

*Karner Blue Butterfly Habitat Restoration at
Whitewater Wildlife Management Area
Red Wing Wildlife League State Wildlife Grant*

Final Report

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Type of Project : Habitat Management

Project Overview (as included in SWG application):

Whitewater Wildlife Management Area (WWMA) in southeast Minnesota currently supports the Federally Threatened Karner blue butterfly (*Lycaeides melissa samuelis*) (KBB). Many of the oak savannas in the WWMA are inundated with honeysuckle, an aggressive exotic species. Such degraded habitat conditions prevent lupine, the sole larval host plant for KBBs, from growing and dispersing. These savannas are also not easily accessible for conducting prescribed burns with current staff and funding levels. In addition to unfavorable habitat conditions, KBB has experienced a dramatic population decline in the main occupied valley during 2003 (11 butterflies in first flight, 2 butterflies second flight – second flight is typically 2-3 times greater than first flight). This decline demonstrates the immediate need for accelerating oak savanna restoration at strategic locations, and where possible, connecting isolated habitats. This restoration effort will enable development of a Karner blue metapopulation and buffer existing populations from stochastic events. We propose to work in close cooperation with Jaime Edwards (MNDNR Regional Nongame Specialist) and Jon Cole (Whitewater WMA Area Manager) to accomplish dry savanna restoration through the use of brush clearing, on-site seed collection and subsequent seeding of native larval host and adult nectar plant species, and the application of prescribed fire.

Accomplishments:

This project was coordinated with complementary activities funded through a MN DNR Heritage Enhancement Grant of \$20,000. Summary accomplishments for both grants are listed below.

- Site 1
 - 28 acres invasive brush (honeysuckle-buckthorn) cut/treat by contractor Feb.-April 2006.
 - 41 acres seppi mowing by contractor fall 2005/winter 2006
 - 6 acres were planted with lupine seed hand collected by Bonostroo
 - Burned 16 acres of savanna

- Site 2
 - Surveys were conducted of previously occupied sites, but no Karner Blue Butterflies were observed.
 - 12 acres were seppi mowed in 2006
 - Conducted a prescribed burn on 200 acres of native planting, bluff prairies and oak savanna within the valley. Previously occupied areas within the valley were excluded from the burn.
- Site 3
 - 9 acres were seppi mowed
 - 16 acres were treated for invasive species with Garlon 4
- Site 4
 - Lupine seed was hand collected in 2004 and 2005, hand cleaned and provided to MN DNR staff for savanna restoration efforts. Seed cleaning performed by volunteer.
 - 9 acres were seppi mowed to control invasive brush
 - 5 acres were hand-treated with Garlon 4 for invasive species
- Site 5 (XXXX)
 - 5 acres of black locust was cut and/or girdled; and treated at using hand tools by contractor and RWWL volunteer
- Site 6
 - 25 acres of brush seppi mowed at by contractor in August 2004
 - 28 acres of tree clearing in December 2004 by contractor.

Below is a summary, by work area of accomplishments.

Site 1 Habitat Restoration

Location: Whitewater WMA, Winona County

Acreage: 69 acres

Summary of work: Of these 69 acres, 41 acres were brushed with a seppi mower. 28 acres were cut with chainsaws and brush saws, and stumps treated within 5 minutes with a 25% solution of Garlon 4. Areas occupied by KBBs were previously identified and avoided when conducting habitat restoration work.



Site 1 area seppi mowed in early 2006, photo April 2006



Site 1 showing before (left) and after photos of honeysuckle cut/treat

Seed Collection: Lupine seed was hand collected in the summers of 2004 and 2005, hand cleaned and provided to MN DNR staff for savanna restoration efforts. A total of approximately 8 ounces of local ecotype seed was harvested and processed for planting by MN DNR staff. Seed cleaning performed by volunteer.

Burning: Conducted prescribed burning on 16 acres within Site 1. The burn successfully set back a portion of the honeysuckle sprouts from previous seppi mowing.

Harvesting/Seeding: Lupine seed was harvested within the WWMA, and the seed was then used to seed a 6-acre parcel within Cuthrell Valley. Seed was planted by broadcasting it over the soil.

Site 2 Habitat Restoration

Location: Whitewater WMA, Winona County

Acreage: 200 acres

Summary of work: Surveys were conducted by MNDNR to determine occupancy in previously occupied areas within Site 2. No KBBs were observed, however, occupied areas were excluded from management activity as a precaution. Seppi mowing occurred on 12 acres within Site 2. Not all of the original 25 acres was seppi mowed because the occupied areas within the Valley were expanded to provide a buffer in case they are still occupied.

Burning: Conducted a 200-acre prescribed burn within Site 2 that included the native planting, referred to as the jack pine area, surrounding bluff prairies and adjacent oak savanna. The areas previously occupied by KBBs were excluded from the burn.

Site 3 Habitat Restoration

Location: Whitewater WMA, Winona County

Acreage: approximately 24 acres total

Summary of work: Approximately 9 acres were seppi mowed, expanding the oak savanna surrounding the occupied area in this valley. Follow-up invasive species control was conducted on 16 acres within the valley, and cut stumps were treated with a 20% solution of Garlon 4.

Burning: Unfortunately burning did not occur in this site due to weather and time constraints. Site 2 was a higher priority burn and that burn was expanded to conduct a more landscape level burn.

Site 4 Habitat Restoration

Location: Whitewater WMA, Winona County

Acreage: approximately 14 acres

A total of 9 acres were seppi mowed to control invasive brush. Penn sedge control was determined to be unnecessary after a burn conducted on the site. As a result, this management activity was eliminated from the project (via grant amendment), and the funds were put toward 5 acres of invasive control using a 20% solution of Garlon 4.

Site 5 Habitat Restoration

Location: Whitewater WMA, Winona County

Acreage: 5 acres

<Aerial photographs removed to protect the Karner blue butterfly population>

Brushwork: 5 acres of black locust was cut/treated or basal bark sprayed in a prairie restoration area on the ridge XXXX of Site 5 (XXXX). Locust was treated with a 25% solution of Garlon 4 within 5 minutes of cutting. Site 5 is identified as an oak savanna site in the WWMA. Any restoration that occurs on or in the vicinity of this valley will help restore habitat that will benefit Karner blue butterflies by removing/reducing canopy cover and controlling a source and spread of invasive species.

Since “aggressive exotic (non-native) plant species may pose a threat by out-competing other plant species required by the Karner blue butterfly.” (Page 43, Other Manmade Factors, Federal KBB Recovery Plan), the brushwork proposed in this project will result in the overall reduction of exotic species, particularly honeysuckle (*Lonicera spp.*), in KBB and surrounding buffer habitat. This management activity will also provide nesting and foraging habitat for many other wildlife species including redheaded woodpeckers, rufous-sided towhees, wild turkeys, pheasants, and many other species.



XXXX black locust cut/treat area immediately after completion of work. Cut locust area is in middle of picture and extends off-photo to the right and on far slope in photo (left-middle).

Site 6 Area Habitat Restoration

Location: Whitewater WMA, Winona County

Acreage: ~51 acres

Brushwork: At Site 6, brushwork included a combination of seppi mowing (23 acres) of smaller brush and hand cut/treat work for trees including buckthorn, elm, green ash, select red cedar and box elders between 4 and 16 inches in diameter. Cut stumps were treated within 5 minutes with a 25% solution of Garlon 4. Trees larger than 16 inches were double girdled and treated with Garlon 4, and left standing as snag trees provided they are within 100' of the woods edge. Some aspen trees over 4" in diameter were cut and left to sprout.

Site 6 is not identified as an oak savanna site in the WWMA. However, it is considered an entry point in the WWMA for exotic and invasive species, particularly buckthorn, which has not significantly penetrated and inundated the interior of the WMA. Control of invasive species from easy access sites such as this will help restore buffer habitat that will benefit Karner blue butterflies by controlling a source and spread of invasive species, since "aggressive exotic (non-native) plant species may pose a threat by out-competing other plant species required by the Karner blue butterfly. This management activity provides nesting and foraging habitat for many other wildlife species including savanna/woodland songbirds, wild turkeys, pheasants, grouse and other species.

<Aerial photographs removed to protect the Karner blue butterfly population>

Area brushed with seppi mower as well as cut/treat trees in August – November 2004 time frame.

Assist with Prescribed Burning

Location: Whitewater WMA, Winona County

Acreage: approximately 216 acres (includes sites mentioned above)

Burning: Additional burning was conducted within the WWMA, with a focused effort on Site 2 (see report above for Site 2). Burning in this valley excluded previously occupied areas, but was expanded to cover not only the native planting in the old Jack pine area, but also the bluff prairies and surrounding oak savanna. This was done to take advantage of other burns being conducted by the Division of Wildlife that would greatly enhance the savanna – sand prairie complex of Site 2, which would in turn, significantly improve the overall habitat quality of this valley for Karner Blue Butterflies.

Total Project Cost: \$50,000