

Ulmus pumila

Siberian elm

Introduction

The genus *Ulmus* contains approximately 30 species in North America, Asia and Europe. More than 20 of these species occur nationwide in China, although most species occur north of the Yangtze River. Because of their high economic value, many *Ulmus* species are cultivated outside of their native range^[49, 51]

Taxonomy

Order: Urticales

Family: Ulmaceae

Genus: *Ulmus* L.

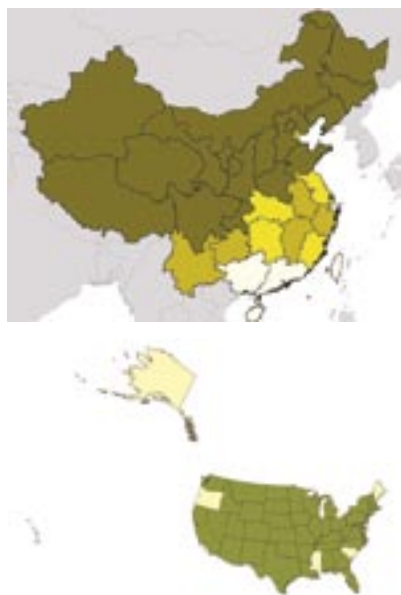
Section: *Ulmus*

Series: Glabrae Moss.

Species: *Ulmus pumila* L.

Description

Ulmus pumila is a deciduous tree that can reach 25 m in height and 1 m in diameter. In arid areas *U. pumila* grows as a shrub. The shoots have smooth bark, which is grayish brown or light grayish, but will become coarse, dark grayish and spilt irregularly with age. The twigs are light yellowish gray, light grayish brown or light gray, glabrous or pubescent, with scattered lenticels. Winter buds are ovoid to globose. The



surface scales are glabrous, whereas those inside the buds are white and ciliated along the margins. The leaves are elliptically ovate to elliptically lanceolate, or ovoid lanceolate, 2-8 cm long and 1.2-3.5 cm wide, with an acuminate apex and asymmetrical base with dentate or bidentate margins. The upper leaf surface is glabrous, while the lower side is glabrescent with hairy vein axils. Emerging earlier than the leaves, fascicled cymes appear in the leaf axil of the second year branchlets. Fruits are suborbicular samaras about 1.2-2 cm long, glabrous except for the stigmatic surface which is pubescent. The persistent perianth is glabrous and 4-lobed with a ciliated margin. In general, the flowers and fruits appear from March to June, somewhat later in northeastern China^[49].

Habitat

U. pumila occurs on hillside slopes, in valleys, plains, and dunes at elevations of 1000 to 2500 m^[49, 51].

Distribution

U. pumila occurs primarily in north, northwest, northeast China, and some southwestern provinces^[49]. In fact, the appearance of the tree in areas south of the Yangtze River is due to cultivation.^[83] *U. pumila* occurs in Gansu, Hebei, Henan, Heilongjiang, Jilin, Liaoning, Inner Mongolia, Ningxia, eastern Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, and Xizang provinces^[51]. According to provincial

floras and other publications, *U. pumila* may occur, in Guizhou and Yunnan provinces. It may occur in Guizhou and Yunnan, two southwestern provinces according to provincial floras and other publications^[111, 183]. *U. pumila* is commonly cultivated in the provinces situated at the lower reach of the Yangtze River and it is easily found in the countryside of the northern Anhui and Huabei plains^[49].

Economic Importance

U. pumila yields high quality wood. It is often used in reforestation. The bark can be used as a fiber source instead of hemp. The finely ground bark can be used to produce a type of vinegar. The leaves can be used as forage. The samaras are edible and are also used in the pharmaceutical and chemical industries^[49, 51].

Natural Enemies of *Ulmus*

Twenty nine species of fungi and 284 arthropods are reported to be associated with members of the genus *Ulmus*. Chinese elm, the common name for *U. pumila*, generally refers to various species of *Ulmus*, therefore natural enemies coded "m" may attack other *Ulmus* species as well as *U. pumila*.

Species of *Ulmus* in China

Scientific Name	Scientific Name
<i>U. americana</i> L.†	<i>U. laciniata</i> (Trautv.) Mayr
<i>U. androssowii</i> Litw. var. <i>subhirsuta</i> (Schneid.) P. H. Huang, F. Y. Gao et. L H Zhuo	<i>U. laevis</i> Pall.†
<i>U. bergmanniana</i> Schneid.	<i>U. lamellosa</i> T. Wang et S. L. Chang ex L. K. Fu
<i>U. castaneifolia</i> Hemsl.	<i>U. lanceifolia</i> Roxb. ex Wallich‡
<i>U. changii</i> Cheng	<i>U. macrocarpa</i> Hance
<i>U. chenmouii</i> Cheng	<i>U. microcarpa</i> L. K. Fu
<i>U. davidiana</i> Planch.	<i>U. parvifolia</i> Jacq.
<i>U. densa</i> Litw.†	<i>U. prunifolia</i> Cheng et L. K. Fu
<i>U. elongata</i> L. K. Fu et C. S. Ding	<i>U. pseudopropinqua</i> Wang et Li
<i>U. gaussonii</i> Cheng	<i>U. pumila</i> L.
<i>U. glaucescens</i> Franch.	<i>U. szechuanica</i> Fang
<i>U. harbinensis</i> S. Q. Nie et K. Q. Huang	<i>U. uyematsui</i> Hayata

†Non-native species grown as cultivated plants in China.^[51]

‡Recorded as *U. lanceaefolia* Roxb. in *FRPS*, also the current name of *U. tonkinensis* Gagnep.^[49, 51]

Fungi

Phylum	Family	Species	H. R.	Ref.
Ascomycota	Erysiphaceae	<i>Phyllactinia pteroceltidis</i> Y.N. Yu & S.J. Han	p	[24]
		<i>Podosphaera clandestina</i> var. <i>clandestina</i> (Wallr.) Lév.	o	[24]I
			p	[26]I
		<i>Uncinula clandestina</i> var. <i>clandestina</i>	o	[24]
		<i>Uncinula clandestina</i> var. <i>ulmi-foliaceae</i> Biv.	oo	[24]
		<i>Uncinula kenjiana</i> Homma	oo	[24]
			p	[26]
	Mycosphaerellaceae	<i>Mycosphaerella ulmi</i> Kleb.	o	[26]II
	Nectriaceae	<i>Nectria cinnabarina</i> (Tode) Fr.	p	[26]III
	Rhytismataceae	<i>Melasmia ulmicola</i> Berk. & M.A. Curtis	o	[26]
	Valsaceae	<i>Gnomonia oharana</i> Y. Nisik. & H. Matsumoto	p	[26]
		<i>Gnomonia ulmea</i> (Schwein.) Thüm.	o	[26]
		<i>Rehmiella ulmicola</i> Miyake	mo	[26]
		<i>Stegophora aemula</i> Syd.	mo	[26]
Venturiaceae	<i>Platychora ulmi</i> (Schleich.) Petr.	mo	[26]IV	
Basidiomycota	Hymenochaetaceae	<i>Xanthochrous hispidus</i> (Bull.) Pat.	po	[26]
	Polyporaceae	<i>Coriolus unicolor</i> (Bull.) Pat.	po	[26]
		<i>Favolus squamosus</i> (Huds.) Ames	o	[26]
		<i>Fomes fomentarius</i> (L.) J.J. Kickx	p	[26]
		<i>Trametes hirsuta</i> (Wulfen) Pilát	po	[26]V
		<i>Tyromyces galactinus</i> (Berk.) Bondartsev	po	[26]
	Sistotremataceae	<i>Fibuloporia donkii</i> Domański	po	[26]VI
	Tricholomataceae	<i>Lyophyllum ulmarium</i> (Bull.) Kühner	oo	[26]VII
Typhulaceae	<i>Apiosporium salicinum</i> (Pers.) Kunze	p	[26]	
Anamorphic Guignardia	<i>Phyllosticta bellunensis</i> Martelli	po	[26]	
Anamorphic Guignardia	<i>Phyllosticta ulmicola</i> Sacc.	o	[26]	
Anamorphic Lepteutypa	<i>Seiridium intermedium</i> (Sacc.) B. Sutton	mo	[26]VIII	
Anamorphic Mycosphaerella	<i>Pseudocercospora sphaeriiformis</i> (Cooke) Y.L. Guo & X.J. Liu	m	[26]IX	
		oo	[129]	
Anamorphic Mycosphaerella	<i>Septoria yokokawai</i> Hara	mo	[26]	
Anamorphic Mycosphaerellaceae	<i>Ascochyta ulmi</i>	m	[26]	

Phylum	Family	Species	H. R.	Ref.
Anamorphic Pyrenopeziza		<i>Cylindrosporium ulmi</i> (Fr.) Vassiljevsky	m	[26]

^IRecorded as *Uncinula clandestina* (Biv. -Bern.) Schrot

^{II}Recorded as *Septoria ulmi* Hara

^{III}Recorded as *Tubercularia vulgaris* Tode

^{IV}Recorded as *Systemma ulmi* (Duv. ex Fr.) Theiss. et Syd.

^VRecorded as *Coriolus hirsutus* (Wulf ex Fr.) Quéf

^{VI}Recorded as *Poria mucida* (Pers.) Fr.

^{VII}Recorded as *Pleurotus ulmarius* (Bull. ex Fr.) Quéf

^{VIII}Recorded as *Coryneum intermedium* Sacc

^{IX}Recorded as *Cerospora sphaeriiformis* Cooke

Arthropods

Order	Family	Species	H. R.	Ref.
Acariformes	Eriophyidae	<i>Aceria nanjingensis</i> Kuang	oo	[90]
		<i>Panonychus citri</i> (Mc Gregor)	p	[94]
		<i>Panonychus ulmi</i> (Koch)	p	[94]
	Rhyncaphytoptidae	<i>Diptacus pseudocerasis</i> Kuang & Hong	oo	[90]
		<i>Rhinophytoptus xiamenensis</i> Kuang	oo	[90]
		<i>Rhyncaphytoptus ulmi chongqingensis</i> Kuang & Hong	mo	[90]
		<i>Rhyncaphytoptus ulmivagrans</i> (Keifer)	o	[90]
	Tarsonemidae	<i>Polyphagotarsonemus latus</i> (Bank)	p	[94]
	Tetranychidae	<i>Eotetranychus</i> sp.	p	[75]
		<i>Eurytetranychus ulmi</i> Wang	o	[167]
Coleoptera	Attelabidae	<i>Apoderus jekeli</i> Roelofs	p	[94]
		<i>Byctiscus congener</i> Jekel	p	[94]
		<i>Phymatapoderus latipennis</i> (Jekel)	p	[75]
	Cerambycidae	<i>Amarysius altajensis</i> (Laxmann)	po	[13]
		<i>Anoplophora chinensis</i> (Förster)	p	[94]
			p	[178]
			p	[13]
			p	[165]
			p	[75]
			p	[13]
		<i>Anoplophora glabripennis</i> (Motschulsky)	p	[178]
			p	[94]
			m	[75]
			p	[94]
			p	[86]
			p	[94]
			p	[94]
			p	[13]
		<i>Apriona germari</i> (Hope)	p	[165]
			p	[178]
po	[13]			
p	[94]			
<i>Asias halodendri</i> (Pallas)	po	[13]		
	p	[94]		

Order	Family	Species	H. R.	Ref.
		<i>Batocera horsfieldi</i> (Hope)	p	[94]
			p	[13]
			p	[178]
		<i>Batocera lineolata</i> Chevrolat	p	[75]
			p	[94]
			p	[165]
		<i>Callipogon relictus</i> (Semenov)	p	[13]
		<i>Chelidonium provosti</i> (Fairmaire)	p	[150]
		<i>Chelidonium purpureipes</i> Gressitt	p	[94]
		<i>Clytobius davidis</i> (Fairmaire)	p	[150]
		<i>Dorysthenes hydropicus</i> Pascoe	p	[94]
		<i>Dorysthenes paradoxus</i> Faldermann	p	[94]
		<i>Glenea relictus</i> Pascoe	o	[94]
			mo	[13]
		<i>Megopis sinica</i> White	p	[13]
			p	[94]
		<i>Mesosa longipennis</i> Bates	po	[13]
		<i>Mesosa myops</i> (Dalman)	po	[13]
		<i>Olenecamptus clarus</i> Pascoe	p	[94]
		<i>Oplatocera oberthuri</i> Gahan	m	[86]
			m	[75]
		<i>Philus antennatus</i> (Gyllenhal)	p	[94]
			p	[178]
		<i>Plagionotus pulcher</i> Blessig	p	[13]
		<i>Pogonocherus dimidiatus</i> Blessig	po	[13]
		<i>Prionus heros</i> (Semenov-Tian-Shanskij)	m	[86]
		<i>Prionus insularis</i> Motschulsky	p	[94]
			p	[13]
		<i>Pterolophia rigida</i> (Bates)	p	[13]
		<i>Trichoferus campestris</i> (Faldermann)	p	[94]
		<i>Xylotrechus cuneipennis</i> (Kraatz)	po	[13]
			p	[94]
		<i>Xylotrechus grayii</i> (White)	p	[94]
			p	[13]
		<i>Xylotrechus rusticus</i> (L.)	po	[13]
		Cetoniidae	<i>Anthracophora rusticola</i> Burmeister	p
<i>Oxycetonia jucunda</i> Faldermann	p		[94]	
<i>Poecilophilides rusticola</i> (Burmeister)	p		[94]	
<i>Protaetia aerata</i> (Erichson)	p		[143]	
<i>Protaetia brevitarsis</i> (Lewis)	p		[94]I	
	po		[143]	
<i>Protaetia famelica</i> Janson	p	[165]II		

Order	Family	Species	H. R.	Ref.
		<i>Protaetia lugubris orientalis</i> (Medvedev)	p	[165]
		<i>Protaetia nitididorsis</i> (Fairmaire)	p	[143]
			p	[75]
		<i>Torynorrhina fulvopilosa</i> (Moser)	p	[75]III
	Chrysomelidae	<i>Ambrostoma fortunei</i> (Baly)	m	[201]
			m	[75]
		<i>Ambrostoma leigongshana</i> Wang	m	[201]
			m	[75]
		<i>Ambrostoma quadriimpressum</i> (Motschulsky)	m	[201]
			po	[94]
		<i>Dercetina flavocincta</i> (Hope)	m	[178]
		<i>Gastrolina peltoidea</i> (Gebler)	p	[94]
		<i>Mimastra cyanura</i> (Hope)	p	[201]
			oo	[165]
			p	[94]
		<i>Mimastra limbata</i> Baly	po	[201]
			p	[94]
		<i>Monolepta yoasanica</i> Chen	p	[94]
		<i>Pallasiola absinthii</i> (Pallas)	p	[201]
	<i>Pyrrhalta aenescens</i> (Fairmaire)	m	[201]	
		m	[94]	
		m	[94]	
	<i>Pyrrhalta maculicollis</i> (Motschulsky)	m	[201]	
		m	[75]	
	Curculionidae	<i>Chlorophanus lineolus</i> Motschulsky	p	[94]
		<i>Chlorophanus sibiricus</i> Gyllenhal	p	[94]
		<i>Eugnathus distinctus</i> Roelofs	m	[94]
		<i>Piazomias globulicollis</i> Faldermann	p	[211]
		<i>Piazomias validus</i> Motschulsky	p	[211]
		<i>Tanymecus urbanus</i> Gyllenhal	p	[211]
	Eumolpidae	<i>Abirus fortunei</i> (Baly)	p	[164]
			p	[94]
p			[75]	
<i>Basilepta leechi</i> (Jacoby)		p	[94]	
<i>Clytra laeviuscula</i> Ratzeburg		p	[164]	
		p	[165]	
		p	[94]	
<i>Cryptocephalus lemniscatus</i> Suffrian		m	[164]	
<i>Cryptocephalus mannerheimi</i> Gebler		p	[164]	
<i>Cryptocephalus ochroloma</i> Gebler		p	[164]	
<i>Cryptocephalus pilosellus</i> Suffrian	p	[164]		
<i>Cryptocephalus regalis</i> Gebler	p	[94]		

Order	Family	Species	H. R.	Ref.
		<i>Cryptocephalus stchukini</i> Faldermann	m	[164]
		<i>Labidostomis bipunctata</i> (Mannerheim)	p	[164]
			p	[94]
		<i>Smaragdina mandzhura</i> (Jacobson)	p	[164]
	<i>Smaragdina semiaurantiaca</i> (Fairmaire)	p	[164]	
		m	[94]	
	Lucanidae	<i>Aegus parallelus</i> Hope & Westwood	p	[94]
		<i>Lucanus fortunei</i> Saunders	p	[178]
		<i>Proagopertha lucidula</i> Faldermann	p	[94]
		<i>Prosopocoilus blanchardi</i> Parry	p	[94]
	p		[75]	
	Melolonthidae	<i>Apogonia chinensis</i> Moser	p	[94]
		<i>Heptophylla picea</i> Motschulsky	p	[94]
		<i>Holotrichia convexopyga</i> Moser	p	[94]
		<i>Holotrichia diomphalia</i> Moser	p	[94]
		<i>Holotrichia lata</i> Brenske	p	[94]
		<i>Holotrichia morosa</i> Waterhouse	p	[94]
		<i>Holotrichia parallela</i> Motschulsky	p	[94]
		<i>Holotrichia trichophora</i> (Fairmaire)	p	[94]
		<i>Maladera castanea</i> (Arrow)	p	[94]
	<i>Maladera orientalis</i> (Motschulsky)	p	[94]	
	Nitidulidae	<i>Librodor japonicus</i> (Motschulsky)	m	[94]
	Rhynchophoridae	<i>Hyposipalus gigas</i> Fabricius	p	[94]
	Rutelidae	<i>Anomala corpulenta</i> Motschulsky	p	[94]
		<i>Popillia atrocoerulea</i> Bates	p	[94]
		<i>Popillia quadriguttata</i> (Fabricius)	p	[94]
	Scolytidae	<i>Scolytus aratus</i> Blandford	po	[197]
		<i>Scolytus butovitschi</i> Stark	m	[197]
		<i>Scolytus confusus</i> Eggers	m	[197]
		<i>Scolytus esuriens</i> Blandford	oo	[197]
		<i>Scolytus jacobsoni</i> Spessivtseff	mo	[197]
		<i>Scolytus parviclaviger</i> Yin & Huang	mo	[197]
<i>Scolytus schevyrewi</i> Semenov		p	[197]	
<i>Scolytus semenovi</i> Spessivtseff		o	[197]	
<i>Scolytus seulensis</i> Murayama		p	[165]	
<i>Scolytus shikisani</i> Niisima		m	[197]	
<i>Scolytus squamosus</i> Yin & Huang		mo	[197]	
<i>Sphaerotrypes ulmi</i> Tsai & Yin		m	[197]	
<i>Trypodendron signatum</i> Fabricius		po	[165]	
<i>Xyleborus emarginatus</i> Eichhoff	p	[94]		
<i>Xyleterus proximus</i> Niisima	po	[197]		
Trichiidae	<i>Trichius fasciatus</i> (L.)	p	[143]	

Order	Family	Species	H. R.	Ref.
Hemiptera	Acanthosomatidae	<i>Dichobothrium nubilum</i> (Dallas)	p	[207]
			m	[94]
		<i>Elasmostethus humeralis</i> Jakovlev	p	[207]
		<i>Elasmucha ferrugata</i> (Fabricius)	po	[94]
	Lygaeidae	<i>Lygaeus equestris</i> (L.)	p	[207]
			m	[94]
		<i>Lygaeus quadratomaculatus</i> (L.)	m	[94]
	Pentatomidae	<i>Erthesina fullo</i> (Thunberg)	p	[94]
		<i>Graphosoma rubrolineata</i> (Westwood)	p	[94]
			p	[207]
		<i>Halyomorpha halys</i> (Stål)	p	[94]
		<i>Lelia decempunctata</i> Motschulsky	p	[94]
			p	[207]
		<i>Menida scotti</i> Puton	p	[94]
			p	[75]
		<i>Menida violacea</i> Motschulsky	p	[94]
			p	[75]
			p	[207]
		<i>Pentatoma japonica</i> (Distant)	p	[75]
			p	[207]
		p	[94]	
		<i>Pentatoma rufipes</i> (L.)	p	[207]
			p	[94]
	Tingidae	<i>Physatocheila dumetorum</i> (Herrich-Schaeffer)	m	[208]
		<i>Stephanitis nashi</i> Esaki & Takeya	m	[94]
		<i>Stephanitis pyriodes</i> (Scott)	p	[94]
	Urostylidae	<i>Urochela distincta</i> Distant	p	[94]
<i>Urochela quadrinotata</i> Reuter		p	[207]	
Homoptera	Aphrophoridae	<i>Aphrophora intermedia</i> Uhler	p	[165]
			p	[94]IV
		<i>Trigophora obliqua</i> (Uhler)	p	[165]
	Callaphididae	<i>Chromocallis nirecola</i> (Shinji)	m	[205]
		<i>Chromocallis pumili</i> Zhang	m	[205]
		<i>Chromocallis similinirecola</i> Zhang	m	[205]
		<i>Sinochaitophorus maoi</i> Takahashi	m	[205]
		<i>Tinocallis saltans</i> (Nevsky)	m	[205]
			oo	[75]
	Cicadellidae	<i>Bythoscopus dorsalis</i> (Matsumura)	p	[57]
		<i>Empoasca biguttula</i> (Ishida)	p	[94]
<i>Oniella leucocephala</i> Matsumura		p	[57]	
<i>Tettigoniella viridis</i> (Linné)		p	[94]V	

Order	Family	Species	H. R.	Ref.
	Cicadidae	<i>Cryptotympana atrata</i> (Fabricius)	p	[178]
			p	[94]
		<i>Cryptotympana mandarina</i> Distant	p	[94]
			p	[75]
		<i>Cryptotympana pustulata</i> (Fabricius)	p	[75]
		<i>Suisha coreana</i> (Matsumura)	p	[75]
	Coccidae	<i>Ceroplastes japonicus</i> Green	p	[94]
		<i>Eulecanium kostylevi</i> Borchs.	m	[173]
		<i>Eulecanium kuwanai</i> Kanda	p	[173]
		<i>Eulecanium rugulosum</i> (Arch.)	p	[173]
		<i>Parthenolecanium corni</i> (Bouché)	p	[94]
		<i>Pulvinaria vitis</i> (L.)	p	[173]
	Diaspididae	<i>Fiorinia fiorinae</i> (Targioni-Tozzetti)	p	[94]
		<i>Pseudaulacaspis pentagona</i> (Targioni-Tozzetti)	p	[178]
			p	[75]
	Euscelidae	<i>Phlogotettix cyclops</i> (Mulsant et Rey)	p	[178]
	Fulgoridae	<i>Lycorma delicatula</i> (White)	p	[220]
			p	[165]
			p	[94]
	Membracidae	<i>Gargara genistae</i> (Fabricius)	p	[94]
Pemphigidae	<i>Eriosoma dilanuginosum</i> Zhang	m	[205]	
	<i>Tetraneura akinire</i> Sasaki	p	[205]	
		m	[94]	
	<i>Tetraneura ulmi</i> (L.)	m	[94]	
Pseudococcidae	<i>Eriococcus ulmi</i> Tang	m	[172]	
Psyllidae	<i>Cacopsylla peregrina</i> (Förster)	mo	[160]	
Hymenoptera	Argidae	<i>Arge captiva</i> (Smith)	oo	[75]
Lepidoptera	Arctiidae	<i>Cyana phaedra</i> (Leech)	p	[94]VI
		<i>Hyphantria cunea</i> Drury	p	[45]
		<i>Lemyra melli</i> Daniel	po	[45]
			p	[166]VII
			p	[44]
		<i>Rhyparioides amurensis</i> (Bremer)	p	[166]
			p	[94]
	p		[45]	
		<i>Spilarctia subcarnea</i> (Walker)	p	[94]
	Cossidae	<i>Cossus cossus</i> L.	p	[94]
			p	[166]
		<i>Xyleutes leuconotus</i> (Walker)	p	[94]
			p	[166]
		<i>Zeuzera pyrina</i> L.	p	[94]
			p	[178]

Order	Family	Species	H. R.	Ref.	
	Crambidae	<i>Cotachena histricalis</i> (Walker)	p	[94]	
	Ctenuchidae	<i>Amata pascus</i> (Leech)	p	[166]	
	Epicopeiidae	<i>Epicopeia mencia</i> Moore	m	[94]	
			m	[75]	
			m	[78]	
	Geometridae		<i>Abraxas flavisinuata</i> Warren	p	[94]
			<i>Abraxas suspecta</i> Warren	p	[178]
				p	[75]
				p	[94]VIII
			<i>Abraxas sylvata</i> (Scopoli)	p	[178]
			<i>Apocheima cinerarius</i> Erschoff	p	[78]
			<i>Ascotis selenaria</i> (Denis & Schiffermüller)	p	[75]
				po	[161]
			<i>Ascotis selenaria dianaria</i> Hübner	p	[94]
			<i>Biston betularia</i> L.	p	[94]
				p	[78]
			<i>Culcula panterinaria</i> (Bremer & Grey)	p	[75]
				p	[178]
				p	[94]
				p	[78]
				po	[195]
	<i>Heterophleps confusa</i> (Wileman)	po	[161]		
		p	[78]		
	<i>Ophthalmodes giraffata</i> (Guenee)	p	[178]		
	<i>Semiothisa hebesata</i> (Walker)	p	[178]		
	<i>Yala pyricola</i> Chu	p	[78]		
	Lasiocampidae		<i>Gastropacha quercifolia</i> (L.)	p	[94]
			<i>Malacosoma dentata</i> Mell	p	[94]
			<i>Malacosoma neustria testacea</i> Motschulsky	p	[166]
				p	[94]
	Limacodidae		<i>Monema flavescens</i> Walker	p	[94]IX
				p	[78]IX
p				[178]	
p				[75]	
<i>Parasa consocia</i> Walker			p	[78]	
			p	[94]	
<i>Parasa hilarata</i> (Staudinger)	p	[94]			
<i>Parasa sinica</i> Moore	p	[94]			
	p	[78]			
Lycaenidae	<i>Strymonidia w-album</i> (Knoch)	p	[94]		
Lymantriidae		<i>Arctornis alba</i> (Bremer)	p	[94]	
		<i>Arctornis gelasphora</i> Collenette	p	[94]	

Order	Family	Species	H. R.	Ref.	
		<i>Arctornis l-nigrum</i> (Müller)	p	[94]	
			p	[212]	
			p	[75]	
		<i>Aroa substrigosa</i> Walker	p	[94]	
			p	[212]	
		<i>Cifuna locuples</i> Walker	p	[166]	
			p	[94]	
			p	[178]	
			p	[75]	
		<i>Dasychira chekiangensis</i> Collenette	p	[94]	
		<i>Dasychira horsfieldi</i> Saunders	p	[213]	
		<i>Euproctis chrysorrhoea</i> (L.)	p	[212]	
		<i>Ivela ochropoda</i> (Eversmann)	p	[94]X	
			m	[212]	
		<i>Laelia coenosa</i> (Hübner)	p	[75]	
			p	[212]	
			p	[94]	
			p	[178]	
		<i>Laelia monoscola</i> Collenette	p	[94]	
		<i>Lymantria dispar</i> (L.)	p	[212]	
			p	[166]	
			p	[94]	
		<i>Lymantria dispar japonica</i> Motschulsky	p	[94]	
	<i>Lymantria monacha</i> (L.)	po	[212]		
		p	[94]		
	<i>Porthesia similis</i> (Fueslly)	p	[94]		
	<i>Stilpnotia melanoscela</i> Collenette	p	[94]		
		p	[75]		
	<i>Teia gonostigma</i> (L.)	p	[213]		
	Noctuidae		<i>Acronicta auricoma</i> (Denis & Schiffermüller)	po	[15]
			<i>Acronicta hercules</i> (Felder & Rogenhofer)	m	[166]
				m	[75]
				m	[228]XI
<i>Acronicta intermedia</i> Warren			p	[94]XII	
<i>Amphipyra perflua</i> (Fabricius)			p	[94]	
			po	[224]	
<i>Amphipyra pyramidea</i> (L.)			po	[224]	
			p	[94]	
<i>Calymnia affinis</i> (L.)			oo	[15]	
<i>Catocala fraxini</i> (L.)	po	[224]			
<i>Herminia tarsicrinalis</i> (Knoch)	m	[94]XIII			
<i>Orthosia incerta</i> (Hufnagel)	p	[15]			

Order	Family	Species	H. R.	Ref.
		<i>Orthosia munda</i> (Denis & Schiffermüller)	p	[15]
		<i>Pangrapta vasava</i> Butler	m	[224]
		<i>Polia nebulosa</i> (Hufnagel)	p	[15]
		<i>Trachea atriplicis</i> (L.)	m	[94]
		<i>Zanclognatha griselda</i> (Butler)	p	[94]
	Notodontidae	<i>Cnethodonta grisescens</i> Staudinger	po	[4]
			p	[94]
		<i>Exaereta ulmi</i> (Denis & Schiffermüller)	m	[4]
			m	[94]
		<i>Gangarides dharma</i> Moore	p	[94]
		<i>Hybocampa umbrosa</i> (Staudinger)	p	[94]
		<i>Nericoides davidi</i> (Oberthür)	m	[4]
			m	[94]
		<i>Phalera assimilis</i> (Bremer & Grey)	p	[4]
			p	[94]
		<i>Phalera bucephala</i> (L.)	p	[94]
			p	[4]
		<i>Phalera flavescens</i> (Bremer & Grey)	p	[4]
			p	[94]
			p	[178]
			p	[75]
		<i>Phalera fuscescens</i> Butler	p	[4]
	p		[94]	
	<i>Phalera takasagoensis</i> Matsumura	p	[178]	
		p	[75]	
	<i>Stauropus basalis</i> Moore	m	[94]	
	Nymphalidae	<i>Apatura iris</i> (L.)	p	[94]
		<i>Hestina assimilis</i> (L.)	p	[94]
		<i>Mimathyma ambica</i> Kollar	mo	[219]
		<i>Mimathyma nycteis</i> (Ménétrès)	oo	[219]
		<i>Nymphalis antiopa</i> (L.)	po	[219]
		<i>Polygonia c-album</i> (L.)	p	[178]
			po	[219]
p			[94]	
<i>Polygonia c-album asakurai</i> Nakahara		po	[219]	
<i>Polygonia c-aureum</i> L.		m	[94]	
<i>Vanessa cardui</i> (L.)		m	[94]	
<i>Vanessa indica</i> Herbst	p	[178]		
	p	[94]		
Pieridae	<i>Aporia crataegi</i> (L.)	p	[94]	
Psychidae	<i>Chalioides kondonis</i> Kondo	p	[94]	

Order	Family	Species	H. R.	Ref.	
		<i>Clania minuscula</i> Butler	po	[78]	
			p	[94]XIV	
	Saturniidae		<i>Aglia tau ferenigra</i> Th. Mieg	p	[226]
			<i>Dictyploca japonica</i> Moore	p	[94]
				p	[75]
			<i>Eriogyna pyretorum</i> (Westwood)	p	[94]
				p	[226]
			<i>Neoris haraldi</i> Schawerda	p	[226]
		<i>Syntherata loepoides</i> Butler	p	[226]	
	Sphingidae		<i>Amorpha sinica</i> Rothschild & Jordan	p	[225]
				po	[227]
			<i>Callambulyx orbita</i> Chu & Wang	p	[75]
			<i>Callambulyx tatarinovi</i> (Bremer & Grey)	p	[225]
				po	[227]
				p	[94]
			<i>Mimas tiliae christophi</i> (Staudinger)	p	[225]
				po	[227]
		p	[94]		
		<i>Parum porphyria</i> (Butler)	p	[94]	
		<i>Smerinthus planus</i> Walker	p	[94]	
	Tortricidae		<i>Acleris alnivora</i> Oku	po	[133]
			<i>Acleris cristana</i> (Denis & Schiffermüller)	p	[133]
				po	[78]
			<i>Acleris ulmicola</i> (Meyrick)	p	[133]
			<i>Archips crataegana</i> (Hübner)	p	[133]
			<i>Archips xylosteana</i> (L.)	p	[133]
			<i>Choristoneura diversana</i> (Hübner)	p	[133]
			<i>Epinotia tenerana</i> (Denis & Schiffermüller)	p	[133]
			<i>Pandemis corylana</i> (Fabricius)	p	[94]
			<i>Pandemis heparana</i> (Schiffermüller)	p	[133]
p				[94]	
<i>Pandemis ribeana</i> (Hübner)			p	[133]	
	p	[94]			
	<i>Ptycholoma lecheana</i> (L.)	p	[133]		
		p	[75]		
Orthoptera	Oedipodidae	<i>Locusta migratoria manilensis</i> (Meyen)	p	[94]	
Parasitiformes	Phytoseiidae	<i>Amblyseius oguroi</i> Ehara	p	[75]	
		<i>Phytoseius huaxiensis</i> Xin, Liang & Ke	p	[75]	
Thysanoptera	Phlaeothripidae	<i>Rhynchothrips fuscus</i> Steinweden & Moulton	m	[66]	
		<i>Rhynchothrips turkestanicus</i> John	m	[66]	
	Thripidae	<i>Frankliniella intonsa</i> (Trybom)	p	[75]	
		<i>Thrips major</i> Uzel	m	[66]	