

	Title: <b>Mowing and Brushing Protocol</b>	
	Date: <b>September 6, 2007</b>	Revision: <b>01</b>

## I. Purpose and Applicability

This protocol is intended to avoid and minimize take of the Karner blue butterfly (Kbb) that is incidental to mowing and brushing activities. This protocol applies to sites known to be occupied by Kbb, and to lupine sites within the KBB High Potential Range where Kbb presence or absence is unknown.

## II. Conservation Measures

### Mowing

- a. To avoid take
  - i. Do not mow in lupine areas that are known to be occupied by Kbb, or in lupine areas where the presence of Kbb is unknown. When mowing on extensive sites with scattered Kbb populations, avoid those lupine areas that are occupied by Kbb.
  - ii. Mow in winter over frozen ground and snow cover at a blade height of at least 6 inches above ground unless the senesced herbaceous vegetation containing lupine is under the snow layer and only the target, woody vegetation protrudes above the snow. In this case mowing down to the snow level is acceptable.
  - iii. Mow between September 1 and April 15 with a side-mounted sickle bar or rotary mower where the tractor is operated from the roadside or outside the occupied habitat.
  
- b. To minimize take and promote Karner blue butterfly and habitat
  - i. Mow lupine areas where Kbb occur only between September 1 and April 1 (**required**).
  - ii. If practicable, avoid mowing until October 1 or the first hard frost to allow late-season flowering plants to set seed for reproduction. For added benefit to Kbb, apply this measure to nectar areas within 200 meters of the lupine area.
  - iii. Do not mow lupine areas where Kbb occur more than once per year. (**required**)
  - iv. Avoid mowing annually those lupine areas where Kbb occur unless safety considerations require it. Three to five years between mowing treatments is preferred.
  - v. Set blade height at a minimum of 6 inches (8 inches is better) above the ground to minimize impacts to Kbb eggs. This mowing

practice reduces egg mortality and leaves the lower stems of lupine plants where eggs are laid at the site of new perennial lupine plant available for newly hatching larva. The blade height may be lowered to 4 inches if needed to simulate fire or grazing, or to reduce litter or thatch buildup.

- vi. Let clipped vegetation lay where it falls when mowing in lupine areas where Kbb occur. The clippings may contain KBB eggs. **(required)**
- vii. Use light-weight or low-ground pressure equipment when possible to minimize impact on vegetation and KBB eggs.

### **Tree and Brush Removal**

- c. To avoid take
  - i. Do not cut or mow brush and trees in lupine areas that are known to be occupied by KBB, or in lupine areas where Kbb presence is not known.
  - ii. When cutting brush and trees on extensive sites with scattered KBB populations, avoid those lupine sites that are occupied.
- d. To minimize take and promote KBB habitat when doing tree and brush removal
  - i. From September 1 to April 15 (preferred operating period)
    1. Restrict brushing with heavy equipment, e.g. brush hogs, flail choppers, and hydroaxes, etc. to this time period. **(required)**
    2. To the greatest extent practicable, restrict brushing with heavy equipment, e.g. brush hogs to the winter when the ground is frozen and/or covered with snow (preferably at least 3-4 inches) to decrease egg mortality.
    3. Tree and brush cutting or mowing on occupied sites during this time period should be done with hand tools or hand-operated power tools (chain or brush saw) if at all possible.
    4. Avoid trampling lupine plants or dragging brush across occupied sites or piling brush on occupied sites.
    5. If brush is to be chipped, spread the chips so that lupine plants are not covered.
    6. For brushing with rotary mowers, choppers, or flail choppers, the minimum cutting/chopping height should be 6 inches (8 inches is better).
    7. Brushing from July through early August may be considered for occasional use to control woody vegetation. Do not brush the entire occupied lupine areas, or isolated occupied sites during this period.
    8. For all brushing activities:

## **Karner Blue Butterfly HCP Management Protocol**

Avoid driving transport equipment and operating mowing equipment in major lupine and nectar areas to the greatest extent practicable.

- ii. Anytime throughout the Year
  - 1. Trimming by hand may occur at any time.
  - 2. Avoid dragging brush through lupine patches.
  - 3. Avoid trampling or other impacts to lupine to the greatest extent practicable.
  - 4. Avoid operating and parking vehicles and heavy equipment in lupine areas to the greatest extent practicable.
- e. In Emergency Situations
  - i. Avoid lupine areas to the greatest extent practicable.
  - ii. If Kbb presence/absence was unknown at the time of the emergency activity, perform post-management surveys for lupine and KBB presence/absence in the following flight season.

### **III. Reference Documents**

Forest Management Guidelines (Lane) 1997

Wildlife Management Guidelines for the Karner Blue Butterfly (WDNR) May, 1998

The Strategic Management Plan for Linear Corridors in Areas Inhabited by the Karner Blue Butterfly (Weaver Boos Consultants, Inc.)

Karner Blue Butterfly Habitat Conservation Plan, March, 2000