Gynnidomorpha permixtana</i> (Denis & Schiffermüller, 1775)					x		x			x	ASE	Scrophulariaceae:Euphrasia,Pedicularis	hygw	x	
<i>Gypsonoma aceriana</i> (Duponchel, 1843)						x					WPA	deciduous trees/shrubs	mesfo		
<i>Gypsonoma dealbana</i> (Frölich, 1828)						x	x	x	x	x	SIE	deciduous trees/shrubs:Crataegus,Quercus,Salix etc	mesfo		
<i>Gypsonoma nitidulana</i> (Lienig & Zeller, 1846)						x			x		SIE	Ericaceae:Vaccinium,Salicaceae:Populus tremula	Tyrsl		
<i>Gypsonoma oppressana</i> (Treitschke, 1835)					x						WPA	Populus nigra,P.alba	mesfo		
<i>Gypsonoma sociana</i> (Haworth, 1811)						x		x	x	x	SIE	Salicaceae:Populus,rarely Salix	mesfo		
<i>Hedya dimidioalba</i> (Retzius, 1783)			x								HOL	herbs,deciduous trees/shrubs	mesfo		
<i>Hedya nubiferana</i> (Haworth, 1811)						x	x	x	x	x	HOL	deciduous trees/shrubs (esp.Rosaceae),herbs	mesec		
<i>Hedya pruniana</i> (Hübner, 1799)										x	ASE	deciduous trees/shrubs (esp.Rosaceae)	mesec		
<i>Hedya salicella</i> (Linnaeus, 1758)		x				x			x	x	SIE	Salicaceae:esp.Salix alba,rarely Populus	mesfo		
<i>Isotrias hybridana</i> (Hübner, 1817)						x		x	x	x	EUR	deciduous trees/shrubs	mesfo		
<i>Isotrias rectifasciana</i> (Haworth, 1811)									x		EUR	?deciduous trees/shrubs	mesfo		
<i>Lathronympha strigana</i> (Fabricius, 1775)			x	x		x	x		x	x	EUR	Hypericum	meswl	x	
<i>Lobesia reliquana</i> (Hübner, 1825)										x	ASE	deciduous trees/shrubs:Quercus,Prunus,Betula	mesfo		
<i>Lozotaenia forsterana</i> (Fabricius, 1781)					x						SIE	deciduous trees/shrubs, conifers	mesfo		
<i>Metendothenia atropunctana</i> (Zetterstedt, 1839)			x			x	x		x	x	HOL	deciduous trees/shrubs	mesfo		
<i>Necochylis hybridella</i> (Hübner, 1813)										x	ASE	Asteraceae:Picris,Crepis	meswl	x	
<i>Necochylis dubitana</i> (Hübner, 1799)					x				x		HOL	Asteraceae	meswl	x	
<i>Notocelia cynosbatella</i> (Linnaeus, 1758)					x	x	x	x	x	x	SIE	Rosa	mesfo		
<i>Notocelia uddmanniana</i> (Linnaeus, 1758)							x		x		WPA	Rubus	mesec		
<i>Olethreutes arcuella</i> (Clerck, 1759)						x			x	x	ASE	decaying leaves	mesec		
<i>Olindia schumacherana</i> (Fabricius, 1787)					x		x				HOL	herbs:esp.Ranunculus	mesec		
<i>Orthotaenia undulana</i> (Denis & Schiffermüller, 1775)						x					HOL	deciduous trees/shrubs,herbs	ubiq		
<i>Pammene fasciana</i> (Linnaeus, 1761)							x				ASE	Fagaceae	mesfo		
<i>Pandemis cerasana</i> (Hübner, 1786)						x	x	x		x	ASE	deciduous trees/shrubs,conifers,herbs	mesfo		
<i>Pandemis cinnamomeana</i> (Treitschke, 1830)						x	x		x	x	SIE	deciduous trees/shrubs,conifers,herbs	mesfo		
<i>Pandemis corylana</i> (Fabricius, 1794)			x			x	x		x	x	SIE	deciduous trees/shrubs,conifers,herbs	mesfo		
<i>Pandemis dumetana</i> (Treitschke, 1835)					x		x			x	ASE	deciduous trees/shrubs,herbs	hygw		
<i>Pandemis heparana</i> (Denis & Schiffermüller, 1775)		x				x	x		x	x	ASE	deciduous trees/shrubs,herbs	mesfo		
<i>Pelochrista modicana</i> (Zeller, 1847)									x		TUE	Asteraceae:Carduus,Centaurea etc	xerwl	x	
<i>Phalonidia gilvicomana</i> (Zeller, 1847)									x		EUR	herbs:Asteraceae,Chenopodiaceae	mesec	x	
<i>Phiaris schulziana</i> (Fabricius, 1776)					x						HOL	Ericaceae	mon		
<i>Philedone germingana</i> (Denis & Schiffermüller, 1775)					x	x				x	SIE	herbs,conifers	mon		
<i>Piniphila bifasciana</i> (Haworth, 1811)						x	x	x	x	x	ASE	Pinus sylvestris	mesfo		
<i>Pseudargyrotoza conwagana</i> (Fabricius, 1775)		x					x	x	x	x	ASE	Oleaceae:Fraxinus,Ligustrum	mesfo		
<i>Pseudococcyx turionella</i> (Linnaeus, 1758)							x				ASE	Pinus,?Abies	mesfo		
<i>Pseudohermias abietana</i> (Fabricius, 1787)						x			x		SIE	Pinaceae:Pinus,Picea,Abies	mesfo		
<i>Pseudosciaphila branderiana</i> (Linnaeus, 1758)							x				HOL	Populus tremula	mesec		
<i>Ptycholoma lechaeana</i> (Linnaeus, 1758)							x			x	ASE	deciduous trees/shrubs	mesfo		
<i>Ptycholomoides aeriferana</i> (Herrich-Schäffer, 1851)					x						PAL	Larix	mesfo		
<i>Rhopobota naevana</i> (Hübner, 1817)					x			x		x	SIE	deciduous trees/shrubs:Rosaceae,Rhamnus,Vaccinium	mesfo		
<i>Rhyacionia buoliana</i> (Denis & Schiffermüller, 1775)					x	x					HOL	Pinaceae	mesfo		
<i>Rhyacionia hafneri</i> (Rebel, 1937)						x					EME	Pinus	mesfo		
<i>Rhyacionia piniana</i> (Herrich-schäffer, 1851)					x						SEU	Pinus	mesfo		
<i>Rhyacionia pinicolana</i> (Doubleday, 1849)					x						ASE	Pinus	mesfo		
<i>Rhyacionia pinivorana</i> (Lienig & Zeller, 1846)								x	x	x	PAL	Pinus	mesfo		
<i>Sparganothis pilleriana</i> (Denis & Schiffermüller, 1775)						x					EUR	herbs,grass,deciduous trees/shrubs,conifers	ubiq		
<i>Spatalistis bifasciana</i> (Hübner, 1787)						x					EUR	deciduous trees/shrubs	mesfo		
<i>Spilonota laricana</i> (Heinemann, 1863)						x				x	HOL	Larix	mesfo		
<i>Spilonota ocellana</i> (Denis & Schiffermüller, 1775)		x					x	x	x	x	HOL	deciduous trees/shrubs,conifers	mesfo		
<i>Strophedra weirana</i> (Douglas, 1850)										x	EUR	deciduous trees:esp.Fagus	mesfo	x	
<i>Syndemis musculana</i> (Hübner, 1799)							x		x	x	PAL	deciduous trees/shrubs,rarely conifers	mesfo		
<i>Tortrix viridana</i> Linnaeus, 1758							x				WPA	deciduous trees/shrubs:esp.Quercus,rarely Pinus	mesfo		

	1	2	3	4	ON	5	6	7	8	OS	Chorology	Host-plant	Ecological Guild	Bioindicator Fagetum	Bioindicator pastures
Species															
<i>Zeiraphera griseana</i> (Hübner, 1799)					x	x					ASE	Larix	mesfo		
<i>Zeiraphera isertana</i> (Fabricius, 1794)						x		x			EUR	Quercus	mesfo		
<i>Zeiraphera ratzeburgiana</i> (Saxesen, 1840)								x			HOL	Pinaceae:Picea,Pinus,Abies	mesfo		
Urodidae															
<i>Wockia asperipunctella</i> (Bruand, 1851)					x				x		EUR	Populus tremula	mesfo		
Yponomeutidae															
<i>Cedestis gyselseniella</i> Zeller, 1839		x				x	x		x	x	EUR	Pinus	mesfo		
<i>Cedestis subfasciella</i> (Stephens, 1834)					x	x				x	EUR	Pinus	mesfo		
<i>Kessleria alpicella</i> (Stainton, 1851)									x		SEU	Saxifraga	mon		
<i>Kessleria klimeschi</i> Huemer & Tarmann, 1992					x	x			x		ALP	Saxifraga	mon		
<i>Kessleria nivescens</i> Burmann, 1980					x						SEU	Saxifraga	mon		
<i>Parahyponomeuta egregiella</i> (Duponchel, 1839)					x	x		x	x		EUM	herbs	meswl		
<i>Swammerdamia compunctella</i> (Herrich-schäffer, 1855)					x						EUR	Rosaceae:Sorbus,Cotoneaster	mon		
<i>Swammerdamia pyrella</i> (Villers, 1789)						x					HOL	Rosaceae:Crataegus,Malus,Prunus	mesfo		
<i>Yponomeuta cagnagella</i> (Hübner, 1813)						x			x	x	SIE	Euonymus	mesec		
<i>Yponomeuta evonymella</i> (Linnaeus, 1758)						x	x		x		ASE	Rosaceae:esp. Prunus padus	mesfo		
<i>Yponomeuta malinellus</i> Zeller, 1838						x					HOL	Malus	mesfo		
<i>Yponomeuta padella</i> (Linnaeus, 1758)						x	x				HOL	Rosaceae:esp. Crataegus	mesfo		
<i>Yponomeuta plumbella</i> (Denis & Schiffmüller, 1775)						x					SIE	Euonymus	mesfo		
<i>Yponomeuta sedella</i> Treitschke, 1832						x					PAL	Sedum	xerwl		
<i>Zelleria hepariella</i> Stainton, 1849								x			EUR	Fraxinus	mesfo		
Ypsolophidae															
<i>Ypsolopha alpella</i> (Denis & Schiffmüller, 1775)						x					EUR	Quercus	xersh		
<i>Ypsolopha dentella</i> (Fabricius, 1775)									x		SIE	Lonicera	mesfo		
<i>Ypsolopha falcella</i> (Denis & Schiffmüller, 1775)									x		SIE	Lonicera	mesfo		
<i>Ypsolopha leuconotella</i> (Snellen, 1884)						x	x			x	SIE	unknown	mon		
<i>Ypsolopha nemorella</i> (Linnaeus, 1758)						x	x		x		SIE	Lonicera	mesfo		
<i>Ypsolopha parenthesella</i> (Linnaeus, 1761)	x		x			x			x	x	SIE	deciduous trees/shrubs:Quercus,Carpinus,Betula etc	mesfo	x	
<i>Ypsolopha scabrella</i> (Linnaeus, 1761)						x	x		x	x	EUR	Rosaceae:Amelanchier,Crataegus,Pyrus,Sorbus	xersh		
<i>Ypsolopha sequella</i> (Clerck, 1759)						x				x	EUR	Acer	mesfo		
<i>Ypsolopha ustella</i> (Clerck, 1759)	x					x			x	x	EUR	deciduous trees/shrubs:esp.Quercus	mesfo	x	
<i>Ypsolopha vittella</i> (Linnaeus, 1758)						x	x	x		x	HOL	Ulmaceae:Ulmus,Fagaceae:Fagus	mesfo	x	
Zygaenidae															
<i>Adscita geryon</i> (Hübner, 1813)						x					EUR	Helianthemum	mon		x
<i>Adscita mannii</i> (Lederer, 1853)						x				x	SEU	Cistaceae:Helianthemum,Cistus	xerwl		
<i>Adscita statice</i> (Linnaeus, 1758)										x	SIE	Rumex acetosa,R. acetosella	meswl		
<i>Jordanita globulariae</i> (Hübner, 1793)						x					EUR	Centaurea	hygw		x
<i>Zygaena filipendulae</i> (Linnaeus, 1758)						x				x	EUR	Fabaceae:Lotus corniculatus,Coronilla	meswl		
<i>Zygaena lonicerae</i> (Scheven, 1777)			x			x			x	x	EUR	Fabaceae:Lotus,Onobrychis,Trifolium	meswl		
<i>Zygaena loti</i> (Denis & Schiffmüller, 1775)						x					EUR	Fabaceae:Coronilla,Hippocrepis etc	meswl		
<i>Zygaena osterodensis</i> Reiss, 1921						x	x	x		x	SIE	Fabaceae:Vicia,Lathyrus	mesfo		
<i>Zygaena purpuralis</i> (Brünnich, 1763)						x					CAE	Thymus	meswl		x
<i>Zygaena transalpina</i> (Esper, 1780)			x			x			x		SEU	Fabaceae:Lotus,Coronilla,Hippocrepis	meswl		x
<i>Zygaena viciae</i> (Denis & Schiffmüller, 1775)						x				x	SIE	Fabaceae:Vicia,Lotus,Onobrychis	hygw		x

Tab. 1 - Species inventory. The systematic and nomenclature follows LEPIFORUM.E.V., with exception for some groups of Gelechioidea which have been elevated to family rank (see ŠUMPICH et al. 2022). Families, genera and species are arranged in alphabetical order. Stations: 1: Stavoli Cuel Lung Alto, 2: Sella Carnizza, 3: Clen, 4: Sella di Grubia, ON: Other localities in Northern part of the Park, 5: Gruppo del M. Plauris, 6: P. di Tapou-Tanataviele, 7: Passo di Tanamea, 8: Valle di Ucea, OS: Other localities in Southern part of the Park (see text for detail). Chorology acronyms follow Vigna Taglianti et al. (1992). Ecological guilds: see text.

- Elenco delle specie rilevate. Sistematica e nomenclatura seguono LEPIFORUM.E.V., ad eccezione di alcuni gruppi di Gelechioidea che sono stati elevati a rango di famiglia (si veda ŠUMPICH et al. 2022). Famiglie, generi e specie sono in ordine alfabetico. Stazioni: 1: Stavoli Cuel Lung Alto, 2: Sella Carnizza, 3: Clen, 4: Sella di Grubia, ON: altre località nella parte settentrionale del Parco, 5: Gruppo del M. Plauris, 6: P. di Tapou-Tanataviele, 7: Passo di Tanamea, 8: Valle di Ucea, OS: altre località nella parte meridionale del Parco (si veda il testo per i dettagli). Le categorie corologiche seguono Vigna Taglianti et al. (1992). Per le categorie ecologiche si veda il testo.

lepidoptera such as *Phyllonorycter aemula* from *Ostrya carpinifolia* have been observed. Furthermore, several species which exclusively feed on *Quercus* are typical for these forests, e.g. *Ypsolopha alpella*, *Epinotia festivana*, *Comibaena bajularia*, *Thaumetopoea processionea* and the spectacular Neozoon *Antherea yamamai*. Altogether 32 species are monophagous feeders of oak. From the complete species survey numerous further taxa are to be attributed to thermophilous woodland habitat. Furthermore, hygrophilous trees and shrubs, frequently intermixed with beech-forest, are a major habitat for a diverse fauna. *Fraxinus* with 4 monophagous species, *Alnus* with specialists such as *Plemyria rubiginata* and *Stathmopoda pedella* and Salicaceae with 48 oligophagous and 23 monophagous species on *Salix* are to be mentioned. In the herb layer several species, e.g. *Ecliptopera capitata* and *E. silaceata* or the rare *Phlogophora scita* are typical. Additionally, a large number of trophically less specialised Lepidoptera occurs in more humid beech-forests, e.g. *Arctornis l-nigrum*, *Tiliacea aurago* or *Conistra vaccinii*. A particularly high biodiversity can be expected at lower altitudes in more thermophilous beechwoods, such as the station 1 (Stavoli Cuel Lung Alto - Tugliezzo), but this site was explored insufficiently.

3.2.2 Species diversity of meadows and pastures

Meadows and pastures within the montane zone are very species-rich. Anthropogenic meadows and pastures

are characteristic for a large area of the montane zone. At higher altitudes the human impact is increasingly reduced. Pending on the degree of utilization meadows and pastures are more or less extremely diverse.

The total number of species within the target stations does not completely reflect the actual biodiversity of pastures and meadows. On the one hand numerous of the observed taxa are in fact typical for afforested biotopes, though recorded in open habitats. On the other hand, a high number of open land species was not recorded exactly at the target sites. However, from the ecological guilds it can be concluded that at least 217 spp. are characteristic for mesophilous woodless habitats and further 198 species for xerophilous species of woodless landscape. Particularly the diversity of butterflies is much higher in openland habitats compared to the woodland and several of the species such as a set of 103 selected bioindicator species of meadows and pastures reflects this diversity of strongly differing habitats within the open grassland. Xerophilous and mesophilous Lepidoptera with a trophical linkage to Fabaceae are particularly diverse with numerous interesting species, e.g. *Mirificarma cytisella*, *M. lentiginosella*, *Anarsia spartiella*, several species of the genus *Zygaena*, several Lycaenidae or the Noctuoidea *Apamea platinea*, *Lygephila cracca* and *Callistege mi*. Altogether 53 species are oligophagous feeders of Fabaceae and some further monophagous. A large number of specialists on other genera and families of herbs

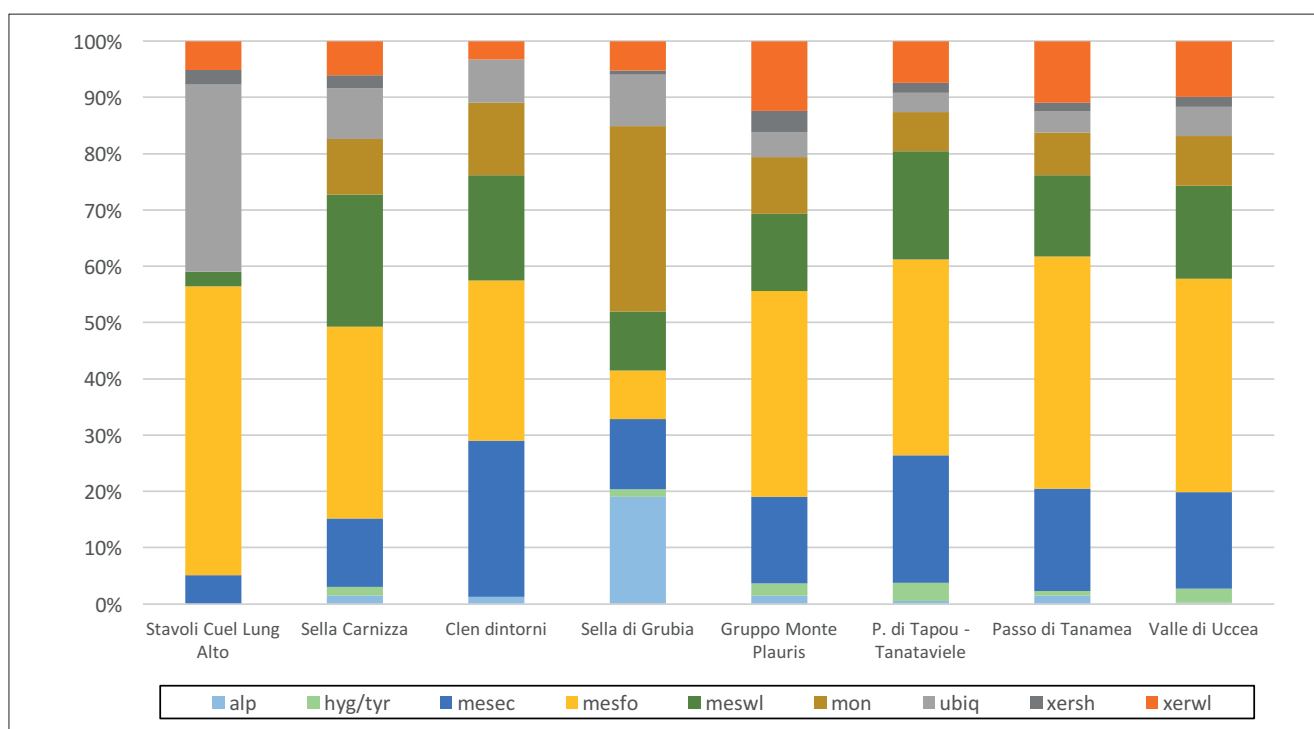


Fig. 6 - Ecological guilds for main investigated stations. See text for acronyms.

- Categorie ecologiche riscontrate per le principali stazioni indagate (si veda il testo per gli acronimi).

reflect the variety of different micro-habitats for the fauna of meadows. Species from *Helianthemum* such as *Teleiodes sequax* or from *Verbascum* such as *Nothris verbascella* are thermophilous whereas a variable set of species from e.g. Asteraceae is found on both dry and warm or mesophilous to humid meadows (Tab. 1). Some of the thermophilous species are related to rock and scree such as various species of *Caryocolum*, which can also occur in steppic grassland. Furthermore, several species of forested ecotones, e.g. *Parnassius mnemosyne* are related to meadows and pastures.

Numerous of the observed montane species (altogether more than 10% of the species inventory) are also characteristic for open grassland, whereas species belonging to the alpine ecotone are only represented marginally since the elevation of the habitats is too low. On the contrary alpine pastures which are well represented in particular at target station 4 (Sella di Grubia) are mainly inhabited by alpine lepidoptera. The fauna of this site is moderately well explored and the ecotypes can be considered as representative. From the altogether 151 species which have been recorded at this site 33 spp. (22%) are belonging to the alpine ecotype and another 45 spp. (30%) to the montane ecotype. The importance for regional biodiversity is regarded as extraordinary as these ecotypes represent a highly specialised species community with a very limited geographical extension of several species, both horizontally and vertically. This situation is reflected by the occurrence of 11 alpine endemic species which have been observed at Sella di Grubia. Otherwise this station is inhabited by a number of mesophilous (11%) to xerophilous (5%) open land species, reaching the upper limit of their vertical distribution. Species related to arboreous habitats are rare, with only 9% of the observed fauna. Similar to some of the migrating ubiquitous taxa not all of them seem to be autochthonous species of Sella di Grubia.

Interesting and partially alpine endemic species such as *Erebia calcaria* and *Coenonympha gardetta* are typical of high altitude pastures, but also in other stations, e.g. in the area of station 5 (Malga Confin). The larvae of these two species feed exclusively on grass, which is one of the major nutritional resources for a diverse coenosis.

3.2.3 Species diversity of other habitats

Though beech-forest and various pastures and meadows are dominating habitats within the Natural Park, several other habitats add to the overall-diversity. Of particular importance are:

- Rock formations and scree: coverage with vegetation is fragmented including highly specialised species, e.g. cryptogams and petrophilous angiosperms such as *Saxifraga* spp., *Potentilla* spp., *Dryas octopetala*

etc. Above and partially below the timberline this kind of habitat is well represented. Several species, usually belonging to the alpine or montane ecological guild, e.g. *Kessleria* spp., *Symmoca* spp., *Teleiopsis albifemorella*, *Catoptria luctiferella*, *Euphyia mesembrina* and *Erebia gorge*, are characteristic. Xerophilous species of rock faces are e.g. *Eana canescana*, *Eupithecia carpophagata* and *Parnassius apollo*.

- Conifer dominated forests (*Pinus*, *Picea*, *Abies*): on dry ground surface such as river embankments where *Pinus sylvestris* is typical, on more humid sites *Picea abies*. Pine forests are particularly well represented close to Torrente Mea and in the surroundings of Passo Tanamea, but sporadically conifers grow in the whole area below the timberline. Spruce forests grow in Valle di Ucea. A number of monophagous and oligophagous specialists of Pinaceae such as *Cedestis gysseleniella*, *Rhyacionia* spp., *Dioryctria* spp. and *Traumatocampa pityocampa* is characteristic. However, the majority of characteristic species lives in the herb layer and on shrubs of the Pinetum. E.g. the species diversity in Pinetum mugli is largely depending on species which are not directly linked to *Pinus mugo*. In fact, only few species such as *Exoteleia succinctella* are feeding on this shrub. Similarly, *Picea abies* and *Abies alba* are only consumed by few species, e.g. *Epinotia tedella*, *Thera britannica* and *Thera vetustata*.
- Alluvial forests and wetland habitats: mainly dominated by *Salix* and other hygrophilous shrubs and herbs. Hygrophilous forests are sometimes closely connected to beech-wood, e.g. in Valle di Ucea and Val Venzonassa and they are widely distributed along the rivers. The high number of specialists is reflected e.g. by species trophically related to Salicaceae, including rare or locally distributed taxa such as *Wockia asperipunctella*, *Gelechia muscosella*, *Apatura iris*, *Macaria artesiaria*, *Clostera anastomosis* and *Catocala lupina*. Species of open wetland and fens are very rare due to the limited habitat resources. Usually these biotopes are related to river systems and alluvial forests. Among the 54 hygrophilous taxa (about 4%) *Pseudopostega crepusculella*, *Parapoynx stratiotata*, *Heteropterus morpheus*, *Euthrix potatoria*, *Diacrisia sannio* or various Noctuidae such as *Mythimna* spp. are characteristic.

Figure 6 shows the ecological guilds for each station investigated. Despite the methodological problems mentioned above, it's possible to notice some similarities but also striking differences in the faunal composition. The most remarkable differences are in the composition of alpine and montane species, which are only modestly represented in the southern part of the Nature Park compared to the North. This situation

clearly reflects the wide absence of a true alpine zone in the area of Monte Plauris/Lavara or Monte Musi. The Sella di Grubia station in particular, as expected, shows an evident richness in terms of mountain and alpine species compared to the other stations. On the other hand, mesophilous species of arboreal habitats and xerophilous species of woodless habitats are more species-rich in the southern part of the Nature Park.

3.3 Remarkable species

3.3.1 Alpine endemic species

The Alps in general and the south-eastern Alps in particular are an area with a high number of endemic lepidoptera, even on a European scale. About 220 species have been encountered as alpine endemic (HUEMER 1998), and even new species are still found occasionally. During the scientific survey programme 36 alpine endemic species were found within the entire area of the Parco Naturale delle Prealpi Giulie. The majority of these species is restricted to the south-eastern Alps and only very few taxa such as *Catoptria pyramidella* or *Coenonympha gardetta* are more widely distributed across the alpine arch.

The high proportion of endemic Lepidoptera includes some of the most interesting species from a biogeographical and ecological point of view. Almost all are related to alpine rock formations, alpine scree or alpine grassland and are therefore restricted to open landscape, usually above or slightly below the tree-line. Rare exceptions such as *Thera cembrae* feed on woody plants and occur in the subalpine or higher mountainous zone.

Differences in the endemic fauna between the southern and northern part of the Prealpi Giulie are striking and reflect the scarceness of alpine habitats in the South. Only 18 versus 30 alpine endemics have been found in the South compared to the North of the Nature Park. A number of remarkable endemics distributed at a small scale could be identified despite of these shortcomings, e.g. *Micropterix rablensis*, *Postsolenobia juliella*, *Kessleria klimeschi*, *Scythris sappadensis* or the recently described *Agonopterix lidiae* which is currently only known from the southern part of the Parco Naturale delle Prealpi Giulie on a worldwide scale.

3.3.2 Species protected by the Fauna-Flora-Habitat Directive of the EU

Altogether 6 species of Lepidoptera occurring in the Julian Prealps are protected by Annex 2 and/or 4 of the Fauna-Flora-Habitat Directive of the European Community. All have been observed in the northern and southern part of the Nature Park. These species are listed below, with some distributional and bioecologi-

cal notes and the data collected with this survey in the Park. Number of specimens are mentioned in brackets.

Parnassius apollo (Linnaeus, 1758) (Papilionidae)

General distribution: distributed throughout European mountain systems to western Siberia and Tienschan.

Regional distribution: local records mainly from the Alps and the Apennines, extending into Sicily.

Remarks: protected by Annex 4 of the Fauna-Flora-Habitat Directive of the EU. Characteristic species of thermophilous, rocky slopes. The larva usually feeds on *Sedum album*, rarely on other *Sedum* species or exceptionally on *Sempervivum tectorum*. The extinction risk is not high in Italy, but in some other countries the species has become extinct or is threatened (BALLETO et al 2016).

Records: Valle di Ucea, 3 km NW Ucea, 750-800 m, 27.6.2002 (1); ditto, but 22.7.2004; ditto, but 6.6.2005 (1); ditto, but 6.7.2005 (1); ditto, but 20.6.2006 (1); ditto, but 23.6.2006; ditto, but 5.7.2006 (10); ditto, but 13.6.2007 (3); ditto, but 18.6.2007; Val Venzonassa, B.go Maieron, 550 m, 20.6.2006 (1); Coritis-Sella di Grubia, 1750 m, 20.6.2003 (3); ditto, but 1280 m, 20.6.2003 (10); Malga Coot - Berdo di Sopra, 1200 m, 5.7.2002 (1); Sella Carnizza, Monte Nische, 1200 m, 6.7.2002 (100); ditto, but 1400 m, 6.7.2002 (5); ditto, but 1400 m, 7.7.2002 (1); Sella Carnizza, 1180 m, 5.7.2002 (10); ditto, but 6.7.2002 (2).

Parnassius mnemosyne (Linnaeus, 1758) (Papilionidae)

General distribution: from the Pyrenees through parts of Central, northern and eastern Europe, the Ural mts. and parts of Siberia, the Near and Middle East, reaching Tienschan in the East.

Regional distribution: only known from the Alps, with local populations from Piemonte to Friuli Venezia Giulia.

Remarks: protected by Annex 4 of the Fauna-Flora-Habitat Directive of the EU. Characteristic species of humid ecotones and meadows with stands of the larval host-plant *Corydalis*. In many parts of Europe, the species is endangered. The populations in the Nature Park seem stable.

Records: Val Venzonassa, M.ga Confin, 1200-1300 m, 4.6.2006; ditto, but 21.6.2006; ditto, but 9.5.2007; Valle di Ucea, 4 km W Ucea, 850-900 m, 10.5.2007; Casera Coot, 1200 m, 5.7.2002 (5); Malga Coot - Berdo di Sopra, 1200 m, 5.7.2002 (1); Coritis-Sella di Grubia, 1750 m, 20.6.2003 (1); ditto, but 1280 m, 20.6.2003 (1); Sella di Grubia 2000 m, 21.6.2003 (1); ditto, but 6.7.2002; NW Ucea, 900 m, 6.7.2002 (10); S. Anna di Carnizza, 1060 m, 27.6.2002 (1); ditto, but, 5.7.2002 (4); Sella Carnizza, 1180 m, 5.7.2002 (1); ditto, but 6.7.2002 (21); Sella Carnizza, Monte Nische, 1400 m, 7.7.2002 (1).

Euphydryas aurinia (Rottemburg, 1775) (Nymphalidae)

General distribution: from northern Africa through temperate parts of Europe and Asia, reaching Korea in the East.

Regional distribution: only known from the Alps and isolated populations in southern Italy (Monti Aurunci and Monti del Matese).

Remarks: protected by Annex 2 and 4 of the Fauna-Flora-Habitat Directive of the EU. Populations from higher altitude are by some authors considered as separate species (*E. glaciegenita* Verity, 1928). The species is restricted to meadows and pastures without or with limited human impact, particularly above the tree-line. The larva of alpine populations feed on *Gentiana* spp. However, lowland populations use a number of other host-plants, particularly *Scabiosa* spp. and *Succisa*. The endangerment at higher altitudes is low but it has to be observed carefully due to the restricted distribution in Italy. In the IUCN Red List of Italian Butterflies (BALLETO et al. 2016) *E. aurinia* is considered vulnerable (VU), while *E. glaciegenita* is inserted in category "Least concern" (LC).

Records: Val Venzonassa, M.ga Confin W, 1290-1310 m, 4.7.2006 (1); C.ra Tanatcason, 750 m, 13.6.2002 (1); Coritis-Sella di Grubia, 1750 m, 20.6.2003 (3); Sella di Grubia, 2000 m, 6.7.2002 (1); ditto, but 21.6.2003 (1); ditto, but 1900 m, 24.7.2002 (1).

Erebia calcaria Lorkovic, 1953 (Nymphalidae)

General distribution: restricted to the south-eastern Alps.

Regional distribution: extremely limited distribution in the Julian Alps, Karawanken (nominate subspecies) and from Venetian Prealps (ssp. *cavallus*).

Remarks: protected by Annex 2 and 4 of the Fauna-Flora-Habitat Directive of the EU. A characteristic species of southern exposed slopes on calcareous substrate in the subalpine and lower alpine zone. The larvae probably feed on various Poaceae, but the biology is not yet described from field studies. The species is not endangered in the area but it will be advisable to observe population dynamics due to the limited distribution in Italy. In the IUCN Red List of Italian Butterflies (BALLETO et al. 2016) *E. calcaria* is considered Near Threatened (NT).

Records: Val Venzonassa, M.te Lavara, southern slope, 1600-1900 m, 19.7.2007 (30); Sella Carnizza, Monte Nische, 1400 m, 7.7.2002 (1); Sella di Grubia, 2100 m, 17.8.2002 (7); ditto, but 1900 m, 24.7.2002 (1); ditto, but 1700 m, 26.7.2003 (10).

Lopinga achine (Scopoli, 1763) (Nymphalidae)

General distribution: from northern Spain through central and eastern Europe and a main part of Russia, reaching the Ussuri and Japan in the East.

Regional distribution: only known from the Alps, with local populations from Piemonte to Friuli Venezia Giulia.

Remarks: protected by Annex 4 of the Fauna-Flora-Habitat Directive of the EU. Characteristic species of mixed forests with limited forestal influence. The larvae feed on various Poaceae, preferably on *Bra-*

chypodium spp. and the adults are preferably found on clearings and edges of Pinus-Fagus forests. The species is not threatened in the Nature Park but has to be observed due to the restricted distribution in Italy. In the IUCN Red List of Italian Butterflies (BALLETO et al. 2016) *L. achine* is considered Near Threatened (NT).

Records: C.ra Tanatcason, 750 m, 27.6.2002 (1); Val Venzonassa, 550 m, 20.6.2006; Val Venzonassa, B.go Maieron E, 600-650 m, 5.7.2006 (2); Valle di Musi, T. Mea, 700 m, 19.6.2007; Musi, Plan di Tapou, 870 m, 13.6.2007 (6); ditto, but 20.6.2007; Coritis-Sella di Grubia, 830 m, 20.6.2003 (1); SE Sella Carnizza, 900 m, 5.7.2002 (1); Stolvizza-Coritis, 630 m, 5.7.2002 (7); Stolvizza-Coritis, 630 m, 6.7.2002 (2).

Euplagia quadripunctaria (Poda, 1761) (Erebidae)

General distribution: widely distributed in the western Palaearctic area, from Spain to northern Iran, absent from the northern parts.

Regional distribution: locally but widely distributed throughout Italy including Sicily.

Remarks: protected by Annex 2 and 4 of the Fauna-Flora-Habitat Directive of the EU and considered as a species of priority interest. In the Prealpi Giulie Nature Park is widely distributed in well established populations.

Records: Alta Val Torre, Vedronza, 350 m, 24.7.2003 (1); Plan di Tapou, 870 m, 25.7.2003 (1); Val Venzonassa, M.ga Confin – Casera Ungarina, 1290-1310 m, 17.8.2006 (2); ditto, but 19.7.2007 (1); Val Venzonassa, M.ga Confin, 1200-1300 m, 2.8.2005 (1); Val Venzonassa, B.go Maieron, 550 m, 3.8.2005 (1); Val Venzonassa, B.go Maieron E, 600-650 m, 17.8.2006 (3); Val Venzonassa, B.go Prabunello, 650 m, 21.7.2006 (3); Musi, C.ra Tanatcason, 720 m, 18.8.2006 (2); Musi, Pian des Ciclamini E, Pligna S, 850-870 m, 19.8.2006 (1); Musi, Pian des Ciclamini E, Pligna S, 850-870 m, 19.8.2006 (1); Valle di Uccia, 3 km NW Uccia, 750-800 m, 14.8.2007; Tugliezzo, 500 m, 22.8.2003 (1).

3.3.3 Further remarkable records

The faunistic approach resulted in one new and yet unpublished record for the Italian fauna, *Leucoptera lathyrifoliella*, while two further new country records, *Ypsolopha leuconotella* and *Caryocolum petryi*, have been published earlier (HUEMER et al. 2005) and another species, *Agonopterix lidiae*, was recognized new to Science (BUCHNER 2020). A further species, belonging to the genus *Acrolepiopsis*, requires further taxonomic investigation.

Several other species are known from Italy only from a few localities such as *Pseudatemelia elsae*, *Psoricoptera speciosella*, *Gelechia muscosella*, *Eana cyanescana* and *Rhyacionia hafneri* or from a limited area such as some of the alpine endemic taxa. *Mompha lacteella* was hitherto only recorded from the southern part of Italy. Furthermore several new provincial and regional records are to be expected, but in the absence of a check-list for Friuli Venezia



Fig. 7 - Photos of some remarkable species/ Foto di alcune specie significative: a - *Parnassius apollo* (Linnaeus, 1758) (Papilionidae), photo by H. Deutsch; b - *Parnassius mnemosyne* (Linnaeus, 1758) (Papilionidae), photo by H. Deutsch; c - *Lopinga achine* (Scopoli, 1763) (Nymphalidae), photo by P. Buchner; d - *Catocala fraxini* (Linnaeus, 1758) (Erebidae), photo by P. Buchner; e - *Euphyia mesembrina* (Rebel, 1927) (Geometridae), photo by H. Deutsch; f - *Eupithecia carpopagata* Staudinger, 1871 (Geometridae), photo by H. Deutsch; g - *Ypsolopha leuconotella* (Snellen, 1884) (Ypsolophidae) (wingspan: 19 mm), photo by H. Deutsch.

Giulia the number of such records is difficult to state and hence unreliable. The following paragraph gives a few examples of ecologically and/or faunistically remarkable species. Number of specimens are mentioned in brackets.

Trifurcula cytisanthi A. Laštůvka & Z. Laštůvka, 2005 (Nepticulidae)

General distribution: Italy, Austria.

Regional distribution: only known from the south-eastern Alps.

Remarks: exclusively known from Alpi Giulie, Monte Baldo (Veneto) and nearby Carinthia (Austria) and Slovenia (LAŠTŮVKA & LAŠTŮVKA 2005); trophically related to *Cytisanthus radiatus*.

Records: Sella di Grubia, 1700 m, 20.6.2003 (ca. 10).

Acrolepiopsis sp. (Glyphipterigidae)

General distribution: Italy.

Regional distribution: only known from the south-eastern Alps with a single record from Tugliezzo!

Remarks: most likely a species new to Science! A closely related species, viz. *A. suzukiella*, has been described from Japan. However, some small differences can be observed in the genitalia, contradicting conspecificity.

Records: Tugliezzo, 500 m, 22.8.2003 (1).

Ypsolopha leuconotella (Snellen, 1884) (Ypsolophidae)

General distribution: in Europe only known from few localities, ranging from eastern Slovakia and Romania to southern Ural mts.; furthermore, from southern Siberia to the Far East and Japan.

Regional distribution: only reported from Friuli and the Alps (HUEMER et al. 2005; DEUTSCH 2019).

Remarks: biology and early stages are unknown, but the species seems to be related to xerothermophilous, afforested habitats.

Records: Val Venzonassa, Navis, 675 m, 14.9.2006 (1); Val Venzonassa, B.go Prabunello, 650 m, 7.9.2005 (1); ditto, but 18.7.2007 (1); Val Venzonassa, M.ga Confin – Casera Ungarina, 1290-1310 m, 17.8.2006 (3); Musi, C.ra Tanatcason, 720 m, 18.8.2006 (1); ditto, but 690 m, 14.9.2006 (1); Musi, Pian dei Ciclamini E, Pligna S, 19.8.2006 (6); Tugliezzo, 500 m, 22.8.2003 (1); ditto, but 450 m, 18.9.2003 (2).

Leucoptera lathyrioliella (Stainton, 1866) (Lyonetiidae)

General distribution: in Europe only known from few localities, Great Britain and Finland to Romania.

Regional distribution: new to Italy!

Remarks: larva restricted to *Lathyrus sylvestris* where it causes characteristic leaf-mines. Habitats insufficiently documented but probably typical for ecotones.

Records: Musi, Plan di Tapou, 25.7.2003 (2).

Agonopterix lidiae Buchner, 2020 (Depressariidae)

General distribution: only known from the Parco Naturale delle Prealpi Giulie!

Remarks: host-plant and early stages are unknown. So far only collected from the type-series from southern part of Prealpi Giulie. A record of *A. astrantiae* published by DEUTSCH (2019) belongs to this species.

Records: Val Venzonassa, M.ga Confin – Casera Ungarina, 1290-1310 m, 17.8.2006 (1); Valle di Musi, T. Mea, 700 m, 15.8.2007 (1); Musi, C.ra Tanatcason, 720 m, 14.9.2006 (1); Musi, Pian dei Ciclamini E, Pligna S, 19.8.2006 (4); Tugliezzo, 500 m, 22.8.2003 (1).

Teleiopsis rosabella (Fologne, 1862) (Gelechiidae)

General distribution: local records from central Europe to the Balkans.

Regional distribution: only very few records from northern Italy. In Friuli furthermore known from the large rivers Tagliamento and Meduna.

Remarks: the larva is trophically restricted to *Rumex scutatus*. Hence, alpine scree and gravel are typical biotopes.

Records: Val Venzonassa, M.ga Confin, 1200-1300 m, 2.8.2005 (9); ditto, but 6.9.2005 (1); ditto, but 1290-1310 m, 17.8.2006 (5); Valle di Musi, 690 m, 14.9.2006 (1); Musi, C.ra Tanatcason, 720 m, 18.8.2006; ditto, but 690 m, 14.9.2006; Musi, Pian dei Ciclamini E, Pligna S, 850-870 m, 19.8.2006 (4).

Caryocolum petryi (Hofmann, 1899) (Gelechiidae)

General distribution: locally recorded from the Pyrenees, the Alps and Scandinavia and a few further colonies e.g. in Germany and Latvia.

Regional distribution: only a few records from Friuli (HUEMER et al., 2005; DEUTSCH, 2019).

Remarks: the larva feeds on *Gypsophila* spp., in the Alps on *Gypsophila repens* exclusively. In contrast to the closely related *C. repentis* it pupates inside the larval dwelling and can be identified from this behaviour.

Records: Val Venzonassa, M.ga Confin W, 1290-1310 m, 12.6.2007 (20 larvae); ditto, but 4.7.2006 (30 pupae); ditto, but 31.8.2007 (3); Val Venzonassa, M.ga Confin – Casera Ungarina, 1290-1310 m, 17.8.2006 (30); Tugliezzo, 500 m, 22.8.2003 (1); E Carnia, 400 m, 11.7.2001 (3 exuviae).

Caryocolum saginella (Zeller, 1868) (Gelechiidae)

General distribution: hitherto only known from the southern Alps and the Balkans.

Regional distribution: in Italy restricted to few localities in Trentino and Friuli.

Remarks: the larva causes galls in *Silene saxifraga*. It only occurs on steep, thermophilous rocks on limestone.

Records: Val Venzonassa, M.ga Confin, 1200-1300 m, 2.8.2005 (1); Val Venzonassa, M.ga Confin – M.ga Ungarina, 1290-1310 m, 17.8.2006 (1); Val Venzonassa, M.ga Confin W, 1290-1310 m, 19.7.2007 (1); Valle di Ucea, 3 km NW Ucea, 750 m, 22.7.2004 (1); ditto, but 5.7.2006 (2); ditto, but 13.6.2007 (2).

Eurhodope infuscata (Staudinger, 1879) (Pyralidae)

General and regional distribution: originally described from Lombardia, but insufficiently known due to

incorrect synonymization with *E. cirrigerella* (Zinken, 1818)

Remarks: the species has been misidentified as *E. cirrigerella* for long but was recently re-established as valid species (Šumpich et al., 2022). It was also published under the older name *E. luteogrisea* (Herrich-Schäffer, 1849) by DEUTSCH (2019), but the identity of this taxon is unrevised,

Records: Tugliezzo, 450-485 m, 19.7.2004 (1); ditto, but 3.7.2005 (2); ditto, but 500-600 m, 20.7.2004 (1); Val Venzonassa, B.go Maieron, 520 m, 21.6.2006 (1);

Hyles vespertilio (Esper, 1780) (Sphingidae)

General distribution: from western France and the southern parts of Central Europe to the Balkans and the Caucasus.

Regional distribution: local records from northern to central Italy. Well established populations along the large rivers of Friuli, namely Tagliamento, Meduna and Cellina.

Remarks: larva feeds on *Epilobium dodonaei*, a host-plant which primarily grows on dry gravel. The thermophilous species therefore is mainly restricted to natural or semi-natural rivers without or with limited anthropogenic impact.

Records: Valle di Uccia, 3 km NW Uccia, 750 m, 27.6.2004 (6); ditto, but 22.7.2004 (6); ditto, but 6.7.2005 (1); ditto, but 4.8.2005 (1); ditto, but 23.6.2006 (5); ditto, but 5.7.2006 (1); ditto, but 13.6.2007 (1); Val Venzonassa, M.ga Confin, 1200-1300 m, 3.6.2005 (1); ditto, but 4.7.2005 (1); ditto, but 20.6.2006 (1); Carnia, Tugliezzo, 450 m, 23.6.2004 (1); ditto, but 19.7.2004 (1); ditto, but 3.7.2005 (1).

Eupithecia carpophagata Staudinger, 1871 (Geometridae)

General distribution: European mountain systems, from the Pyrenees and the southern Alps to the Balkans.

Regional distribution: in Italy restricted to a few known localities in the Alps.

Remarks: the larva feeds on *Silene saxifraga* and hence the species only occurs on thermophilous limestone rocks.

Records: Valle di Uccia, 3 km NW Uccia, 23.6.2006 (1); M.te Lavara S, 1430 m, 4.7.2006 (1).

Euphyia mesembrina (Rebel, 1927) (Geometridae)

General distribution: only known from the south-eastern Alps and a few localities of the Balkans.

Regional distribution: in Italy only known from few localities in Friuli.

Remarks: the larva exclusively feeds on *Silene saxifraga*. The species prefers steep, thermophilous rocks on limestone.

Records: Valle di Uccia, 3 km NW Uccia, 27.6.2004 (5), 6.7.2005 (1), 13.6.2007 (1); M.te Lavara S, 1430 m, 4.7.2006 (2).

Catocala fraxini (Linnaeus, 1758) (Erebidae)

General distribution: across a major part of Europe, but absent from most of the larger Mediterranean Islands; furthermore, widely distributed across Asia.

Regional distribution: locally distributed over large parts of Italian mainland.

Remarks: the larva feeds on various deciduous trees, preferably on *Populus*. *C. fraxini* occurs in a wider range of habitats, though riverine forests are most suitable.

Records: Val Venzonassa, B.go Prabunello, 650 m, 13.9.2006 (2); Musi, C.ra Tanatcason, 690 m, 14.9.2006 (3); ditto, but 1.9.2007 (1).

3.4 Biogeographical aspects

A biogeographical analysis (Fig. 8) proves the importance of species which are widely distributed in the Holarctic and/or Palaearctic region (altogether 63% of the species inventory). Altogether 129 species

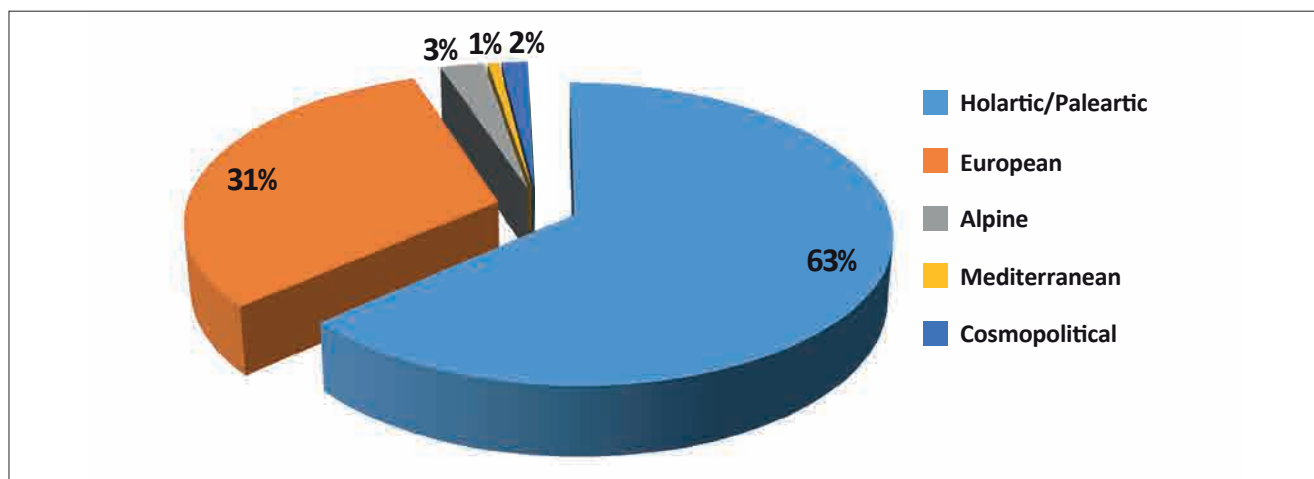


Fig. 8 - Proportion of major chorological categories on the species inventory (all sites summarized).

- Percentuali relative alle principali categorie corologiche riscontrate nel popolamento complessivo.

show a Holarctic distribution pattern, whereas 80 species are Palaearctic faunal elements. Furthermore European-Siberian taxa are represented in high species-diversity with altogether 166 species. The highest number of widely distributed species is attributed to Asiatic-European areal with altogether 305 species. The importance of the European chorological group with altogether 31% of the species inventory is well documented. About three-quarters of this group, viz. 330 species, are widely distributed over the European continent. Furthermore South-European taxa are well represented with 108 species, whereas the Central-European chorological group includes 27 taxa. Of particular interest are the species endemic within the alpine arch. This group, in fact to be added to the Central-European chorological element, includes 36 species, among them several taxa of particular biogeographical value. The diversity of Mediterranean, Afrotropical and Subcosmopolitical/Cosmopolitical lepidoptera is modest with altogether only about 3% of the entire inventory.

Conclusions

Altogether 1489 species of butterflies and moths have been observed in the Parco Naturale delle Prealpi Giulie within a few vegetation periods. About 47% of the inventory belongs to the so-called Microlepidoptera. This number of species may be regarded as extraordinary, with probably almost about 50% of the estimated Friulian fauna of Lepidoptera.

Two major types of ecosystems are relevant for the high species diversity: beech-wood habitats, meadows and pastures. More than half of the entire inventory are completely dependent of or at least related to afforested habitats. Several of these species are typical for beech-wood forests and alluvial forests. Forested ecotones are as well inhabited by a number of characteristic species. Furthermore, numerous montane species are related to forests though counted in a separate ecological guild. Among the open land species most of the butterflies but also a high number of Heterocera including several Microlepidoptera can be found. Similarly, alpine species are restricted to woodless habitats, but they are regarded as separate ecological guild due to specific adaptation. Furthermore, several montane species are associated with grassland.

Chorological data prove the importance of species which are widely distributed in the Palaearctic and/or Holarctic region (altogether 63%). Furthermore, European species (31% including endemics) are a key-factor for the diversity. The importance of the European faunal elements is corroborated by a considerable diversity of 36 alpine endemics which are of particular conservational value. Most of them are restricted to

the sub-alpine and higher mountainous zones with a mixture of various woodless habitats, particularly scree and rock formations and meadows without significant human impact. The remaining few species are Mediterranean or Cosmopolitical.

The international importance of the Julian Prealps is underlined by 6 species protected by annex 2 and/or 4 of the Fauna-Flora-Habitat Directive of the EU. Four out of these species, viz. *Parnassius apollo*, *Euphydryas aurinia*, *Lopinga achine* and *Erebia calcaria*, are considered as target species which identify prime butterfly areas (VAN SWAAY & WARREN 2003). Nevertheless, the Nature Park is not listed as such an area in Italy by BALLETO et al. (2003) and it is strongly urged to be included into the list of prime butterfly areas of European importance. In fact the high number of target species proves a particular importance within the Italian territory above all.

The faunistic approach resulted in one new and yet unpublished record for the Italian fauna, *Leucoptera lathyriifoliella*, while two further new country records, *Ypsolopha leuconotella* and *Caryocolum petryi*, have been published earlier (HUEMER et al. 2005) and another species, *Agonopterix lidiae*, was recognized new to Science (BUCHNER 2020). A further species, belonging to the genus *Acrolepiopsis*, requires further taxonomic investigation.

Actual conservation problems are exceptionally low in the whole Nature Park. Continuation of traditional extensive agriculture will be one of the major tasks in future to assure the high biodiversity of butterflies and moths. However, intensification of grazing at higher altitudes, e.g. in the area of Malga Confin, would be a negative influence for the local diversity. On the other hand, some losses of local fauna are to be expected as a result of abandonment of formerly cultivated meadows and pastures. Furthermore, the mainly natural rivers are under potential risk of control structures which would be a considerable hazard for the riverine fauna.

The extraordinary lepidopteran biodiversity found in the area represents an element of great value that requires careful and targeted management, in particular for conservation purposes, and that could be used as trademark for the whole area.

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