

Elaeagnus spp.

Introduction

Consisting of about 80 species, the genus *Elaeagnus* has a wide distribution in the subtropical and temperate regions of East and Southeast Asia, and is rare in the rest of Asia or temperate Europe. Approximately 51 species occur in China nationwide, primarily in the area of the Yellow River, as well as south of the river^[196].

Species of *Elaeagnus* in China

I. *Elaeagnus angustifolia*

Russian olive



Leaves and flowers of *Elaeagnus angustifolia*. (Photo by Dave Powell, USDA-FS.)

Scientific Name	Scientific Name
<i>E. angustata</i> (Rehd.) C. Y. Chang	<i>E. macrantha</i> Rehd.
<i>E. angustifolia</i> L.	<i>E. macrophylla</i> Thunb.
<i>E. argyi</i> Lévl.	<i>E. magna</i> Rehd.
<i>E. bambusetorum</i> Hand.-Mazz.	<i>E. micrantha</i> C. Y. Chang
<i>E. bockii</i> Diels	<i>E. mollis</i> Diels
<i>E. cinnamomifolia</i> W. K. Hu et H. F. Chow	<i>E. morrisonensis</i> Hayata
<i>E. conferta</i> Roxb.	<i>E. multiflora</i> Thunb.
<i>E. courtoisi</i> Belval	<i>E. nanchuanensis</i> C. Y. Chang.
<i>E. delavayi</i> Lecomte	<i>E. oldhami</i> Maxim.
<i>E. difficilis</i> Serv.	<i>E. oxycarpa</i> Schlechtend.
<i>E. formosana</i> Nakai	<i>E. pallidiflora</i> C. Y. Chang
<i>E. glabra</i> Thunb.	<i>E. pilostyla</i> C. Y. Chang
<i>E. gonyanthes</i> Benth.	<i>E. pungens</i> Thunb.
<i>E. griffithii</i> Serv.	<i>E. retrostyla</i> C. Y. Chang
<i>E. grijsii</i> Hance	<i>E. sarmentosa</i> Rehd.
<i>E. guizhouensis</i> C. Y. Chang	<i>E. schlechtendalii</i> Serv.
<i>E. henryi</i> Warb.	<i>E. stellipila</i> Rehd.
<i>E. jiangxiensis</i> C. Y. Chang	<i>E. thunbergii</i> Serv.
<i>E. jingdonensis</i> C. Y. Chang	<i>E. tonkinensis</i> Serv.
<i>E. lanceolata</i> Warb.	<i>E. tubiflora</i> C. Y. Chang
<i>E. lanpingensis</i> C. Y. Chang	<i>E. tutcheri</i> Dunn
<i>E. liuzhouensis</i> C. Y. Chang	<i>E. umbellata</i> Thunb.
<i>E. longiloba</i> C. Y. Chang	<i>E. viridis</i> Serv.
<i>E. loureirii</i> Champ.	<i>E. wenshanensis</i> C. Y. Chang
<i>E. luoxiangensis</i> C. Y. Chang	<i>E. wushanensis</i> C. Y. Chang
<i>E. luxiensis</i> C. Y. Chang.	

Taxonomy

Family: Elaeagnaceae

Genus: *Elaeagnus* L.

Description

Elaeagnus angustifolia is a deciduous small tree or shrub that can reach a height of 5-10 m. The plant has shiny brownish red spines. Stems, leaves, flowers, and fruits are covered with silver-white scales. Leaves are inconspicuously veined, lance-shaped or linear lanceolate, 3-7 cm long and 1-1.3 cm wide, obtuse at the apex, and cuneate at the base. Appearing from May to June, the fragrant flowers are erect or nearly erect, and have bell-shaped calyx tubes and a conspicuous, glabrous, conical floral disc, which surround the base of the style. Fruits are pink, elliptic, 9-12 mm long and 6-10 mm wide, and mature in September^[196].

Habitat

Elaeagnus angustifolia has a wide habitat range, including mountainous areas, plains, sands, and desert, with little preference as to soil type, temperature, or moisture^[196].

Distribution

Russian olive occurs in Anhui^[30], Gansu, Henan, Hebei, Liaoning, Inner Mongolia, Ningxia, Qinghai, Shaanxi, Shanxi, and Tibet^[196].

Economic Importance

The edible fruits and leaves of *E. angustifolia* are rich in saccharides, starches, proteins and vitamins. Essential oils extracted from the flowers are used in the manufacture of perfumes and flavorings. Russian olive is used medicinally in China ^[196].

Related Species

Elaeagnus angustifolia L. var. *orientalis* (L.) Kuntze, with broadly elliptical leaves, occurs on hillsides, wastelands, moist areas of deserts, and at the edges of croplands ^[196].

II. *Elaeagnus pungens*

Thorny elaeagnus

Taxonomy

Family: Elaeagnaceae

Genus: *Elaeagnus* L.

Description

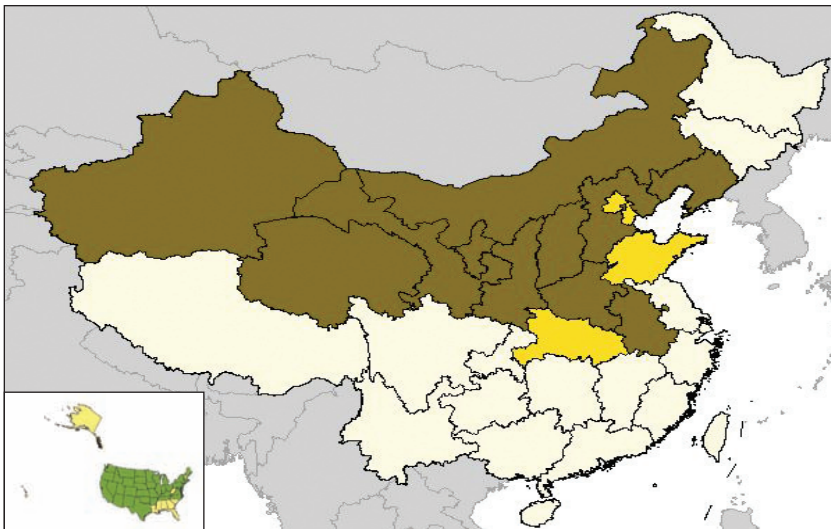
Elaeagnus pungens is an erect evergreen shrub that can reach 3-4 m in height. As the common name implies, thorny elaeagnus has dark brown thorns, about 20-40 mm long on branch edges or in leaf axils. Young shoots are flat, covered with dense brown scales; mature branches are glossy black and lack scales. Leathery leaves are revolute, veined, elliptic or broadly elliptic, 5-10 cm long and 1.8-5 cm wide, and obtuse at both ends or round at the base. Both sides of the leaves are dotted with silver brown scales, which shed from the upper side when mature, and turn glossy brown after drying. Having cylindrical calyx tubes, flowers are white, drooping, and scale-covered, and bloom in leaf axils from September to December. Fruits are elliptic, red, drupe-like berries, 12-14 mm in length, appearing from April to June in the year following blooming ^[196].

Habitat

E. pungens can be found on hilly slopes with sun exposure and along roadsides at elevations below 1,000 m ^[196].

Distribution

The native range of *E. pungens* in China includes Anhui, Fujian, Guangdong, Guizhou, Henan, Hubei,



Fruit of *Elaeagnus pungens*. (Photo by Ted Bodner, Southern Weed Science Society.)



Leaves of *Elaeagnus pungens*. (Photo by James H. Miller, USDA Forest Service.)



Hunan, Jiangsu, Jiangxi and Zhejiang provinces [26][50].

Economic Importance

Some parts of thorny elaeagnus are used medicinally [196].

III. *Elaeagnus umbellata*

Autumn olive

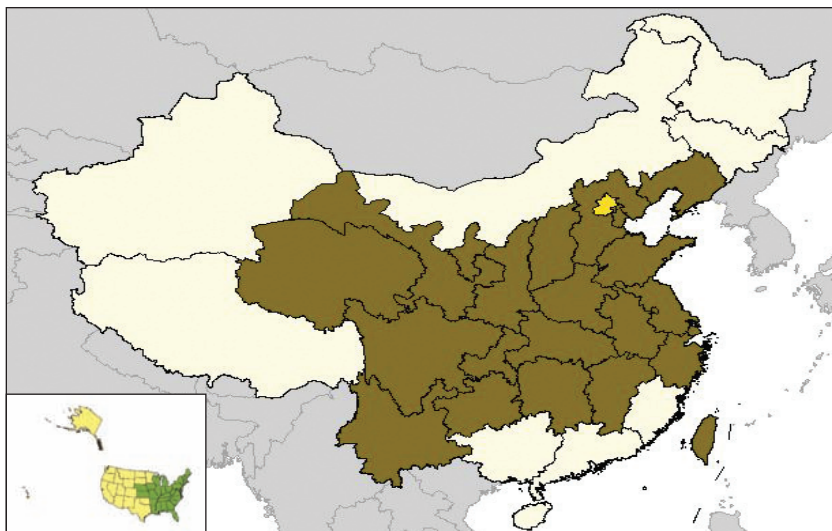
Taxonomy

Family: Elaeagnaceae

Genus: *Elaeagnus* L.

Description

Spiny and erect, *Elaeagnus umbellata* is a deciduous shrub that can grow to 1-4 m in height. Twigs are covered with silvery white, yellowish brown, or dark brown- to rust-colored scales when young. Scales are shed at maturity, leaving a grayish black surface. Leaves are papery or membranous, elliptic or ovoid lanceolate in shape, 3-8 cm long and 1-3.2 cm wide, obtuse or acuminate at the apices, and round to cuneate at the bases. Each has an entire margin, white petiole, and glabrescent and sparsely scaled underside. Blooming before the leaves appear, flowers are yellowish white, fragrant, and covered



with shield-shaped scales. Calyx tubes are cylindrical, funnel-like, and 5-7 mm in length. Appearing from July to August, scale-covered fruits are global or ovate, 5-7 mm long, green when young and red at maturity, and also scale-covered [196].

Habitat

E. umbellata commonly occurs in subtropical and temperate regions at elevations of 20 to 3,000 m. Habitat range includes forest edges, thickets, hillside wastelands, and stream banks [196].

Distribution

Elaeagnus umbellata is distributed in north, east, and southwest China [196] in the provinces of Anhui [30], Guizhou [97], Hebei [18], Jiangsu [81], Jiangxi [84], Shandong [8], Shanxi [39], Sichuan [207], Yunnan [165] and Zhejiang [127]. In addition, its native range includes the provinces of Gansu [196], Henan [26], Hubei [196], Hunan [126], Liaoning [196], Ningxia [196], Qinghai [107], Shaanxi [196]

and Taiwan.

Economic Importance

Elaeagnus umbellata is planted as an ornamental. The edible fruits are used to make wine and jam. The leaves can be used to control the cotton aphid, an insect pest. Along with fruits and leaves, roots also have medical uses [29].

Natural Enemies of *Elaeagnus*

Ten fungi have been found on members of the genus *Elaeagnus*, including *Aecidium elaeagni*, which may be host-specific to members of the genus *Elaeagnus*, and *Septobasidium albidum*, which has a host range that includes autumn olive as well as members of other genera.

Twenty-two arthropods belonging to ten families of five orders are reported to attack members of the genus *Elaeagnus*. A moth, *Teia prisca*, may be specific to Russian olive.



Leaves and fruit of *Elaeagnus umbellata*. (Photo by Jerry Gibson, Deer Park, AL.)



Growth habit of *Elaeagnus umbellata*. (USDA-NRCS Archives.)

Fungi

Phylum	Family	Species	H. R.	Ref.
Ascomycota	Erysiphaceae	<i>Leveillula elaeagnacearum</i> Golovin	mo	22
			oo	23
Basidiomycota	Hymenochaetaceae	<i>Phellinus robustus</i> (P. Karst.) Bourdot & Galzin	po	23
	Incertae sedis	<i>Aecidium elaeagni</i> Dietel	o [†]	23
		<i>Aecidium elaeagni-umbellatae</i> Dietel	oo	23
		<i>Aecidium quintum</i> Syd. & P. Syd.	mo	23
	Pucciniaceae	<i>Puccinia achroa</i> Syd.	oo	23
		<i>Puccinia elaeagni</i> Yoshin.	mo	23
Septobasidiaceae	<i>Septobasidium albidum</i> Pat.	p [‡]	23	
Anamorphic <i>Guignardia</i>		<i>Phyllosticta argyrea</i> Speg.	oo	23
Anamorphic <i>Mycosphaerella</i>		<i>Septoria argyrea</i> Sacc.	mo	23

[†] species that can attack Russian olive

[‡] species that can attack autumn olive

Arthropods

Order	Family	Species	H. R.	Ref.
Acariformes	Tetranychidae	<i>Eotetranychus kankitus</i> Ehara	po	141
			p [*]	143
Coleoptera	Cerambycidae	<i>Asias halodendri</i> (Pallas)	po	9
Hemiptera	Pentatomidae	<i>Brachynema germarii</i> Kolenati	p [†]	193
Homoptera	Aphididae	<i>Capitophorus elaeagni</i> (del Guercio)	po	65
			o ^{†**}	100
		<i>Capitophorus hippophaeus</i> (Walker)	oo	100
		<i>Capitophorus javanicus</i> Hille Ris Lambers	p ^{**}	189
	Margarodidae	<i>Drosicha corpulenta</i> (Kuwana)	p [*]	65
	Psyllidae	<i>Cacopsylla ciliensis</i> Li	oo	65
		<i>Cacopsylla meniscata</i> Li	mo	137
<i>Cacopsylla prona</i> Li et Yang		po	140	
<i>Cacopsylla</i> sp.		m [*]	132	
Lepidoptera	Geometridae	<i>Apocheima cinerarius</i> Erschoff	p [†]	66
	Lymantriidae	<i>Euproctis karghalica</i> Moore	p [†]	198
			p [†]	199
		<i>Gynaephora alpherakii</i> (Grum-Grschmailo)	p [†]	198
		<i>Teia ericae</i> Germar	p [†]	198
			p [†]	199
		<i>Teia prisca</i> (Staudinger)	m [†]	199
	Saturniidae	<i>Actias selene ningpoana</i> Felder	p [†]	65
		<i>Eriogyna pyretorum pyretorum</i> Westwood	p [†]	207
		<i>Neoris haraldi</i> Schawerda	p [†]	207
	Sphingidae	<i>Celerio euphorbia</i> Leech	p [†]	141
		<i>Celerio hippophaës</i> (Esper)	p [†]	206
			p [†]	208
<i>Celerio lineata livornica</i> (Esper)		p [†]	206	
		p [†]	208	

[†] species that can attack Russian olive

* species that can attack thorny Elaeagnus

** species that can attack autumn olive