	Title: **Monitoring Guideline**	
	Date: **May 19, 2010**	Revision: **03**

I. Scope and Applicability

Monitoring is a critical component of adaptive management in the statewide Wisconsin Karner Blue Butterfly HCP. This guideline outlines and describes the monitoring strategy and monitoring activities performed by HCP Partners on HCP Partners' land included under the federal Incidental Take Permit TE 010064-x.

Monitoring activities will always be conducted with consideration for the Karner blue butterfly (Kbb) and in a manner that will allow for continued beneficial disturbance management within the High Potential Range of the Kbb.
[The current High Potential Range map can be found on the WDNR's Karner Blue HCP webpage at http://dnr.wi.gov/forestry/karner/pdf/rangemap.pdf or by contacting the HCP Coordinator.]

Monitoring will be used to determine both the success of the partners in meeting their individual conservation agreement goals and of the HCP at meeting its statewide conservation goals.

This guideline applies to all monitoring activities that may occur within the High Potential Range of the Kbb in Wisconsin. Monitoring activities include monitoring required as a condition of the permit to assess the affects of conservation measures applied in concert with partners' management and maintenance activities that routinely occur on State Wildlife & Fishery Areas, State Forests, State Natural Areas, road right-of-ways, utility and gas corridors and other partner owned lands of similar type. Conservation measures for these activities are addressed in separate guidelines, each with protocols that are specific to them.

This guideline does **not** apply to Recovery Monitoring. A monitoring tool to estimate population sizes, called Distance Sampling is currently being used for Recovery Monitoring and is addressed elsewhere.

II. The HCP and Adaptive Management

The HCP applies adaptive management to address conservation within the context of a working landscape. This adaptive management approach offers partners in the HCP the flexibility needed to meet their respective goals. Monitoring is essential to the HCP adaptive management process, and ultimately to document the need for the dynamic landscape necessary to maintain viable populations of Karner blue butterflies.

III. Objectives of Monitoring

The purpose of monitoring is to provide an economical and biologically sound means of detecting (1) the presence of Karner blue butterfly (Kbb) habitat and (2) the presence of Kbb occupied sites. The results of these surveys allow HCP partners to determine if and where Kbb are present and inform them when to apply conservation measures included in HCP management protocols. Information collected through monitoring will also be used to assess the efficacy of the HCP and to inform adaptive management decisions. Cause and Effect Monitoring will assess the affects of management activities on Kbb, Kbb populations and Kbb habitat, which will be used to direct continuous improvement of conservation measures in HCP management protocols.

IV. Components of Monitoring

Level 1 Monitoring: Sampling for the presence of habitat. For habitat surveys, the presence or absence of wild lupine is determined and its abundance broadly quantified (see Lupine Presence/Absence Monitoring Protocol - Level 1). On sites where the presence of habitat has been established, lupine surveys need to be repeated after several years in response to habitat changes brought about by disturbance management activities or natural succession**.**

Level 2 Monitoring: Sampling for the presence of the Karner blue butterfly. Sites where lupine is present are subsequently surveyed to determine the presence or absence of Karner blue butterflies (see Karner Blue Butterfly Presence/Absence Monitoring Protocol – Level 2).

Cause and Effect (C-E) Level 1 Monitoring: To assess the vegetative response related to a variety of important habitat components of the Karner blue butterfly (*Lycaeides melissa samuelis*), including wild lupine (*Lupinus perennis*), which result from selected management activities and conservation measures in order to inform the adaptive management process. C-E studies can be selected to (1) validate the anticipated and desired affects of a management practice or conservation measure, (2) study a new or proposed management activity or conservation measure, or (3) study multiple conservation measures for an activity to compare the results and improve the efficiencies of the activity and/or effectiveness of the conservation measure.

Habitat Evaluation
Further habitat evaluation beyond the elements required for Levels 1 and 2 monitoring is not generally a required component of the monitoring program. Exceptions are:

- When required to assess the success of habitat reclamation as part of a construction project,
- When required to demonstrate the success of a mitigation plan following permanent take.
- Whenever useful to inform adaptive management decisions, i.e. to assess habitat alterations as a result of management or as a component of research.

V. Training

All persons collecting field data for monitoring under the WI KBB HCP must have attended a training session offered by the Wisconsin DNR. Depending on partners' needs, one or more training sessions are held each spring, during the first Karner blue butterfly flight period (late May-early June). The training covers survey protocol procedures, lupine and Karner blue butterfly identification, issues of variability in habitat, habitat elements, Karner blue butterfly behavior, etc. It is mandatory for previously certified field personnel to undergo refresher training at least once every 5 years.

VI. General Requirements and Recommendations

Required:

a. Those who perform monitoring for WI KBB HCP purposes and under the authority of the associated Incidental Take Permit will successfully complete a monitoring training session provided by the DNR's HCP program and taught by qualified, authorized trainers.
b. Certification to perform monitoring protocols under the permit is valid for 5 years after which time a refresher course will be required.
c. Kbb and Kbb habitat surveys will be conducted following approved HCP monitoring protocols.
d. In addition partners are required to follow any specific provisions in their conservation agreements (SHCAs or IA).

Recommended:

e. It is recommended that non-required surveying at the discretion of the partner follow HCP approved protocols and documentation procedures.

VII. Specific Activities

a. If surveying for the presence or absence of Kbb habitat, follow the Level 1 - Lupine Presence/Absence Monitoring Protocol.
b. If surveying for the presence or absence of the Karner blue butterfly, follow the Level 2 - KBB Presence/Absence Monitoring Protocol.
c. If surveying to assess the Cause & Effect relationship of HCP management activities, follow the C-E Level 1 Monitoring Protocol.

VIII. Definitions

- **Adaptive management:** For the WI Karner Blue HCP, adaptive management is defined as a formal, structured approach to dealing with uncertainty in natural resources management, using the experience of management and the results of research as an on-going feedback loop for continuous improvement. Adaptive approaches to management recognize that the answers to all management questions are not known and that the information necessary to formulate answers is often

unavailable. Adaptive management also includes, by definition, a commitment to change management practices when determined appropriate.

- **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.

IX. Referenced Documents

- 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*