

Common buckthorn, *Rhamnus cathartica*

Glossy buckthorn, *Frangula alnus*

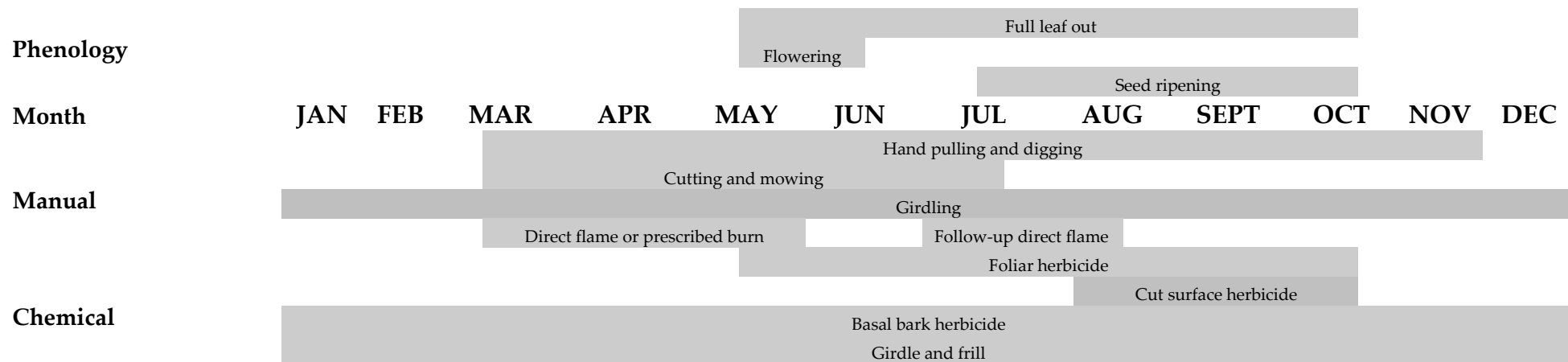
Species Biology and Phenology:

Habitat: Common buckthorn can form extensive monocultures in open woods, pastures, fencerows, roadsides, and in the understory of floodplain and riparian forests. It grows in well-drained soils, preferring neutral to basic soils. Glossy buckthorn typically inhabits wetter, less shaded and more acidic soils than common buckthorn. Typical habitats include alder thickets, calcareous wetlands, sedge meadows, sphagnum bogs, spruce woods and heath-oak woods. Common buckthorn is intermediate to shade tolerant. Glossy buckthorn is less shade tolerant than common buckthorn.

Reproductive Strategy: Buckthorns reproduce by seed but plants can root sprout or regenerate even after they are cut or burned. Plants mature at 5-6 years old. Seed production is prolific. Common buckthorn fruits ripen from August to September while glossy buckthorn fruits ripen earlier—July to August. Seed germination rates are high and germinate well in the shade. Seeds remain viable for at least 2 years.

Dispersal: Seeds contain a chemical that has a severe laxative effect for birds and thus are readily dispersed by birds and small mammals. The dry fruit is able to float in water from 6-19 days depending on the species. Therefore, in areas of frequent and extensive fall and winter flooding, water dispersal may be significant. Common buckthorn retains their fruit into/throughout the winter. Glossy buckthorn fruit falls to the ground more rapidly after ripening, which makes them less visible to birds and thus less likely to be dispersed long distances.

Species Phenology and Treatment Options:



Treatment Methods:

Category	Method	Method Description	Considerations
MANUAL		<p>Manual treatment can be highly effective for glossy and common buckthorn</p> <p>Common and glossy buckthorn do not leaf out as many other non-native invasive plants, however, they typically retain their leaves longer into the late summer/fall, thus making them easy to detect later in the season</p>	
	Hand Pulling	<ul style="list-style-type: none"> • Pull entire plant by the base of the stem • Be sure to remove entire root system • If feasible and fruit is present, bag and dispose of fruits to prevent seed dispersal • Dry or burn all vegetation (most importantly roots) by hanging upside down on surrounding vegetation or piling into a brush pile and burning. 	<ul style="list-style-type: none"> • Effective on small-medium sized plants and small infestations • Most effective if done when soil is wet • Remaining portions of roots system not removed can re-sprout • Use thick gloves when pulling to avoid injury from spines • Avoid dragging or piling pulled plants into an area that is currently uninfested • Common buckthorn can have a very long trailing root making pulling difficult
	Weed Wrenching	<ul style="list-style-type: none"> • Remove plant by the base of the stem • Be sure to remove entire root system • If feasible and fruit is present, bag and dispose of fruits to prevent seed dispersal • Dry or burn all vegetation (most importantly roots) by hanging upside down on surrounding vegetation or piling into a brush pile and burning 	<ul style="list-style-type: none"> • Can be more helpful than pulling for larger plants • Common buckthorn can have a very long trailing root making pulling difficult
	Mowing/ Cutting	<ul style="list-style-type: none"> • Use lopper, pruning shears, weed whacker/brush saw or mower to cut the stem as close to the ground as possible • Cut at least 1 times during growing season (mid April-mid October) • Repeat for 3-5 years 	<ul style="list-style-type: none"> • Cutting/mowing can help slow the spread of barberry but will not eradicate it • Most effective if followed up with foliar herbicide application or direct flame weeding • Winter cutting should be avoided as it encourages vigorous re-sprouting
	Girdling	<ul style="list-style-type: none"> • Cut anywhere between 5-50" above the ground using a knife, ax, or saw 	<ul style="list-style-type: none"> • Girdling will stimulate re-sprouting so follow-up treatment and monitoring is necessary

		<ul style="list-style-type: none"> • Cut through the bark into the phloem in a 4-5" wide strip (depending on tree size) • Cut in either a continuous strip or evenly spaced patches • Cut through the bark into the phloem • Peel/knock the intervening bark off the stem 	<ul style="list-style-type: none"> • Girdling can be very labor intensive so is only feasible for small infestations or in areas needing an alternative to herbicide application • Girdling can be paired with a herbicide application
CHEMICAL	Active ingredients in commonly used herbicides: glyphosate or triclopyr		
	Foliar Application	<i>If foliar spraying only:</i> <ul style="list-style-type: none"> • Foliar spray when plant is fully leafed out (May-October) • Spray leaf surfaces with low volume backpack sprayer, or high volume mist blower 	<i>Low Volume Backpack Sprayer</i> <ul style="list-style-type: none"> • Herbicides (active ingredient): glyphosate or triclopyr with surfactant • Used to target barberry plants and minimize drift to desirable species
		<i>If cutting and foliar spraying:</i> <ul style="list-style-type: none"> • Use lopper, pruning shears, weed whacker/brush saw or mower to cut the stem as close to the ground as possible • Cut during early growing season (April and May) • Spray sprouts with a low volume backpack sprayer during late growing season (September and October) 	<i>Low Volume Motorized Mist Blower</i> <ul style="list-style-type: none"> • Herbicides (active ingredient): glyphosate or triclopyr with surfactant • Used for very larger and dense infestations that have little desirable, native vegetation that will be damaged by drift
	Cut Stump	<ul style="list-style-type: none"> • Cut stems in late summer to early fall • Cut stems 2-4" above the ground • Apply herbicide immediately after cutting the exposed surface using a sponge, brush, hand-held squirt bottle or directly pouring • Apply herbicide to at least the outer 20% of the surface • Monitor and do follow up treatment as the following year and as necessary 	<ul style="list-style-type: none"> • Herbicides (active ingredient): glyphosate, triclopyr mixed with surfactant • Multiple stems of Japanese barberry can make this application method very labor intensive but is recommended for larger plants
Basal Bark	<ul style="list-style-type: none"> • Us a low pressure, low volume backpack sprayer • Apply herbicide around the entire circumference of the lower 8-18" of individual stems of the plant and include the root collar • Larger stems require the larger treated area (18" up 	<ul style="list-style-type: none"> • Herbicides (active ingredient): triclopyr in an oil or oil-water mixture • Used to target buckthron plants and minimize drift to desirable species • This application can be used in colder 	

		<p>the stem)</p> <ul style="list-style-type: none"> • Smaller plants (<2") can be sprayed on one side only • Do not spray to the point of runoff 	<p>temperatures (fall, winter, and spring) as long as the treated area is not buried in snow</p>
	Girdle and Frill	<ul style="list-style-type: none"> • Cut anywhere between 5-50" above the ground using a knife or saw • Cut through the bark into the phloem in a 4-5" wide strip (depending on tree size) • Cut in either a continuous strip or evenly spaced patches • Cut through the bark into the phloem • Peel/knock the intervening bark off the stem • Apply herbicide to the cambial layer in the fresh cuts using a paint brush, squirt bottle, or backpack sprayer 	<ul style="list-style-type: none"> • Herbicides (active ingredient): glyphosate or triclopyr
	Cut Surface	<ul style="list-style-type: none"> • Cut stems 2-4" above the ground • Apply herbicide up to one month following cutting using a sprayer, hand-held squirt bottle or directly pouring • Apply herbicide around the entire circumference of the cut surface until wet • Do not apply herbicide until the point of runoff 	<ul style="list-style-type: none"> • Herbicides (active ingredient): triclopyr in an oil or oil-water mixture • Recommended for scattered or light infestations of large plants • Used to target large buckthorn plants and minimize drift to desirable species