

Invasive Species Management Plan and Educational Opportunities for Schwarz Pond and Carroll's Woods Parks



UNIVERSITY OF MINNESOTA DULUTH
Driven to Discover

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ENED 5325: Sustainability Issues Investigation
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Resilient
Communities Project

Abstract

The City of Rosemount asked students to investigate management practices for invasive species at Schwarz Pond and Carroll's Woods Park. Invasive species are harmful to the environment, human health, and economics. The project focused on two species: buckthorn and emerald ash borer (EAB). Buckthorn is a prevalent issue inside both parks, whereas EAB is currently within five miles of the parks. A literature review was completed focused on best management practices and public education opportunities for both species. Recommendations include the use of cutting and herbicide application for buckthorn management. Management options for EAB include either removal of ash trees or application of insecticides based on cost, expected effectiveness, and perceived value of trees. Education, along with management, is highly recommended. Education materials including pamphlets, trail signs, and posters were prepared.

Common Buckthorn



Lower Chippewa Invasives Partnership,
<http://lcinvasives.org/>

Emerald Ash Borer



David Cappaert, Michigan State University,
Bugwood.org

Introduction

Carroll's Woods and Schwarz Pond Parks

Carroll's Woods is a forested 45-acre park adjacent to the 63-acre Schwarz Pond Park. They have a system of nature trails where native vegetation such as hardwoods and prairie plants grow. There is a playground and the community center is nearby.

Objectives

The objectives were to provide recommendations for development of an invasive species management plan for the parks for the City of Rosemount, including creating an education plan.

Issue

An invasive species is a species that has been brought to an area outside of its native habitat and that causes harm to the environment, economy, or human health. Species diversity can be decreased by the presence of invasive species. In a park setting, diversity is important for productive soil, clean water, clean air, and recreation, and provides opportunities for educating the public about the value of species diversity.

Common Buckthorn

Common buckthorn (*Rhamnus cathartica*) was brought to North America from Europe. It is a bushy plant that can grow up to 25 feet high. It forms a dense layer of vegetation and outcompetes native plants, which contributes to soil erosion by decreasing ground cover. Buckthorn acts as a host for pests that pose a problem for the agricultural industry. Buckthorn seeds are easily dispersed by birds (Minnesota DNR, 2013).

Emerald Ash Borer (EAB)

The EAB (*Agrilus planipennis*) is an invasive beetle species, originally from northeastern China. The first sighting of EAB in the U.S. was in 2002, and since the initial introduction EAB has killed millions of ash trees (Herms & McCullough, 2014). Adult EAB beetles lay their eggs inside cracks of the ash bark (Herms and McCullough, 2014). EAB larvae eat the cambial tissue of the tree trunk. Adult ash borers are able to travel up to one-half mile a year. The most common vector for the spread of ash borer is the transport of firewood. EAB infestation was confirmed to be five miles north of the parks in December 2014 (Minnesota Department of Agriculture, 2014).

Buckthorn Management

Criteria	Status Quo	Pulling	Herbicide
Cost (Short Term)	\$0.00	\$14,500	\$4.2 million
Cost (Long Term)	Loss of native species	\$100,000	\$0.00
Time to completion	0 months	Years	Months
Effectiveness of removal	No	Yes	Yes
Effect on other plants	Loss of biodiversity	Native populations can reestablish	May initially kill other plants in area
Community involvement and Education	Poor	Community involvement	Education Possible

Costs are estimates from Palumbo Landscaping at landscapeguys.com

Other options considered but not recommended included tilling, mulching, and burns.

Emerald Ash Borer Management

Criteria	Status Quo	Insecticides	Biological Control	Removal of Trees
Cost (Short Term)	\$0.00	\$0.00	\$10,000	\$13,000
Cost (Long Term)	Expensive	\$40,000	Unknown	None
Time to completion	0 months	Years	Unknown	Months
Effectiveness of removal	No	Mostly	Unknown	Yes
Health of ash trees	Poor	Good	Unknown	Removed
Community involvement and Education	Poor	Education Possible	Community Involvement	Education Possible

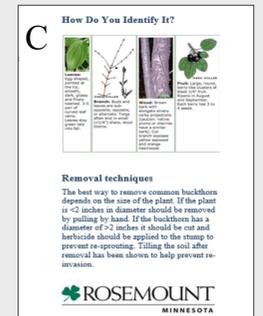
Numbers calculated using EAB calculator from University of Wisconsin Cooperative Extension

Education

The use of education is recommended as part of an integrated management policy. Invasive species management can require years of work and an educated public will help create a program that lasts. Meetings with residents living close to the parks will create a sense of community and promote environmental awareness. Working with the schools that are within or near the parks will provide an educated, motivated workforce. A designated education officer on the parks team would coordinate these events.

Education Materials

Supplemental education materials available for free from the Minnesota DNR.



Picture A is an example of possible community events and was designed by Cian Gill. Picture B is a band that can be placed on ash trees and was taken from www.GardenMinnesota.com. Picture C is a page from a pamphlet designed by Brent Burton. Picture D is an example of a trail sign designed by Cian Gill and Brent Burton.

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Acknowledgements

This project was completed as part of ENED 5325: Sustainability Issues Investigation, a class at the University of Minnesota Duluth, with support from the Resilient Communities Project (RCP). RCP is an initiative of Sustainability Faculty Network at the University of Minnesota, with funding and administrative support provided by the Center for Urban and Regional Affairs (CURA) and the Institute on Environment (IonE). To learn more, visit rcp.umn.edu. We would like to thank all of our group members who assisted with the research, Dr. Ken Gilbertson, Mike Greco, and the City of Rosemount.