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Date: 10/14/03 6:39AM
Subject: Alliant Procedures

Attached are procedures from Alliant Energy pertaining to the ROW for the Rock Creek line. These procedures cover:

* Line Clearance Vegetation Plan
* Circuit Pre-inspection Audit Form
* 2003 Training Matrix for Field Engineers identifying our Natural Resources and Permitting training
* Karner Blue Butterfly training program description and materials
* Karner Blue Butterfly Conservation Agreement Summary
* Karner Blue Butterfly range map in Wisconsin
* Karner Blue Butterfly identification photos
* Partners in Protection brochure
* Iowa Department of Natural Resources Guidelines for Protection of Indiana Bat Summer Habitat provided to line clearance contractors at annual training

These procedures were obtained from Dan Green (Line Clearance Manager), Heidi Rahn (Environmental Health and Safety), and Wendy White (Environmental Health and Safety). All are from Alliant Energy.

If you should have any questions, please feel free to contact me at any time.

Bill

<<Alliant Vegetation Procedures to NRC.pdf>>

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ALLIANT ENERGY.

Line Clearance Vegetation Plan

Purpose

This plan covers Alliant Energy's line clearance, schedules, policies and procedures.

Line Clearance Work

Alliant Energy maintains 36,346 miles of distribution and 4,500 miles of transmission lines within a four state area. 60% of the rights-of-way are rural, consisting of agricultural and timber areas, with the remaining 40% being urban.

Tree trimming and/or removal in the proximity of energized conductors is necessary to reduce the incidence of tree-conductor contacts. Adequate clearance is essential to improve the safety and reliability of electric service to Alliant customers. The initial and future tree trimming requirements to maintain proper tree to wire clearance should always be a consideration at the time of line construction. Locations that minimize tree clearing requirements should be a prerequisite to line construction.

All line clearance work, whether it is tree removal or trimming, should be performed in accordance with predetermined specifications and methods with the proper equipment. Each of these items is extremely important to the professionalism and image of the line clearance program. Maintaining effective clearance between trees and conductors is our mission.

Safety of the public shall always be evaluated when tree clearances from energized conductors are considered.

Tree removal on private property will require permission for the landowner at all times.

All line clearance work shall be done in accordance with the National Arborists Association and the International Society of Arboriculture's recommended standards. Lateral or natural pruning techniques will be used.

All work will be performed in compliance with endangered species acts with regards to the Indiana Bat and the Karner Blue Butterfly. If an endangered species is found by the contractor in an area where work is to be performed, he will immediately cease work and contact Alliant Energy. Attached are Alliant Energy's policies for each of these programs.

Particular attention will be given to the known nesting areas of the bald eagle. Work in these areas shall not be performed after September 1st of each year. This mainly affects work to be done in the Clinton, Dubuque, and Decorah zones of our service territory.

A pre-inspection of all work to be performed shall be completed and documented by the contractor's General Foreman. If it is determined that this work will be located on any type of wildlife refuge or protected area, the contractor will not perform work on these locations and notify Alliant Energy.

Transmission System

It is the intention of Alliant Energy that all transmission lines, after initial clearing, will be maintained according to the following schedule:

> *6 years* ~ After the original clearing has taken place, Alliant Energy will selectively treat or remove all undesirable species within the rights-of-way and trim all trees vertical to the edge of the right-of-way.

Transmission Specifications

345kV Transmission Lines

- Remove all trees under the wire zone and all tall growing species of trees (over 20' mature height) that are within a 150' width (75' each side of center line). Any trees outside of the 150' right-of-way must be pruned vertically to the edge of the right-of-way.

115kV and 161kV Transmission Lines

- Remove all trees under the wire zone (20' mature height) that are within a 100' width (50' each side of the center line). Any trees outside of the 100' right-of-way must be trimmed vertically to the edge of the right-of-way.

34.5kV and 69kV Transmission Lines

- Remove all tall growing species of tree (over 20' mature height) that are within the easements or that are within 25' each side of the pole line on 34.5kV or 40' each side of pole line on 69kV. Any trees outside of the easement or removal zone must be pruned vertically to the edge of the right-of-way. Any trees in a kept area that cannot be removed will be trimmed to a minimum of 15' clearance.

Distribution System

The objective of Alliant Energy's Line Clearance program is to acquire at least the minimum clearance to maintain a four-year cycle. It is our goal, however, to delay a tree's first trimming when feasible and to not trim slow growing trees unnecessarily.

Distribution Specifications

Service Drops and Secondaries

- Trim only in an emergency situation or if the tree branch is leaning, rubbing, or pushing the conductor out of sag.

Single Phase (7.2kV & 14.4kV) – Two Phase (12.4kV & 24.9kV)

- Trees are to be trimmed for maximum allowable clearance. Four (4) year's clearance (fast growth 10 feet, slow growth 6 feet) will be considered minimum clearance. Slow-growth trees with three feet or more clearance will be left for next cycle. If less than three feet of clearance, they should be trimmed to full specification.

- Overhang removal to be limited to hazardous limbs only. Existing regrowth can be removed when appropriate.

- Where permissible, remove only hazard trees adjacent to lines and all tall-growing trees directly under lines. Low growing species shall be left for habitat.

- In rural right-of-way, remove all tall-growing species under lines and chemically treat stumps ten feet either side of center line.

Three Phase (12.4kV & 24.9kV)

- Trees are to be trimmed for maximum allowable clearance. Four (4) year's clearance (fast growth 10 feet, slow growth 6 feet) will be considered minimum clearance. Slow-growth trees with three feet or more clearance will be left for next cycle. If less than three feet of clearance, they should be trimmed to full specification.

- Overhang removal limited to hazardous limbs only. Existing regrowth can be removed when appropriate.

- Where permissible, remove only selected trees adjacent to lines and all trees directly under lines.

- Remove all tall growing brush under lines and chemically treat stumps.

- Remove and/or treat all tall growing trees 15' either side of the center line.

Annual Training

Annually, all contract employees shall receive a minimum of 8 hours classroom training. One-half to be paid by the contractor and one-half to be paid by Alliant Energy.

This training shall include pesticide applicator license recertification, an update on Alliant Energy's endangered species policies and all OSHA required training.

Stump Treatment

All stumps shall be treated for resprouting with a herbicide in accordance with the following:

- All herbicides shall be applied in accordance with existing laws and regulations.
- All herbicides used shall be approved by the owner prior to use.
- Cut stumps and stubble must be treated with an approved cut surface treatment immediately following cutting.

Herbicide Applications

Alliant Energy's goal is to have a minimum of 90% control of all tall-growing woody species on the entire maintained portion of the rights-of-way.

All standing brush is to be treated utilizing low volume foliar or basal treatment methods. Approved herbicides include: Accord, Escort, Garlon 3A, Garlon 4, Krenite S, Pathway/Tordon RTU, and Stalker.

Any application of herbicides is to be done by a licensed applicator. The Applicator shall provide the Company with proof of pesticide applicator registration within the state where the work is being performed. Special attention shall be paid to watershed areas and near streams to assure a proper buffer zone is maintained.

The Applicator will keep daily records for the required number of years regarding all herbicides applied on this job in compliance with regulations required by the state in which they are working.

The applicator will be responsible for proper disposal of all empty herbicide containers.

The applicator will secure permission from the owner before using any herbicide on any particular property. In the event the property owner refuses herbicide treatment on their property, the Applicator must notify Alliant in writing.

Safety

All Line Clearance workers shall comply with the following:

- Provide compliance and documentation thereof with OSHA 1910.269.
- Provide documentation of Electrical Hazards Training requirement OSHA 1910.331.
- Provide compliance with ANSI Z-133.

Types of Trimming

The line to tree relationship determines the type of trimming required. A familiarity with tree growth habits is essential in trimming individual tree species in the location of new lines where tree trimming will by required. Considering the type of growth to line location, tree removal may be more desirable than trimming.

- **Top Trimming** - Top trimming is "removal" of the crown's upper branching when the tree is located underneath the line. The crown is lowered by natural and/or directional pruning creating a natural appearance.
  - Limbs should be cut to a suitable lateral minimizing stubby appearance. The lateral should be at least one-third the diameter of the limb being removed.
  - Most cuts should be made with a saw. The pruner is used only when trimming some of the high lateral branches.
- **Side Trimming** – Crown side branches are trimmed/removed back to a suitable lateral or the trunk.
  - Unsightly notches should not be left in the side. Limbs above and below a resulting notch should be trimmed to reduce the notch.
- **Overhang Trimming** - Overhang branches are removed to a level providing adequate clearance.
  - If it is not possible to remove overhang branches, they should be trimmed to reduce weight.
  - No dead or weakened branches should overhang the line.
  - Overhang is not permitted on transmission lines.
- **Through Trimming** – Through trimming is the removal of inner crown branches to provide adequate clearance.
  - This method is used where conditions do not permit top, side or overhang trimming.
  - The cuts should be made at the crotches encouraging growth away from the conductors.

Method of Trimming

- **Natural Trimming** – Known also a lateral trimming. Branches are cut at a suitable lateral limb, toward the center of the tree. Large limbs should be removed to a lateral at least one-third their diameter. Most cuts are made with a saw; little pruner work is required. This method produces a more natural look when complete, even if a large amount has been removed.
    - Natural trimming is also directional trimming, as it directs growth away from conductors. Cuts should be made considering direction of growth. Correctly applied, natural trimming provides proper clearance for a maximum period with minimum deformation, while stubbing, or pole-clip clearance promotes an unnatural appearance with rapid sucker growth into the conductors.
    - Natural trimming reduces the work of subsequent trimming operations.
- **Drop Crotching** – This method retains the trees' natural shape by removing some larger branches at variable distances below the top of the crown. It results in thinning the crown area.
    - Drop crotch trimming is desirable for fast growing trees such as soft maple and elm. Trees such as sugar maple or pin oak do not react well to drop crotch trimming.
- **Directional Trimming** – Directional trimming is used to direct tree growth. It involves cutting to a lateral limb from which future growth is directed away from the conductor. All cuts should be made with consideration for direction of new growth.
    - Correctly applied, directional trimming provides proper clearance for a maximum period with minimum deformation.

Community Relations

Alliant Energy offers several programs to promote community and residential tree plantings for energy conservation and to protect and enhance the environment. Every project focuses on long-term tree care with a special emphasis on energy efficiency and conservation.

Our community programs consist of three different projects. The Branching Out Community Program grants funds to local volunteer groups to plant trees around homes for energy efficiency; beautify parks, schools, city streets, churches and businesses; replace storm-damaged or diseased trees or trees conflicting with utility lines.

Branching Out Rural is a grant program that supports projects for rural public lands such as schools and public buildings, churches and cemeteries, reforestation, windbreaks and buffers on public land and youth and adult education camps. Youth involvement and education are primary criteria for this program.

Branching Out Through Generations is a program designed to involve both students and senior citizens. Activities center on tree-planting projects at schools and/or senior facilities that promote energy efficiency, provide educations opportunities and encourages multigenerational involvement.

Over the past thirteen years, from 1998 to 2002, these programs have resulted in 209,893 trees being planted with a total of 334,027 volunteer hours.

In 2002 Alliant Energy initiated a residential tree-planting program called Operation ReLeaf. The objective of this program is to provide low-cost, high-quality desirable landscape trees for residents to purchase and plant on their property for long-term community reforestation. Trees are ordered in bulk numbers – to keep costs low, investments by residents (1/2 price) is required and encourages ownership/maintenance and central distribution minimizes transportation costs. Since the conception of this program 8,000 trees have been planted.

Alliant Energy provides financial support towards the Trees For Kids program. Trees for Kids and Trees for Teens are tree education and planting programs for elementary and secondary schools. Its mission is *to promote the value of trees to youth by providing educational information and opportunities for tree planting and care.* In 2001 alone, over 9,414 teachers, youth leaders and home schooling parents were involved in these programs. From surveys provided, these teachers and youth planted a total of 74,000 trees.

Customer Relations

While personal contact is not always required for tree trimming on Alliant Energy's facilities, maintaining good relations with our customers is a top priority.

At Alliant Energy's discretion, should Alliant determine a desire to remove a tree on private property, a replacement tree may be offered for a value not to exceed $150. Replacement trees must be planted according to the guidelines provided within Alliant's Power Planting brochure (attached).

It will be the responsibility of the Contractor to operate in such a fashion that good customer relations are established and maintained. Conflict with our customers is to be avoided at all times.

Should any customer approach Contractor crews, the Contractor shall attempt to courteously and conscientiously answer customer questions and concerns.

If the Contractor is unable to satisfy the customer, the Contractor shall suspend operations on the customer's property, proceed to the next property, and notify the Company of the situation immediately. The Contractor will also complete an Alliant Refusal Slip and attach the form to the completed circuit map.

The Alliant Energy representative will respond to the customer and resolve the situation as quickly as possible. As soon as the situation is resolved, the Alliant representative shall inform the Contractor of the course of action to complete the suspended portion of the work.

No claim for extra compensation will be allowed for any such suspension of operations.

Internal Review

Alliant Energy annually performs contractor and program evaluations.

Each year Alliant Energy benchmarks and compares each of its contractors working on their system to assure Alliant Energy is getting the best available service for the lowest possible cost. The following year's work is awarded based on the contractor's previous year's performance.

The Line Clearance Department has several measurements in place to evaluate the performance of its department by measuring tree related outages, line miles completed, environmental compliance and conducting customer satisfaction surveys.

An annual report is provided to management within Alliant Energy.

CIRCUIT PRE-INSPECTION AUDIT

Crew Leader/Contractor_____ Date/Time_____

Location_____

Contractor Supervisor_____

CIRCUIT ID _____ ZONE _____

Anticipated Start Date_____

Refusals
Location/Address:

Brush Not Allowed to be Removed
Location/Address:

Dump Sites
Location/Address:

Local and City Government Officials Contacted?
Yes No
If Yes, Name and Title:

Overnight Parking Location

Any work located on Wildlife Refuge or Protected Area?
Yes No
If Yes, Name and Location of Protected Area

Alliant Energy Notification:
Employee:
Date:

FORESTRY FIELD CHECK

Crew Leader/Contractor _____ Date/Time _____

Location _____

Contractor Supervisor / Last Visit _____

SAFETY ☐ Very Good ☐ Good ☐ Fair ☐ Poor

- ☐ Personal Protective Equipment
- ☐ Chain Saw Chaps
- ☐ Job Briefing
- ☐ Traffic Vest
- ☐ Signing and Guarding
- ☐ Public Safety

Comments _____

JOB QUALITY ☐ Very Good ☐ Good ☐ Fair ☐ Poor

- ☐ Proper Clearance
- ☐ Danger Trees Handled
- ☐ Stump Height
- ☐ Hangers
- ☐ Herbicide
- ☐ Pruning
  - ___ Proper Cuts
  - ___ Proper Laterals
  - ___ No Rips, Tears
- ☐ Overall Tree Appearance
- ☐ Site Cleanup

Comments _____

WORK SITE ☐ Very Good ☐ Good ☐ Fair ☐ Poor

- ☐ Climbable Trees
- ☐ Clothing/ID
- ☐ Integrated Maintenance
- ☐ Everyone has Job/Multiple Tasks
- ☐ Cutting Tools
- ☐ Large Equipment Condition/Appearance
- ☐ Planning for Tomorrow
- ☐ Circuit Map

Comments _____

ADDITIONAL COMMENTS

_____

_____

_____

Crew Leader: _____ Evaluator: _____

Distribution: WHITE - Area Forester YELLOW - Crew Leader PINK - Evaluator

ALLIANT ENERGY.

CIRCUIT INFORMATION LOG

Substation Name	Circuit Number

ALLIANT ENERGY.	2003 Training Required for: Field Engineering Job Classifications	East Matrix

Positions/Job Class #: Lead Engineering Technician/6700
Engineering Technician/6701

Required Courses

Course #	Description of Training	Hours	Type of Instruction	Date Training Completed
Safety				
SAF0001	First Aid	4	Classroom	
SAF0002	Adult CPR Training	4	Classroom	
SAF0003	Bloodborne Pathogens	1	Safety Meeting	
SAF0004	Hazard Comm/Right To Know	1	Safety Meeting	
SAF0011	Hearing Awareness	1	Safety Meeting	
SAF0035	AED (Automatic External Defibrillator)	1	Classroom	
SAF0305	Industrial Athlete 2003 Ergonomics	1	Classroom	
SAF0148	RF (Radio Frequency) Awareness Training	1	Safety Meeting	
Environmental Training				
ENV0026	Natural Resources and Permitting	1.0	Classroom	
ENV0027	Recycling	0.5	Classroom	
Technical Training				
CST0002	Connecting with our Customers	3	Classroom	
ELC0016	Electric Service Information Manual Annual Training	1	Classroom	
ELC0062	Alliant Electric Standards Training	1	Classroom	
ENG0080	Voltage Drop & Flicker Training	2	Classroom	
GAS0101	Gas Emergency Response	2	SS	
GAS0300	Gas Engineering Standards Annual Training	2	Classroom	
GAS0302	Gas Operation and Maintenance Plan Annual Training	1	Classroom	
GAS0303	Gas Service Guidelines Annual Training	1	Classroom	
GAS0304	Gas Operation Work Practices Annual Training	2	Classroom	
GAS0309	Gas Construction Standards Annual Training	2	Classroom	
UTL2003	Other Manager Approved Technical Training	Variable	Variable	
Corporate Initiatives				
COR0001	Hourly Coaching	1	Manager/ Supervisor	
COR0112	Diversity Training	4	Classroom	
COR0008	Security Training	TBD	TBD	
COR0007	Ethics Training	TBD	TBD	

Alliant Energy Karner Blue Butterfly Training Program

Presentation to Wisconsin Statewide KBB Habitat Conservation Plan Partners
Heidi Rahn, Environmental Consultant

Who gets trained?

- All field employees in 10-county area in the Karner range within our WI service territory
    - Employees with mandatory training includes staff in: electric metering, engineering, equipment operators, gas crews, line clearance, linemen, substation crews, and service technician
- Line clearance staff and contractors in Iowa receive annual training due to crossing borders for work assignments and general awareness of Alliant Energy's commitment to protecting endangered species

How often?

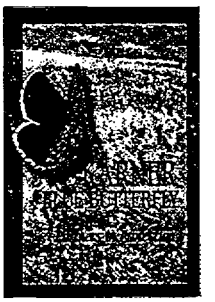
- 1998-2002 – annual mandatory training
- 2003 – mandatory training every other year; opposite year will have "Natural Resources Permitting/Construction" training, which will include, but not focus on the Karner

Who conducts training?

- Environmental staff – conduct training for larger groups or those with new managers unfamiliar with Karner program
- Field Managers – conduct training for their own staff utilizing same handouts as Environmental staff

What is used for training?

- Video – Spotlight on the Environment (5 min.)
- Overhead slides (if given by Environmental staff) or training module (if given by field crew managers) describing:
    - Karner regulatory status
    - Habitat/range
    - Life cycle
    - Identification
    - SHCA/HCP agreement
    - Operating near/within habitat
    - Monitoring
    - Reporting lupine or Karner sightings
    - Contacts



- Handouts
    - Brochure: Karner Blue Butterfly Partners in Protection – highlight photos showing feeding signs on lupine, life cycle, lupine leaves, Karner size/coloring, range, and partners
    - One page summary of SHCA and identified habitat – one side has map with habitat locations within our service territory; the other side has guidelines regarding mowing, herbicide applications and reporting habitat/Karner sightings
    - Laminated Silvery Blue Butterfly – used to demonstrate size and concern by employees
- Results
    - Compliance
    - Increased environmental ethic/awareness
    - Stewardship: many want to take more brochures home to their children/grandchildren or learn how to plant lupine/habitat on their own property

Karner Blue Butterfly Conservation Agreement Summary

The Incidental Take Permit issued by the US Fish and Wildlife Service to Alliant Energy authorizes the incidental take of the endangered Karner blue butterfly (KBB). "Incidental Take" is the take of a species incidental to, and not for the purpose of, the carrying out of an otherwise lawful activity. Specified land management or land use activities necessary to ensure the reliable delivery of electric, natural gas, and water service may be engaged in. Activities include but are not limited to:

1) rights-of-way corridor selection and pre-construction
2) facility construction
3) facility operations and maintenance (both vegetative management and repair of structures)
4) emergency response procedures
5) land management options on all utility owned lands
6) generation plant construction, maintenance, and emergency repair
7) research directed at improving Alliant-WPL's land management options
8) other unforeseen situations necessary to ensure the reliable delivery of electric, natural gas, and water service which may arise and which may require additional management options.

For operations and maintenance of existing transmission line facilities located in the high potential habitat range, Alliant Energy-WP&L will conduct the following conservation measures:

•**Avoid** sites of known KBB occupancy from mid-April through August unless necessary to make repairs or to provide reliable service; should access to occupied areas be necessary during this period, all lupine areas will be **flagged and avoided**; in an emergency situation, repairs to infrastructure and safety of crews will take precedence; if permanent take should occur as a result of an emergency repair situation or other unforeseen general utility occurrence, Alliant-Energy-WP&L will employ mitigation measures following discussions with the DNR

•**Mowing** will take place between mid-October and mid-April in KBB occupied areas; the height of the mowing blade will be at least six inches from the ground; trimming by hand may occur at any time between September 1 and mid-April

•**Herbicide guidelines:**

- Approved herbicides include Garlon 3a & 4, Tordon, Accord, and Escort
- Monitor pesticide use, dosage and timing, weather, and application methods for future use

April 15 – August 31 KBB flight season

- Near occupied habitat:
  -Make aerial applications only when the wind is not blowing toward the habitat and allow a 20 meter buffer
  -Make ground equipment applications only when the wind is not blowing toward the habitat and allow a 2 meter buffer
  -Make spot applications with hand-held equipment as needed
- Inside occupied habitat:
  -Make spot applications with hand-operated equipment only
  -Avoid trampling plants
  -Do not use heavy equipment

September 1 - April 14 KBB non-flight season

- Near occupied habitat:
  -Make aerial, ground and spot applications while minimizing impact on nearby nectar plants
- Inside the habitat:
  -Make aerial applications as needed
  -Make spot/ground applications using pesticide certified personnel

•**Survey** on an on-going basis for presence or absence of known KBB occurrences and identify new locations of lupine, if any, using the Line Clearance Report form.

Measures will be taken to avoid or minimize adverse impacts to occupied habitat during new construction projects including protection of occupied areas from vehicular traffic, soil stockpiling, and other potential impacts.

Please contact Heidi Rahn at 608-458-3214 for more information or to report wild lupine or Karner blue butterfly locations. To report or access Karner blue flight information, call the WDNR Karner blue hotline at 1-877-4KARNER (52-7637).

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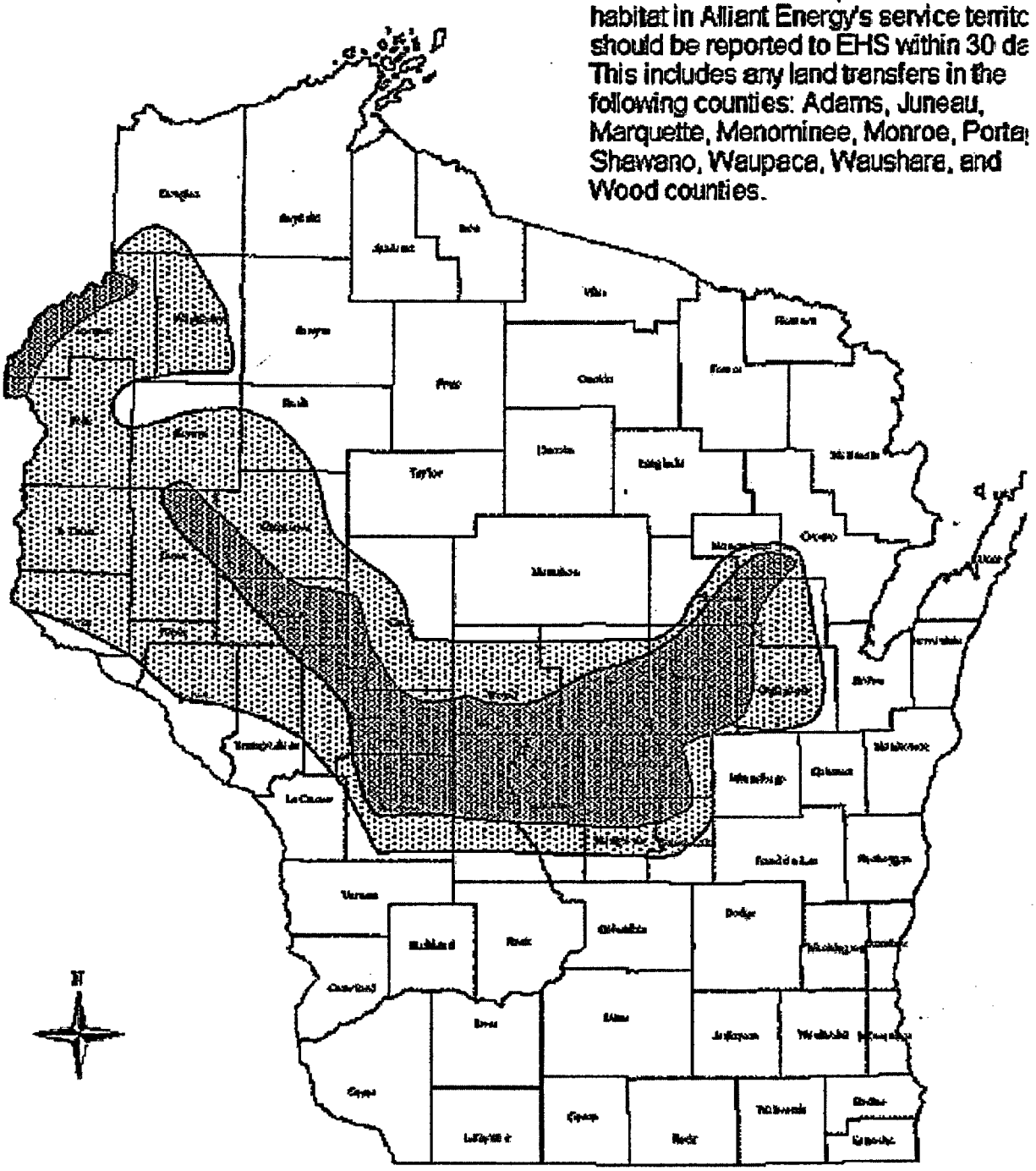
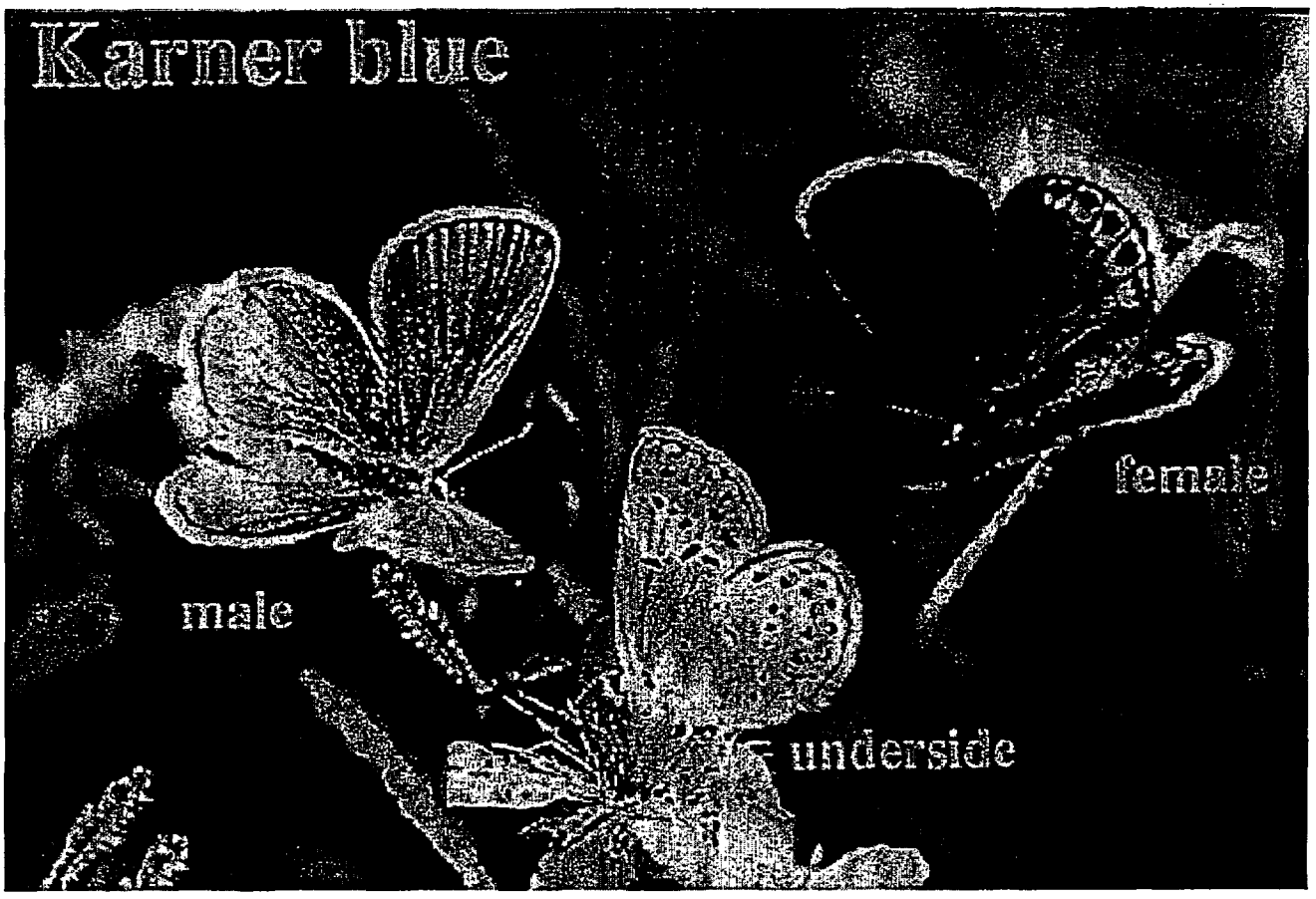
Karner blue butterfly range in Wisconsi

Land Transfers within potential Karner habitat in Alliant Energy's service territc should be reported to EHS within 30 da This includes any land transfers in the following counties: Adams, Juneau, Marquette, Menominee, Monroe, Porta Shawano, Waupaca, Waushara, and Wood counties.



Actual Documented Range



Wild lupine

Revised February 28, 2000

IOWA DEPARTMENT OF NATURAL RESOURCES

GUIDELINES FOR PROTECTION OF INDIANA BAT SUMMER HABITAT

These guidelines were prepared to provide information about the Indiana bat and its summer habitat requirements in Iowa and to prevent inadvertent harm to the species through various human activities. This update of the guidelines is in response to changes in the U.S Fish and Wildlife Service requirements for protecting this endangered species. The changes include:

- Adding Poweshiek and Iowa Counties
- No cut dates expanded to April 1 through September 30
- Tree size changed from 11 inches to 9 inches (dbh)

The Indiana bat is a federal (50 CFR Part 17) and state (Code of Iowa, Chapter 481B) listed endangered species that occurs in southern Iowa from May through August. This species was listed as endangered by the US Fish and Wildlife Service because over 85% of the Indiana bat population hibernate in just seven locations in Missouri, Indiana, and Kentucky. Protection of the hibernation caves and mines has stabilized the population in the eastern US but the western portion of the population, which includes Iowa, has continued to decline.

Female Indiana bats have their young beneath the loose or peeling bark of trees. Most nursery colonies have been found beneath the bark of standing dead trees on the trunk or large branches. Dead trees that retain sheets or plates of bark and which provide space beneath the bark such as red oak, post oak, and cottonwood are potential roost trees. Live trees such as shagbark and shellbark hickory are also used at times for roosting. The nursery colonies are located along streams and rivers or in upland forest areas. Riparian areas are also important feeding areas for this species. Indiana bats have been captured on the edge of urban areas. It is likely that the bats would be using only areas on the edge of the town or city and only if there is suitable habitat such as a greenbelt or a large park with a natural forest component that would have the below listed requirements. This would exclude city parks that are maintained as mowed areas.

Counties affected
Summer Range in Iowa:
Appanoose, Clarke, Davis, Decatur, Des Moines, Henry, Iowa, Jasper, Jefferson, Keokuk, Lee, Louisa, Lucas, Madison, Mahaska, Marion, Monroe, Muscatine, Poweshiek, Ringgold, Union, Van Buren, Wapello, Warren, Washington, and Wayne.

Summer Habitat Requirements for the Indiana bat

Essential summer habitat in Illinois was considered to be 30% or greater deciduous forest cover within a 6/10 mile radius, permanent water within a 6/10 mile radius, and suitable roost trees within a 3/10 mile radius. Areas of as low as 5% deciduous forest cover provided suitable habitat as long as water and roost trees were within the listed distances in Illinois. In Iowa records for the Indiana bat have occurred in areas of 15% or greater forest cover and near permanent water. Tree species that have been identified as roost trees from studies in other states are shagbark and shellbark hickory that may be alive or dead and dead, bitternut hickory, American elm, slippery elm, eastern cottonwood, silver maple, white oak, red oak, post oak, and shingle oak with slabs or plates of loose bark.

Suitable summer habitat in Iowa is considered to have the following within a 1/2 mile radius of a location:

1) Forest cover of 15% or greater
2) Permanent water
3) One or more of the listed tree species 9 inches dbh or greater
4) At least 1 potential roost tree per 2.5 acres.
5) The potential roost trees ranked as moderate or high for peeling or loose bark

Survey Methods for Indiana Bat Summer Habitat

Step 1

Determine if there is 15% or greater forest cover and permanent water in a 1/2 mile radius of the project site.

If not then there is no need to continue survey efforts.

If these requirements are met go to Step 2.

Step 2

Conduct a survey of the project area that will be cleared or cut to determine if suitable roost trees are present. This will include both upland and floodplain forests. Areas that are too large for complete counts may be sampled using techniques such as point- quarter, tenth-hectare quadrats or other acceptable forest sampling techniques. The information to be collected during sampling includes the following:

Standing trees 9 inches or greater (dbh) diameter at breast height per acre -- (alive or dead) shagbark and shellbark hickory (dead) all other species listed above that have 10% or greater loose or peeling bark on the trunks and main limbs. The amount of loose or peeling bark is based on visual estimation. The number of potential roosts per acre.

If a survey of the habitat within the project area finds that suitable summer habitat for the Indiana Bat, as defined above, is present then there are two options available.

Option 1:

Conduct a mist net survey of the project area for Indiana Bats
Survey period May 15 - August 31
Temperature above 50 degrees F at night
No precipitation
Wind - calm

Light conditions (moonlight) at net site

No considerations if nets are under closed forest canopy

If the net is in an open site there should be cloud cover or less than 1/2 moon

Mist nets stacked at least 4 m (13 feet) high

Net set distance - 1 set per 1/2 mile of stream corridor or upland sites

Nets set 3 nights from sunset to at least 0200 hours

Nets to cover from ground or water surface to enclosing foliage or banks on sides

Nets must be checked every 20 minutes

No disturbance within 50 meters of the net sites

Survey results should be submitted to the Iowa Department of Natural Resources, Wallace State Office Building, 900 East Grand, Des Moines, Iowa (Attention: Daryl Howell) for a prompt Determination. The IDNR will then provide a letter stating Effect or No Effect.

If Indiana bats are found during the survey then no removal of the trees will be allowed between April 1 and September 30.

Option 2 :

Conduct tree clearing and cutting between October 1 and March 31 or remove all potential roost trees identified during the habitat survey between October 1 and March 31.

Activities such as timber stand improvement that do not cut potential roost trees or fell other trees on potential roost trees are not considered to cause harm to Indiana bats because of their short-term natural and limited disturbance. In some cases the girdling of trees 9 inches or larger can create potential roost trees, maintaining dead trees with loose bark and maintaining the diversity of tree species can be positive in providing roosting habitat for the Indiana bat.

The IDNR can offer assistance in identifying qualified professionals to conduct habitat surveys and bat surveys. Contact Daryl Howell if you have questions about these guidelines at the above listed address or (515) 281-8524.

These guidelines may be revised based on the availability of new research or management information or to clarify particular points in the guidelines. You may wish to check with the DNR to determine if you have the most current set of guidelines.

Many of the above recommendations were taken from the report by James D. Garner and James E. Gardner, 1992. Determination of summer distribution and habitat utilization of the Indiana Bat (Myotis sodalis) in Illinois. Final report to the U.S. Fish and Wildlife Service, Project E-3, 23 pp.