RUSSIAN OLIVE
(*Elaeagnus angustifolia*)

Description: Russian olive, also referred to as wild olive, oleaster, and silver berry, is a member of the Elaeagnaceae or Oleaster family. Russian olive is a fast-growing tree of moderate size that can reach heights from 10 to 25 feet. The trunks and branches of the tree are armed with 1 to 2 inch woody thorns. Leaves are simple, alternate, lanceolate to oblong, entire, and 1 1/2 to 3 inches in length. The upper surfaces of the leaves are light green and covered with silvery star-shaped hairs. The lower leaf surfaces are silvery white and densely covered with scales. Russian olive flowers are yellow, fragrant, and arranged in clusters. Fruits are olive-shaped, produced in large quantities, silvery when first formed, and tan to brown at maturity.

Russian olive

Plant Images:

Mature bark

Flowers and foliage

Fruit

Distribution and Habitat: Russian olive is native to Europe and is primarily found throughout the central and western United States. The tree prefers sandy floodplains and can be associated with open, moist riparian habitats. Russian olive can tolerate a variety of moisture conditions from floods to droughts. The tree can tolerate shade and can establish on bare, mineral substrates. The tree is commonly found along streams, marshes, fields, open areas, and is abundant in riparian zones in the Great Plains.

Life History/Ecology: Russian olive is a hardy, long-lived shrub or small tree that grows rapidly and reproduces primarily by seed production, but may establish from underground rootstalks.

Seedlings germinate anytime from fall to spring and develop a lateral root system. Russian olive is unable to bear fruit until the tree is three to five years old. The tree generally flowers from May to June and fruits mature from August to October. Seeds may remain viable up to three years.

History of Introduction: Russian olive is native to Europe and western Asia. The tree was originally planted in the United States in the late 1800s as an ornamental shrub or small tree. The tree was recommended for wildlife plantings, soil stabilization, and windbreaks up until the 1980s. Russian olive is now considered an escaped windbreak and horticultural planting that has become naturalized in riparian areas throughout the western United States. In North Dakota, Russian olive was widely planted as a windbreak in conservation plantings. Russian olive has been reported in the majority of the counties within the state with the exception of the north-central part of the state. However, at this time the distribution of the invasive populations of the species has yet to be determined because Russian olive was likely planted in almost every county.

Effects of Invasion: Russian olive is an aggressive species that can quickly invade riparian areas. The tree forms dense, monotypic stands that out-compete and displace native vegetation, thus tree communities and wildlife habitats are quickly altered. Russian olive can also affect nutrient cycling and system hydrology by connecting lowland riparian forests with open, upland areas. Once infestations are established, stream bank stabilization is increased and river stage levels are reduced, creating a relatively dry upland site. As a result, desirable areas for native cottonwood and willow establishment become limited as these species cannot compete with advancing populations of Russian olive.

Control:
Management objectives for Russian olive control should involve early detection and rapid response once populations are detected. Large, mature stands of Russian olive are almost impossible to completely eradicate, but small populations of the species can be adequately controlled. Seeds of Russian olive can remain viable in the soil for up to three years and plants can resprout or develop from root suckers from the root crown, therefore eradicated infestations should be monitored for several years to prevent re-establishment.

Mechanical - Hand pulling Russian olive is feasible when soil is moist. A weed wrench can be used to remove saplings with a trunk diameter less than 3 1/2 inches. Digging or pulling out larger trees is labor intensive and not recommended because the tree may re-sprout from root fragments left behind. Mowing can control young seedlings, but larger trees may resprout vigorously after being cut. Girdling or cutting is not effective unless combined with another control method. Prescribed burning may control small seedlings but will not adequately control larger trees.

Chemical - Triclopyr ester, glyphosate, and imazapyr can be effective in controlling Russian olive. Cut-stump methods can be effective if the trunk is cut as close to the ground as possible and herbicides are immediately applied to the cut surface of the tree. Foliar spraying or injecting herbicide capsules around the base of the trunk has also been shown to be successful.

Contact your local county extension agent for recommended use rates, locations, and timing.

Biological - There are no reported biological control agents registered to control Russian olive.

References:

Department of Natural Resources Trails and Waterways. 2003. Russian olive, *Elaeagnus angustifolia* p. 13-14 *In* Minnesota invasive non-native terrestrial trees and identification guide for resource managers. MN Dept. Nat. Res., St. Paul, MN.

Dirr, M. A. 1998. Manual of woody landscape plants-their identification, ornamental characteristics, culture and propagation and uses 5th Ed. Stipis Publishing L.L.C., Champaign, IL. 1187 pp.

Great Plains Flora Association. 1986. Flora of the Great Plains. Lawrence, KS: Univ. Press of Kansas. 1392 pp.

Shafroth, P. B., G. T. Auble, and M. L. Scott. 1995. Germination and establishment of the native plains cottonwood (*Populus deltoides* Marshall subsq. *monilifera*) and the Exotic Russian-olive (*Elaeagnus angustifolia* L.). Conserv. Biol. 9(5):1170-1175.

Tesky, J. L. 1992. Elaeagnus angustifolia. In: Fire Effects Information System, [Online]. U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/databse/feis/ (February 2005).

Tu, M. 2003. Element stewardship abstract for *Elaeagnus angustifolia* L. - Russian olive, oleaster. [Online.] Available: http://tncweeds.ucdavis.edu/esadocs/documnts/elaeang.pdf. Prepared for The Nature Conservancy, Arlington, VA 10 pp. (October 2004).

Whitson, T. D., editor. 2000. Weeds of the West 9th Ed. Western Society of Weed Science, Newark, CA 94560. 630pp.

Russian olive and mature bark photograph courtesy of J. S. Peterson @ USDA-NRCS PLANTS Database.

Flowers and foliage photograph courtesy of Paul Wray, Iowa State University (www.invasive.org).

Fruit photograph courtesy of USDA-NRCS PLANTS Database/ Herman, D. E. et al. 1996. *North Dakota Tree Handbook*. USDA NRCS ND State Soil Conservation Committee; NDSU Extension and Western Area Power Admin., Bismarck, ND.