

European Buckthorn - You Might Already Have It

MEEWASIN

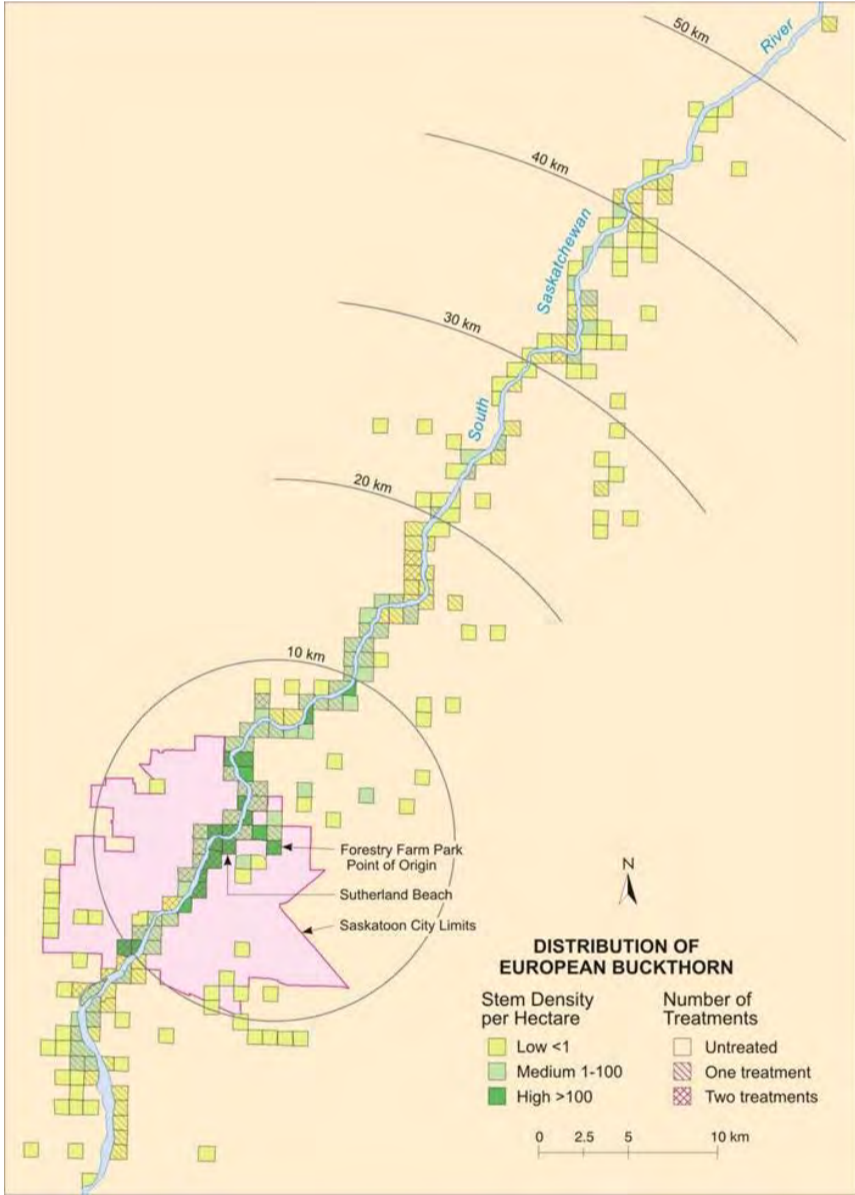
Meewasin is a conservation agency dedicated to conserving the cultural and natural resources of the South Saskatchewan River Valley. Meewasin’s mandate is to ensure a healthy and vibrant river valley, with a balance between human use and conservation by:

- Providing leadership in the management of its resources;
- Promoting understanding, conservation and beneficial use of the Valley; and
- Undertaking programs and projects in river valley development and conservation, for the benefit of present and future generations.



European Buckthorn in the Meewasin Valley

European (Common) Buckthorn (*Rhamnus cathartica*) is a deciduous small tree or shrub native to Europe. In the 1930s, the former Dominion Tree Nursery (located at the current Saskatoon Forestry Farm) evaluated European Buckthorn as a potential shelterbelt tree (Archibold et al, 1997). The species was of interest due to its hardiness and ability to tolerate a variety of soil and site conditions. It was discontinued as it is an alternate host to Oat Crown Rust (*Puccinia coronata*). Unfortunately, the species escaped from cultivation before the program was cancelled. It has been found up to 60 km north, 20 km south and throughout the city of Saskatoon.



In 2010, it was designed as a Noxious Weed under the *Saskatchewan Weed Control Act*. In 2017, the *Meewasin Valley-wide Resource Management Plan* identified invasive species as the greatest threat to conservation in the region.

Characteristics of European Buckthorn

European Buckthorn can be either shrub or trees; shrubs are 1-4 m tall with many stems and branches while in tree form it can be 5-8 m tall with a single main stem and ascending branches (Saskatchewan Invasive Species Council, 2015). Most branches are tipped with a small thorn. Leaves often remain green well into late autumn or early winter, making it is easy to detect after most tree species have shed their leaves.



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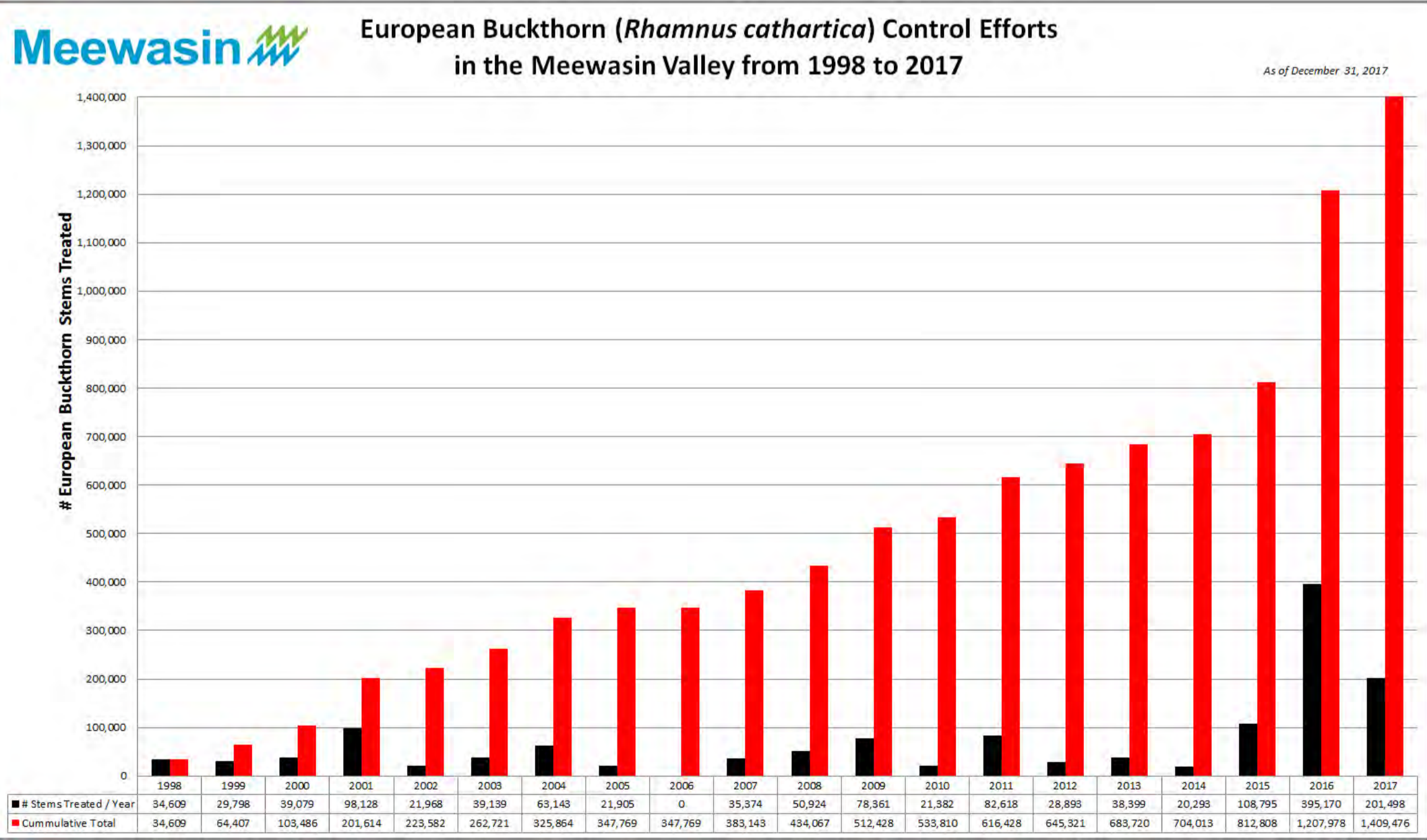
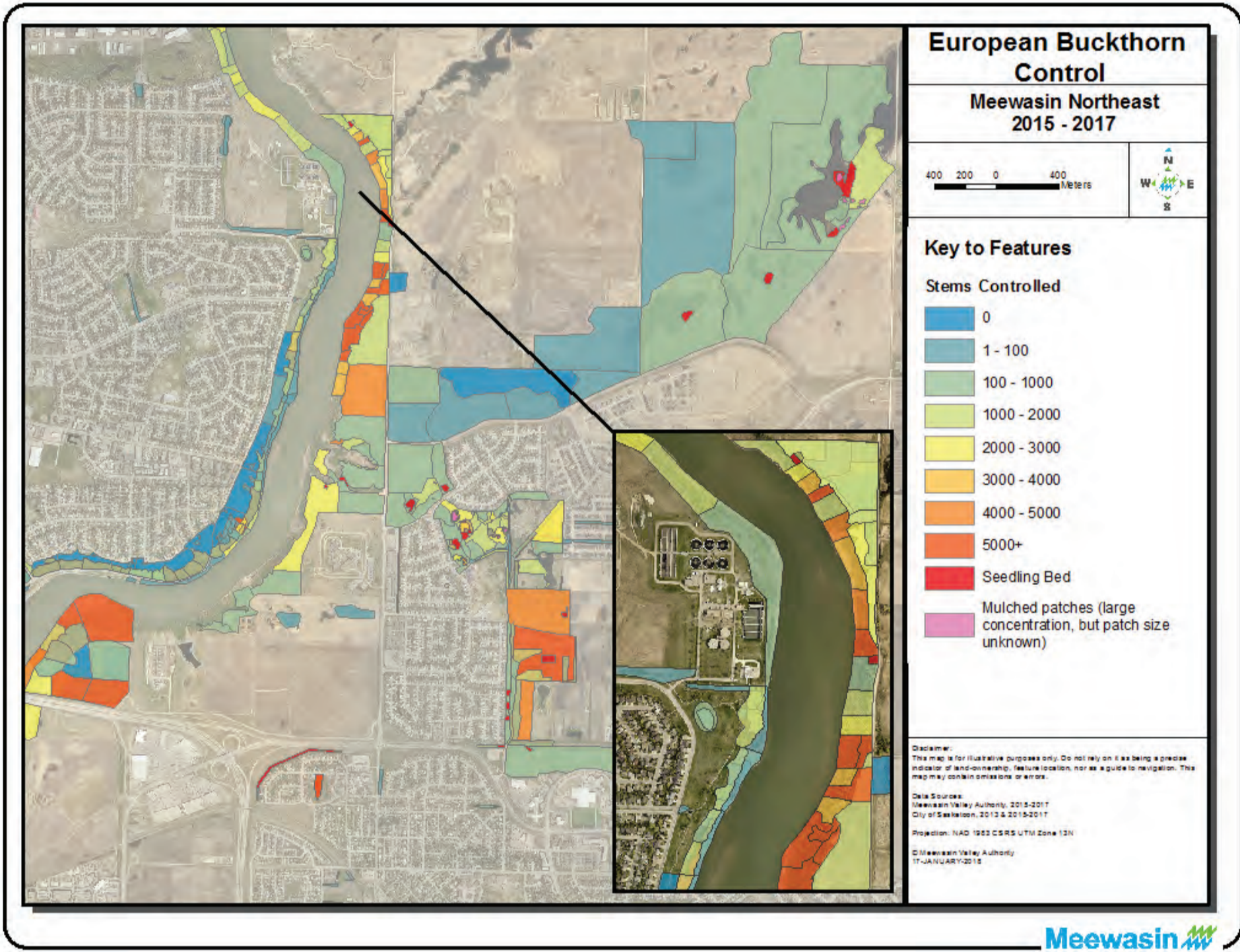


Habitat Preferences and Seed Dispersal

European Buckthorn is prevalent in riparian forests of the Meewasin Valley with preferred niches of Green Ash (*Fraxinus pennsylvanica*), Manitoba Maple (*Acer negundo*), and Aspen (*Populus tremuloides*) (Archibold et al., 1997). In upland sites, it is found in Aspen, Chokecherry (*Prunus virginiana*) and Saskatoon (*Amelanchier alnifolia*) patches and in shelterbelts of other non-native species such as Caragana (*Caragana arborescens*). It is found in urban parks, natural areas, and in backyards within Saskatoon and surrounding area.

European Buckthorn grows best on fertile, sunny, moist and disturbed sites. Seeds typically fall from parent trees forming dense, even-aged stands which crowd and shade out native understory plants.

Seed dispersal is aided by rodents and birds. Fruit eating birds have been observed eating European Buckthorn fruits and it is speculated that this may be the major vector for seed dispersal in the Meewasin Valley (Archibold et al., 1997).



References
Archibold, O.W., D. Brooks, and L. Delaney. 1997. An Investigation of the invasive shrub European Buckthorn (*Rhamnus cathartica* L.), near Saskatoon, Saskatchewan. Canadian Field-Naturalist 111: 617-621.
Delaney, L. and O.W. Archibold. 2007. Efficacy of control measures for European buckthorn (*Rhamnus cathartica* L.) in Saskatchewan. Environmental Management 40: 709-718.
Meewasin Valley Authority. March 2017. Meewasin Valley-wide Resource Management Plan.
Saskatchewan Invasive Species Council. 2015. European Buckthorn (*Rhamnus cathartica*) Invasive Alien Species Factsheet.

Control Options



Bohemian Waxwing (*Bombycilla garrulus*) eating berries
Photo: May Haga

Several options are available to control European Buckthorn. Stem girdling is not recommended unless multiple cutting treatments occur or herbicides are applied to the cut stems to minimize resprouting; though girdling the crown below the soil surface can be effective. Stump pulling can be effective on smaller shrubs under moist conditions. Prescribed burning can be used, but is difficult to ignite and requires repeated treatments. Cattle grazing is not an option due to the laxative nature of leaves and bark, but there has been limited research into the effectiveness of sheep and goat grazing.

Herbicides can be applied to leaves, bark and cut stumps. Through adaptive research, Meewasin determined that triclopyr herbicides (e.g. Garlon RTU™) applied as a chemical girdle directly to the stems using a streamline basal bark spray is the most cost, time and control effective method for managing European Buckthorn infestations (Delaney and Archibold, 2007). Currently, triclopyr based herbicides are the only herbicides registered for European Buckthorn control in Canada.

European Buckthorn Control Program – 1998 to 2014

Meewasin initiated European Buckthorn control efforts in 1998 and has worked with the City of Saskatoon on their control efforts since 2002. Over 700,000 stems were controlled during this period, focusing on fruit-bearing female trees. Once a site was treated, it was revisited every 5-7 years to manage any new fruit-bearing trees present.



Female European Buckthorn with berries



Basal spray with blue oil-based dye



Cut stumps with herbicide applied

European Buckthorn Eradication Program – 2015 to 2018

Meewasin has received funding from the Prevention Stream of Environment and Climate Change Canada’s Habitat Stewardship Program to deliver a 3 year European Buckthorn Eradication Program. The Program had a goal of removing 450,000 European Buckthorn stems across 1,000 hectares of the Meewasin Valley, which has been exceeded in the 3 year period. The results of this project have proved that we have under estimated the extent of the issue of European Buckthorn, both population size and spread across Saskatoon and the surrounding region, with reports of presence of European Buckthorn in communities across the province.



Heavy infestation of European Buckthorn mulched at Saskatoon Natural Grasslands (February 2017)

From 2015 to 2017, Meewasin partnered with the City of Saskatoon’s Parks Division on European Buckthorn eradication. The Parks Division focused on all parks on the east and west sides of the city, closing in on the South Saskatchewan River. Meewasin’s focus has been the uplands of natural areas in the northeast part of the city, making a “push” to the river, and on the northwestern bank of the South Saskatchewan River. Areas outside of city limits along the South Saskatchewan River in the R.M. of Corman Park were added in 2017.