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The Israeli species of the subtribe Xylenina (Lepidoptera: Noctuidae, Xyleninae)

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Abstract

Twenty-one species in eight genera of the subtribe Xylenina are currently known in Israel. Four of them are new records for fauna of Israel: *T. cypreago*, *A. rupicarpa*, *L. ledereri* and *X. vetusta*. Most of the known species belong to the genera *Agrochola* (10), *Lithophane* (3), *Conistra* (2) and *Xylena* (2). Another four genera (*Tiliacea*, *Xanthia*, *Maraschia*, *Jodia*) contain one species each. Most of the species are Mediterranean (10), or European and Palearctic elements (6) while four species are endemics of the Levant: (*A. pauli*, *A. hypotaenia*, *A. staudingeri*, *C. acutula*). One species (*A. scabra*) is an Iranian element. About half of the species (10) occur mostly in the forests of Mt. Hermon and adjacent areas of northern Israel. Only the larvae of two species (*A. helvola* and *J. croceago*) were collected in the 1960's and have not been recorded since. All the species are univoltine autumn and winter species that fly from October to February with the highest rate of occurrence from December to January.
KEY WORDS: Lepidoptera, Noctuidae, Xyleninae, Xylenina, Israel.

Las especies israelitas de la subtribu Xylenina (Lepidoptera: Noctuidae, Xyleninae)

Resumen

Veintiuna especies en ocho géneros de la subtribu Xylenina son normalmente conocidos en Israel. Cuatro de ellos son nuevas citas para la fauna de Israel: *T. cypreago*, *A. rupicarpa*, *L. ledereri* y *X. vetusta*. La mayoría de las especies conocidas pertenecen a los géneros *Agrochola* (10), *Lithophane* (3), *Conistra* (2) y *Xylena* (2). Otros cuatro géneros (*Tiliacea*, *Xanthia*, *Maraschia*, *Jodia*) contienen una especie cada uno. La mayoría de las especies son mediterráneas (10), o europeas y elementos Paleárticos (6) mientras cuatro especies son endémicas del Próximo Oriente: (*A. pauli*, *A. hypotaenia*, *A. staudingeri*, *C. acutula*). Una especie (*A. scabra*) es un elemento iraní. Aproximadamente la mitad de las especies (10) se encuentran principalmente en los bosques del Monte Hermon y zonas próximas del norte de Israel. Sólo las larvas de dos especies (*A. helvola* y *J. croceago*) fueron capturadas en 1960 y no han sido citadas desde entonces. Todas las especies son otoñales y univoltinas, y las especies invernales vuelan desde octubre a febrero, con el punto álgido entre diciembre y enero.
PALABRAS CLAVE: Lepidoptera, Noctuidae, Xyleninae, Xylenina, Israel.

Introduction

Israel is located in the eastern part of the Mediterranean Basin in the northern part of the Syrian East African Rift Valley. In contrast to the more uniform and monotonous landscapes of the Levant, Israel is distinguished by a large variety of different habitats (KOSSWIG, 1955; ZOHARY, 1973). The northern part of Israel includes Mt Hermon (2200 m above sea level) which receives annual snow and contains typical Tragacanth vegetation, while the Dead Sea area is about 400 m below sea level with Ethiopian pockets rich in Afro-tropical fauna and flora (BYTINSKI-SALZ, 1961; ZOHARY & ORSHANSKY, 1949). The north and centre of the country is Mediterranean, while Irano-Turanian grassland and deserts prevail in the south and east. The Saharo-Arabian eremic zone is a true desert with less

than 200mm of winter rainfall. These alternating geographical and climatic zones have produced a rich fauna and flora of different origins (EIG, 1926; LATTIN, 1967; ZOHARY, 1962, 1966). Interestingly, many animal and plant species found in Israel reach their most marginal point of geographical distribution (BODENHEIMER, 1930; 1935; FURTH, 1975; DANIN, 1988; JAFFE, 1988).

According to the recent classification of Noctuoidea (FIBIGER & LAFONTAINE, 2005; FIBIGER, HACKER, 2005), the family of Lepidoptera probably most rich in species - Noctuidae - has been divided to Erebidae and Noctuidae. The bulk of the Noctuidae species in Europe belong to Subfamily Xyleninae Guenée, 1837 (with 11 tribes, 35 genera and 371 species in Europe). The greatest number of species of the Xyleninae belong to the tribe Xylenini Guenée, 1837 that contains 2 subtribes: Xylenina Guenée, 1837 (76 species) and Antitypina Forbes & Franclemont, 1954 (69 species). The faunistic survey of the Antitypina – *Polymixis* Hübner, [1820] in Israel was already published (KRAVCHENKO *et al.*, 2005). In this paper, we review the Israeli species of the sub-tribe Xylenina Guenée, 1837.

Most adults have, more or less, clearly lashed eyes. The larvae of Xylenini, like those of Cosmiini, feed on woody plants. However, the adults, unlike those of Cosmiini, usually fly in autumn. So far, 62 species have been recorded in Israel.

The genus *Agrochola* Hübner, 1821 contains more than 70 described Holarctic, Oriental species and is supposedly polyphyletic. Most of the species are arboreal. The basal members of the group inhabit monsoon, high montane forests in the Himalayas while some younger lineages have expanded to xerophilous Mediterranean woodlands. *Agrochola* are usually univoltine, autumnal species that overwinter in the oval stage. Larvae, as far as is known, are usually polyphagous, changing their host-plant during their development. Young larvae often feed on buds of deciduous trees or bushes, while the mature caterpillars feed on lower plants. So far, 9 species have been recorded in Israel, all of which fly in autumn and winter. These species are found in wastelands and bushlands of the temperate region as well as at the edges of forests. The only steppe species, *A. scabra*, occurs in the Judean Desert and Samaria.

Fifty one species of the genus *Lithophane* Hübner, 1821 are found in the Nearctic and 25 species are found in the Palearctic region. Recently, numerous new taxa have been discovered in the Himalayas, in northern Indo-China, and in Taiwan. The majority of the species are sylvicolous, inhabiting a wide range of forest types from the monsoonic primary (usually meso-montane and montane) rainforests, to dwarfed tundral woody patches. A smaller group of species lives in Mediterranean and Central Asian shrubby forests and *Cupressus-Juniperus* woodlands. All species are univoltine with flight periods from late autumn to early spring. Species with a more southern distribution usually fly throughout the winter, while others with over-wintering imagines and females laying eggs only in mid- or late spring. Food plants of these species include dicotyledons (trees, shrubs and herbs) or gymnosperms (RONKAY *et al.*, 2001). So far, 3 species have been recorded in Israel.

Most Israeli species are typical forest inhabitants. Only 2 species (*X. exsoleta* and *X. vetusta*) are widely polyphagous and occur in wide variety of biotypes.

Plant communities in Israel are influenced by their phyto-geographical positions, climatic factors, soil type and human activities. The principal woodlands of Israel are in the Mediterranean Temperate zone especially in Judea, Carmel and Galilee.

Based on the data collected from an 18-year survey, sylvicolous Macro-Lepidoptera of Israel can be associated with six distinct natural forest types. The main habitats conform to the principal woodland characterization of DANIN (1992, 1995).

Quercus calliprinos woodland is an evergreen sclerophyllous maquis dominated by *Q. calliprinos*. This tree and its companions often grow on limestone in bushy, dense thickets with very little undergrowth. In wetter climates like the Upper Galilee, typical mesophytic companions are: *Rhamnus alaternus*, *R. punctatus*, *Eriolobus trilobatus*, *Acer obtusifolium*, *Crataegus azarolus*, *C. monogyna*, *Laurus nobilis*, *Hedera helix*, *Ruscus aculeatus*, *Paeonia mascula* and, at the fringes or in clearings, many herbaceous species typical in shady areas. Towards the south, the number of mesophytic components decreases, and in dry maquis stands in the Judean Mts., often *Rhamnus lycioides* is solely present. This

kind of woodland rarely exceeds a height of 4-5 m. On basalt and other volcanic soils like on the Golan Heights above 500 m, the dense maquis is composed of *Q. calliprinos, Crataegus monogyna*, *C. aronia* and *Prunus ursine*. Their trunks are typically covered with mosses and lichens on north facing slopes. In clearings and along the forests edges grows a mixture of perennial grasses, numerous annuals and semi-shrubs originating from Mediterranean maquis, mountainous tragacanth and typical semi-steppe bathas. In dryer areas, small isolated woods and hedges with large *Q. calliprinos, Pistacia palaestina* and *P. atlantica* trees are seen.

Quercus boissieri woodland consists mainly of winter deciduous trees like *Q. boissieri, Cercis siliquastrum, Pyrus syriacus, Prunus ursina* and *Crataegus azarolus*. This type of forest is typical for humid, shady north-facing slopes and narrow canyons as found in Northern Galilee.

Quercus ithaburensis Park forests are xerotherm and grow in divert soils such as sandy-loam, hard chalk, hard rock and basalt. Depending on the stand, they are accompanied by a large variety of other trees like *Styrax officinalis, Pistacia atlantica, P. palaestina, Rhamnus lycioides*, other *Quercus* species, *Ziziphus spina-christi*, and *Z. lotus*. The most important component is a rich undergrowth of shrubs, semi-shrubs and the presence of many herbaceous species and grasses. During spring, many flowers support a rich insect life. This forest type is found on the Golan Heights (0-500 m) and Galilee. On the Coastal Plain, only small relics have survived.

Ceratonia siliqua and *Pistacia lentiscus* Park forests are xerotherm and found in hot and dry sites, from 0-300m, on all of the limestone hills at the foot of the central mountain range of the Mediterranean zone in Judea, Samaria, Carmel, Gilboa and Galilee. Depending on the stand, this community is accompanied by *Rhamnus lycioides, Olea europaea, Quercus calliprinos, Pistacia lentiscus, Micromeria fruticosa, Stachys palaestinus* and others. The undergrowth of herbaceous plants is not as rich as in *Quercus ithaburensis* Park forests.

Pinus halepensis and *Arbutus andrachne* woodlands are often found on marly-chalk ground with a poor undergrowth of semi-shrubs such as *Fumana thymifolia, Coridothymus capitatus, Cistus creticus, C. salviifolius, Helianthemum syriacum, Satureja thymbra, Thymbra spicata,* and *Teucrium creticum.* Only a few annual companions are found in this community. This forest type is typical for the central mountain range of the Mediterranean zone and some areas in Galilee. Generally, when moving from north to south, the species composition becomes poorer.

Riparian forests with *Platanus orientalis* and *Populus euphratica* accompany some of the streamlets in the northern Mediterranean zone, the Jordan Springs and parts of the northern Jordan River. Around the Jordan springs, and in some of the narrow shady canyons of the Western Galilee, small but well pronounced riparian forests are grow that contain a very rich undergrowth of herbaceous plants which do not dry up even in summer. In the semi-arid Irano-Turanian Zone, like that along the Jordan, only stretches of Gallery Forests survive along its tributaries south of the Sea of Galilee. As well, some streamlets draining the Western and Northern Negev into the Mediterranean Sea only support some *Salix* and *Tamarix* bushes. In both zones, many wet riverbanks are covered with dense but not very diverse vegetation such as *Phragmites australis, P. frutescens, Arundo donax*, and *Rubus sanguineus*.

Synanthropic woodland, intensively managed or planted by man, replaced many natural forests in Israel. Typical elements in the Coastal Plain are citrus and mango orchards. In the central mountain range, mainly olive and almond trees are found, while in Northern Galilee, apple and cherry plantations are common. Pine forests were planted all over Israel as far south as the Northern and Western Negev. Apart from some neglected old olive groves and almond woods, these plantations do not support any natural under growth.

Faunistic survey of the Xylenina

Tiliacea cypreago (Hampson, 1906)

New record for the fauna of Israel.

Distribution: (East-)Mediterranean. Balkans, Turkey, Cyprus, and Israel. In Israel: in the temperate

region: uncommon and localized on Mt. Hermon, rare and localized in the upper Galilee, mainly at medium elevations.

Bionomics: in Israel univoltine, autumn, sylvicolous species that flies in October. Host plant: polyphagous on various trees including *Acer*, *Carpinus*, *Fagus*, *Populus*, *Quercus*, *Salix* and *Tilia* spp., also on *Vaccinium* spp.

Xanthia pontica Kljutshko, 1968

Distribution: (East-)Mediterranean-Iranian. Balkans, Ukraine, Turkey, Israel, Lebanon and Iran. In Israel: widespread in the temperate region, locally common in Galilee and on the Golan Heights, rare and localized towards the South.

Bionomics: in Israel univoltine, spring, sylvicolous species flying from February to April. Host-plants: in Cyprus, *Q. coccifera*.

Maraschia grisescens Osthelder, 1933

Distribution: (East-)Mediterranean-Iranian. Balkans, Turkey, Israel, Lebanon, Syria, Iraq, Iran and Turkmenistan. In Israel: rare and very localized in the temperate region: Mt. Hermon, medium elevations.

Bionomics: in Israel univoltine, autumn, sylvicolous species flying in October; in Europe flying from September to October. Host-plants: in Europe, *Acer pseudoplatanus* and various *Quercus* spp.

Agrochola luteogrisea Hacker, 1990

Distribution: West-Palearctic. Morocco, Algeria, Central and Southern Europe, Turkey, Israel and Lebanon. In Israel: widespread in the temperate region. Common at medium altitudes, elsewhere rare and localized.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from November to February with the highest rate of occurrence in December; in Europe flying from August to November. Host-plants: in Europe polyphagous on low herbs, as well as deciduous trees and shrubs.

Agrochola rupicarpa (Staudinger, 1879)

New record for the fauna of Israel.

Distribution: Mediterranean. Bulgaria, Greece, Turkey, Iraq, Armenia and Israel. In Israel: widespread in the temperate region. Locally common in the Galilee and on the Golan Heights, rare and localized towards the South.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from November to February with the highest rate of occurrence in December; in Europe flying in October to November. Host-plants: unknown. Probably various deciduous trees and shrubs, like in other congeners.

Agrochola osthelderi Boursin, 1951

Distribution: (East-)Mediterranean. Bulgaria, Greece, Turkey and Israel. In Israel: rare and localized in the temperate region: Judean Mts., in the area of Jerusalem.

Bionomics: in Israel univoltine, autumn, sylvicolous species flying from September to October. Host-plants: unknown.

Agrochola macilenta rubrescens (Wiltshire, 1940)

Distribution: Submediterranean. Most of Europe from the Iberian Peninsula and southern France to Scandinavia (southern Norway, Sweden) and Finland, Caucasus, Transcaucasia, Turkey, Israel, Lebanon and Cyprus. In Israel: common in the temperate region: from the foothills of Mt. Hermon up to its top, adjacent areas of the upper Golan Heights and Galilee.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from December to February. Host-plants: in Europe young larvae feeding on foliage of numerous deciduous trees and shrubs, mainly *Fagus sylvatica* and *Quercus* spp., older stages developing on various low herbs.

Agrochola helvola pallescens Warren, 1911

Distribution: European-West Asiatic. All over Europe, in northern Africa only from Algeria, Turkey, Iraq, Israel, Lebanon, Transcaucasia, Turkmenistan, western and central Siberia. In Israel: very rare and very localized in the temperate region: Carmel Mountain Ridge, no records since the 1960's. So far only larvae were collected and reared to adults by BYTINSKI-SALZ & STERNLICHT (1967).

Bionomics: in Israel univoltine autumn sylvicolous species adults appearing under natural conditions from October to December. Host-plants: in Israel, *Quercus calliprinos* and *Q. ithaburensis* (Fagaceae); in Europe polyphagous on *Salix*, *Quercus* and various low herbs.

Agrochola pauli (Staudinger, 1892)

Distribution: endemic to the Levant. Israel, Lebanon, Jordan and Syria. In Israel: widespread and fairly common in the temperate region, in the Rift Valley penetrating the semi-arid region.

Bionomics: in Israel univoltine, winter, grassland species flying from December to January, larvae observed in November. Host-plants: larvae reared on low plants and grass, later showing preferences for flower heads of Asteraceae (Compositae).

Agrochola scabra (Staudinger, 1892)

Distribution: Iranian. Turkey, Israel and Jordan and Iraq. In Israel: in the semi-arid region except the central Negev. Common at higher altitudes in the Judean Desert, uncommon and localized in Samaria, elsewhere rare.

Bionomics: in Israel univoltine, winter, steppe-dwelling species flying from December to January. Host-plants: unknown, possibly deciduous bushes and/or low plants, as suggested for the Iraq by WILTSHIRE (1957).

Agrochola hypotaenia (Bytinski-Salz, 1936)

Distribution: endemic to the Levant. Israel and Lebanon. In Israel: rare and localized in the temperate region, on the foothills of Mt. Hermon and in the adjacent areas of the upper Galilee.

Bionomics: in Israel univoltine, winter, sylvicolous riverine species, flying from November to January. Host-plants: unknown, probably deciduous trees and bushes, like in other congeners.

Agrochola lychnidis ([Denis & Schiffermüller], 1775)

Distribution: West-Palearctic. Morocco, Algeria, Tunisia, Europe, Turkey, Israel, Lebanon, Jordan and Uzbekistan. In Israel: common and widespread all over the temperate region and penetrating the semi-arid region.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from November to February. Host-plants: in Europe the early stages are polyphagous on various deciduous shrubs and trees, later feeding on various herbaceous low plants, like *Rumex crispus*.

Agrochola staudingeri Ronkay, 1984

Distribution: endemic to the Levant. Israel, Lebanon and Jordan. In Israel: widespread in the temperate region, fairly common at medium and higher elevations, in the lowlands rare or absent.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from November to January. Host-plants: in Israel unknown; in Syria low plants.

Conistra acutula (Staudinger, 1892)

Distribution: endemic to the Levant (including the adjacent parts of Turkey). Southeastern Turkey Israel, Lebanon and Jordan. In Israel: in the temperate region at medium altitudes. Common on Mt. Hermon, elsewhere rare.

Bionomics: in Israel univoltine, winter, sylvicolous species, flying from November to January. Host-plants: unknown.

Conistra veronicae (Hübner, 1813)

Distribution: European-West Asiatic. Morocco, Central and Southern Europe, Turkey, Israel and Iraq. In Israel: fairly common but localized in the temperate region: Mt. Hermon and upper Galilee, mainly at medium and higher altitudes.

Bionomics: in Israel univoltine, winter, sylvicolous species, flying from December to February; in Europe from September to May. Host-plants: in Europe early instars developing on *Prunus* spp., late instars on various low herbs.

Jodia croceago ([Denis & Schiffermüller], 1775)

Distribution: Submediterranean. Morocco, Algeria, Southern, Central and Eastern Europe, Ukraine, Caucasus region, Turkey and Israel. In Israel: in the temperate region: upper Golan Heights. Rare and probably very localized, no records since the 1960's. So far, only larvae were collected and reared to adults by BYTINSKI-SALZ & STERNLICHT (1967).

Bionomics: in Israel univoltine, autumn, sylvicolous species. In Southern Europe and Turkey most imagines emerging late in autumn and overwintering as adults; in Central and Northern Europe only a few adults appearing in autumn, usually from October to November, with most individuals overwintering in the pupal stage. Host-plants: in Europe, *Fagus*, *Populus*, *Pyrus*, *Acer* and, especially, *Quercus* spp.

Lithophane semibrunnea wiltshirei Boursin, 1962

Distribution: Submediterranean. North Africa, in Europe from central England, Denmark, Poland, Romania to Ukraine, Caucasus, Transcaucasia, Turkey, Israel and Iraq. In Israel: rare and localized in the temperate region, in the Galilee and on the foothills of Mt. Hermon.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from January to February; in the temperate parts of Europe with an extended flight period, flying from September to May. Host-plants: in Europe, *Fraxinus*, *Betula*, *Ligustrum*, *Prunus* and *Quercus* spp.

Lithophane lapidea mouterdei Boursin, 1955

Distribution: Mediterranean. Algeria, Libya, France, Italy, Balkans, Crimea, Turkey, Israel, Lebanon and Syria. In Israel: in the temperate region mainly in mountainous areas. Uncommon in the western Judean Mountains around Jerusalem, especially above 600 m a.s.l., elsewhere rare and localized.

Bionomics: in Israel univoltine, winter, sylvicolous species flying from October to February with the highest rate of occurrence in December; in Europe flying from October to December, overwintering in the oval stage. Host-plants: in Europe polyphagous on different conifers including *Juniperus* and *Cupressus,* individual populations with preferences for certain host-plant species.

Lithophane ledereri (Staudinger, 1892)

New record for the fauna of Israel.

Distribution: (East-)Mediterranean-Iranian. Balkans, Turkey, Israel, Iraq and Iran. In Israel: rare and localized in the temperate region, on the foothills of Mt. Hermon up to 1600 m, and in adjacent parts of the upper Galilee.

Bionomics: in Israel univoltine, winter, sylvicolous riverine species flying from January to February; in Southern Europe flying from October to December, in colder areas after hibernation with a flight period extended till May. Host-plants: in Europe, *Platanus* spp.

Xylena exsoleta (Linnaeus, 1758)

Distribution: Palearctic. From Northern Europe and northern Asia to Himalayas, Mongolia, China, Altais, Afghanistan, Tibet, Iran, Iraq, Turkey, Israel, Lebanon, Cyprus, in northern Africa in Algeria, Morocco and Tunisia. In Israel: rare and rather localized in the temperate region: from the western Judean Mts near Jerusalem and the higher elevations of the Judean Desert, across the Jordan Valley, the

Sea of Galilee area to the upper Golan Heights and the higher elevations of Mt. Hermon, up to 1700 m a.s.l.

Bionomics: in Israel univoltine, winter, grassland species flying from December to March. Host-plants: extremely polyphagous on low plants, bushes and trees.

Xylena vetusta (Hübner, 1813)

New record for the fauna of Israel.

Distribution: Palearctic. Most parts of Europe, Morocco, Turkey, Israel, Lebanon, northern Asia, in the East to eastern Siberia. In Israel: rare and localized in the temperate region: foothills of Mt. Hermon.

Bionomics: in Israel univoltine, winter, sylvicolous, riverine species flying from December to March. Host-plants: extremely polyphagous on low plants, bushes and trees.

Species	Evergreen Maquis (*Quercus calliprinos*)	Winter deciduous Maquis (*Quercus boissieri*)	Xerotherm Park forests (*Quaercus ithaburensis*)	Xerotherm Park forests (*C. Siliqua* & *P. lenticus*)	Woodians (*P. halepensis* & *A. andrachne*)	Riparian forets (*P. orientalis* & *P. euphraratica*)	Synanthropic woodiand
1. *T. cypreago*		XXX					
2. *X. pontica*	XXX	XX	XX	X			
3. *M. grisescens*		XXX					
4. *A. litura*	XX	XX	XXX	X	X	X	X
5. *A. rupicarpa*		XX	XXX	X	X		
6. *A. osthelderi*							XXX
7. *A. macilenta*	X	XXX	X				
8. *A. helvola*			X?				
9. *A. pauli*					XX	XXX	X
10. *A. scabra*					XXX	X	
11. *A. hypotaenia*					X	XXX	
12. *A. lychnidis*	X	X	X	X	XX	XXX	XX
13. *A. staudingeri*	XXX	X	X	X			
14. *C. acutula*	XXX	XX					
15. *C. veronicae*	XXX	XX	X				
16. *J. croceago*	XXX						
17. *L. semibrunnea*	X		XXX				
18. *L. lapidea*	XX		XX	XXX			
19. *L. ledereri*						XXX	
20. *X. exsoleta*			XXX	X	XX		
21. *X. vetusta*						XXX	

Tab. 1: The distribution and abundance of Xylenina in Israel associated with the major forest types

XXX - Principal distribution
XX - Secondary distribution
X - only occasionally found

Results and discussion

In Israel, twenty-one species in eight genera of the sub-tribe Xylenina are currently known. Four of these are new records for the fauna of Israel: *T. cypreago*, *A. rupicarpa*, *L. ledereri* and *X. vetusta*.

Most of these species belong to the genera *Agrochola* (10), *Lithophane* (3), *Conistra* (2) and *Xylena* (2). The other four genera include one species each. As well, most species are Mediterranean (10), or European and Palearctic (6) elements; four species are endemics of the Levant: *A. pauli*, *A. hypotaenia*, *A. staudingeri*, *C. acutula* and one species (*A. scabra*) is an Iranian element. About half of the species (10), occur mostly in northern Israel, in the forests of Hermon from the foothills up to the montane steppes and the adjacent upper Golan Heights and Galilee. Five species are widespread throughout the Temperate region with one species (*A. lychnidis*) penetrating the Semi-arid region. Only three species (*A. pauli*, *A. scabra* and *X. exsoleta*), prefer drier localities and occur mainly in grassland and steppes along the Jordan Valley. About half of the species (10), are common or fairly common, while the others are rare.

Among the 21 species, 5 species associate mainly with the Evergreen Maquis (*Quercus calliprinos*) (Tab. 1); 3 species occur mainly in winter deciduous Maquis (*Quercus boissieri*) of Mt. Hermon and upper Galilee (*T. cypreago*, *M. grisescens* and *A. macilenta*). The Xerotherm Park forests (*Quercus ithaburensis*) are the main habitat for *A. litura*, *A. rupicarpa*, *L. semibrunnea* and *X. exsoleta*. The Riparian forests (*P. orientalis*, & *P. euphratica*) are the main biotype for 5 species, including *X. vetusta* which is very rare in Israel, but common and ubiquitous in Europe. The Xerotherm Park forest ©. *siliqua* & *P. lentiscus*) is the main habitat for *L. lapidea*, while woodlands (*P. halepensis* & *A. andrachne*) are the main habitat for *A. scabra* and Synanthropic woodlands are the main habitat for *A. osthelderi*.

Two species (*A. helvola* and *J. croceago*), were collected only once in the 1960's as larvae by BYTINSKI-SALZ & STERNLICHT (1967) and reared to adulthood. This species has not been recorded since. All species are univoltine, flying from October to February with the highest rate of occurrence from December to January. Apart from two species of the genus *Xylena*, which are known as widely polyphagous, the larvae of the Xylenina develop on deciduous shrubs and trees. The larvae of the genus *Agrochola,* whose biology is known, feed in their early stages on deciduous shrubs and trees and later, on various herbaceous low plants.

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