

	<b>Title: Mechanical Site Preparation Protocol</b>	
	<b>Date: September 6, 2007</b>	<b>Revision: 01</b>

**I. Purpose and Applicability**

This protocol is intended to avoid or minimize take of the Karner blue butterfly (Kbb) incidental to mechanical site preparation activities. This protocol applies to sites that are occupied by Kbb, and to lupine sites within the Kbb High Potential Range where Kbb presence is not known.

**II. Conservation Measures**

- a. To Avoid Take**
  - i.** Avoid conducting activities on lupine sites within the High Potential Range that are occupied by Kbb.
  - ii.** Avoid lupine sites where the presence of Kbb is unknown.
  
- b. To Minimize Take**
  - i.** Conduct Pre-management surveys.
  - ii.** Implement Site preparation activities so that equipment disturbs Kbb-occupied habitat to the minimum extent practicable.
  - iii.** If Kbb is present, establish scattered refugia to maintain the population. Include enough nectar plant areas to sustain the population until disturbed portions of the site can provide viable habitat.
  - iv.** Post-management surveys are needed only if the partner has agreed to participate in cause-effect surveys, or if it is required as part of the partner's SHCA. Refer to the Monitoring Protocol for specific information.

**III. Specific Activities**

- a.** When using chemicals for site preparation, refer to the Pesticide Use Protocol.
  
- b.** When combining chemical and mechanical site preparation practices, refer both to this protocol and to the Pesticide Use Protocol. Adjust the timing of the practice accordingly.
  
- c.** When using prescribed fire for site preparation, refer to the Prescribed Burning Protocol.
  
- d.** If not satisfied with habitat conditions after treatment, refer to the Restoration Protocol.

#### **IV. Description and Levels of Disturbance**

Mechanical site preparation prepares a designated area of land for artificial or natural regeneration by using hand tools or power tools and implements to alter vegetative competition, expose mineral soil, and reduce logging residue and other woody debris. The extent of disturbance on the site has more effect on Kbb habitat than the intensity of the disturbance (see definitions below). Low disturbance site preparation applications affect less than 30 percent of the site. Medium disturbance applications affect 30 to 70 percent of the site. High disturbance applications affect more than 70 percent of the site.

##### **A. Low Disturbance Practices**

Since a low percentage of the surface area is affected by these applications, the floristic composition of vegetation immediately following site preparation is expected to be very similar to that preceding the activity, although vegetative height and biomass may be reduced. Examples of equipment that produces low disturbance include the following:

- Scalping with hand tools (shovel or mattock)
- Roller chopper – single drum
- Brush disk – single disk, one pass
- Patch scarifier

##### **B. Medium Disturbance Practices**

With medium levels of disturbance the effects on vegetation for the site will be more pronounced. Up to 70 percent of the site may require vegetative recolonization, which may differ from the original vegetative composition. Less than 30 percent of the site is expected to maintain the original vegetative composition. Equipment used in medium disturbance practices includes the following:

- Disk trencher
- Root rake – stumps and slash only
- Furrowing Plow – with undisturbed space between furrows
- Disk – tandem disk, one pass
- Roller chopper – tandem drum, one pass

**C. High Disturbance Practices**

These practices involve extensive removal of surface vegetation over most (>70%) of the site, drastically changing the structure and composition of the vegetation. Early successional species are expected to revegetate the site, primarily from seed origin. Late successional species may be able to recolonize the site through sprouting if viable roots are still present in the soil. Equipment used in high disturbance practices includes the following:

Furrowing Plow – berms of adjacent furrows touch or overlap

Root rake – removal of stumps and roots over the entire site

Roller chopper – tandem drum, multiple passes

Disk – tandem disk – multiple passes

Bulldozer – removal of stumps and brush with a straight blade.

**VI. Reference Documents**

Wisconsin Statewide Karner Blue Butterfly Habitat Conservation Plan and Environmental Impact Statement, Appendix F. (*March, 2000*)

Karner Blue Butterfly Conservation Protocols For Forest Management By HCP Partners, Appendix F. *Zastrow et al. April 27, 1998.*