

I. Forest

I.B.2.N.A. LOWLAND OR SUBMONTANE COLD-DECIDUOUS FOREST

I.B.2.N.a.400. ELAEAGNUS ANGUSTIFOLIA SEMI-NATURAL WOODLAND ALLIANCE

Russian-olive Semi-natural Woodland Alliance

Alliance Identifier: A.3566

Elaeagnus angustifolia Semi-natural Woodland

Russian-olive Semi-natural Woodland

Russian-olive Woodland

ELEMENT CONCEPT

GLOBAL SUMMARY: This widespread Russian-olive woodland type is found in the northern Great Plains, Utah, and probably throughout much of the western United States and adjacent Canada. It is a naturalized type that has been widely planted in hedgerows for windbreaks. It has since spread to a variety of native habitats, particularly more mesic ones, such as near streams and rivers. The vegetation is dominated by *Elaeagnus angustifolia*. In Badlands National Park, this type occupies a portion of shoreline along the White River, upstream of a highway bridge (Von Loh et al. 1999). In Ouray National Wildlife Refuge in Utah these woodlands are found in the floodplain along the Green River and in upland basins and drainages. Stands tend to be small and linear. The vegetation is dominated by the tree *Elaeagnus angustifolia* with a variety of native and introduced species in the shrub and herbaceous layers. Associated species have not been characterized. In a stand in Badlands National Park of South Dakota, *Elaeagnus angustifolia* is dominant. Canopy closure approaches 40-50%, about equal to the tall-shrub cover provided by *Salix exigua*. *Amorpha fruticosa* and *Pascopyrum smithii* make up the short-shrub and herbaceous cover, which are less than 10%. At Ouray National Wildlife Refuge in Utah, tree canopies were denser to (80% cover) and had remnant *Populus fremontii* trees (to 10% cover). Other than a few native grasses (*Sporobolus airoides*, *Distichlis spicata*, and *Hordeum jubatum*) and *Atriplex patula* in the herbaceous layer, the understory was dominated by introduced species, both in the moderately dense to dense tall-shrub layer (*Tamarix ramosissima*) and in the herbaceous layer (*Lepidium latifolium*, *Descurainia sophia*, and *Bassia scoparia* (= *Kochia scoparia*)).

ENVIRONMENTAL DESCRIPTION

USFWS WETLAND SYSTEM: RIPARIAN

Ouray National Wildlife Refuge Environment: The large stand of *Elaeagnus angustifolia* Semi-natural Woodland in Brennan Flats occupies a basin or small depression adjacent to sandy uplands. This stand was probably introduced by seed dispersed from windbreak plantings on private lands to the west. The soils are alkaline and support patches of *Distichlis spicata* and *Sporobolus airoides*, in addition to the exotic *Tamarix ramosissima*. Another stand occupies an unnamed drainage along the west side of the Refuge where it abuts land managed by the BLM. Only a few young trees have become established within the Refuge boundary, on the upper margin of a *Typha latifolia* emergent wetland, but a large stand is present on the adjacent BLM land. Most stands of Russian-olive within the Refuge are small, linear, and riparian and have become established on the Green River banks and islands within the river. One small stand sampled in Johnson Bottom had total foliar cover exceeding 80% and had a few *Artemisia tridentata* ssp. *tridentata* associated with the stand. At a few locations, Refuge staff are managing Russian-olive by cutting and herbicide application to the cut stumps.

Global Environment: This type is naturalized, probably spreading as a result of being widely planted in hedgerows for windbreaks. It has spread to a variety of native habitats, particularly more mesic ones, such as near streams and rivers. In Badlands National Park, this type occupies a portion of shoreline along the White River, upstream of a highway bridge (Von Loh et al. 1999). In Ouray National Wildlife Refuge in Utah these woodlands are found in the floodplain along the Green River and in upland basins and drainages. Stands tend to be small and linear. Adjacent vegetation includes other riparian shrublands and wetlands dominated by *Salix exigua* or *Schoenoplectus* spp. Upland vegetation is variable.

Ouray National Wildlife Refuge Vegetation Mapping Project

VEGETATION DESCRIPTION

Ouray National Wildlife Refuge Vegetation: Stands of *Elaeagnus angustifolia* Semi-natural Vegetation within the Refuge are small and for the most part, even-aged. Reproduction is obviously occurring, as some sapling and seedling trees are nearly always present in and adjacent to these stands. This type occurs more commonly in the Refuge, as understory to *Populus fremontii* woodland and forest stands, and over time will probably join *Tamarix ramosissima* as the dominant tree/shrub association along this portion of the Green River. One stand sampled on the Green River bank had trees in the 18" - 23" dbh range and heights to 10m tall. Many scattered Russian-olive trees and saplings are present within the Refuge, along dikes, levees, scattered in grasslands and shrublands, and in small drainages and depressions within the Green River floodplain. The largest stand of Russian-olive observed in Brennan Flats has no connection with the river, rather it has become established within a small depression or basin adjacent to sandy hills on the Refuge and a large, flat drainage between irrigated agricultural fields on adjacent private land. This stand is more mature, with tree diameters ranging from 17"- 45" dbh and heights to 10 m. It is being invaded by *Tamarix ramosissima* and its past grazing history has resulted in a number of exotic annual forbs being present the most notable are *Kochia scoparia*, *Lepidium latifolium*, *Atriplex patula*, and *Descurainia sophia*.

Global Vegetation: The vegetation is dominated by the tree *Elaeagnus angustifolia* with a variety of native and introduced species in the shrub and herbaceous layers. Associated species have not been characterized. In a stand in Badlands National Park of South Dakota, *Elaeagnus angustifolia* is dominant. Canopy closure approaches 40-50%, about equal to the tall-shrub cover provided by *Salix exigua*. *Amorpha fruticosa* and *Pascopyrum smithii* make up the short-shrub and herbaceous cover, which are less than 10%. At Ouray National Wildlife Refuge in Utah, tree canopies were denser to (80% cover) and had remnant *Populus fremontii* trees (to 10% cover). Other than a few native grasses (*Sporobolus airoides*, *Distichlis spicata*, and *Hordeum jubatum*) and *Atriplex patula* in the herbaceous layer, the understory was dominated by introduced species, both in the moderately dense to dense tall-shrub layer (*Tamarix ramosissima*) and in the herbaceous layer (*Lepidium latifolium*, *Descurainia sophia*, and *Bassia scoparia* (= *Kochia scoparia*)).

Dynamics: *Elaeagnus angustifolia* has been planted widely across the western U.S. in windbreaks and as an ornamental. This tree species has bird-dispersed seeds and has invaded riparian woodlands extensively, replacing the native tree species, especially where flood control efforts limit regeneration of native trees such as *Populus deltoides* and *Populus fremontii*.

MOST ABUNDANT SPECIES

Ouray National Wildlife Refuge

Stratum	Species
TREE CANOPY	<i>Elaeagnus angustifolia</i> , <i>Tamarix ramosissima</i>
SHRUB	<i>Tamarix ramosissima</i> , <i>Elaeagnus angustifolia</i>
HERBACEOUS	<i>Sporobolus airoides</i> , <i>Distichlis spicata</i> , <i>Lepidium latifolium</i>

Global

Stratum	Species
TREE CANOPY	<i>Elaeagnus angustifolia</i>
TALL SHRUB	<i>Salix exigua</i>
TALL SHRUB	<i>Tamarix ramosissima</i>
SHRUB	<i>Amorpha fruticosa</i>
GRAMINOID	<i>Distichlis spicata</i>
GRAMINOID	<i>Pascopyrum smithii</i>
GRAMINOID	<i>Sporobolus airoides</i>

CHARACTERISTIC SPECIES

Ouray National Wildlife Refuge

Species
Elaeagnus angustifolia, *Tamarix ramosissima*

Ouray National Wildlife Refuge Vegetation Mapping Project

Global

Species

Elaeagnus angustifolia, *Pascopyrum smithii*, *Salix exigua*

OTHER NOTEWORTHY SPECIES

Ouray National Wildlife Refuge

Stratum

Species

FORB

Lepidium latifolium

Global

Stratum

Species

FORB

Lepidium latifolium

GLOBAL SIMILAR ASSOCIATIONS: N/A

SYNONYMY: N/A

CLASSIFICATION COMMENTS

Ouray National Wildlife Refuge: The Refuge is currently managing, by cutting and herbicide application, some small stands and individual trees of Russian-olive. Its' presence, along with salt-cedar, in the understory of Fremont cottonwood riparian forest and woodland stands, indicates a succession away from deciduous trees when these stands become decadent.

Global Comments: *Populus deltoides*- and *Populus fremontii*-dominated associations may have significant cover of *Elaeagnus angustifolia* in the tree canopy, but are generally considered native woodlands until *Elaeagnus angustifolia* comprises over 80-90% of the tree cover. Some stands have a nearly closed tree canopy (80% cover), or may have significant gaps in the tree canopy.

ELEMENT DISTRIBUTION

Ouray National Wildlife Refuge Range: A few small stands of *Elaeagnus angustifolia* Semi-natural Woodland are present within the Refuge, occurring as two types, e.g., riparian stands growing along the Green River and as understory to *Populus fremontii* forest and woodland stands and as upland stands growing in small basins and drainages that are more mesic than surrounding uplands. The largest stand of Russian-olive on the Refuge occupies one such upland basin in Brennan Flats. Most stands occur as several trees growing in a linear fashion adjacent to the river.

Global Range: This widespread Russian-olive woodland type is reported from the northern Great Plains, Utah, and probably occurs throughout much of the western United States and adjacent Canada along rivers and streams where it replaces the native *Populus* spp.- and *Acer negundo*-dominated forests and woodlands.

Nations: US

States/Provinces: ND SD UT

TNC Ecoregions: 10:C

USFS Ecoregions: 341C:CC

Federal Lands: NPS (Badlands); USFWS (Ouray)

ELEMENT SOURCES

Identifier: CEGL005269 **Confidence:** 3 **Conservation Rank:**GW

REFERENCES: Great Plains Flora Association 1986, Von Loh et al. 1999, Von Loh 2000