



7/24/2025

Connor Oakes
VHB
100 Great Meadow Rd
Wethersfield, CT 06109
coakes@vhb.com

Subject: Replacement of Bridge 05623 Colony Road over Latimer Brook

Filing #: 129741

NDDB - New Determination Number: 202505361

Expiration Date: 7/24/2027

Location: Bridge 05623, Colony Rd over Latimer Brook, East Lyme, CT

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) that are nearby that may be affected by project activities.

- Wood turtle (Glyptemys insculpta) State Special Concern
- Northern long-eared bat (Myotis septentrionalis) State and Federally Endangered

I concur with your protection plan for Wood turtle prepared by Hank Gruner (July 14, 2025) (attached).

The Northern long-eared bat is one of the species most impacted by White Nose Syndrome. Populations in Connecticut have declined by over 90%, and it has been Federally listed as Endangered. During the summer northern long-eared bats roost singly or in maternal colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. This bat has also been found rarely roosting in structures, like barns and sheds. Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula.

• There is a documented breeding season record within 3 miles of your project boundaries as entered in your project application.

The presence of northern long-eared bat (Myotis septentrionalis), a federally endangered and state endangered species, may require consultation with the US Fish and Wildlife Service Ecological Field Office in order to be in compliance with the Federal Endangered Species Act if the proposed project requires federal permits or uses federal funds. For more information on federal requirements as well as guidance on the latest management recommendations including development projects, wind energy development, sustainable forest management, and other tools and FAQs, please visit:

### https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis

I do not anticipate negative impacts to Northern long-eared bat from your project activities.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as enhance existing data. Such new information is incorporated into the Database and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

- During your work listed species may be encountered on site. A report must be submitted by the
  observer to the Natural Diversity Database promptly and additional review and restrictions or conditions
  may be necessary to remain in compliance with certain state permits. Please fill out the appropriate
  survey form and follow the instructions for submittal.
- Your project involves the state permit application process or other state involvement, including state
  funding or state agency actions; please note that consultations with your permit analyst or the agency
  may result in additional requirements. In this situation, additional evaluation of the proposal by the
  DEEP Wildlife Division may be necessary and additional information, including but not limited to
  species-specific site surveys, may be required. Any additional review may result in specific restrictions
  or conditions relating to listed species that may be found at or in the vicinity of the site.
- If your project involves preparing an Environmental Impact Assessment, this NDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.
- The NDDB New determination for the Replacement of Bridge 05623 Colony Road over Latimer Brook as described in the submitted information and summarized at the end of this document is valid until 7/24/2027. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 7/24/2027.

If you have further questions, please contact me at the following:

Shannon Kearney
CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Please reference the Determination Number 202505361 when you e-mail or write. Thank you for consulting

the Natural Diversity Data Base.

Shannon Kearney Wildlife Division- Natural Diversity Data Base 79 Elm Street Hartford, CT 06106-5127 (860) 424-3170 Shannon.Kearney@ct.gov

## Application Details:

Project involves federal funds or federal permit:	Yes
Project involves state funds, state agency action, or relates to CEPA request:	Yes
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Bridge and Culvert Work
Project Sub-type:	New Bridge Including Upland and In-water work
Project Name:	Replacement of Bridge 05623 Colony Road over Latimer Brook
Project Description:	The project is for the replacement of Bridge 05623, Colony Road over Latimer Brook.  The existing two pipe culvert will be removed in full and replaced with a co

To: Thoms Weldon, hub

Connor Oakes, vhb

From: Hank Gruner

Consulting Herpetologist

Re: Wood Turtle Mitigation-Protection Plan

Project: Replacement of bridge 05623 Colony Road, Latimer Brook, East Lyme, CT

project #00440161

Date: July 14, 2025

I have reviewed the CTDEEP Natural Diversity Database (NDDB) correspondence prepared by Shannon Kearney, dated June 2, 2023 (NDDB new determination No. 202304474), regarding recommendations for the protection of the State-listed (special concern) wood turtle (*Glyptemys insculpta*) documented as occurring within the vicinity of the project. *Please note that the review period in the NDDB letter expired on June 2, 2025 (see bullet #4 on page 2 of the letter) and additional review may be required if the NDDB Wildlife Biologist's recommendations are revised.* 

Attached is a completed mitigation/protection plan for the wood turtle based on the following:

- A review of the construction plans prepared by SLR including: "Roadway Plan" (plot Date 5/6/25), and "Staged Construction Sequence Plans" (plot dates 5/6/25).
- A preliminary site visit with vhb project managers conducted on July 7, 2025 to review
  planned construction activities and schedules, and to assess habitat suitability for the
  wood turtle within the immediate construction zone, and along Latimer Brook both north
  and south of the bridge crossing.
- Analysis of aerial/satellite imagery of the Latimer Brook system to identify primary areas
  of suitable seasonal wood turtle habitat.
- My knowledge of the ecology, movement, and seasonal habitat of wood turtles amassed over more than 35 years of researching Connecticut populations.
- A review of the recommendations provided by the NDDB's Wildlife Biologist in the preliminary determination letter dated June 2, 2023.
- A review of recommendations regarding the protection of an anadromous Alewife run on Latimer Brook provided by a CTDEEP Senior Fisheries Biologist in an email dated July 6, 2023.
- A review of peer-reviewed, relevant best management practices relating to wood turtles, including, exclusionary fence design and installation.

## Mitigation-Protection Plan for the Wood Turtle Replacement of bridge #05623 Latimer Brook, Colony Road, East Lyme, CT (State Project 00440161)

Prepared by: Hank J. Gruner Consulting Herpetologist

(July 14, 2025)

#### INTRODUCTION

The proposed mitigation/protection plan focuses on protection of the wood turtle (*Glyptemys insculpta*). The wood turtle is a state-listed (special concern) reptile under Connecticut's Endangered Species Act, and is currently under review by the United States Fish and Wildlife Service for potential listing under the federal Endangered Species Act. Consequently, the wood turtle has been identified as a "species of greatest conservation need" in Connecticut's Wildlife Action Plan (CTDEEP Wildlife Division 2025). The occurrence of wood turtles within, or in the vicinity of the project area has been confirmed, and suitable habitat exists to support a population (CTDEEP-NDDB; Klemens et.al 2021).

Based on the following considerations: (a) The ecology and life history characteristics of wood turtles, (b) Assessment of seasonal habitat suitability at, and adjacent to the project site, and, (c) The scope of proposed project activities, and the area of disturbance associated with these activities, the primary conservation consideration relates to potential impacts to dispersing individual turtles during the construction period. Because there is no seasonal habitat for wood turtles present within the project area of disturbance, no loss or alteration of any critical habitat is anticipated.

The construction easement for the project extends along the immediate embankments of Latimer Brook, and within the stream channel, for a stretch of approximately 60 - 65 feet north of the bridge crossing, with a proposed area of disturbance of approximately 50 feet. South of the crossing, the construction easement extends from approximately 50 - 60 feet, with an area of disturbance of approximately 50 feet. The area of disturbance along Colony Road extends approximately 180 feet east, and approximately 165 feet west of the brook, penetrating approximately 20 feet from the edge of the road (see Figure 1).



Figure 1. Location of the bridge replacement project and approximate area of disturbance along Latimer Brook

### SPECIES OVERVIEW AND HABITAT ASSESSMENT

Wood turtles are semi-aquatic riverine species that over-winter within rivers and streams, either tucked under embankments, among root tangles and fallen logs, or in deeper pools with accumulations of leaves and other organic matter. In the spring and fall, wood turtles typically remain close to the river, where they move along short stretches of the river frequently basking among protected open areas along the embankments. Because of the wood turtle's close association with the river from late September through May, careful assessment of the characteristics of the habitat along a particular stretch of river (i.e., potential seasonal use by turtles), and consideration of any disturbances occurring within, and along the banks of the river (typically within 300 feet) is important in determining the potential for negative impacts of a proposed project, and for guiding decisions related to the seasonal timing of any activities.

**Potential overwintering habitat**: The physical characteristics of the brook within the immediate construction zone north of the bridge crossing are not suitable for overwintering (i.e., lack undercut banks, shallow depth with a mostly rocky bottom, lack woody debris, etc.). A study of over-wintering sites utilized by wood turtles in rivers in eastern Connecticut identified typical microhabitat features as: areas of relatively low flow velocity, located within a meter of the river bank, and with bottom substrates dominated by silt/muck/organic deposits. A strong correlation with submerged root tangles and undercut banks was also noted (Gruner, unpublished data). Suitable over-wintering habitat, was identified approximately 300 feet north of the bridge crossing where forested floodplain habitat lies adjacent to the west side of the brook.

Approximately 50 feet south of the bridge the brook is "ponded" creating conditions (i.e., lower flow, greater depth, etc.) that although not typical of over-wintering habitat, is potentially suitable for over-wintering – see "A" in Figure 2. A small section of this habitat falls within the project's area and warrants consideration in the protection plan.

**Early spring and fall seasonal basking habitat**: Patches of open canopy, shrub and herbaceous habitat located along streambanks provide important habitat for turtles to bask and thermoregulate during early and late season periods. The immediate area surrounding the brook within the project area consists of forest and residential lawn and development with no suitable basking habitat present to attract turtles.

Seasonal turtle activity and nesting habitat: Wood turtles begin to disperse away from the immediate river environs to their summer habitat in the surrounding floodplain and upland areas in late spring. Therefore, a primary consideration within the construction zone is the installation of exclusionary fencing to prevent dispersing turtles from moving into areas of disturbance. This is especially important to prevent female turtles from nesting in disturbed areas from late May through early July. Female wood turtles are attracted to open areas of bare, or sparsely vegetated soil to deposit their eggs. Areas such as this are often created by site clearing nd grubbing during construction projects. Location of this project along a road may result in the creation of disturbances that expose nesting females and/or hatchlings to mortality unless these areas are excluded from access during the construction period, and planted, or allowed to naturally revegetate post-construction.

Beyond consideration of potential impacts associated with the project's immediate construction zone, careful consideration of potential impacts associated with locating and preparing staging areas for the project need to be taken into consideration. Wood turtles disperse to various habitats surrounding the river. Areas extending from 300 feet to as much as 1,000 feet from each river embankment into surrounding floodplain and upland habitats are considered important conservation zones for wood turtles based on studies of their seasonal movements (Northeast Wood Turtle Working Group, <a href="GLIN Mapping Guidelines 2017">GLIN Mapping Guidelines 2017</a> (northeastturtles.org).

In addition to the forested floodplain, early successional herbaceous or shrub dominated habitats, edges of agricultural and hay fields, and sand/gravel pits, all provide important habitat during the spring-fall activity season. Areas of critical habitat within the immediate surrounding area of the construction project need to be identified and should be avoided when considering locations for staging areas, including stock-piling fill.

Portions of a residential lawn located just to the southeast of the project area have characteristics suitable for nesting (i.e., dry slope, patches of sparse ground cover with sandy soil)- see "B" in Figure 2. Although this area is approximately 70 feet away from the project area, because female turtles may be attracted to the area during the nesting season (mid-May through June), it warrants consideration in the protection plan.

No other critical seasonal habitat that would attract wood turtles to the project area throughout their active season was observed. Based on a field assessment and analysis of aerial/satellite imagery, the primary habitat suitable for wood turtles is located north of the project area. This area extends for approximately 0.6 miles and encompasses a mix of deciduous and coniferous forest, floodplain forested wetlands and seasonally flooded pools,

agricultural fields, and several impoundments (see figure 3). A portion of this area is protected as open space by the town of East Lyme. South of the project area Latimer Brook traverses an area of greater residential development, with narrower forested buffers and less habitat diversity.



Figure 2. Mitigation-protection areas along Latimer Brook: (A) Impoundment - potential overwintering site, (B): Sloping lawn — potential nesting site.



Figure 3. Habitat types along Latimer Brook: (A): Forested wetland, (B): Pond, (C): Forest, (D): Agricultural fields. Note the increased residential development and lack of habitat diversity south of Colony Road.

### GOALS, OBJECTIVES, AND PHASING OF THE REPTILE MITIGATION PLAN

The *primary goal* of the mitigation plan is to avoid inadvertent injury/mortality of wood turtles that may be dispersing through the area over the course of their spring - fall active season. A *secondary goal* is to prevent the establishment of conditions along the roadway that will attract turtles to nest, exposing both adults and hatchlings to road mortality. Because there is no critical seasonal habitat present within, or immediately adjacent to, the project area of disturbance, no loss or alteration of habitat is anticipated.

The proposed mitigation plan consists of three phases: (1) pre-construction, including site clearing/grubbing and the installation of cofferdams, (2) active construction monitoring, and (3) post-construction and site restoration.

### The objectives of the **pre-construction phase** are:

(a) identify appropriate locations for staging construction equipment, temporary construction office trailers, work crew parking, and stock-piling of materials including fill, (b) identify areas where exclusionary fencing will be required, (c) guide installation of the exclusion fencing, (e) provide construction personnel with information on wood turtles and what to do if they encounter them, (f) conduct sweeps of the project area and monitor site clearing and

grubbing activities when heavy equipment is in use, and (g) complete regular inspections and make timely repairs as necessary to maintain the integrity of the exclusion fencing.

#### The objectives of the **construction phase** are:

(a) conduct regular on-site monitoring to ensure integrity of the exclusion fencing and relocate any animals encountered to suitable habitat outside of the project area, (b) conduct sweeps (aquatic and/or terrestrial searches as necessary) of work areas, or where heavy machinery is in use to relocate any reptiles encountered to suitable habitat away from the project area, and (c) provide construction personnel with information on wood turtles and what to do if they encounter them during the project

### The objectives of the **post-construction restoration phase** focus' on:

(a) restoration of areas that were disturbed during the project, including staging areas, and (b) removal of the exclusionary fencing once the disturbed areas are stabilized, (c) conduct a site inspection to review the restored areas to ensure that no hazards remain for turtles (i.e., "ecological traps" – see Klemens et.al 2021).

#### REQUIREMENTS OF THE PROTECTION PLAN

### pre-construction phase including site clearing/grubbing, and installation of cofferdams

The planned project schedule is to begin construction April 1, 2026, with the completion of site preparation, clearing/grubbing, re-location of utilities, installation of cofferdams, and installation of the exclusionary fencing during the pre-construction phase. The bridge replacement and project restoration will be completed during the period April-November 2026.

# Requirement #1: Avoid important habitat, within or outside, of the primary construction zone by locating appropriate staging areas for the project:

It is anticipated that equipment, materials, and fill will be staged along the immediate roadway and shoulder areas due to the necessity of road closure for the project, and along a nearby cul-de-sac. However, once a location(s) for staging has been identified by the contractor, the site(s) should be reviewed by the project herpetologist to determine if there is a need to conduct sweeps for any of the target species. Beyond the scope of the project construction easement, the lawn area of the private residence located adjacent to Latimer Brook south-west of Colony Road should be avoided due the potential for turtles being attracted to his area to nest – see area "B" in Figure 2.

# Requirement #2: Identify areas requiring the installation of exclusionary fencing and appropriately install the fencing:

Exclusionary fencing at least 20 inches in height (above ground level) should be installed at the limits of disturbance within the construction zone. The fencing should be staked (12 inches into the ground) at appropriate distances to maintain rigidity (6-10 feet intervals), and the fencing buried at least 4 inches into the ground and back-filled. Standard erosion control/silt fencing (geotextile) can be used, but not fencing with a wider nylon mesh lining, which can entangle snakes (WI DNR 2015).

The terminus of each length of fencing should be angled back away from the road to divert animals moving along the exterior of the fence back into undisturbed habitat to discourage them from moving around the fence. Installation of each length of fence should be coordinated with the project herpetologist to determine the best angle and placement depending upon the location, topography, and surrounding habitat. In general, a "J-hook" loop design with an interior width of no more than 18 inches, and return length of fencing of approximately 10 feet should be used (see Figure 4). The exclusionary fencing must be tied in to the cofferdam to prevent turtles from accessing the work area in the river from the embankments. Figure 5 illustrates approximate locations for exclusionary fencing. Exact location and layout of the fencing will be determined in coordination with the consulting herpetologist at the time of installation.

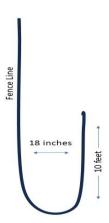


Figure 4. "J-hook" loop design for the end points of the exclusion fencing.

Exclusionary fencing may also be required to be installed around other staging areas for the project, depending upon their location and the habitat present. The project herpetologist should be consulted to review the selected areas.

Installation of the exclusionary fencing must be completed by April 15<sup>st</sup> to prevent turtles from entering the construction zone. If installation is delayed, additional steps to survey for, and relocate any individuals within the construction zone may be required.

If so, a qualified herpetologist must conduct surveys of the construction zone and relocate any reptiles encountered to appropriate habitat outside of the construction zone, and within a distance representative of the species typical home range based on published studies. The sweeps must be conducted on the same day that the construction activity is occurring, and the herpetologist should work directly with the contractors mowing, or clearing areas to guide these activities based on the type and density of vegetation.

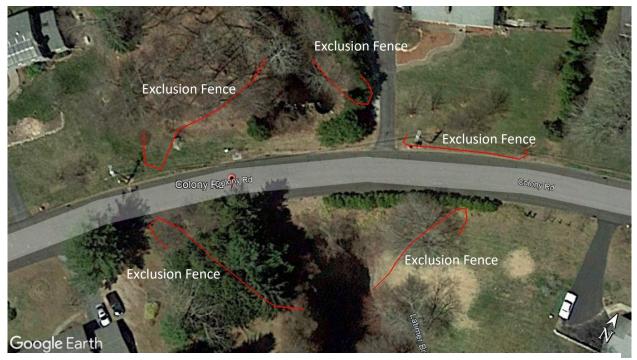


Figure 5. Approximate location of exclusionary fencing to prevent turtles from entering the construction zone. Note the looped terminal ends to divert turtles back outside of the project area.

Requirement #3: Conduct in-stream, and bank sweeps for turtles along the impounded section of Latimer Brook located south of Colony Road prior to any work in this area from April 1- May 30. This is especially important during the period prior to the installation of the exclusionary fencing (April 1-15).

Due to restrictions associated with the protection of the anadromous Alewife run, instream work will not begin until after May 15. Wood turtles will be active during this period so there is no concern for disturbing over-wintering individuals. However, this timing coincides with a period of high activity where turtles are associated with both instream and near-stream habitats, thus caution is warranted.

Sweeps should be conducted by a qualified herpetologist with experience in conducting surveys for wood turtles. The sweeps must occur no more than 24 hours prior to any work. If any wood turtles are encountered, the consulting herpetologist will relocate them to appropriate habitat outside of the project area along Latimer Brook.

### **Construction Phase**

The focus of protection strategies during the construction phase of the project center around maintaining the integrity of the exclusion fencing, and conducting sweeps to relocate any individual turtles to appropriate habitat outside of the construction area. Turtles have evolved a reproductive life history that depends upon high survivorship in the adult stage. Loss of individuals, especially adult females, can contribute to local population declines.

# Requirement #4: Inform construction personnel on what to do if they encounter any of the reptile species:

An informal "construction team meeting" should be convened in the field to provide information on wood turtles, including, identification, and what to do if any individuals are encountered. This will also be an opportunity to summarize the components and goals of the protection plan for the work crew. It is also important to stress to construction personnel that any turtles encountered should not be removed. Not infrequently, turtles encountered by individuals are taken from the wild and brought home as pets. Collection of wild turtles can be a significant contributing factor in population declines. Another key message, especially for operators of trucks or other heavy machinery that will be regularly moving along Colony Road is to be aware of the possible presence of turtles crossing the road throughout the active season, and especially from late-May through early July (nesting season). The information session should be presented by a qualified herpetologist and coordinated with the construction project manager.

### Requirement #5: Conduct regular monitoring of the exclusionary fencing.

It is important to monitor the integrity of the exclusion fencing on a regular basis to ensure that animals cannot enter active construction areas. This is especially important during the turtle nesting season when females are actively moving around seeking appropriate sites in which to deposit their eggs. The exclusionary fencing should be inspected weekly from March 1-May 14 and from July 16-October 15. During the turtle nesting season, which stretches from May 15-July 15, fencing should be inspected bi-weekly.

Installation of exclusionary fencing within or adjacent to habitats sometimes results in individuals encountered moving along the exterior of the fence and being directed linearly along the fence for some distance (Gruner pers. obs.). This can expose them to predation. Thus, it is important that a qualified herpetologist conduct the inspections, as they are capable of capturing, and relocating any individuals encountered to appropriate habitat within the area that would fall within the species typical home range, yet safely away from the project.

Following any heavy rain events or wind storms it is imperative that the fencing be inspected within 24 hours, and any necessary repairs made. These events often lead to fencing being pulled away from stakes, and branches falling on the fence creating gaps.

# Requirement #6: Conduct sweeps of any areas to be cleared, or where heavy machinery will be in use throughout the duration of the project:

Prior to clearing any areas, including any temporary staging areas, a qualified herpetologist should conduct visual sweeps to capture and relocate any animals that may be encountered. Sweeps should also be conducted each morning in any areas where heavy machinery will be in use during the period April 1-October 15.

#### Post-construction Restoration Phase

The focus of mitigation strategies during the post-construction phase of the project is on restoration of areas disturbed during the project, including any staging areas, as well as the removal of the exclusionary fencing.

# Requirement #7: Restore disturbed areas in a manner that avoids impacts to surrounding habitat or individual animals:

All open areas with bare, or sparsely vegetated soil that remain in the construction zone should be seeded and/or planted. A conservation seed mix that utilizes natural species should be used to avoid the spread of non-native, invasive plants into surrounding habitat. Because of the location of disturbances along a roadway, it is important to eliminate any potential areas that may attract turtles to nest. Consultation with the project herpetologist is recommended in reviewing these areas of disturbance during the restoration phase of the project.

### Requirement #8: Remove all exclusionary fencing:

At the completion of the project, and once areas of disturbance are stabilized the exclusionary fencing should be removed from all areas, including the staging areas, to avoid impeding the dispersal of animals.

#### REFERENCES CITED

Connecticut Department of Energy nd Environmental Protection, Wildlife Division. 2025. Connecticut Wildlife Action Plan: Protecting our wildlife and habitats together. July 2025 draft, 2025 CT Wildlife Action Plan Draft

Gruner and Quinn, 2022. Amphibian and Reptile Management Considerations, Bernstein and Hibbert Open Space Properties, Hebron, CT. Unpublished Report, CT-ERT, June 16, 2022.

Klemens, M.W., H.J. Gruner, D.P. Quinn, and E. R. Davison. 2021. *Conservation of Amphibians and Reptiles in Connecticut*. Revision to State Geological and Natural History Survey Bulletin 112. Department of Energy and Environmental Protection, Hartford, CT.

Northeast Wood Turtle Working Group. Wood turtle Site Mapping Guidelines. Appendix X, *Conservation Plan for the Wood Turtle in the Northeastern United States* (Jones, Robert, and Wiley 2018): <u>GLIN Mapping Guidelines 2017 (northeastturtles.org)</u>.

(WI DNR) 2015. Amphibian and reptile exclusion fencing protocols. Wisconsin Department of Natural Resources, Endangered Resources Review Program. Revised February 2015.