

# Buckthorn Report

2008

Aldo Leopold Foundation  
Stewardship Interns: Mark Witecha and Dana Bishop  
7/16/2008

## Introduction

In March and April of 2008, Stewardship Coordinator Alanna Koshollek worked alongside Stewardship Interns Dana Bishop and Mark Witecha to cut and chemically treat approximately 30 contiguous acres of common buckthorn (*Rhamnus cathartica*) on the Leopold Memorial Reserve (LMR). Most of these 30 acres were quite heavily invaded, but did include some small openings and areas with sparse buckthorn.

Buckthorn removal has been an ongoing process for over 20 years. Funding through voluntary incentive programs has provided the support necessary to undertake such an intense project. In February 2007, the Aldo Leopold Foundation (ALF) was informed that we would receive funding for 30 acres of buckthorn removal. The funding is provided by the Natural Resource Conservation Service (NRCS) through the Environmental Quality Incentives Program (EQIP).



(From left to right) 2008 Land Health Intern Derek Schook, and Stewardship Interns Dana Bishop and Mark Witecha

The removal of buckthorn is restricted to November through February. This timetable was set by the DNR for the purpose of reducing impact on the pygmy shrew and Blanding's turtle, two protected species that could potentially inhabit the reserve. Due to time constraints ALF staff was unable to start the buckthorn removal process last fall, 2007. Furthermore, the harsh winter weather conditions delayed the commencement of the project until March 2008. As a result of the deep snow cover and subsequent habitat conditions for the pygmy shrew and

Blanding's turtle, Michele Wilkenson of the DNR extended the time period for removal until mid-April.

In March of 2007, the intern staff held a work party to remove buckthorn around garlic mustard points 1172 and 1174. It made garlic mustard treatment considerably easier and will provide a great project for future work groups that have the time to walk back along the river trail and can use loppers. Also, in October and November of 2007, intern staff cut and treated about an acre of buckthorn on the south end of clay hill. This should improve success of garlic mustard control for this location.

Last year's approximation of a remaining 20 acres of untreated buckthorn on the LMR appears to have been an underestimation. It is more likely that about 40 acres remained untreated before cutting started in 2008. With the 30 acres that were treated in early 2008, only about 10 acres

remain untreated. However, additional monitoring for re-sprouting stumps, missed stems, and new sprouts is necessary.

### Methods and Materials

The 2008 buckthorn season lasted from March 11<sup>th</sup> -April 16<sup>th</sup>. During that period, crewmembers spent 63.5 total hours and 223.5 people-hours removing buckthorn. These numbers also reflect time spent on chainsaw maintenance, travelling to treatment sites, and mixing herbicide.

Due to the size of the area and number of stems that needed to be cut, chainsaws were our primary tool for buckthorn removal. Loppers were used by volunteer groups to remove smaller diameter re-sprouts and new stems. The areas where these work groups cut were not part of the LMR that received EQIP funding.

Garlon 4 is the chemical used on the LMR for buckthorn removal. It is a selective, oil-based herbicide that is effective in treating buckthorn by means of cambium interaction. Garlon 4 contains the active ingredient Triclopyr (61.6%) and other inert ingredients (38.4%), such as kerosene. Winter and spring are ideal times for the application of Garlon, as hot conditions can volatilize the kerosene and herbicide, making application potentially hazardous to the applicator. The cost of Garlon 4 is \$100 per gallon.

One part of Garlon 4 is mixed with four parts of Bark Oil Blue (crop oil), making the final mixture 12.3% active ingredient. Diesel has been used instead of Bark Oil Blue in the past. Bark Oil Blue is \$9.00 per gallon and is more expensive than diesel; however, we feel that the benefit of lower environmental impact is worth the added expense.

Approximately 1.5 to 2 gallons of mixture were loaded into a backpack sprayer. The backpack sprayers made it quite easy and comfortable for the interns to carry enough chemical for about half of a day of application (~4 hours). Approximately 50



One person cuts while another follows behind and applies herbicide



Typical cluster of buckthorn stems after being cut and treated. Notice how the entire cut surface of the stump is covered with herbicide (blue)

gallons of mixed chemical (10 gallons of Garlon 4 and 40 gallons of Bark Oil Blue) were used this season. Personal protective equipment was always worn when handling chemicals. Jumpsuits, eye protection, rubber gloves, and rubber boots were all provided by ALF for crewmembers.

Our methods of treating buckthorn were similar to the approaches used in the past. First, one or two crewmembers with chainsaws would cut the edge of an area needing treatment. One method was to walk and cut the entire perimeter of an area creating a boundary on all sides, and then spiral your way inward. This is especially useful in areas that are surrounded by standing buckthorn. Another method is to create an edge and zigzag your way inward. With both methods, the sawyer would attempt to fell the trees outward, creating a walkway for sprayers following behind and maximizing visibility of the stumps. The width of the cuts for each line was kept to about 4-6 feet to help the sprayers locate stumps. Cuts are generally made about 3-6 inches above the ground; however, snow depth greatly restricted us from being able to cut that low on the stem so stumps may be upwards of 18 inches in some areas.

One or two crewmembers with backpack sprayers would follow the person cutting and treat the stumps with the herbicide mixture. This was done by drizzling the chemical over the entire cut surface of the stump to prevent possible re-sprouting. Having two sprayers follow one sawyer is an effective way to avoid missing stumps. It also allows the sawyer to move at a faster pace.



The long winter and deep snow made buckthorn removal a challenging task in 2008

Any small stems that were encountered were treated by basal barking. This is done by spraying the Garlon 4 mixture around the base of the stem. The chemical must be applied to the entire circumference of the stem. Generally, the bottom 2-3 inches is coated. In areas with many small stems, we would break off the top of the plant to signify that that individual had been treated.

## Conclusion

This was a very successful and productive season for buckthorn control. All 30 acres of invaded property that we received funding for was treated. The funding was for a three year period, but with long days and hard work the project was completed in one year. Also, only 10 acres of untreated buckthorn remain on ALF property. For more information on buckthorn treatment, please reference past buckthorn reports.



Typical area after buckthorn treatment

<b>2007 EQIP Contract: Work log for contracted item number 1a and 2, Brush Management March- April 2008</b>						
<b>Date</b>	<b>People</b>	<b>Hours</b>	<b>Total Hours</b>	<b>Materials (gallons of 1:4 mix of Garlon 4: bark-oil blue)</b>	<b>Task</b>	<b>Crew</b>
3/11/2008	3	4	12	1.5	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
3/12/2008	4	4.5	18	4	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna, 1 volunteer
3/13/2008	3	2.5	7.5	3	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
3/14/2008	3	3	9	2	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
3/15/2008	4	3	12	3	cut-treat buckthorn	3 ALF interns, Alanna
3/17/2008	4	7	28	4.5	mix chemical/ cut-treat buckthorn	4 ALF interns, Alanna
3/19/2008	3	4	12	3	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
3/20/2008	3	3	9	3	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
3/21/2008	4	2.5	10	2.75	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna, 1 volunteer
3/24/2008	2	5	10	2.5	mix chemical/ cut-treat buckthorn	1 ALF intern and Steve
4/3/2008	4	5	20	4	mix chemical/ cut-treat buckthorn	3 ALF interns, Alanna
4/7/2008	2	4	8	2.5	mix chemical/ cut-treat buckthorn	2 ALF interns

**4/8/2008	5	4	20	3.5	mix chemical/ cut-treat buckthorn	4 ALF interns, Alanna
4/9/2008	5	4	20	4	mix chemical/ cut-treat buckthorn	4 ALF interns, Alanna
4/15/2008	4	4	16	3	mix chemical/ cut-treat buckthorn	3 ALF interns, Alanna
4/16/2008	3	4	12	3.5	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
<b>Totals</b>		63.5	223.5	49.75		

### Buckthorn Report Fall 2008

In the fall of 2008, Stewardship Interns Dana Bishop and Mark Witecha, with the help of Alanna Koshollek (Stewardship Coordinator), Anna Hawley (Education Intern), and Derek Schook (Land Health Intern) completed 5.25 acres of first time (initial) buckthorn visits cutting and treating and revisited 27.57 acres in an area that was initially cut in 2002 (see Map). We also cut a line of buckthorn from the Suvanna Gate to the Henika Pump in order to establish a clear boundary between the Leopold Memorial Reserve property and the Sand County Foundation property. The 2008 fall buckthorn effort required 131 people hours and consumed 36.75 gallons of mixed Garlon 4 mixed chemical.

Table 1: Total people, hours, and gallons of Garlon 4 mixed chemical used during the 2008 fall Buckthorn removal season.

Date	People	Total Hours	Materials (gallons of 1:4 mix of Garlon 4: bark-oil blue)	Task	Crew
10/31/2008	2	5.5	1.5	mix chemical/ cut-treat buckthorn	2 ALF interns
11/3/2008	2	12	2.75	cut-treat buckthorn	2 ALF interns
11/4/2008	2	4	1	cut-treat buckthorn	2 ALF interns

11/5/2008	4	22	4.5	mix chemical/ cut-treat buckthorn	3 ALF interns, Alanna
11/10/2008	2	6	2	cut-treat buckthorn	2 ALF interns
11/11/2008	3	12	2.5	mix chemical/ cut-treat buckthorn	3 ALF interns
11/13/2008	3	18	7.75	mix chemical/ cut-treat buckthorn	3 ALF interns
11/14/2008	2	14	2.5	cut-treat buckthorn	2 ALF interns
11/17/2008	2	14	4.25	mix chemical/ cut-treat buckthorn	2 ALF interns
11/18/2008	2	5.5	4	cut-treat buckthorn	2 ALF interns
12/4/2008	3	12	3	mix chemical/ cut-treat buckthorn	2 ALF interns, Alanna
12/5/2008	3	6	1	cut-treat buckthorn	2 ALF interns, Alanna
<b>TOTALS</b>	<b>2-4 people</b>	<b>131 hours</b>	<b>36.75 gallons Garlon 4 mixed chemical</b>		

# LMR Common Buckthorn Treated 2002-2008

