Elaeagnus angustifolia 简体中文 正體中文 **System:** Terrestrial

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Magnoliopsida	Rhamnales	Elaeagnaceae

Common name chalef (French), olivier de Bohême (French), olivo de Bohemia (Spanish), panjino (Spanish), oleaster (English), Russian-olive (English), trebizond-date (English), árvore-do-paraíso (Portuguese), árbol del paraíso (Spanish)

Synonym *Elaeagnus orientalis* , L.
Elaeagnus angustifolia , var. *orientalis* (L.) Kuntze
Elaeagnus hortensis , M. Bieb
Elaeagnus moorcroftii , Wall. ex Schltdl.

Similar species *Elaeagnus umbellata, Elaeagnus pungens*

Summary Native to southern Europe and western Asia, *Elaeagnus angustifolia* is commonly found growing along floodplains, riverbanks, stream courses, marshes, and irrigation ditches Seedlings are tolerant of shade and the plant thrives in a variety of soil and moisture conditions, including bare mineral substrates.*E. angustifolia* can withstand competition from other shrubs and trees and can spread vegetatively by sprouting from the root crown and sending up root suckers. The fruits float and are probably dispersed *via* water transport. Also, the seeds ingested with the fruit by birds and small mammals are dispersed in their droppings.

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Species Description
Muzika and Swearingen (1997) state that *E. angustifolia* is a small, usually thorny shrub or small tree that can grow to 9.1m in height. Its stems, buds, and leaves have a dense covering of silvery to rusty scales. Leaves are egg or lance-shaped, smooth margined, and alternate along the stem. Highly aromatic, the initial creamy yellow flowers are later replaced by clusters of abundant silvery fruits. Tesky (1992) states that the twigs are flexible, coated with a gray, scaly pubescence and often have a short thorn at the end The bark is thin with shallow fissures and exfoliates into long strips. It has a deep taproot and well-developed lateral root system.

Lifecycle Stages
Tesky (1992) states that the seeds can remain viable for up to 3 years and are capable of germinating over a broad range of soil types. Germination is enhanced by stratification in moist sand for 90 days at 5 deg C. Spring moisture and slightly alkaline soil tend to favour seedling growth.

Uses
Tesky (1992) states that *E. angustifolia* is often planted as an ornamental because of its silvery leaves and decorative fruit. It also has some value as a honey plant. It has been widely planted in shelterbelts throughout the prairie states. It has also been used for wildlife habitat plantings, erosion control and highway beautification. With its ability to increase available nitrogen in the soil, it is sometimes interplanted with other tree crops to increase their growth and yield. The dates are full of amino acids and are sold as dried fruit. It is grown for firewood in China in a coppicing system. (Wilcox, 2003).

Habitat Description
Tesky (1992) reports that *E. angustifolia* it is tolerant of considerable amounts of salinity and alkalinity. However, it prefers sites with low to moderate concentrations (100-3,500 ppm) of soluble salts. The lower pH limit is 6. It thrives under a wide range of soil textures from sand to heavy clay, and can withstand flooding and silting. It grows best in deep sandy or loamy soils with only slight salt and alkali content. Dense, healthy stands are present in river bottoms where the water table is seldom more than 2 feet (0.6 m) below the surface. In contrast, it survives considerable drought. It can withstand temperatures ranging from -45 deg C to 46 deg C. It occurs from sea level to at least 2,438 m. It is somewhat shade tolerant and can withstand competition from other shrubs and trees. In the United States naturalization is rapidly increasing, especially in riparian zones. It is commonly found growing along floodplains, riverbanks, stream courses, marshes, and irrigation ditches in the western areas of the United States.

Reproduction
Muzika and Swearingen (1997) state that establishment and reproduction of *E. angustifolia* is primarily by seed, although some vegetative propagation also occurs. At three years of age, plants begin to flower and fruit. Tesky (1992) states that it sprouts from the root crown and sends up root suckers. It can grow up to 1.8m per year and the average seed-bearing age of this species is 3 to 5 years. Each fruit has a single seed at the centre.

General Impacts
Muzika and Swearingen (1997) cite that *E. angustifolia* can outcompete native vegetation, interfere with natural plant succession and nutrient cycling, and tax water reserves. It is capable of fixing nitrogen in its roots, so it can grow on bare, mineral substrates and dominate riparian vegetation where overstory cottonwoods have died. Although it provides a plentiful source of edible fruits for birds, ecologists have found that bird species richness is actually higher in riparian areas dominated by native vegetation. Tesky (1992) states that it can interfere with agricultural practices and it rapidly colonizes lowland fields, often chokes irrigation ditches, and damages tyres and equipment.

Management Info
Physical: Tesky (1992) states that once established, *E. angustifolia* is difficult to control and nearly impossible to eradicate. Efforts to control unwanted concentrations have included mowing seedlings, cutting, burning, spraying, girdling, and bulldozing. Most efforts have realized limited success. Stump sprouting commonly occurs after cutting down the tree, and excavation of the entire stump can trigger root sprouting (SWEPIC, 2002). Burning is practical when conditions support a hot fire. Saplings are most sensitive. The fire must be hot enough and burn long enough to incinerate the stumps of larger trees. Spring and winter burns are usually less effective than summer or early fall burns.
\r\nBiological: Tubercularia canker overwinters on infected stems and spreads *via* rain-splash, animals, or pruning implements to open wounds in the bark. Infected tissue becomes discoloured or sunken. Entire stems may be girdled and killed, and the disease can deform or kill stressed plants over time (Herman *et al*. 1996, Jackson et al. 2000, in SWEPIC, 2002). Cankers sometimes exude gum at the margins. Phomposis canker kills seedlings and saplings, causing dieback and cankers on larger plants (Sinclair et al. 1987, in SWEPIC, 2002). *Lasiodiplodia theobromae* (syn. *Botrydiplodia theobromae*, *Diplodia natalensis*) is the pycnidial state of *Botryosphaeria rhodina*, a pathogen that causes cankers and dieback in many woody and herbaceous species. It often attacks plants weakened by environmental stress or other pathogens and has caused death of *E. angustifolia* in windbreaks and shelterbelts in the Great Plains of the United States. This fungus often strips the dead bark up to several metres long, sometimes with small dead branches along the killed strip.
\r\nIntegrated management: Apparently the most effective combination of control efforts has been cutting trees, followed by either spraying or burning the stumps (Tesky, 1992). SWEPIC (2002) reports that *E. angustifolia* is sensitive to 2,4-D ester, triclopyr, 2,4-D + triclopyr, imazapyr, and glyphosate. However, effective control with these compounds almost always requires follow-up treatments for 1 to 2 years. 2,4-D ester is applied to the foliage. It requires good coverage for acceptable results. 2,4-D + Triclopyr is applied either as a foliar spray or a directed spray to the basal bark of the tree. Triclopyr is applied as a directed spray to the basal bark of the tree. Basal applications require good saturation of the bark and diesel fuel is frequently used as the carrier. Imazapyr [Arsenaltm, Containtm] is applied undiluted to frill cuts made in the stem. Glyphosate is also applied to frill cuts. Glyphosate has provided very good control using a glyphosate “Hack and Squirt” treatment that is applied during the winter months. Trees are “hacked” with a hatchet that injects glyphosate into the wound.

Pathway
Borrell (1976) indicates that planting of *E. angustifolia* has been promoted to benefit wildlife as cover and food source. Russian olive is sold by the State of Montana for wildlife plantings.Muzika and Swearingen (1997) state that *E. angustifolia* was first cultivated in Germany, and was introduced into the U.S. in the late 1800s. It was planted as an ornamental, and subsequently escaped into the wild.

Principal source: SPECIES: *Elaeagnus angustifolia*\r\n(Tesky, 1992)\r\n Russian Olive *Elaeagnus angustifolia* L. (Muzika and Swearingen, 1997)

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Scott H. Stoleson, Research Wildlife Biologist USDA Forest Service, Northeastern Research Station. USA

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ALIEN RANGE

[1] BERMUDA
[1] MEXICO
[36] UNITED STATES
[5] CANADA
[1] NEW ZEALAND

BIBLIOGRAPHY
18 references found for **Elaeagnus angustifolia**

Managment information

Muzika R. and Swearingen J. M., 1997 *Elaeagnus angustifolia L.*. National Park Service, Plant Conservation Alliance, Alien Plant Working Group.
Summary: Detailed report on description, distribution, habitat, reproduction methods and management.
SWEPIC (Southwest Exotic Plant Information Clearinghouse) 2002. *History, Biology, Ecology, Suppression and Revegetation of Russian-olive Sites (Elaeagnus angustifolia L.)* USDA Natural Resources Conservation Service, Technical Notes, Plant Materials No. 47
Summary: Detailed report on description, habitats, ecology and control.
Tesky J. L., 1992 *SPECIES: Elaeagnus angustifolia* U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory
Summary: Detailed report on description, distribution, impacts, habitats and control.
Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.
Summary: This database compiles information on alien species from British Overseas Territories.
Available from: http://www.jncc.gov.uk/page-3660 [Accessed 10 November 2009]

General information

Borrell, A. E. 1976. Leaflet 517: Russian olive for wildlife and other conservation uses. Washington, D.C., U.S. Department of Agriculture.
Summary: [not peer-reviewed, but a source for its use to improve wildlife habitat] Promotes use of Russian olive for wildlife food and cover.
Brown, C. R. 1990. Avian use of native and exotic riparian habitats on the Snake River, Idaho [M.S. Dissertation]. (Colorado State University, Fort Collins, CO).
Summary: Breeding bird density, diversity, and abundance lower in Russian olives than in willows.
Carman, J. G., and J. D. Brotherson. 1982. Comparisons of sites infested and not infested with saltcedar (*Tamarix pentandra*) and Russian Olive (*Elaeagnus angustifolia*). Weed Science 30: 360-364.
Summary: had low to middle levels of salts, those with saltcedar had high salt.
Howe, W. H., and F. L. Knopf. 1991. On the imminent decline of Rio Grande cottonoods in central New Mexico. Southwestern Naturalist 36: 218-224.
Summary: Based on tree ages on Rio Grande in New Mexico, recruitment of new trees into riparian woodlands has been dominated by exotic Russian olive and Tamarix, at expense of native cottonwoods.
Hudson, S. E. 2000. Avian use of riparian areas in the Mid-Columbia River Basin during fall migration [MS Dissertation]. (University of Idaho, Moscow).
Summary: Compared to willow habitat, Russian olive had more short-distance migrant birds, similar numbers of resident birds, fewer Neotropical migrant birds, and deeper leaf litter.
ITIS (Integrated Taxonomic Information System), 2004. Online Database *Elaeagnus angustifolia*
Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.
Available from:
http://www.cbif.gc.ca/pls/itisca/next?v_tsn=27770&taxa=&p_king=every&p_string=containing&p_format=&p_ifx=plglt&p_lang= [Accessed December 31 2004]
Knopf, E L. And T. E. Olson. 1984. Naturalization of Russian-olive: implications to Rocky Mountain wildlife. Wildl. Soc. Bull. 12:289-298.
Summary: R.o. stands supported avian and small mammal communities of intermediate species richness between native riparian and upslope prairie communities. R.o. established outside of normal riparian corridor, and essentially widened the riparian habitat.
Lesica, P., and S. Miles. 2001. Natural history and invasion of Russian olive along eastern Montana rivers. Western North American Naturalist 61: 1-10.
Summary: Russian olive found on terraces but not recent alluvium; growth rates three times that of native ash but slower than other invasives, and not dependent on water availability; where natural flood regimes occur cannot outcompete cottonwoods.
Olson, T. E., and F. L. Knopf. 1986. Naturalization of Russian-olive in the western United States. Western Journal of Applied Forestry 1: 65-69.
Summary: Summarizes escape of R.O. from cultivation in Western U.S., and its replacement of native riparian species, and documents extensive use of R.o. by wildlife for food and cover.
Shafroth, P. B., G. T. Auble, and M. L. Scott. 1995. Germination and establishment of the native plains cottonwood (*Populus deltoides* Marshall subsp. *monilifera*) and the exotic Russian-olive (*Elaeagnus angustifolia* L.). Conservation Biology 9: 1169-1175.
Summary: Cottonwood germinates in a single pulse mid-June.
Simons, S. B., and T. R. Seastedt. 1999. Decomposition and nitrogen release from foliage of cottonwood (Populus deltoides) and Russian-olive (Elaeagnus angustifolia) in a riparian ecosystem. Southwestern Naturalist 44: 256-260.
Summary: Compared to native cottonwoods, Russian olive litter has higher initial concentrations of nitrogen and decomposes faster, releasing more N in a given amount of time; resulting change in N availability may promote invasion by other exotics.
Stoleson, S. H., and D. M. Finch. 2002. Breeding bird use of and nesting success in exotic Russian olive in New Mexico. Wilson Bulletin 113: 452-455.
Summary: Use of Russian olive varies among bird species. Endangered willow flycatchers nest in it frequently but incidence of brood parasitism is over three times higher than in native species of similar stature.
USDA-NRCS (Natural Resource Conservation Service). 2005. *Elaeagnus angustifolia*. The PLANTS Database Version 3.5 [Online Database] National Plant Data Center, Baton Rouge, LA.
Summary: Available from:
http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Elaeagnus+angustifolia&go.x=8&go.y=8 [Accessed 12 March 2006].
Wilcox, M. D. 2003. *Eleagnus angustifolia*. In PlantWorld - a compendium of plants of the world. Mangere Bridge, Auckland, New Zealand (unpublished).
Summary: Brief summary paragraph in compendium.