

SPECIES: Rosa multiflora

- [Introductory](#)
- [Distribution and occurrence](#)
- [Botanical and ecological characteristics](#)
- [Fire ecology](#)
- [Fire effects](#)
- [Management Considerations](#)
- [References](#)

INTRODUCTORY**SPECIES: Rosa multiflora**

- [AUTHORSHIP AND CITATION](#)
- [FEIS ABBREVIATION](#)
- [SYNONYMS](#)
- [NRCS PLANT CODE](#)
- [COMMON NAMES](#)
- [TAXONOMY](#)
- [LIFE FORM](#)
- [FEDERAL LEGAL STATUS](#)
- [OTHER STATUS](#)



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AUTHORSHIP AND CITATION:

Munger, Gregory T. 2002. *Rosa multiflora*. 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/database/feis/> [2007, September 24].

FEIS ABBREVIATION:

ROSMUL

SYNONYMS:

None

NRCS PLANT CODE [80]:

ROMU

COMMON NAMES:

multiflora rose

TAXONOMY:

The currently accepted name for multiflora rose is *Rosa multiflora* Thunb. ex Murr. (Rosaceae) [[32](#),[33](#),[34](#),[45](#),[73](#)].

LIFE FORM:

Shrub

FEDERAL LEGAL STATUS:

No special status

OTHER STATUS:

Multiflora rose is designated as a "noxious weed" in Wisconsin, Missouri, Pennsylvania, Virginia, and West Virginia, a "secondary noxious weed" in Iowa, and as a "county-level noxious weed" in Kansas. It is a "regulated plant" in Ohio, a "regulated non-native plant species" in South Dakota. Maryland and Wisconsin list it as a "nuisance weed" [[80](#),[84](#)].

Multiflora rose is listed by the state of Vermont as a Category II plant: "exotic plant species considered to have the potential to displace native plants either on a localized or widespread scale" [[85](#)]. For more information see [Invaders Database](#) or [Plants Database](#).

DISTRIBUTION AND OCCURRENCE

SPECIES: [Rosa multiflora](#)

- [GENERAL DISTRIBUTION](#)
- [ECOSYSTEMS](#)
- [STATES](#)
- [BLM PHYSIOGRAPHIC REGIONS](#)
- [KUCHLER PLANT ASSOCIATIONS](#)
- [SAF COVER TYPES](#)
- [SRM \(RANGELAND\) COVER TYPES](#)
- [HABITAT TYPES AND PLANT COMMUNITIES](#)

GENERAL DISTRIBUTION:

Native to Japan [[26](#)], Multiflora rose occurs throughout eastern North America from Newfoundland and Nova Scotia south to northern Florida, and west to Minnesota, Nebraska, and Texas [[34](#),[44](#),[45](#),[89](#)]. It is also distributed along the West Coast from British Columbia to California [[45](#)].

The following biogeographic classification systems demonstrate where multiflora rose could potentially be found based on reported occurrence. Precise distribution information is lacking because of gaps in understanding of biological and ecological characteristics of nonnative species and because introduced species may still be expanding their range. These lists are speculative and may not be accurately restrictive or complete.

ECOSYSTEMS [[31](#)]:

FRES10 White-red-jack pine
FRES12 Longleaf-slash pine
FRES13 Loblolly-shortleaf pine
FRES14 Oak-pine
FRES15 Oak-hickory
FRES16 Oak-gum-cypress
FRES17 Elm-ash-cottonwood
FRES18 Maple-beech-birch
FRES19 Aspen-birch
FRES20 Douglas-fir
FRES21 Ponderosa pine
FRES22 Western white pine
FRES24 Hemlock-Sitka spruce

FRES27 Redwood
 FRES28 Western hardwoods
 FRES32 Texas savanna
 FRES34 Chaparral-mountain shrub
 FRES39 Prairie

STATES:

AL	AR	CA	CT	DE	FL	GA	IL
IN	IA	KS	KY	LA	ME	MD	MA
MI	MN	MS	MO	NE	NH	NJ	NY
NC	OH	OK	OR	PA	RI	SC	TN
TX	VT	VA	WA	WV	WI		
BC	NB	NF	NS	ON	PQ		

BLM PHYSIOGRAPHIC REGIONS [\[8\]](#):

1 Northern Pacific Border
 2 Cascade Mountains
 3 Southern Pacific Border
 4 Sierra Mountains

KUCHLER [\[49\]](#) PLANT ASSOCIATIONS:

K001 Spruce-cedar-hemlock forest
 K002 Cedar-hemlock-Douglas-fir forest
 K003 Silver fir-Douglas-fir forest
 K005 Mixed conifer forest
 K006 Redwood forest
 K009 Pine-cypress forest
 K010 Ponderosa shrub forest
 K011 Western ponderosa forest
 K012 Douglas-fir forest
 K025 Alder-ash forest
 K026 Oregon oakwoods
 K028 Mosaic of K002 and K026
 K029 California mixed evergreen forest
 K030 California oakwoods
 K033 Chaparral
 K034 Montane chaparral
 K047 Fescue-oatgrass
 K048 California steppe
 K074 Bluestem prairie
 K075 Nebraska Sandhills prairie
 K076 Blackland prairie
 K079 Palmetto Prairie
 K081 Oak savanna
 K082 Mosaic of K074 and K100
 K083 Cedar glades
 K084 Cross Timbers
 K085 Mesquite-buffalo grass
 K086 Juniper-oak savanna
 K087 Mesquite-oak savanna

K088 Fayette prairie
K089 Black Belt
K095 Great Lakes pine forest
K097 Southeastern spruce-fir forest
K098 Northern floodplain forest
K099 Maple-basswood forest
K100 Oak-hickory forest
K101 Elm-ash forest
K102 Beech-maple forest
K103 Mixed mesophytic forest
K104 Appalachian oak forest
K110 Northeastern oak-pine forest
K111 Oak-hickory-pine
K112 Southern mixed forest
K115 Sand pine scrub

SAF COVER TYPES [\[25\]](#):

1 Jack pine
14 Northern pin oak
15 Red pine
16 Aspen
17 Pin cherry
18 Paper birch
19 Gray birch-red maple
20 White pine-northern red oak-red maple
21 Eastern white pine
22 White pine-hemlock
25 Sugar maple-beech-yellow birch
26 Sugar maple-basswood
27 Sugar maple
28 Black cherry-maple
30 Red spruce-yellow birch
31 Red spruce-sugar maple-beech
32 Red spruce
35 Paper birch-red spruce-balsam fir
40 Post oak-blackjack oak
42 Bur oak
43 Bear oak
44 Chestnut oak
45 Pitch pine
46 Eastern redcedar
50 Black locust
51 White pine-chestnut oak
52 White oak-black oak-northern red oak
53 White oak
55 Northern red oak
57 Yellow-poplar
58 Yellow-poplar-eastern hemlock
59 Yellow-poplar-white oak-northern red oak
60 Beech-sugar maple
63 Cottonwood
64 Sassafras-persimmon
65 Pin oak-sweetgum
66 Ashe juniper-redberry (Pinchot) juniper
69 Sand pine
70 Longleaf pine

71 Longleaf pine-scrub oak
72 Southern scrub oak
73 Southern redcedar
74 Cabbage palmetto
75 Shortleaf pine
76 Shortleaf pine-oak
78 Virginia pine-oak
79 Virginia pine
80 Loblolly pine-shortleaf pine
81 Loblolly pine
82 Loblolly pine-hardwood
87 Sweetgum-yellow-poplar
107 White spruce
108 Red maple
109 Hawthorn
110 Black oak
213 Grand fir
217 Aspen
221 Red alder
222 Black cottonwood-willow
223 Sitka spruce
229 Pacific Douglas-fir
231 Port-Orford-cedar
232 Redwood
233 Oregon white oak
234 Douglas-fir-tanoak-Pacific madrone
235 Cottonwood-willow
236 Bur oak
237 Interior ponderosa pine
238 Western juniper
239 Pinyon-juniper
240 Arizona cypress
241 Western live oak
242 Mesquite
243 Sierra Nevada mixed conifer
244 Pacific ponderosa pine-Douglas-fir
245 Pacific ponderosa pine
246 California black oak
247 Jeffrey pine
248 Knobcone pine
249 Canyon live oak
250 Blue oak-foothills pine
251 White spruce-aspen
255 California coast live oak

SRM (RANGELAND) COVER TYPES [\[69\]](#):

103 Green fescue
109 Ponderosa pine shrubland
201 Blue oak woodland
202 Coast live oak woodland
203 Riparian woodland
204 North coastal shrub
207 Scrub oak mixed chaparral
208 Ceanothus mixed chaparral
209 Montane shrubland
214 Coastal prairie

215 Valley grassland
601 Bluestem prairie
602 Bluestem-prairie sandreed
710 Bluestem prairie
711 Bluestem-sacahuista prairie
717 Little bluestem-Indiangrass-Texas wintergrass
718 Mesquite-grama
719 Mesquite-liveoak-seacoast bluestem
727 Mesquite-buffalo grass
728 Mesquite-granjeno-acacia
729 Mesquite
731 Cross timbers-Oklahoma
732 Cross timbers-Texas (little bluestem-post oak)
733 Juniper-oak
734 Mesquite-oak
735 Sideoats grama-sumac-juniper
801 Savanna
802 Missouri prairie
803 Missouri glades
804 Tall fescue
805 Riparian
808 Sand pine scrub
809 Mixed hardwood and pine
810 Longleaf pine-turkey oak hills
811 South Florida flatwoods
812 North Florida flatwoods
813 Cutthroat seeps
814 Cabbage palm flatwoods
815 Upland hardwood hammocks
817 Oak hammocks

HABITAT TYPES AND PLANT COMMUNITIES:

Multiflora rose is found across many upland habitats in North America. As a consequence, it may be associated with a variety of plant taxa, functional guilds and communities.

Multiflora rose is listed as a "characteristic shrub" of the successional shrubland community-type in New York [66].

BOTANICAL AND ECOLOGICAL CHARACTERISTICS

SPECIES: *Rosa multiflora*

- [GENERAL BOTANICAL CHARACTERISTICS](#)
- [RAUNKIAER LIFE FORM](#)
- [REGENERATION PROCESSES](#)
- [SITE CHARACTERISTICS](#)
- [SUCCESSIONAL STATUS](#)
- [SEASONAL DEVELOPMENT](#)

GENERAL BOTANICAL CHARACTERISTICS:

Multiflora rose is a perennial shrub that forms dense, impenetrable "clumps" of vegetation. Isolated plants can produce clumps up to 33 feet (10 m) in diameter [26,63]. Bushes grow to a height of 6 to 10 feet (1.8-3 m) and occasionally 15 feet (4.6 m) [26]. Stems (canes) are few to many, originating from the base, much branched, and erect and arching to more or less trailing or sprawling. Canes grow to 13 feet (4 m) long and are armed with stout recurved prickles [34,70]. Leaves are alternate, pinnately compound, and 3 to 4 inches (8-11 cm) long with 5 to 11 (usually 7 or 9), 1 to 1.6 inch

(2.5-4 cm) long leaflets [26,33,70]. Flowers are 0.5 to 0.75 inches (1.3-1.9 cm) across and number 25 to 100 or more in long or pointed panicles. Fruits (hips) are globular to ovoid, 0.25 inches (0.64 cm) or less in diameter [26]. Seeds are angular achenes [40].

The preceding description provides characteristics of multiflora rose that may be relevant to fire ecology and is not meant to be used for identification. Keys for identifying multiflora rose are available in various floras (e.g. [33,70]). Photos and descriptions of multiflora rose are also available online from [Missouri Department of Conservation](#), [Southeast Exotic Pest Plant Council](#), and [The Nature Conservancy Wildland Invasive Species Team](#). Check with the native plant society or cooperative extension service in your state for more information.

The biology and ecology of multiflora rose are not well-studied. More research is needed to better understand its life-history and other biological traits, habitat requirements and limitations, and interactions with native North American flora and fauna.

RAUNKIAER [65] LIFE FORM:

Phanerophyte
Geophyte

REGENERATION PROCESSES:

Breeding system: No information

Pollination: No information

Seed production: Individual plants may produce up to 500,000 seeds per year [40].

Seed dispersal: Most plants develop from seeds that fall relatively close to the parent plant [78]. Some seeds are dispersed by birds and mammals [24,26,88]. Hips remain on the plant and dry to a dense, leathery capsule [24,26,78].

Seed banking:

Seeds may remain viable in the soil for 10 to 20 years, but detailed information on seed longevity is lacking [78].

Germination: Germination success may be enhanced by scarification from passing through bird digestive tracts [24].

Seedling establishment/growth: No information

Asexual regeneration: Multiflora rose reproduces asexually by root suckering and layering [24,46,63,78].

SITE CHARACTERISTICS:

Multiflora rose frequently colonizes roadsides, old fields, pastures, prairies, savannas, open woodlands, and forest edges, and may also invade dense forests where disturbance provides canopy gaps [19,40,78]. It is most productive in sunny areas with well-drained soils.

Multiflora rose is tolerant of a wide range of soil and environmental conditions, but is not found in standing water or in extremely dry areas. Its northern distribution is thought to be limited by intolerance to extreme cold temperatures, but specific information is lacking [40].

SUCCESSIONAL STATUS:

Multiflora rose is most commonly mentioned as a component of early-successional communities, such as in abandoned agricultural and pasture lands in the eastern U.S. For example, Foster and Gross [29] demonstrated how multiflora rose can gradually colonize abandoned agricultural fields in southwestern Michigan. Multiflora rose is an important component in early-successional communities of abandoned agricultural fields in New Jersey, particularly 14-22 years after abandonment [60].

Although descriptions of establishment ecology are absent from the literature, it seems apparent from sites where multiflora rose is present, that it is not limited to a specific successional stage. For example, the following table provides data on frequency of multiflora rose occurrence within sampled plots representing several different successional stages or habitats in a southeastern Pennsylvania natural area [68].

Habitat	Description	Frequency (% of plots containing multiflora rose)
old field	abandoned agricultural land, dominated by herbaceous and low shrub species	38%
thicket	old fields that have been densely colonized by small trees and shrubs	56%
woodland	even-age, 60-70 year-old early-seral forest	50%
riparian forest		57%
mature forest	mixed mesophytic and mixed oak associations	17%

In part because its seeds are bird dispersed, multiflora rose can colonize gaps in late-successional forests, even though these forests are thought to be relatively resistant to invasion by nonnative species [16]. However, without extensive or recurrent disturbance, multiflora rose is probably not a serious long-term invasion threat in mature forests. It will likely be shaded out by surrounding trees and shade-tolerant shrubs [42,68].

In addition to more research on establishment of multiflora rose, studies examining longevity of established colonies and their effects on succession of native communities would be valuable.

SEASONAL DEVELOPMENT:

Flowering occurs from late April through June, depending on location [19,24,46,70]. Fruits develop by late summer [24,70] and often persist until spring [26,78].

FIRE ECOLOGY

SPECIES: *Rosa multiflora*

- [FIRE ECOLOGY OR ADAPTATIONS](#)
- [POSTFIRE REGENERATION STRATEGY](#)

FIRE ECOLOGY OR ADAPTATIONS:

Information about multiflora rose and fire is lacking. Research is needed that examines the interactions of fire and multiflora rose, and the effects these interactions may have on native communities and ecosystems and their respective fire regimes. For instance, multiflora rose may be present in remnant or restored native Midwestern prairie communities [19]. Historically, fire has been an important ecological influence in prairie ecosystems [48]. Understanding the response of multiflora rose (and other nonnative species) to periodic fire could be critical for management and restoration efforts in these and other areas.

Many native *Rosa*

spp. survive low- to moderate-severity fire by sprouting from rhizomes or root crowns, and may germinate from on-site or off-site seed sources (see FEIS fire ecology summaries for prickly rose (*R. acicularis*), baldhip rose (*R. gymnocarpa*), Nootka rose (*R. nutkana*), and Wood's rose (*R. woodsii*) on this website).

Fire adaptations: No information

Fire regimes:

The following table lists fire return intervals for communities or ecosystems throughout North America where multiflora

rose may occur. This list is meant as a guideline to illustrate historic fire regimes and is not to be interpreted as a strict description of fire regimes for multiflora rose.

Community or Ecosystem	Dominant Species	Fire Return Interval Range (years)
silver fir-Douglas-fir	<i>Abies amabilis</i> - <i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	> 200
grand fir	<i>Abies grandis</i>	35-200 [3]
maple-beech-birch	<i>Acer</i> - <i>Fagus</i> - <i>Betula</i>	> 1000
sugar maple	<i>Acer saccharum</i>	> 1000
sugar maple-basswood	<i>Acer saccharum</i> - <i>Tilia americana</i>	> 1000 [86]
California chaparral	<i>Adenostoma</i> and/or <i>Arctostaphylos</i> spp.	< 35 to < 100 [64]
bluestem prairie	<i>Andropogon gerardii</i> var. <i>gerardii</i> - <i>Schizachyrium scoparium</i>	< 10 [48,64]
Nebraska sandhills prairie	<i>Andropogon gerardii</i> var. <i>paucipilus</i> - <i>Schizachyrium scoparium</i>	< 10
bluestem-Sacahuista prairie	<i>Andropogon littoralis</i> - <i>Spartina spartinae</i>	< 10
California montane chaparral	<i>Ceanothus</i> and/or <i>Arctostaphylos</i> spp.	50-100 [64]
sugarberry-America elm-green ash	<i>Celtis laevigata</i> - <i>Ulmus americana</i> - <i>Fraxinus pennsylvanica</i>	< 35 to 200
Atlantic white-cedar	<i>Chamaecyparis thyoides</i>	35 to > 200
beech-sugar maple	<i>Fagus</i> spp.- <i>Acer saccharum</i>	> 1000 [86]
California steppe	<i>Festuca</i> - <i>Danthonia</i> spp.	< 35
juniper-oak savanna	<i>Juniperus ashei</i> - <i>Quercus virginiana</i>	< 35
Ashe juniper	<i>Juniperus ashei</i>	< 35
western juniper	<i>Juniperus occidentalis</i>	20-70
cedar glades	<i>Juniperus virginiana</i>	3-7 [64]
yellow-poplar	<i>Liriodendron tulipifera</i>	< 35

southeastern spruce-fir	<i>Picea-Abies</i> spp.	35 to > 200 [86]
red spruce*	<i>P. rubens</i>	35-200 [18]
pine-cypress forest	<i>Pinus-Cupressus</i> spp.	< 35 to 200 [3]
pinyon-juniper	<i>Pinus-Juniperus</i> spp.	< 35 [64]
jack pine	<i>Pinus banksiana</i>	<35 to 200 [18]
shortleaf pine	<i>Pinus echinata</i>	2-15
shortleaf pine-oak	<i>Pinus echinata-Quercus</i> spp.	< 10
slash pine	<i>Pinus elliotii</i>	3-8
slash pine-hardwood	<i>Pinus elliotii</i> -variable	< 35
sand pine	<i>Pinus elliotii</i> var. <i>elliotii</i>	25-45 [86]
Jeffrey pine	<i>Pinus jeffreyi</i>	5-30
western white pine*	<i>Pinus monticola</i>	50-200 [3]
longleaf-slash pine	<i>Pinus palustris-P. elliotii</i>	1-4 [59,86]
longleaf pine-scrub oak	<i>Pinus palustris-Quercus</i> spp.	6-10 [86]
Pacific ponderosa pine*	<i>Pinus ponderosa</i> var. <i>ponderosa</i>	1-47 [3]
interior ponderosa pine*	<i>Pinus ponderosa</i> var. <i>scopulorum</i>	2-30 [3,6,50]
red pine (Great Lakes region)	<i>Pinus resinosa</i>	10-200 (10**) [18,30]
red-white-jack pine*	<i>Pinus resinosa-P. strobus-P. banksiana</i>	10-300 [18,38]
pitch pine	<i>Pinus rigida</i>	6-25 [13,39]
eastern white pine	<i>Pinus strobus</i>	35-200
eastern white pine-eastern hemlock	<i>Pinus strobus-Tsuga canadensis</i>	35-200
eastern white pine-northern red oak-red maple	<i>Pinus strobus-Quercus rubra-Acer rubrum</i>	35-200
loblolly pine	<i>Pinus taeda</i>	3-8
loblolly-shortleaf pine	<i>Pinus taeda-P. echinata</i>	10 to < 35
Virginia pine	<i>Pinus virginiana</i>	10 to < 35
Virginia pine-oak	<i>Pinus virginiana-Quercus</i> spp.	10 to < 35 [86]
eastern cottonwood	<i>Populus deltoides</i>	< 35 to 200 [64]
aspen-birch	<i>Populus tremuloides-Betula papyrifera</i>	35-200 [18,86]
quaking aspen (west of the Great Plains)	<i>Populus tremuloides</i>	7-120 [3,35,56]
mesquite	<i>Prosopis glandulosa</i>	< 35 to < 100 [55,64]
mesquite-buffalo grass	<i>Prosopis glandulosa-Buchloe dactyloides</i>	< 35 [64]
black cherry-sugar maple	<i>Prunus serotina-Acer saccharum</i>	> 1000 [86]
Rocky Mountain Douglas-fir*	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	25-100 [3,4,5]
coastal Douglas-fir*	<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	40-240 [3,58,67]
California mixed evergreen	<i>Pseudotsuga menziesii</i> var. <i>m.-Lithocarpus densiflorus-Arbutus menziesii</i>	< 35
California oakwoods	<i>Quercus</i> spp.	< 35 [3]
oak-hickory	<i>Quercus-Carya</i> spp.	< 35[86]
oak-juniper woodland (Southwest)	<i>Quercus-Juniperus</i> spp.	< 35 to < 200 [64]

northeastern oak-pine	<i>Quercus-Pinus</i> spp.	10 to < 35 [86]
oak-gum-cypress	<i>Quercus-Nyssa</i> -spp.- <i>Taxodium distichum</i>	35 to > 200 [59]
southeastern oak-pine	<i>Quercus-Pinus</i> spp.	< 10 [86]
coast live oak	<i>Quercus agrifolia</i>	<35 to 200 [3]
white oak-black oak-northern red oak	<i>Quercus alba-Q. velutina-Q. rubra</i>	< 35 [86]
canyon live oak	<i>Quercus chrysolepis</i>	<35 to 200
blue oak-foothills pine	<i>Quercus douglasii-Pinus sabiniana</i>	<35 [3]
northern pin oak	<i>Quercus ellipsoidalis</i>	< 35 [86]
Oregon white oak	<i>Quercus garryana</i>	< 35 [3]
bear oak	<i>Quercus ilicifolia</i>	< 35 >[86]
California black oak	<i>Quercus kelloggii</i>	5-30 [64]
bur oak	<i>Quercus macrocarpa</i>	< 10 [86]
oak savanna	<i>Quercus macrocarpa/Andropogon gerardii-Schizachyrium scoparium</i>	2-14 [64,86]
chestnut oak	<i>Q. prinus</i>	3-8
northern red oak	<i>Quercus rubra</i>	10 to < 35
post oak-blackjack oak	<i>Quercus stellata-Q. marilandica</i>	< 10
black oak	<i>Quercus velutina</i>	< 35
live oak	<i>Quercus virginiana</i>	10 to< 100 [86]
interior live oak	<i>Quercus wislizenii</i>	< 35 [3]
cabbage palmetto-slash pine	<i>Sabal palmetto-Pinus elliotii</i>	< 10 [59,86]
blackland prairie	<i>Schizachyrium scoparium-Nassella leucotricha</i>	< 10
Fayette prairie	<i>Schizachyrium scoparium-Buchloe dactyloides</i>	< 10
little bluestem-grama prairie	<i>Schizachyrium scoparium-Bouteloua</i> spp.	< 35 [64]
redwood	<i>Sequoia sempervirens</i>	5-200 [3,28,76]
western redcedar-western hemlock	<i>Thuja plicata-Tsuga heterophylla</i>	> 200 [3]
eastern hemlock-yellow birch	<i>Tsuga canadensis-Betula alleghaniensis</i>	> 200 [86]
western hemlock-Sitka spruce	<i>Tsuga heterophylla-Picea sitchensis</i>	> 200 [3]
elm-ash-cottonwood	<i>Ulmus-Fraxinus-Populus</i> spp.	< 35 to 200 [18,86]

*fire return interval varies widely; trends in variation are noted in the species summary

**mean

POSTFIRE REGENERATION STRATEGY [71]:

Because there is no information about multiflora rose and fire, and only sparse information about its general biological traits (as of this writing (2002)), the following postfire regeneration strategies are speculative. More research is needed to clarify how multiflora rose responds to disturbance in general, and fire in particular.

Tall shrub, adventitious bud/root crown

Small shrub, adventitious bud/root crown

Rhizomatous shrub, rhizome in soil

Ground residual colonizer (on-site, initial community)

Initial off-site colonizer (off-site, initial community)

Secondary colonizer (on-site or off-site seed sources)

FIRE EFFECTS

SPECIES: *Rosa multiflora*

- [IMMEDIATE FIRE EFFECT ON PLANT](#)
- [DISCUSSION AND QUALIFICATION OF FIRE EFFECT](#)
- [PLANT RESPONSE TO FIRE](#)
- [DISCUSSION AND QUALIFICATION OF PLANT RESPONSE](#)
- [FIRE MANAGEMENT CONSIDERATIONS](#)

IMMEDIATE FIRE EFFECT ON PLANT:

There is no information available as of this writing (2002) describing the immediate effects of fire on multiflora rose. Native *Rosa*

spp. are typically top-killed by fire, and with increasing fire severity, may be subject to root crown and rhizome damage sufficient to inhibit sprouting (see FEIS fire effects summaries for prickly rose, baldhip rose, Nootka rose, and Wood's rose).

DISCUSSION AND QUALIFICATION OF FIRE EFFECT:

No entry

PLANT RESPONSE TO FIRE:

Multiflora rose frequency was significantly ($p < 0.01$) reduced following two consecutive early-spring burns at a prairie restoration site in east-central Illinois. The reduction in frequency occurred between postfire years 1 and 2. There was no description of specific fire effects [[41](#)].

DISCUSSION AND QUALIFICATION OF PLANT RESPONSE:

No entry

FIRE MANAGEMENT CONSIDERATIONS:

In fire-adapted communities, periodic prescribed burns will presumably retard multiflora rose invasion and establishment [[40,78](#)], although descriptions of the use of prescribed fire for control of multiflora rose are lacking. In a review of management practices for multiflora rose, Evans [[24](#)] describes the use of prescribed fire to control Macartney rose (*Rosa bracteata*), another nonnative pasture species, indicating that multiflora rose may respond similarly. Macartney rose is top-killed by fire but quickly initiates regrowth, presumably by sprouting from rhizomes and/or root crowns.

While a single prescribed fire is unlikely to eradicate multiflora rose, periodic burning may control its spread and eventually reduce its presence. Any management activity that removes aboveground tissue, prevents seed production, and depletes energy reserves is likely to impact multiflora rose invasiveness, especially when conducted persistently. Periodic fire may also promote desirable native plants. Prescribed burning in Texas for controlling Macartney rose improved native grass yields, especially following winter burns [[24](#)].

MANAGEMENT CONSIDERATIONS

SPECIES: *Rosa multiflora*

- [IMPORTANCE TO LIVESTOCK AND WILDLIFE](#)
- [OTHER USES](#)
- [IMPACTS AND CONTROL](#)

IMPORTANCE TO LIVESTOCK AND WILDLIFE:

Hips are consumed by many species of birds including grouse, ring-necked pheasants and wild turkeys [[42,88](#)], and are

particularly sought after by cedar waxwings and American robins [24]. Leaves and hips are consumed by chipmunks, white-tailed deer, opossums, coyotes, black bears, beavers, snowshoe hares, skunks, and mice [20,42,62,74]. Leaves, twigs, bark and fruit are eaten by cottontail rabbits, particularly during fall and winter [42,47]. The hips of *Rosa* spp. are especially important as winter wildlife food, when other high-nutrition foods are unavailable [42].

Palatability/nutritional value: Nutritional Information for fruits (hips) of multiflora rose [15]:

Dry Matter (%)	Crude Protein (% dry matter)	Crude Fat (% dry matter)	Crude Fiber (% dry matter)	Gross Energy (kcal/g)	Metabolizable Energy (kcal/g)
72.6	9.2	4.2	24.2	4.41	3.31±1.00

Cover value: Multiflora rose is used for cover during all times of year by cottontail rabbits, white-tailed deer, pheasants, and mice [36,42]. It is a preferred nesting site species for gray catbirds [43]. Southwestern willow flycatchers, a federally-listed endangered species, were observed nesting in multiflora rose in New Mexico [72].

OTHER USES:

The origins of multiflora rose in North America stem from its use as a rootstock species for ornamental roses and as a fencerow plant [24,26].

IMPACTS AND CONTROL:

Impacts:

Multiflora rose is clearly a serious pest plant in many areas of North America. It invades pasture areas, degrades forage quality, reduces grazing area and agricultural productivity and can cause severe eye and skin irritation in cattle [46,51]. Multiflora rose can spread rapidly, severely restricting access to pasture and recreational areas with "impenetrable thickets" [42,46,51,78]. Its characteristic dense growth of foliage and stems inhibits growth of competing native plants [42,78]. In a survey of federal wilderness managers, multiflora rose was mentioned as a "widely reported problem species" in Alabama, Arkansas, and Kentucky [53].

Detailed quantitative studies are needed to assess the impacts of multiflora rose on native ecosystems. Research that documents parameters such as rate of spread or species and numbers of native plants displaced would help in understanding how to manage areas where multiflora rose might be a problem.

Control:

Controlling multiflora rose requires determined, persistent effort. Well-established populations are unlikely to be eradicated with a single treatment, regardless of method. Because seeds remain viable in soil for many years, and because new seeds may be continually imported by birds and other animals, effective management requires post-treatment monitoring and spot treatment as needed for an indeterminate time to prevent reinvasion [46].

For more information on multiflora rose control methods see [Ohio State University Extension](#), [Missouri Department of Conservation](#), [Illinois Department of Natural Resources](#) or [West Virginia University Extension](#) websites.

Prevention:

Cultural practices that enhance vigor of desired plant species can create an environment less favorable for establishment of multiflora rose [37]. Mowing pastures several times per year will prevent seedling establishment. Avoiding overgrazing may also help prevent multiflora rose establishment (see grazing/browsing section below) [26].

Integrated management: No information

Physical/mechanical:

Multiflora rose can be controlled by periodic mowing or cutting of individual plants. For pre-existing infestations, 3 to 6 mowings or cuttings per year, repeated for 2 to 4 years, is recommended. Painting or spraying cut stems with herbicides expedites control by killing root systems and preventing resprouting [78]. Another approach is to follow an initial mowing with foliar applied herbicide once plants have resprouted [46] (see chemical control section below). In high quality natural areas, cutting individual stems may be preferable to mowing, since repeated mowing might damage sensitive native plants. For large infestations, mowing may be preferable due to efficiency. Mowing equipment may be

susceptible to frequent flat tires from multiflora rose thorns [78]. Periodic annual mowing can also prevent multiflora rose seedlings from becoming established [37]. Removal of entire plants may be feasible in high quality natural areas when populations are sparse enough. Removal of the entire root system is required to ensure no regrowth from suckering [40].

Fire: See [Fire Management Considerations](#).

Biological:

Multiflora rose is highly susceptible to rose rosette disease (RRD), which is transmitted by the eriophyid mite *Phyllocoptes fructiphilus* [1,2]. The virus-like agent that causes RRD remains of uncertain etiology as of this writing (2002). Symptoms include reddened, damaged foliage, shortened petioles (producing the telltale "rosette" appearance), severely reduced flowering and fruiting, and eventually, severely retarded apical growth. In general, smaller plants are killed by the disease within 2-3 years of initial symptoms, while larger, multi-crowned plants may survive for as long as 4-5 years. Plants growing in full sun appear to succumb more rapidly than shaded plants [21].

Multiflora rose is often severely impacted by RRD where their ranges overlap. The disease agent and the mite vector are native to North America [11]. RRD was first found on ornamental roses and Wood's rose, a common wild rose also native to western North America. RRD is currently expanding its range in the eastern United States, where multiflora rose is more common [2]. Based on field experiments, Amrine and Stasny [2] project that RRD "has the potential to eliminate over 90 % of the multiflora roses in areas of dense stands."

RRD can also be transmitted to healthy multiflora rose plants by grafting buds from symptomatic plants. This technique may be useful in augmenting natural dispersal of RRD to improve its effectiveness as a biological control agent against multiflora rose. Introducing a few infected grafts into relatively dense stands can potentially lead to widespread infection within a multiflora rose population. Graft-infected plants subsequently become colonized by mites, which in turn become vectors transmitting RRD to other plants within the augmented stand, as well as spreading the disease to other nearby populations [22,23].

The host range of RRD appears to be limited to multiflora rose and ornamental hybrid rose varieties [2]. RRD does not seem to adversely affect native North American roses, and tests of many important wild and cultivated fruit-producing species showed no apparent risk [2,23]. While RRD can infect ornamental roses, infected source plants (multiflora rose) located > 330 feet (100 m) away are unlikely to spread infectious agents to susceptible hybrid varieties [23].

Epstein and Hill [22] provide a more detailed review of the status of RRD as a biological control agent for multiflora rose.

Another potential biocontrol agent is the rose seed chalcid (*Megastigmus aculeatus*), a Japanese wasp that has become established in the eastern United States. The adult wasps oviposit into developing multiflora rose ovules, where larvae later consume seeds [2]. Surveys in North Carolina revealed an average of 62% of viable seed infested with larvae [61]. Colonization of new multiflora rose populations by the rose seed chalcid is apparently slow. Wasps are dispersed with the seed as eggs. Since many multiflora rose populations originated from cuttings, with no accompanying seed chalcid eggs, many recently established populations have not yet been infested. However, as the rose seed chalcid gradually spreads, it should begin to greatly impact multiflora rose populations in the eastern United States, especially when combined with the parallel effects of rose rosette disease [2]. The rose seed chalcid is probably not a factor in areas that experience severe cold, since the larvae overwinter in multiflora rose hips and are adversely affected [54].

Grazing/Browsing:

Defoliation experiments indicate periodic browsing of foliage by livestock may effectively control multiflora rose [12]. Domestic sheep and goats will feed on leaves, new buds, and new shoots [46]. Foraging goats in pastures with severe multiflora rose infestations resulted in the virtual elimination of multiflora rose within 4 seasons. New shoots were observed during 2 subsequent seasons of no goat foraging, and these shoots were thought to be of both sprout and seed origin [52]. Cattle are much less effective in controlling multiflora rose [51]. While periodically foraging livestock in infested areas may be an effective control method, overgrazed pastures are presumably more susceptible to colonization from off-site seed sources [26].

Chemical:

Where appropriate, herbicides may be an effective means of controlling multiflora rose, especially when used in

combination with other methods. Below is a list of herbicides that have been tested and judged effective for controlling multiflora rose in North America, as well as a brief discussion of important considerations regarding their use. This is not intended as an exhaustive review of chemical control methods. For more information regarding appropriate use of herbicides against invasive plant species in natural areas, see [The Nature Conservancy's Weed Control Methods Handbook](#) as well as TNC's [Wildland Invasive Species Program](#) web page. For more information specific to herbicide use against multiflora rose, see [Ohio State University Extension](#), [Missouri Department of Conservation](#), or [Pennsylvania State University Extension](#) websites.

Chemical	Considerations
glyphosate [7 , 75 , 78]	Glyphosate is recommended for "cut-stem" method [78]. It is a non-selective herbicide that kills most other plants that it contacts. It has low toxicity to animals and it rapidly binds to soil particles making it relatively immobile [79].
triclopyr [7 , 78 , 82]	Triclopyr is recommended for "cut-stem" method [78]. It is also recommended for dormant-season basal bark treatment. It may volatilize when exposed to high temperatures (80 to 85 degrees Fahrenheit (27- 29° C)) [46]. It is selective against dicots. The ester formulation of triclopyr can be persistent in aquatic environments and should not be applied in wetland habitats [79].
picloram [7 , 75 , 82]	Picloram may be mobile in soil solution and can leach into nearby surface water [57 , 79]. It exhibits long residence time in the environment [79].
fosamine	Fosamine only kills woody spp. [78]. It may be mobile in soil solution [79].
dicamba [78]	Dicamba is selective against broadleaf vegetation. It is best applied during flowering and rapid growth (May-June) [78]. It is also recommended for dormant-season basal bark treatment [46]. Dicamba may volatilize when exposed to high temperatures (80 to 85 degrees Fahrenheit (27- 29° C)) [46]. It is highly mobile in soil and may contaminate ground water [83].
dicamba + 2,4-D [82]	See considerations for dicamba, above.
metsulfuron [17 , 81]	Persistence in soil varies widely, but degradation is most rapid under acidic, moist, and warm conditions [83].

Applying herbicides to cut stems can hasten mechanical control by translocating chemicals to root systems and preventing resprouting. In addition, applying chemicals directly to the target plant in this manner reduces damage to surrounding native plants [[78](#),[87](#)], and presumably reduces off-target effects. Cut-stem treatment is effective late in the growing season (July-Sept.) [[46](#)].

Foliar spraying is effective throughout the growing season as long as leaves are fully formed. Some herbicides may volatilize when temperatures exceed 80 to 85 degrees Fahrenheit (27- 29° C) and are best applied in early spring [[46](#)]. Some variation in herbicide effectiveness during different stages of the growing season has been observed, but is probably not related to differences in carbohydrate reserves [[27](#)].

Dormant season application is also effective, and further reduces nontarget mortality [[78](#)]. Basal bark treatment, applied to the lower 18 to 24 inches (46-61 cm) of the stem and onto the root crown, is a recommended chemical control method for dormant season application. Plants should be dormant and several weeks from bud break (usually January- March), and treatments should only be conducted when soil is not frozen, snow-covered, or water-saturated to avoid runoff [[46](#)]. Follow-up monitoring and retreatment during the subsequent growing season may be required to ensure effectiveness [[37](#)].

Cultural: No information

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