

## Identification Comparisons of Invasive Buckthorn to Native Plants in NE Minnesota



### Common Buckthorn – *Rhamnus cathartica* (noxious weed – invasive)



EDDMapS, taken by Paul Wray, Iowa State University



Elizabeth J. Czarapata



MinnesotaSeasons.com



Copyright 2013 by Donald Drife - Webpage [Michigan Nature Guy](http://MichiganNatureGuy.com)

Circled in **Blue** (Blue), notice how the buds and leaves look almost opposite to each other. Common Buckthorn has sub-opposite leaves that sometimes can be so close together that they can appear to be opposite, but more commonly they are visibly seen as being sub-opposite. Sometimes they can be far enough apart to look alternate, which has been known to confuse people in identifying this species.

Circled in **Red** (Red), notice the terminal end of this stem. The terminal branch has died and become a modified thorn (preventing a terminal bud from forming) and with the two sub-opposite buds next to it, creates a resemblance of a buck's hoof, which is how this plant received its name.

Circled in **Orange** (Orange), is Crown Rust (*Puccinia coronata*), a fungus that sometimes infects Common Buckthorn and alternates infections with Oats or Barley, lowering yield for farmers.

In the picture just to the left, you can see the orange color just underneath the bark. Also circled in **Red** (Red) to the far left are dead branches that act as thorns. These modified branches derived from the above pictures.

**Glossy Buckthorn** – *Frangula alnus* (noxious weed – invasive)



Elizabeth J. Czarapata



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Glossy Buckthorn Seedling



Taken by Jeffrey Flory, 2014

Leaf margins entire  
(smooth edges)



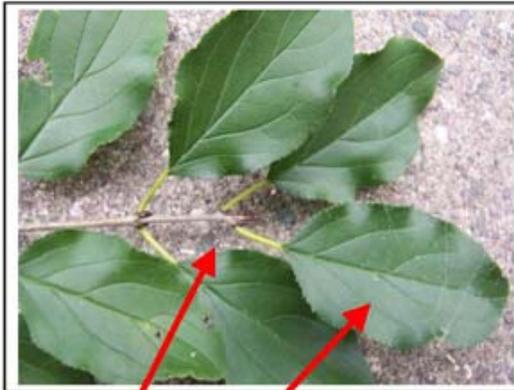
© RestoringTheLandscape.com

Notice on the previous page how Common Buckthorn has teeth along its margins (leaf edges) and Glossy Buckthorn does not (leaf margins entire). Glossy Buckthorn has a “glossy look” to its leaves where as Common Buckthorn has more of a dull sheen. The leaf veins are also very distinctive to Glossy Buckthorn, they are deeper and have a fish bone look to them. Glossy Buckthorn also lacks the thorn at the tip of their branches.

**Common Buckthorn**  
(most common)

**Glossy Buckthorn**  
(wet areas)

**Glossy Buckthorn**



Glossy leaves with deep, prominent leaf veins. Leaf edged with small teeth

Leaves almost directly across from each other, thorn at tip of twig



(C) 2002, Gary Fewless

Similar to Common Buckthorn, leaves extremely glossy with deep veins and leaf margin is smooth, without teeth



FOR PREVIEW ONLY

Another common name for Glossy Buckthorn is Alder Buckthorn because from a distance, those deep leaf veins make it look like our native Alder (see page 8), but up close, you can see the differences. Our native alder has double serrated leaves and Glossy Buckthorn does not. Common Buckthorn has green unripe berries and Glossy Buckthorn has red unripe berries, both ripen to black. Even though most places consider Glossy Buckthorn to only invade wet areas, it has been observed that after they become established in these wet areas, it will then expand into the upland forests as well. For example, Glossy Buckthorn is found in the rocky, dry slopes at Enger Tower in Duluth, Minnesota, performing extremely well outside of its known preferences of wet sites.

## Look-a-like Native Plants

The following plants are native and look similar to either Common Buckthorn and/or Glossy Buckthorn. Not all native species that look like Buckthorn are on this ID guide because what looks similar to Buckthorn varies from person to person.

### Bunchberry – *Cornus canadensis* (native)

With flower



Jeffrey Flory – Superior National Forest 2014

Without flowers, Bunchberries look similar to buckthorn seedlings



©northernshade.ca

### Pyrola ssp. (native)

All *Pyrola* species look fairly similar to each other. This species was seen at Moose Mountain SNA and St. Louis/Red River Stream Bank Protection Area, WI.



Jeffrey Flory – Moose Mountain SNA, MN 2014

### Common Buckthorn

Cluster of 1 year old seedlings



Taken by Jeffrey Flory, 2014

### Alder-leaved Buckthorn

*Rhamnus alnifolia* (native)



Robert H. Mohlenbrock. USDA NRCS. 1995. *Northeast wetland flora: Field office guide to plant species*

### New Jersey Tea – *Ceanothus americanus* (native)



Trees, Shrubs, Woody Vines of North Carolina

Another species that have leaves that look similar to Common Buckthorn is New Jersey Tea (*Ceanothus americanus*). It's growth habit does not look like Common Buckthorn because New Jersey Tea is a low growing shrub. This species is in the Buckthorn family (*Rhamnaceae*)

One reason why we do not have a bio-control for Buckthorn is that all the species that eat or infect Buckthorn in their native habitats are generalists and will effect many native species in the US, or are specialists to Buckthorn species, but were found to also eat our native Buckthorn species. Due to past bio-controls becoming invasive or problematic, vigorous testing are performed prior to introducing into the United States. The tests performed for these invasive Buckthorns have determined that there are not viable bio-controls for them.

**Black Cherry** – *Prunus serotina* (native)

Image of leaves



Virginia Tech Dept. of Forest Resources

Image of immature bark



Kenraiz – Wikipedia.org

Image of mature bark



Virginia Tech Dept. of Forest Resources

**Common Buckthorn** – *Rhamnus cathartica* (noxious weed – invasive)

Image of leaves



EDDMapS, taken by Paul Wray, Iowa State University

Image of immature bark



©G D Bebeau

Image of seedling (cotyledons)



Jeffrey Flory, 2012

**Common Buckthorn** – *Rhamnus cathartica* (noxious weed – invasive)

Image of intermediate bark



2008 Josh Sayers

Image of mature bark



2008 Josh Sayers

**Choke Cherry** – *Prunus virginiana* (native)

Leaf



Bark



Winter Twig (buds and leaf scar)



Virginia Tech, Dept. of Forest Resources and Environmental Conservation. Photos and text by: John Seiler, Edward Jensen, Alex Niemiera, and John Peterson

**Choke Cherry** – *Prunus virginiana* (native)

Leaf variability



(C) 2002, Gary Fewless

**Pin Cherry** – *Prunus pensylvanica* (native)

Leaves



Hiker's Guide to the Trees, Shrubs, and Woody Vines of Ricketts Glen State Park - Third Edition (Web)

**Canada Plum** – *Prunus nigra* (native)

Leaves



Lady Bird Johnson Wildflower Center – photo by Mariann Watkins

Bark



photo by R. W. Smith

Many woody species from the Rose Family (*Rosaceae*) can easily be mistaken for Common Buckthorn. These species include native Cherries, Plums, and Hawthorns (p 9). Many times, it is the bark of young and adult Black and Choke Cherries that people can be accidentally cut and treated for Buckthorn. The small, spindly look of Cherry saplings are also easy to misidentify or not notice growing in a patch of Buckthorn saplings. The key to help reduce accidental casualties of native Cherry species is to check the buds and twigs, which lack the thorns and more symmetrical, terminal buds.

**Serviceberry** (Juneberry) species – *Amelanchier* ssp. (native species)

USDA has listed 10 different Serviceberry species present in Minnesota. All are listed as being present within the Ceded Territory with the exception of one without specified counties listed. Because of this, the general characteristics will be shown and examples of varying leaf characteristics between some of the species for identification due to the variety and number of species that could be misidentified as Buckthorn. As circled in **Yellow** (Yellow) Serviceberries also have a long, pointed terminal bud.

**Downy** (Common) **Serviceberry** – *Amelanchier arborea* (native)



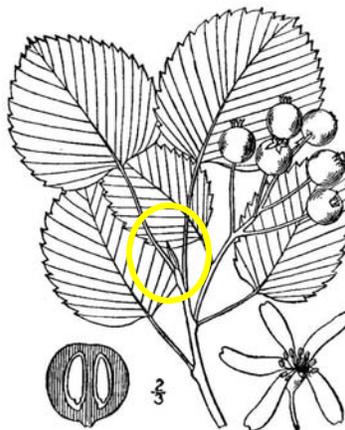
Hiker's Guide to the Trees, Shrubs, and Woody Vines of Ricketts Glen State Park - Third Edition (Web Page)

**Saskatoon Serviceberry** – *Amelanchier alnifolia* (native)



Botanical Garden and Centre for Plant Research

**Roundleaf Serviceberry** – *Amelanchier sanguinea*



Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. Vol. 3

Buckthorn is easiest to find in mid to late fall when it still retains its leaves and most other native plants have already dropped their leaves. Winterberry is one of the few natives that retain their leaves late into fall, turning a greenish yellow color. Buckthorn's leaves usually stay dark green, but on occasion, will turn a similar color.

**Common Winterberry** – *Ilex verticillata* (native)



NRE 436 – many pictures come from Steve Baskauf at Vanderbilt University

Trees, Shrubs, Woody Vines of North Carolina

**Yellow Birch** – *Betula alleghaniensis* (native)

Leaves, spur branch, and branch



©2009 Gary Fewless

Trees of Wisconsin

Bark



©2010 Gary Fewless

Trees of Wisconsin

In our area, we have quite a few Birch tree species that can be easily misidentified as Common Buckthorn. The important characteristics to look for are the buds, catkins, spurs, and lack of thorns. Birch leaf margins are also double serrated where as Common Buckthorn has regular serrated leaf margins.

**Yellow Birch** – *Betula alleghaniensis* (native)

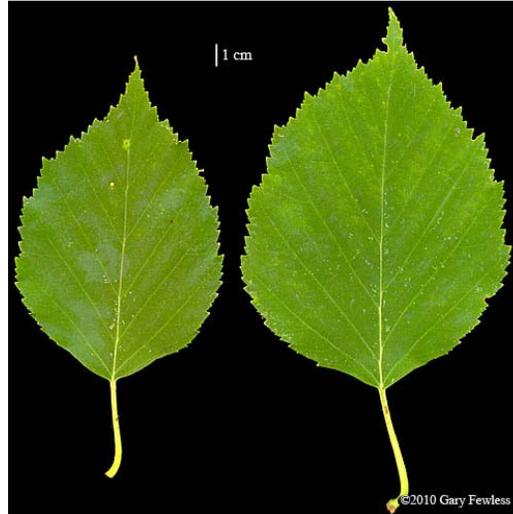
Spur branch and bud



©2010 Gary Fewless

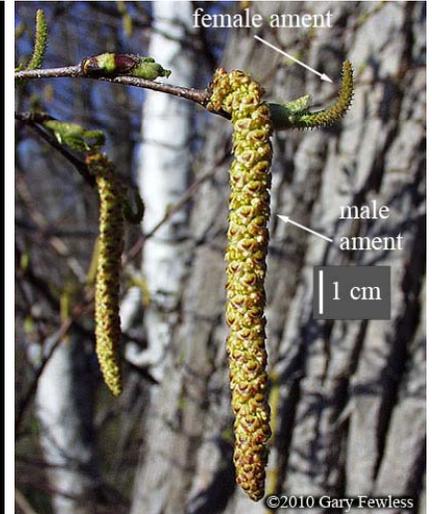
**Paper Birch** – *Betula papyrifera* (native)

Leaves



©2010 Gary Fewless

Catkins



©2010 Gary Fewless

**River Birch** – *Betula nigra* (native)

Leaves



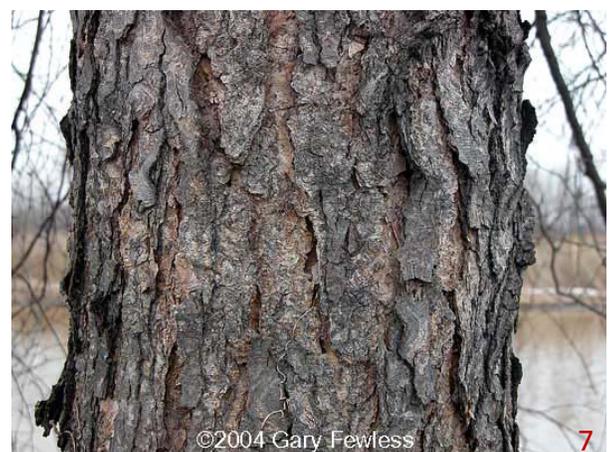
(C) 2002, Gary Fewless

Young bark



©2004 Gary Fewless

Mature Bark



©2004 Gary Fewless

**Alders** – *Alnus* ssp. (native species)

Three Alder species are present within the Ceded Territory. Only one species will be represented in this comparison.

**Speckled Alder** – *Alnus incana* (native)



**Glossy (Alder) Buckthorn** - *Frangula alnus* (noxious weed)



Notice how similar the venation is between these two species. Also to note is that *Alnus* ssp. will lose their fuzzy look and have a more glossy look to them as the leaves mature. *Alnus* species have dry fruits that can also resemble Glossy Buckthorn berries from a distance. Once up close, they are easy to tell apart with Alders having double serrated leaves while Glossy Buckthorn doesn't (leaves are entire).

**Downy Arrowwood** – *Viburnum rafinesquianum* (native)



personal.umich.edu

Notice that Downy Arrowwood has opposite leaves where as Common Buckthorn has sub-opposite and Glossy Buckthorn has alternate leaves. Arrowwood also has bigger indented teeth along their leaf margins when compared to Buckthorn species.

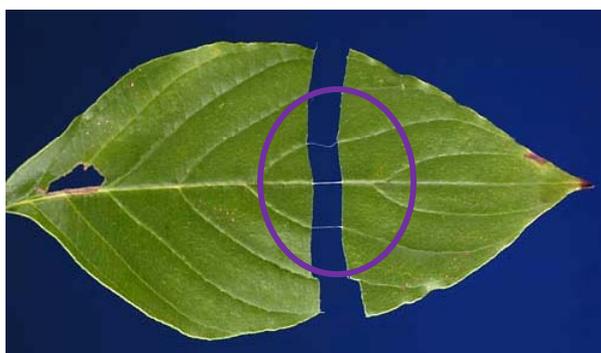
**Dogwoods** – *Cornus* ssp. (native species)

Four Dogwood species are present within the Ceded Territory. Only one species will be represented in this comparison.

**Gray Dogwood** – *Cornus racemosa* (native)



by Will Cook – Trees, Shrubs, and Vines of North Carolina



sfrc.ufl.edu

Dogwood species are another shrub that can be mistaken as buckthorn. One way to tell the difference is that all but one species has opposite leaves (*Cornus alternifolia* is the exception that has alternate leaves). Even with this difference, it can sometimes be difficult to tell them apart because Common Buckthorn has sub-opposite leaves that can fool some into thinking it is opposite leaves or cause others to think that Dogwood is Buckthorn. An easy way to help tease these two apart is to gently tear the leaf in half, against the direction of the veins (as demonstrated in the picture on the left). If fibrous strands become exposed, circled in Purple (Purple), then it is a Dogwood species, but if fibrous strands are not present, then it is not a Dogwood species.

**Alternate-leaved Dogwood** – *Cornus alternifolia* (native)



Alternate-leaved Dogwood (*Cornus alternifolia*) is the exception to Dogwood species having opposite leaves, as suggested by its name. Alternate-leaved Dogwood is on the right of this picture, compared to Common Buckthorn on the left, circled in Blue (Blue).

Picture taken by Bruce Anderson, MN DNR



[http://en.wikipedia.org/wiki/Cornus\\_alternifolia](http://en.wikipedia.org/wiki/Cornus_alternifolia)  
This illustration was made by Cody Hough

**Nannyberry** – *Viburnum lentago* (native)

Leaves



Shrubs of Wisconsin

Buds



Shrubs of Wisconsin

All Viburnum species have opposite leaves. A phrase to help identify species with opposite leaves is MAD V: Maple, Ash, Dogwood, and Viburnum. By remembering this acronym and the groups of species that goes with each letter, you will know many of the native species in Minnesota. Of course there are a few species that do not fit this broad ID aid. Alternate-leaved Dogwood does not follow this, and all species in the Honeysuckle family have opposite leaves.

**Cockspur Hawthorn** – *Crataegus crus-galli* (native)

Gnarly tree out in the wild



National Education Network Gallery

Leaves and branch thorns



botgard.ucla.edu

Hawthorns are an uncommon species that can be found in our area (mentioned on page 5). There are about 15 species in our state and five are known to be in our area. With their thorns, rough bark, and gnarled look, it is easy to mistaken this native, an ecologically important species, with buckthorn. Hawthorns have flowers that look like cherry blossoms (rose family) that are usually white. Their thorns are distinctive from Buckthorn, growing from the branch rather than being a modified branch, formed from the tip.

**Honeysuckle** species – *Lonicera* ssp. (invasive)

Many Non-native Honeysuckles are a huge problem in woodlands and forests. In Minnesota, the DNR considers them invasive, are not listed as a noxious weed, but is currently being reviewed and could potentially be listed as a noxious weed by 2017. This means that even though many government organization in Minnesota are fighting this species, it is still legal to buy and plant them throughout the state. Make sure to remove this species while you remove Common and Glossy Buckthorn. Three Rivers Park District learned this the hard way. After removing Buckthorn from a woodland floodplain, they had left the Non-native Honeysuckle alone, only to discover five years later that it had become a forest of Honeysuckle that was also difficult to control. Currently, there is only one species of Non-native Honeysuckle within the Ceded Territory. There are however, other Non-native Honeysuckles nearby, native Honeysuckles that grow in the Ceded Territory, and other native shrub species that look similar to Non-native Honeysuckles.

**Tatarian Honeysuckle** – *Lonicera tartarica* (invasive shrub present in the Ceded Territory)

Leaves and berries



Rob Routledge: forestryimages.org

A few physical characteristics to keep in mind are that all *Lonicera* ssp. have opposite leaves. Tatarian Honeysuckle is present in 1854's Ceded Territory. It has orange stems and the bark is very paper pealy looking. Branches that touch the ground will re-root and spread vegetatively this way. Another note to keep in mind is that if you remove some of the smaller ones by hand pulling, make sure to hang it in a tree or on a rock because most Honeysuckle species will re-root if given the chance.

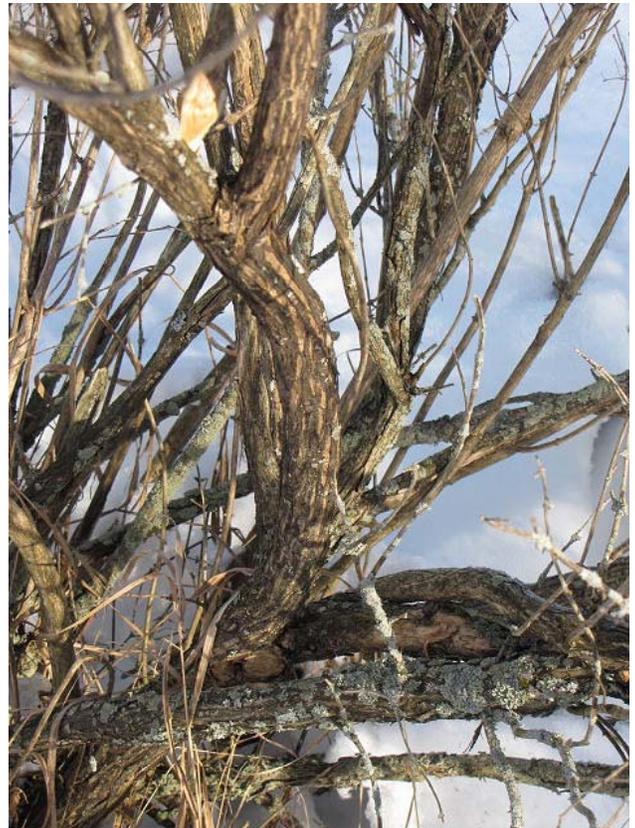
Present in Minnesota, but not found in Ceded Territory yet

**Morrow's Honeysuckle** – *Lonicera tmorrowii* (invasive)



© 2002 Janet Novak  
ct-botanical-society.org

Typical shrub growth habit and bark



Sharkbytes (J.H. Young) - Mason County, MI, January 2010:

**Bell's Honeysuckle** – *Lonicera x bella* (invasive)

Bell's Honeysuckle is a hybrid of Tatarian and Morrow's



Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

**Bell's Honeysuckle** – *Lonicera x bella* (invasive)

Feature(s); Left: *L. morrowii*, Center: *L. x bella*, Right: *L. tatarica*



Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

**Japanese Honeysuckle**

Infestation



Chuck Bargeron, University of Georgia, Bugwood.org

**Japanese Honeysuckle** – *Lonicera japonica* (invasive vine)

Japanese Honeysuckle has not been found in Minnesota yet, but is nearby in Wisconsin and Ontario, Canada.



Ted Bodner, Southern Weed Science Society



Chuck Bargeron, University of Georgia



Chris Evans, River to River CWMA



James H. Miller, USDA Forest Service



Tom Heutte, USDA Forest Service

All photos of Japanese Honeysuckle came from Bugwood.org

## Look-a-like Native Plants

Native *Lonicera* shrubs

### American Fly Honeysuckle – *Lonicera canadensis* (native)



Uploaded by Albert Herring – Superior National Forest

Another native shrub is **Swamp Fly Honeysuckle** (*Lonicera oblongifolia*).

Native *Lonicera* vines

### Hairy Honeysuckle – *Lonicera hirsuta* (native vine)



Rob Routledge, Sault College, Bugwood.org

### Northern Honeysuckle Bush – *Diervilla lonicera* (native)



### Mountain Fly Honeysuckle – *Lonicera villosa*



University of Wisconsin – Steven's Point: by Emmet J. Judziewicz

### Limber Honeysuckle – *Lonicera dioica* (native)



University of Wisconsin – Steven's Point: by Emmet J. Judziewicz

*Diervilla lonicera* is in the Honeysuckle family (Caprifoliaceae), but not in the genus. It can grow in large patches that can look like an infestation of Non-native honeysuckles, but does not grow nearly as tall. *Diervilla* has toothed margins where as the *Lonicera* species does not.

Pictures to the left: taken by Jeffrey Flory  
ID guide was created by Jeffrey Flory

**American Highbush Cranberry** – *Viburnum opulus* var. *americanum* (native)

Leaves



Flowers



[http://minnesotaseasons.com/Plants/American\\_highbush\\_cranberry.html](http://minnesotaseasons.com/Plants/American_highbush_cranberry.html)

All *Viburnum* species are in the Honeysuckle Family. American Highbush Cranberry is in this family, which means you can easily mistake it to be Non-native Honeysuckle in the winter.

Berries



<http://dendro.cnre.vt.edu/dendrology/images/>

**European Highbush Cranberry** – *Viburnum opulus* var. *opulus* (non-native)

Petiole glands



Petiole glands

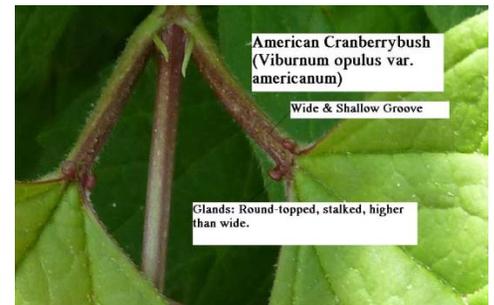


<http://www.transformationalgardening.com/>

<http://www.transformationalgardening.com/>

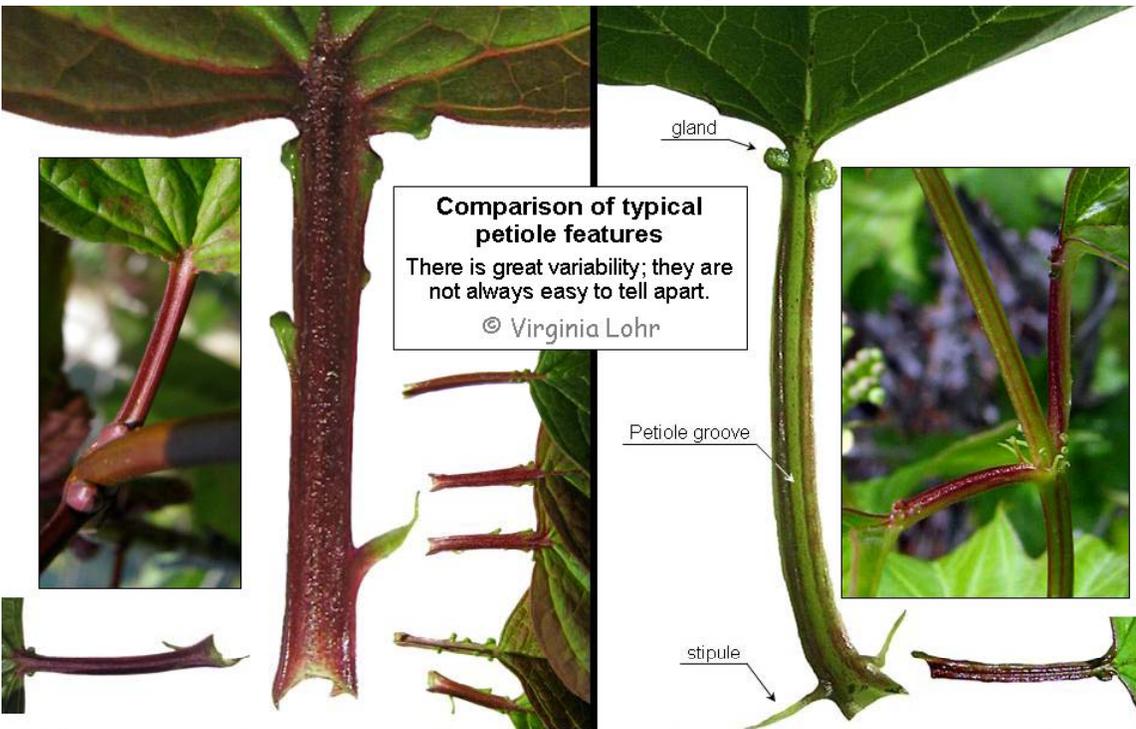
**American Highbush Cranberry**

Petiole glands



<http://www.transformationalgardening.com/>

Unfortunately, a close relative of our American Highbush Cranberry from Europe was brought here for landscaping and has escaped cultivation (*Viburnum opulus* var. *opulus*). Once, they both had different epithets (American used to be *Viburnum trilobum*), but were considered too closely related to be considered as different species. One issue is that they will hybridize, making it more



***Viburnum opulus* var. *americanum***

American cranberrybush

Wide petiole groove; stipules may be present; gland stalked and tip convex

***Viburnum opulus* var. *opulus***

European cranberrybush

Narrow petiole groove; stipules usually present; gland tip concave

<http://public.wsu.edu/~lohr/>

difficult to identify the invasive hybrid from our native species. Another issue is that these two species are very difficult to separate from the other. Many times, nurseries and even government organizations, such as the DNR, have misidentified the non-native Highbush as the native, selling or giving away the non-native and further perpetuating their spread in yards and out in the wild. This is a great concern because this non-native Highbush Cranberry's berries are avoided by many birds until they become desperate due to its unpleasant taste.