DRAFT WRITTEN FINDINGS OF THE
WASHINGTON STATE NOXIOUS WEED CONTROL BOARD
Originally October 1996; updated 2012

Scientific name: *Berberis vulgaris* L.

Synonyms: *Berberis jacquinii* hort. ex K. Koch, *Berberis sanguinea* hort. ex K. Koch, *Berberis vulgaris* f. *atropurpurea* Regel, *Berberis vulgaris* var. *purpurea* Bertin ex Jacques & Hérincq

Common name: common barberry

Family: Berberidaceae

Legal Status: Proposed Class C

Description and Variation:
Botanical description taken from Whittemore (1997) unless otherwise referenced.

Figure 1. Left: General growth habit of *Berberis vulgaris*, image by Yue Jin, USDA-ARS; Center: Stem with 3-parted spine, image by Leslie J. Mehrhoff, University of Connecticut, Bugwood.org; Right: *Berberis vulgaris* leaves, image by Leslie J. Mehrhoff, University of Connecticut, Bugwood.org.

Overall Habit:
Common barberry is a multi-stem, yellow-wooded shrub, growing 3 to 10 feet tall with gray bark on second year old stems. Stems with simple or more commonly three parted spines. Stems are elongate with short axillary shoots.

Leaves:
Leaves occur in tufts along stems right above the spines. Leaves are deciduous, but plants do retain their leaves longer in the fall than most shrubs, making the plants easier to locate (Roberts et al. no date). Leaves are dull green, elliptic to obovate, typically widest above the middle of the leaf, and 1 to 2 inches long. Leaf margins are finely serrate, with (8-) 16-30 teeth that are tipped with spines or bristles.

Flowers:
The yellow flowers, which occur in drooping racemes of 10-20, bloom in May and June.

Fruits and Seeds:
Common barberry produces bright, orange-red, or purple, egg-shaped berries that can be up to 0.5 inch (10-11 mm) long and are juicy and solid (Bean 1970: Strasbaugh and Core 1978; Tutin et al. 1964).


Figure 2. Left: Yellow flowers blooming in hanging racemes, image by Richard Old, www.xidservices.com; Right: *Berberis vulgaris* in fruit, image by Leslie J. Mehrhoff, University of Connecticut, Bugwood.org.

Similar species:
Cultivated Japanese barberry, *Berberis thunbergii*, can look similar to common barberry. *B. thunbergii* is a species of barberry that is rust-resistant and often planted in ornamental landscapes. *B. thunbergii* has smooth-edged leaves and typically one spine at leaf bases (Roberts et al. no date).

Economic Importance:
Detrimental- Common barberry is an alternate host for stem rust (*Puccinia graminis*), harboring the cluster cup stage of the rust (Muenscher 1955). The rust affects small grain cereals, such as wheat, barley and oats. Spores can spread thousands of miles

Figure 3. Stem rust on *Berberis vulgaris* fruit, image by Diana Roberts, WSU Extension.

In addition, barberry functions as an origin of new physiologic strains of rust which may be more virulent than previously existing forms (Fulling 1943). Stem rust is one of the most important diseases of wheat, and it has limited wheat production in many parts of the world (Roelfs 1982). In 1916, an estimated 200 million bushels of wheat were lost in the US and another 100 million were lost in the Canadian prairie provinces to stem rust. These losses sharply reduced human food resources during World War I (Roelfs 1982). A national common barberry removal program, which ran from 1918 to 1981, eradicated millions of barberry plants from wheat producing states (Murray et al. 2011). Despite this effort, common barberry was not completely eradicated and comeback in some areas, allowing the stem rust to occur sporadically (Murray et al. 2011).

While the Pacific Northwest is not an ideal climate for stem rust epidemics in grain crops, it has been shown that sexual reproduction of the pathogen occurs on common barberry here and can be a potential nursery for development of new stem rust races (Roberts et al. 2011). In 2007, stem rust infestations were found on wheat and barley crops in several high rainfall areas of eastern Washington and northern Idaho (Murray et al. 2011), and testing demonstrated a diversity of rust races present at a barley field in northeast Washington (Rouse et al. 2009). In 2007 and 2008, barley fields in Stevens County had a total (100%) yield loss from the pathogen (Roberts et al. 2011). These stem rust populations in the Pacific Northwest region are not the race group called 'Ug99', a race first detected in Uganda in 1998, which has spread to the Middle East and South Africa, and is virulent against some resistance genes that protected wheat again the rust (Chen 2012). Murray et al. (2011) explain that some Pacific Northwest races have virulence genes in common with 'Ug99', which are not present in the Western Hemisphere and that these shared virulence genes and the presence of common barberry raises concerns for the potential to produce

a ‘homegrown’ Ug99 that could spread to other wheat-producing regions. Updated information about stem rust in Washington can be found in Chen 2012.

Beneficial – This species has been planted in many areas for its edible fruit and as an ornamental. Its dense growth and spines make it an excellent hedge plant for fencing animals. Barberry bark has also been used as a yellow dye (Roelfs 1982). Although the berries are now considered too acidic to be palatable, even to birds, they were once candied or preserved in sugar and eaten as a delicacy. In addition, the slightly acidic leaves were once used as a salad and as a meat seasoning (Bean 1970).

Geographic Distribution: A European native, common barberry is found wild over a large part of Europe, north Africa, temperate Asia, and North America (Bean 1970). The exact geographic limits of this species as a native are difficult to determine because the plant has been extensively planted in some regions, while in others, it has been the object of eradication programs (Tutin et al. 1973).

Habitat: Common barberry occurs on gravelly or rocky pastureland, fence-rows, brushy or wooded areas, and waste places (Muenscher 1955; Cloutier 1972; Roelfs 1982). It can grow in full sun to somewhat shaded understories (T. Miller and T. Murray pers. comm.).

History: In the 17th century, English colonists brought common barberry with them to North America as a favored hedge plant. The plant naturalized and spread. Wheat rust first appeared in New England in 1660 (Fulling 1943). As a result of the rust, there has been a long history of laws targeting the control and eradication of barberry. Connecticut was the first to act in 1726 by passing a law that gave town meetings the authority to adopt measures toward eradicating the species. The issue came to the forefront again during World War I when stem rust resulted in the loss of millions of bushels of wheat in the upper Midwest. As a result, 11 states (including Washington) passed laws against barberries between 1917 and 1923 (Fulling 1943). These states were part of a cooperative federal and state eradication program. However, the federal program was gradually phased out, and any eradication programs are now under state jurisdiction (Roelfs 1982).

Washington’s WAC 16.472.020 requires the destruction of common barberry plants in the wheat-producing parts of the state. Recent surveys have found *Berberis vulgaris* plants in Washington including Whitman and Stevens County (Murray et al. 2011).

Growth and Development: Common barberry is a perennial shrub.

Reproduction: Common barberry flowers in May and June (Obeso 1989). The plant spreads by seed or new shoots from spreading roots (Muenscher 1955); nurseries propagate barberries by cuttings (Roelfs 1982). Common barberry spreads through rhizomatous growth and can produce large-sized shrubs with dense clumps of stems (Gucker 2009). Stem sprouts can grow from small rhizome fragments (Gucker 2009).

Seeds: Seeds are dispersed by humans, birds, animals, wind, and water (Cloutier 1972; Roelfs 1982). Seeds may remain viable in the soil for 9 or more years (Gucker 2009).

Control Recommendations:

Chen (2012) notes that removing common barberry plants will reduce stem rust by reducing initial rust spores in spring and reduce the number of races. Common barberry plants near wheat fields should have the highest priority for removal since the closer the plants are, the earlier the stem rust begins in the growing season, allowing more cycles of disease and greater damage (Murray et al. 2011).

Response to Herbicides: 2,4-D has been used in common barberry eradication programs (Cloutier 1972). Chen (2012) reports recommendation by Steve Van Vleet, WSU Extension, of using Imazapyr for foliar treatments and using Imazapyr or Triclopyr on cut stump treatments. Please refer to the PNW Weed

Management Handbook, available online at http://weeds.ippc.orst.edu/pnw/weeds for specific herbicide instructions, as herbicide recommendations may have changed since the time of this writing. Also, make sure to carefully read and follow the herbicide label and instructions.

Response to Mechanical Methods: Grubbing out scattered bushes is effective, although it is important to remove all the roots, or they will send up new shoots (Muenscher 1955). This method can be time consuming and may not be feasible for large plants or thickets. Wear protective clothing and be careful of the spines when removing common barberry.

Biocontrol Potentials: No biological controls are presently known.

Rationale for Listing:
Common barberry is an alternate host for stem rust (*Puccinia graminis*), which affects small grain cereals, such as wheat, barley and oats. Stem rust is one of the most important diseases of wheat, and it has limited wheat production in many parts of the world (Roelfs 1982). Because of the importance of wheat as a crop in Washington State and of recently reported increases in the incidence of rust and different rust races, common barberry a Class C noxious weed is appropriate. This listing will allow county noxious weed control boards in wheat-growing regions to require control of the plant at the local level as deemed necessary and promote public awareness and education about the importance of common barberry control.

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