*Elaeagnus umbellata* (autumn olive; *Elaeagnus par* Answ

### Source Notes

1.01 Is the species highly domesticated?  
- y=-3, n=0  
  - n

**Notes**  
- no evidence

1.02 Has the species become naturalized where  
- y=-1, n=-1  
  - y

U.S. Department of  
Agriculture, Forest  
Service, Rocky Mountain  
Research Station, Fire  
Sciences Laboratory  
(2001, October). Fire  
Effects Information  
System,. Available:  
http://www.fs.fed.us/database/feis/plants/tree/elaumb/all.html; [4,14,18,23]. in  
reference

Autumn-olive is native to Asia. It has been introduced in North America, and has naturalized in the East. Its naturalized range is from Maine south to South Carolina, west to Oklahoma, and north to southwest Minnesota. It is also occurs, but has not naturalized in, Hawaii, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming.
1.03 Does the species have weedy races?  y=-1, n=-1  y


West Virginia Department of Agriculture. 1997. Regulations Governing the Distribution of Plant Material in West Virginia. E. umbellata and E. umbellata var. parvifolia are both listed as noxious weed in Virginia.
2.01 Species suited to tropical or subtropical cli


(2) Autumn-olive is native to Asia. It has been introduced in North America, and has naturalized in the East. Its naturalized range is from Maine south to South Carolina, west to Oklahoma, and north to southwest Minnesota. It is also occurs, but has not naturalized in Hawaii, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming [4,14,18,23]; Seeds require cold stratification for germination. Optimum germination is achieved with a minimum stratification period of 16 weeks at 50 to 68 degrees Fahrenheit (10-20 deg C) [28]. NEEDS COLD STRATIFICATION

2.02 Quality of climate match data (0-low; 1-inte
2.03 Broad climate suitability (environmental very=1, n=0)


(1) Native distributional range: Asia-Temperate: China; Japan - Hokkaido, Honshu, Kyushu, Shikoku; Korea; Taiwan
(2) Autumn-olive is native to Asia. It has been introduced in North America, and has naturalized in the East. Its naturalized range is from Maine south to South Carolina, west to Oklahoma, and north to southwest Minnesota. It is also occurs, but has not naturalized in, Hawaii, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming [4,14,18,23]. Seeds require cold stratification for germination. Optimum germination is achieved with a minimum stratification period of 16 weeks at 50 to 68 degrees Fahrenheit (10-20 deg C) [28].

2.04 Native or naturalized in regions with tropics very=1, n=0

2.05 Does the species have a history of repeat fire events? 


Autumn-olive is native to Asia. It has been introduced in North America, and has naturalized in the East. Its naturalized range is from Maine south to South Carolina, west to Oklahoma, and north to southwest Minnesota. It is also occurs, but has not naturalized in, Hawaii, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming.
Autumn-olive is native to Asia. It has been introduced in North America, and has naturalized in the East. Its naturalized range is from Maine south to South Carolina, west to Oklahoma, and north to southwest Minnesota. It also occurs, but has not naturalized in, Hawaii, Nevada, New Mexico, Oregon, Texas, Utah, and Wyoming.
(1) West Virginia Department of Agriculture. 1997. Regulations Governing the Distribution of Plant Material in West Virginia. (2) Invasive Alien Plant Species of Virginia (http://www.dcr.state.va.us/dnh/fselum.pdf) Virginia Natural Heritage Program. 217 Governor St. Richmond, VA 23219; (804) 786-7951; FAX (804) 371-2674

3.02 Garden/amenity/disturbance weed n=0 y

(1) listed as noxious weed in Virginia (2) "Typical habitats are disturbed areas, roadsides, pastures and fields of wide range of soil. Autumn olive is drought tolerant and may invade grassland and sparse woodlands. It does not do well on wet sites or densely forested areas."
3.03 Agricultural/forestry/horticultural weed  n=0   y


(2) Invasive Alien Plant Species of Virginia (http://www.dcr.state.va.us/dnh/fselum.pdf) Virginia Natural Heritage Program. 217 Governor St. Richmond, VA 23219; (804) 786-7951; FAX (804) 371-2674

(1) listed as noxious weed in Virginia

"Typical habitats are disturbed areas, roadsides, pastures and fields of wide range of soil. Autumn olive is drought tolerant and may invade grassland and sparse woodlands. It does not do well on wet sites or densely forested areas."
3.04 Environmental weed

(1) West Virginia Department of Agriculture. 1997. Regulations Governing the Distribution of Plant Material in West Virginia. (2) Invasive Alien Plant Species of Virginia (http://www.dcr.state.va.us/dnh/fselum.pdf) Virginia Natural Heritage Program. 217 Governor St. Richmond, VA 23219; (804) 786-7951; FAX (804) 371-2674

Autumn olive is drought tolerant and may invade grassland and sparse woodlands. It does not do well on wet sites or densely forested areas.

3.05 Congeneric weed

E. angustifolia, E. pungens are listed as weeds

4.01 Produces spines, thorns or burrs


4.02 Allelopathic


Because of its nitrogen fixing abilities, autumn-olive has been utilized as a nurse plant for black walnut (Juglans nigra) in Canada and the United States [15,17,21].
4.03 Parasitic  y=1, n=0  no evidence, browsed by deer

4.04 Unpalatable to grazing animals  y=1, n=-1  no evidence, browsed by deer

4.05 Toxic to animals  y=1, n=0  Autumn-olive is highly valued species for wildlife [8,12,13,24]. It provides both cover and food for a variety of birds and mammals. The fruits, which remain on the plant until late winter, are browsed by deer, songbirds, and gamebirds [7,17,23,28]. The foliage provides thermal and nesting cover for birds and small mammals, especially when planted as windbreaks [7,23].
E. umbellata is an aecidium host of *Puccinia coronata*, which is a severe pathogen attacking about 700 species of grass including crop species.


4.1 Tolerates a wide range of soil conditions. Three nitrogen-fixing shrub species were planted in June 1988 in sandstone and limestone mined areas in Himachal Pradesh, India, using 2 treatments - planting in forest soil (2.5 kg/pit) and in mine spoil alone. Survival, growth, and biomass production were recorded 6 months later. 

Elaeagnus umbellata had maximum survival and growth performance, followed by Coriaria nepalensis and Indigofera pulchella, in both sandstone and limestone mined areas. In sandstone mine spoil E. umbellata registered 73.33% survival, which increased to 91.67% when soil was added to the planting pit; in limestone mine spoil survival was 87.5%, which increased to 95.24% with the addition of soil. I. pulchella did not survive under either

Autumn olive grows rapidly into an impenetrable, thorny thicket, usurping space from more valuable species. The shrub can dominate almost any landscape type, from fencerows to meadows to open woods, even sand dunes and mine spoils." (Sternberg, 1996)

5.03 Nitrogen fixing woody plant


The importance, distribution, and use of non-leguminous nitrogen-fixing trees and shrubs, with their symbiosis with Frankia, is described. Species covered include Alnus, Myrica pensylvanica, M. cerifera, Comptonia peregrina, Ceanothus americanus, Shepherdia canadenis, Purshia tridentata, Cercocarpus, Casuarina, Elaeagnus umbellata.

5.04 Geophyte (herbaceous with underground s


6.01 Evidence of substantial reproductive failure

no evidence
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.02 Produces viable seed.</td>
<td>y=1, n=-1</td>
<td>y</td>
</tr>
<tr>
<td>6.03 Hybridizes naturally</td>
<td>y=1, n=-1</td>
<td>y</td>
</tr>
<tr>
<td>6.04 Self-compatible or apomictic</td>
<td>y=1, n=-1</td>
<td>y</td>
</tr>
<tr>
<td>6.05 Requires specialist pollinators</td>
<td>y=-1, n=0</td>
<td>n</td>
</tr>
</tbody>
</table>

Sexual reproduction:
Autumn-olive generally flowers at 2 to 3 years of age. Abundant seed production begins at age 3 to 4 years. Seeds require cold stratification for germination. Optimum germination is achieved with a minimum stratification period of 16 weeks at 50 to 68 degrees Fahrenheit (10-20 deg C) [28].


6.07 Minimum generative time (years) See left

2 Concservancy

(1) Sexual reproduction: Autumn-olive generally flowers at 2 to 3 years of age. Abundant seed production begins at age 3 to 4 years. Seeds require cold stratification for germination. Optimum germination is achieved with a minimum stratification period of 16 weeks at 50 to 68 degrees Fahrenheit (10-20 deg C) [reference 28].

(2) It grows rapidly, producing fruits in 3-5 years. Anthesis occurs after first leaves are out from May to June. Flowers are fragrant and pollinated by a variety of insects (Holtz 1981).
7.01 Propagules likely to be dispersed unintentionally: y = 1, n = -1


Autumn-olive is used as an ornamental on highway and park landscapes [7].
7.02 Propagules dispersed intentionally by people. y=1, n=-1

7.03 Propagules likely to disperse as a produce. y=1, n=-1

7.04 Propagules adapted to wind dispersal. y=1, n=-1


7.05 Propagules water dispersed  
\[ y = 1, \ n = -1 \]  
fleshy fruit

7.06 Propagules bird dispersed  
\[ y = 1, \ n = -1 \]  
http://www.fs.fed.us/database/feis/plants/tree/elaumb/all.html  
Seeds are ingested with fruit and dispersed by birds and mammals [14,24]
7.07 Propagules dispersed by other animals (ex y=1, n=-1) n


Seeds are ingested with fruit and dispersed by birds and mammals [14,24]
Seeds are ingested with fruit and dispersed by birds and mammals [14,24].


E. umbellata produces a large amount of seed, each tree producing 2-8 lbs. of seed per year and the number of seeds per lb. ranging from 20,000-54,000. The seeds are widely distributed by birds and have a high rate of germination.

Berries were collected in Nov. 1979 from 25 shrubs on the Ollis Creek Surface Mine, Tennessee. Seeds were separated from the pulp and placed in naked cold stratification at 5 deg C for 8, 12, 16 or 20 wk before testing for germination on moist filter paper at night/day temp. of 5/15 deg, 10/20 deg or 20/30 deg. Results indicated that opt. germination percentages and rate will be achieved with stratification for 16 wk and a subsequent night/day temp. of 10/20 deg. In field trials in 1984, foliar applications of 2,4-D + 2,4-DP [dichlorprop], triclopyr, 2,4-D + triclopyr or metsulfuron methyl at recommended rates did not provide total kill of *Elaeagnus umbellata* and plants severely injured after application recovered the next year. Dicamba provided total kill of 90% of treated plants and severely retarded the growth of survivors the following year. Basal applications of triclopyr alone or with 2,4-D gave excellent control of *E. umbellata* at very low concn. Low rates of 2,4-D + 2,4-DP provided slower and incomplete kill.
8.04 Tolerates, or benefits from, mutilation, cutti $y = 1, n = -1$

8.05 Effective natural enemies present locally ($e \leq -1, n = 1$)

**Total score:** 13

---


Autumn-olive may sprout from the root crown following low- to moderate-severity fire. It is probably an off-site colonizer of burned sites because it produces abundant seed which is dispersed by animals [14,24]. No evidence