	Title: **Kbb Presence or Absence Monitoring Protocol (Level 2)**	
	Date: **December 12, 2009**	Revision: **03**

I. Scope and Applicability

The following protocol is intended to determine if the Karner blue butterfly (*Lycaeides melissa samuelis*) is present on HCP Partners' land included under the federal Incidental Take Permit TE 010064-5. A determination of absence does not mean that Karner blue butterflies are absolutely not there. Kbb may be present at such low levels not to be observable under this protocol. This protocol is acceptable to the FWS and is approved under the federal Incidental Take Permit TE 010064-x.

The following protocol is originally taken from Wildlife Management Guidelines for the Karner Blue Butterfly, Appendix III, Wisconsin DNR Karner Blue Technical Team as revised with information from the Biological sub-team (A.K.A. BioTeam) of the Wisconsin Statewide Habitat Conservation Plan for the Karner Blue Butterfly, May, 1998 Revision and January, 1999 Revision. The protocol was originally developed by the HCP Monitoring sub-team for the 1995 field season. This protocol has been reformatted from "*A Guide to Conducting Monitoring for the Wisconsin Karner Blue Butterfly Habitat Conservation Plan" (prior to 2007)* and made consistent with HCP streamlining strategies developed in 2006-2007. The most up to date revision can always be found in the Habitat Conservation Plan User's Guide on the DNR webpage (http://dnr.wi.gov/forestry/karner/hcp-userguide.htm).

Purpose: To determine if Karner blue butterflies (Kbb) occupy a particular habitat area (lupine and surrounding nectar plants). The following are **suggested minimum requirements** for conducting Karner blue butterfly (*Lycaeides melissa samuelis*) presence or absence surveys. For the purpose of this survey, **absence** means that no Kbb were detected at a particular site. It is not a 100% guarantee that Kbb do not exist at the site.

Forms: A standardized *Level 2: Karner Blue Butterfly Presence/Absence* form is used for recording all Level 2 monitoring information. A blank form can be copied from the DNR's Karner Blue webpage. Always use the current form as forms may change as a result of adaptive management.

II. Protocol

Where to Survey

A site is eligible for Level 2 monitoring if it meets the following criteria:

1. The site meets the criteria listed for Level I Monitoring:
   - The site is within the High Potential Range (HPR) of the Karner blue butterfly (see Karner Blue HPR map http://dnr.wi.gov/forestry/karner/pdf/rangemap.pdf).
   - The site meets the definition of potential habitat. Potential habitat includes sites on dry, sandy soils with dominant overstory vegetation of an age and/or character that could support Karner blue butterfly habitat.
   - The site is on lands included by an HCP partner in their Species and Habitat Conservation Agreement or Implementing Agreement (see *Level 1 – Lupine Presence and Absence Monitoring Protocol* for additional information describing sites eligible for Level 1 monitoring), and

2. The presence of lupine has been confirmed on the site within the last five years using the Level I Monitoring Protocol, and

3. The site has at least 25 lupine plants or clumps of lupine, at a density of 50 lupine plants per acre (or 25 lupine plants per 200 m of linear distance for linear sites).

<u>When to Survey</u>

- Surveys for Karner blue butterflies can be conducted during both the first and second Karner blue butterfly flight periods. The first flight period normally begins in late May and ends in mid to late June. The second flight period normally begins in mid July and ends in mid to late August.

- Timing of flight periods can vary by as much as 2-3 weeks from year to year and from site to site.

- The length of flight periods may also vary from year to year (two to five weeks in length).

- If resources do not allow you to conduct surveys during both flights, priority should be placed on conducting surveys during the second flight period (see "Determination of NO KBB" listed below).

- Only one survey is needed if you detect Kbb during the first survey. If you do not detect Kbb during the first survey, you should conduct a second survey. If you do not detect Kbb during the second survey, you should conduct a third survey. IMPORTANT: The second and third surveys must be conducted during the second flight period. Surveys during the second flight period should be spaced so that there is at least a 3 day interval between site visits.

- Conduct surveys during optimal time and weather conditions as listed below:
  - between 8:00 a.m. and 6:00 p.m.
  - when temperatures are above 60^0F
  - when temperatures are between 60^0F and 70^0F, conduct surveys only

under mostly sunny skies with calm to light wind
- when temperatures are above 70^0F, there are no restrictions on cloud cover
- when winds are 18 mph or less
- Do not survey under drizzly or rainy conditions.

How to Survey

- Individuals conducting surveys must attend training in survey techniques and identifying Kbb offered by the Wisconsin DNR (see Monitoring Guideline, "Training").

- The Kbb habitat area (lupine and associated nectar species) should be identified ahead of time when possible.

- If a site is being surveyed for Level 2 Monitoring only, the surveyor(s) should walk the entire habitat area at a leisurely pace until all likely locations of Kbb concentration areas are surveyed OR surveyors may cover the area by walking transects to look for the butterflies. The purpose of the survey is fulfilled when at least one Kbb is observed (during either the first or second flight period).

- Butterflies observed outside the site boundary that can be positively identified as Karners from within the site should be counted for that site.

Important: *To minimize harm to Kbb, avoid trampling lupine to the greatest extent practicable. Kbb may be present in any or all life forms.*

Intensity of Survey

Approximately 10 minutes of effort per survey are recommended for each acre of habitat (i.e. lupine patches and important nectar plants within 50 meters of the lupine patch) to determine Kbb presence/absence. If a Kbb is quickly spotted, it is not necessary to spend 10 minutes per acre of habitat. Surveying for a longer period of time is encouraged (but not mandatory) if Kbb are not found during the first 10 minutes of survey effort per acre of habitat.

Determination of No KBB

The determination that no Kbb are present at a site can be made once you have surveyed the site (without documenting any Kbb) three times during one year. No more than one of the surveys may have been conducted during the first flight period. Surveys should be spaced so that there is a 3-7 day interval between surveys. Again, once one Kbb is observed, the purpose of the survey is fulfilled and additional surveys are not required.

General Information

The "Determination of No KBB" is based primarily on surveys during the second flight period, since Kbb numbers are usually greater during this flight period.

Kbb flight periods vary within the year from site to site depending on the site's phenology (i.e. "fast" sites and "slow" sites). Flight periods normally occur earlier on sunny, open sites and later on shady sites. Spacing of the surveys is necessary to ensure that at least

one survey is conducted during the peak of the main (second) flight period. A 3-7 day range is used because the duration and amount of suitable survey weather varies among years.

The Karner Blue Butterfly Emergence Model is used to determine when Karner blue adults may be present. Land managers familiar with the sites to be surveyed should consider variations between sites in the area to decide which sites may be "fast" or "slow", and plan survey work accordingly. (For Kbb emergence predictions see http://dnr.wi.gov/forestry/karner/emergence.htm.)

III. Definitions

- High Potential Range: The high potential range is the region of the state containing all documented occurrences of the Karner blue butterfly, and extending 5 miles beyond documented occurrences to include areas with similar habitat, soils, and climate where the Karner blue butterfly is most likely to occur based on the Kbb probability model developed in 2006-2007. (See Karner Blue HPR map http://dnr.wi.gov/forestry/karner/pdf/rangemap.pdf).

IV. Referenced Documents

- Wisconsin Statewide Karner Blue Butterfly Habitat Conservation Plan and Environmental Impact Statement, Appendix F. (March 2000)
- Karner Blue Habitat Conservation Plan User's Guide (http://dnr.wi.gov/forestry/karner/hcp-userguide.htm)
- Karner Blue High Potential Range Map in Wisconsin "Karner Blue Butterfly Habitat Conservation Plan High Potential Range - Regulatory Range" map *http://dnr.wi.gov/forestry/karner/pdf/rangemap.pdf*