

Cedarburg Bog:
Buckthorn Control Sustainment Plan, March 2019

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The areas where glossy buckthorn has been controlled in the Bog to-date have been selected for one of three reasons, 1) the area was a representative example of one of the Bog's major plant communities where buckthorn was present in the lowest densities, and therefore most feasible to control, 2) the area was a high priority public use, education, or research area, or 3) the area represented a plant community type not covered by the other two selection criteria. In much of the 2,200-acre Cedarburg Bog that has not received initial treatment to date, buckthorn is present at such high densities that mechanical (hand) control is either not feasible, or would require an amount of resources unlikely to be obtained. As an example, the six acres cleared of fruiting-sized buckthorn where it was dense in the exclusion plot at the end of the boardwalk required nearly as much labor as clearing the 130-acre area controlled in 2006-07 where buckthorn was at much lower density. Also note that the last 14 acres cleared in the 2015-2019 project required 100 person-hours per acre for treatment. If the remainder of the as yet untreated 1,600 acres of the Bog required 80 man-hours/acre, at a \$40/hour contractor price, that work would cost over \$5 Million.

In consideration of the excessive cost of treating new areas that have not received an initial treatment to-date -- ***The highest priority for continued buckthorn control work in the Bog is to continue to prevent fruit production from those areas that have already been treated at least once.*** Controlling buckthorn in additional areas while allowing buckthorn to grow to fruiting size in places where resources have already been invested would eliminate much of the value of that previous work. Continuing buckthorn control (prevention of fruit production) in the 576 acres that have been treated will preserve buckthorn-free representative examples of nearly all of the plant communities found in the Bog.

With one exception, plans for future control projects are limited to the locations where there has already been removal of fruiting-sized buckthorn. There are two plant communities that occur in a small area of the Bog that are important ecologically, and that have not had initial treatment. Initial treatment has not yet been extended to the black spruce and open bog communities because they are located on privately-owned land. Treatment of these communities is included in future planned control efforts.

The plans for buckthorn control presented here are in the form of a list of priority control actions that include an ideal timeline for completing the work in order to, as much as possible, minimize renewed buckthorn fruit production in places where fruiting-sized plants were removed in the past. Progress toward accomplishing these timeline goals will be entirely dependent on resources available for the work.

Estimating Time Requirements for the Treatment Areas

While we have 28 years of experience controlling buckthorn and detailed records of effort for some of those projects, it is still very difficult to be confident in estimates of the time that will be required for a planned project. Accurate estimates of labor hours per acre have been easy to obtain. However, it is apparent from extensive records of our control work that buckthorn size, growth form, density, and the native community in which it grows all vary tremendously in the Bog, and all those factors affect the labor hours required per acre cleared. We have little more than anecdotal information regarding those factors, so we cannot be completely confident in labor estimates.

With all those caveats in place, in addition to knowing that higher densities require more labor, experience has shown that:

1. Follow-up treatments require less labor than initial treatments.
2. Treatments in full-stature swamp forest communities require less labor than in shrub communities or the open string bog, because buckthorn tends to have a single-stemmed growth form in forest and a multiple-small-stemmed growth form in shrub communities.

The labor required for the follow-up treatments is therefore an estimate (read guess if you like) based on general experience. **We estimate that for the projects shown on the “Control Priorities Plan – 2019” figure, FOCB should budget for 20 hours/acre.**

Priorities for buckthorn control work in the Bog – 2019

The first priority shown on “Control Priorities Plan – 2019” is 31 acres that are relatively urgent since the last removal of fruiting-sized buckthorn was 12 years ago. There has probably been some renewal of fruiting in this area over the past two or three years because of the length of time the plants have had to mature. Labor cost for this project is estimated to at a minimum be, 31 acres x 20 hr./acre x \$25/hr. = \$15,500.

A follow-up treatment is required to minimize renewed establishment of buckthorn seedlings in this area. In addition to small plants that have grown to fruiting size since 2008, we estimate that approximately 10% of the fruiting-sized buckthorn present in 2008 was missed in that initial control effort. Killing these remaining large plants will be a top priority for this work.

Included in this 31-acre priority area is approximately a 4-acre inholding that has not been initially treated, but that is surrounded by areas that have been treated before (compare the plan figure with Map 2 in the Buckthorn Control Case Study). Completing a first removal of buckthorn from this 4-acre inholding will make it easier to defend the rest of the control areas from renewed buckthorn colonization from outside the control zone. This area will require a greater input of labor and may add another 200 worker-hours, or \$5,000 to the estimate above. However, this is a new control area so timing is not as critical to avoid loss of previous control progress.

All 251 acres of the top five priority control areas shown should ideally be retreated over the next two or three seasons, since the ideal retreatment recurrence interval is about 6 years. Treatment of all 251 acres would have an expected treatment cost of \$125,000 (250ac x 20hours/ac x \$25/hr.).

Reinartz has submitted two proposals to fund this work. Both of these proposals were for FOCB to act as a subcontractor on grants applied for by SEWISC, Southeastern Wisconsin Invasive Species Consortium. A grant pre-proposal to the National Fish and Wildlife Foundation’s Sustain Our Great Lakes Program was not successful at generating a call for a full proposal. However, that program has an annual call for proposals and has a new priority category for grants to do follow-up control on areas where invasives have previously been treated. FOCB should pursue this source of grant funds again in the future.

A second proposal that SEWISC submitted to the US Fish and Wildlife Service GLRI Program is still pending as of the time of this writing. That proposal would fund work in the highest priority area.

The remainder of the control priorities shown on the “Control Priorities Plan – 2019” figure are simply prioritized in order of the time since they were last treated. Priorities 2 through 5 were last treated from 8 to 6 years ago and it would be advantageous to re-treat those areas as soon as funding is available.

Black Spruce – Tamarack and Open Bog communities

There are 26 acres located in the southeastern part of the Cedarburg Bog that are still planned for initial control of fruiting-sized buckthorn (the Open Bog, 1ac; and Black Spruce-Tamarack, 25ac communities, Control Priorities Plan – 2019). These are the only places in the Bog where these communities occur, and representative examples of these communities have not yet been treated. This area is located on privately-owned land, and was therefore not originally included in the planned treatment areas for the 2015 – 2019 GLRI grant funding. Authorization to expend grant funds on this private land was ultimately obtained, but funding was exhausted before FOCB could accomplish that work.

Sources of funding to sustain buckthorn control in the Cedarburg Bog

Sustainment of buckthorn control will remain a high priority of the Friends of Cedarburg Bog. FOCB will continue to work with the Wisconsin DNR State Natural Areas Program to control buckthorn regrowth in those areas that have been treated previously. To sustain control of 576 acres into the future with an ideal treatment recurrence interval of 6 years will require treating almost 100 acres per year. At a cost of \$500/acre (20 hours x \$25/hr.) this work will potentially require an average \$50,000 per year over the next 6-year cycle of control. Cost will decline after that, since there will be less and less buckthorn present in the treatment areas over time.

FOCB will continue to apply for grant funding for this work. Potential sources include: Great Lakes Restoration Initiative grants, National Fish and Wildlife Foundation's Sustain Our Great Lakes Program grants, and Wisconsin DNR Stewardship grants. FOCB can devote some funding to control work in the Bog, however, as a small non-profit, FOCB will not be able to fund a substantial part of the \$50,000 required without grant funding.

The control work in the Cedarburg Bog has been almost entirely on state-owned Wisconsin DNR State Natural Area. In order to sustain the control that has already been achieved into the future, the Wisconsin DNR will have to make the Bog a funding priority.

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