

## EAW Attachment A



Minnesota Department of Natural Resources  
Division of Ecological & Water Resources  
500 Lafayette Road, Box 25  
St. Paul, MN 55155-4025

January 15, 2019

**Correspondence # ERDB 20190203**

Ms. Diane Anderson  
MN DNR Parks and Trails Division  
500 Lafayette Road  
St. Paul, MN 55155

RE: Natural Heritage Review of the proposed Upper Post Flats - Fort Snelling State Park,  
T28N R23W Section 29; Hennepin County

Dear Ms. Anderson,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, please visit the [Rare Species Guide Website](#) for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following rare features may be adversely affected by the proposed project:

- A calcareous fen was documented in the vicinity of the proposed project. A calcareous fen is a rare and distinctive peat-accumulating wetland (please see the attached fact sheet) that is legally protected in Minnesota. The Wetlands Conservation Act, authorized by *Minnesota Statutes*, section 103G.223, states that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, except as provided for in a management plan approved by the commissioner of the Department of Natural Resources. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. The DNR would have concerns regarding any activities that might affect groundwater flows, including groundwater pumping or discharge. **Provided the proposed project will not alter the hydrological conditions in the surrounding area, we do not have any concerns.** If this is not the case, or if you have any questions regarding calcareous fen regulations, please contact Doug Norris, Wetlands Program Coordinator, at 651-259-5125 or [Doug.Norris@state.mn.us](mailto:Doug.Norris@state.mn.us).
- Several state-listed fish, mussels, amphibians, and reptiles have been documented in the Mississippi and Minnesota Rivers in the vicinity of the proposed project. These species are particularly vulnerable to deterioration in water quality, especially increased siltation. Given that nearby storm sewer inlets

discharge to the river, effective erosion prevention and sediment control practices must be implemented and maintained throughout the duration of the project and incorporated into any stormwater management plan.

- Northern long-eared bat (*Myotis septentrionalis*), federally listed as threatened and state-listed as special concern, tricolored bat (*Perimyotis subflavus*), little brown bat (*Myotis lucifugus*), and big brown bat (*Eptesicus fuscus*), also state-listed as special concern, have been documented in the vicinity of the proposed project. During the winter these species typically hibernate in caves and mines. During the active season (approximately April-October) they roost underneath bark, in cavities, or in crevices of both live and dead trees; and in human structures such as buildings and bridges. Pup rearing is during June and July. Activities that may impact this species include, but are not limited to, wind farm operation, any disturbance to hibernacula, and destruction/degradation of habitat. As such, we recommend avoiding tree removal during active season, approximately April through October.

Regarding the northern long-eared bat, the U.S. Fish and Wildlife Service (USFWS) has published a final 4(d) rule that identifies prohibited take. To determine whether you need to contact the USFWS, please refer to the USFWS Key to the Northern Long-Eared Bat 4(d) Rule (see links below). **Please note there are known hibernaculum within one of a mile from the proposed project in T28N R23W Section 21.**

- The rusty patched bumble bee (*Bombus affinis*), a federally-listed endangered species, was documented in the vicinity of the proposed project. The rusty patched bumble bee typically occurs in grasslands and urban gardens with flowering plants from April through October. This species nests underground in abandoned rodent cavities or in clumps of grasses. Please reference the guidance at the [USFWS rusty patched bumble bee website](#) to determine if the project has the potential to impact this protected species.
- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.
- Please include a copy of this letter in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data

Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. If needed, please contact your [DNR Regional Environmental Assessment Ecologist](#) to determine whether there are other natural resource concerns associated with the proposed project. Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,



Samantha Bump  
Natural Heritage Review Specialist  
[Samantha.Bump@state.mn.us](mailto:Samantha.Bump@state.mn.us)

Enc. Rusty Patched Bumble Bee Fact Sheet  
Calcareous Fen Fact Sheet

Links: Rare Species Guide  
<http://www.dnr.state.mn.us/rsg/index.html>  
DNR Regional Environmental Assessment Ecologist Contact Info  
[http://www.dnr.state.mn.us/eco/ereview/erp\\_regioncontacts.html](http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html)  
USFWS Rusty Patched Bumble Bee  
<https://www.fws.gov/midwest/endangered/insects/rpbb/guidance.html>  
USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Non-Federal Activities  
<http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEB.html>  
USFWS Key to the Northern Long-Eared Bat 4(d) Rule for Federal Actions  
<http://www.fws.gov/midwest/endangered/mammals/nleb/KeyFinal4dNLEBFedProjects.html>  
USFWS Northern Long-eared Bat Website  
<http://www.fws.gov/midwest/endangered/mammals/nleb/index.html>  
USFWS Northern Long-eared Bat Fact Sheet  
<http://www.fws.gov/midwest/endangered/mammals/nleb/nlebFactSheet.html>

Cc: Becky Horton  
Leslie Parris  
Doug Norris

**WHAT IS A CALCAREOUS SEEPAGE FEN?**

Calcareous fens are rare and distinctive wetlands characterized by a substrate of non-acidic peat and dependent on a constant supply of cold, oxygen-poor groundwater rich in calcium and magnesium bicarbonates. This calcium-rich environment supports a plant community dominated by “calciphiles,” or calcium-loving species. These fens typically occur on slight slopes where upwelling water eventually drains away and where surface water inputs are minimal. Sometimes they occur as domes of peat that grow to the height of the hydraulic head.

These settings create an unusual wetland regime where the substrate is almost always saturated to the surface, but flooding is rare and brief. Shallow pools of water in which marl precipitates are typically present surrounded by low, tussocky, grass- and sedge-dominated vegetation. The substrate is springy or quaking underfoot. The figures above and below illustrate the geologic features and groundwater flows that lead to the formation of calcareous seepage fens.

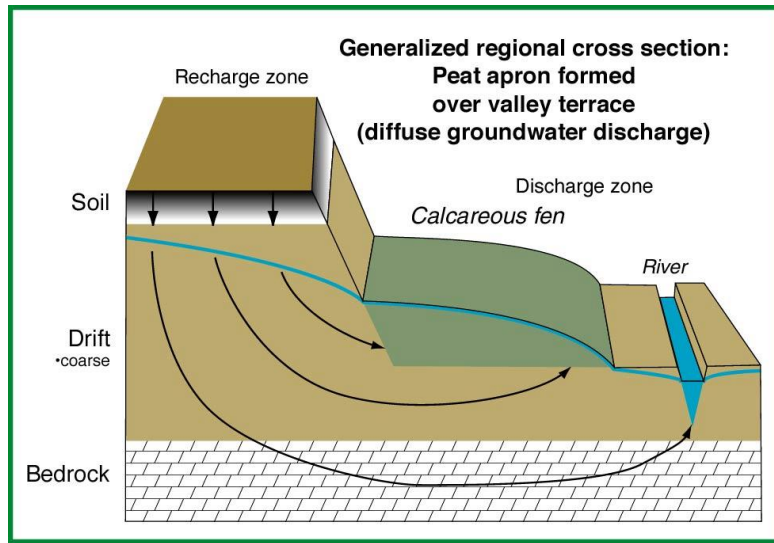


Illustration by James Almendinger, Science Museum of Minnesota

**HOW RARE ARE  
CALCAREOUS SEEPAGE  
FENS?**

Calcareous seepage fens are one of the rarest natural communities in the United States. These fens have been reported from 10 states, mostly in the Midwest. Approximately 200 are known in Minnesota, most of which are only a few acres in extent. They are concentrated at the bases of terrace escarpments in river valleys in southeastern Minnesota, on the sides of morainal hills and valley sideslopes in southern and west-central Minnesota, and on the downslope side of beach ridges in the Glacial Lake Agassiz basin in the northwest. There are also a few in northern Minnesota where upwelling groundwater reaches the surface within large, more acidic peatlands.

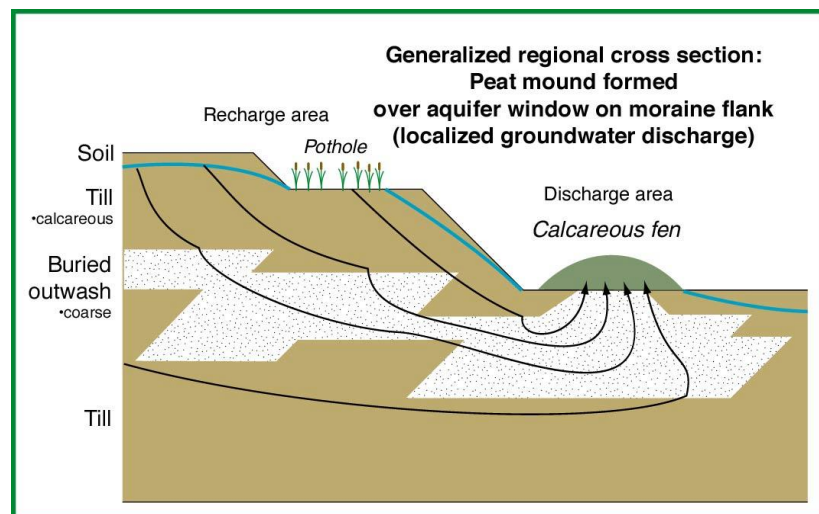


Illustration by James Almendinger, Science Museum of Minnesota

**WHY ARE CALCAREOUS SEEPAGE FENS PROTECTED?**

In addition to the rarity of the community itself, calcareous seepage fens support a disproportionately large number of rare plant species in Minnesota, four of which (\*) occur almost exclusively in this community. Eight state-listed, rare plant species are known from calcareous seepage fens:

<i>Carex sterilis</i> *	Sterile sedge	State threatened
<i>Cladium mariscoides</i> *	Twig-rush	State special concern
<i>Rhynchospora capillacea</i> *	Fen beak-rush	State threatened
<i>Fimbristylis puberula</i> *	Hairy fimbristylis	State endangered
<i>Scleria verticillata</i>	Nut-rush	State threatened
<i>Eleocharis rostellata</i>	Beaked spike-rush	State threatened
<i>Valeriana edulis</i>	Valerian	State threatened
<i>Cypripedium candidum</i>	Small white lady's slipper	State special concern

Calcareous seepage fens are highly susceptible to disturbance. Reduction in the normal supply of groundwater results in oxidation of the surface peat, releasing nutrients and fostering the growth of shrubs and tall, coarse vegetation that displaces the fen plants. Nitrogen-rich surface water runoff into fens promotes the invasion of aggressive exotic plants, especially reed canary grass, that also outcompete the fen plants. Flooding drowns the fen plants. The soft, saturated character of the peat makes almost any level of activity within them, by humans or domestic livestock, highly disruptive.



**HOW ARE CALCAREOUS SEEPAGE FENS PROTECTED?**

Impacts to calcareous seepage fens are regulated by the Department of Natural Resources. Calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, unless the commissioner of natural resources, under an approved management plan, decides some alteration is necessary. The commissioner may allow water appropriations that result in temporary reductions in ground water resources on a seasonal basis under an approved calcareous fen management plan (Minn. Statutes 103G.223).

In addition, destruction of any state-threatened plants occurring on a calcareous fen may be regulated under Minnesota's endangered species

law (Minn. Statutes 84.0895). For additional information, see the DNR website at: <http://www.dnr.state.mn.us/ets/index.html>.

The DNR maintains a list of known calcareous fens, which is available at the DNR's website at: <http://www.dnr.state.mn.us/wetlands/index.html>.

Landowners or others proposing activities that may affect a calcareous fen or that are interested in protecting or managing a calcareous fen should contact the DNR, Ecological and Water Resources Division at 651-259-5125.





## Rusty Patched Bumble Bee *Bombus affinis*

The U.S. Fish and Wildlife Service listed the rusty patched bumble bee as endangered under the Endangered Species Act. Endangered species are animals and plants that are in danger of becoming extinct. Identifying, protecting and recovering endangered species is a primary objective of the U.S. Fish and Wildlife Service's endangered species program.

### What is a rusty patched bumble bee?

**Appearance:** Rusty patched bumble bees live in colonies that include a single queen and female workers. The colony produces males and new queens in late summer. Queens are the largest bees in the colony, and workers are the smallest. All rusty patched bumble bees have entirely black heads, but only workers and males have a rusty reddish patch centrally located on the back.

**Habitat:** Rusty patched bumble bees once occupied grasslands and tallgrass prairies of the Upper Midwest and Northeast, but most grasslands and prairies have been lost, degraded, or fragmented by conversion to other uses. Bumble bees need areas that provide nectar and pollen from flowers, nesting sites (underground and abandoned rodent cavities or clumps of grasses), and overwintering sites for hibernating queens (undisturbed soil).



*Illustrations of a rusty patched bumble bee queen (left), worker (center), and male (right) by Elaine Evans, The Xerces Society.*



*Photo courtesy of Christy Stewart*

**Reproduction:** Rusty patched bumble bee colonies have an annual cycle. In spring, solitary queens emerge and find nest sites, collect nectar and pollen from flowers and begin laying eggs, which are fertilized by sperm stored since mating the previous fall. Workers hatch from these first eggs and colonies grow as workers collect food, defend the colony, and care for young. Queens remain within the nests and continue laying eggs. In late summer, new queens and males also hatch from eggs. Males disperse to mate with new queens from other colonies. In fall, founding queens, workers and males die. Only new queens go into diapause (a form of hibernation) over winter - and the cycle begins again in spring.

**Feeding Habits:** Bumble bees gather pollen and nectar from a variety of flowering plants. The rusty patched emerges early in spring and is one of the last species to go into hibernation.

### Why conserve rusty patched bumble bees?

As pollinators, rusty patched bumble bees contribute to our food security and the healthy functioning of our ecosystems. Bumble bees are keystone species in most ecosystems, necessary not only for native wildflower reproduction, but also for creating seeds and fruits that feed wildlife as diverse as songbirds and grizzly bears.

Bumble bees are among the most important pollinators of crops such as blueberries, cranberries, and clover and almost the only insect pollinators of tomatoes. Bumble bees are more effective pollinators than honey bees for some crops because of their ability to "buzz pollinate." The economic value of pollination services provided by native insects (mostly bees) is estimated at \$3 billion per year in the United States.

It needs a constant supply and diversity of flowers blooming throughout the colony's long life, April through September.

**Range:** Historically, the rusty patched bumble bee was broadly distributed across the eastern United States and Upper Midwest, from Maine in the U.S. and southern Quebec and Ontario in Canada, south to the northeast corner of Georgia, reaching west to the eastern edges of North and South Dakota. Its range included 28 states, the District of Columbia and 2 provinces in Canada. Since 2000, this bumble bee has been reported from only 13 states and 1 province: Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, Wisconsin – and Ontario, Canada.

### **Why is the rusty patched bumble bee declining?**

**Habitat loss and degradation:** Most prairies and grasslands of the Upper Midwest and Northeast have been converted to monoculture farms or developed areas, such as cities and roads. Grasslands that remain tend to be small and isolated.

**Intensive farming:** Increases in farm size and technology advances improved the operating efficiency of farms but have led to practices that harm bumble bees: increased use of pesticides, loss of crop diversity resulting in flowering crops being available for only a short time, loss of hedgerows with flowering plants, and loss of legume pastures.

**Disease:** Pathogens and parasites may pose a threat, although their prevalence and effects in North American bumble bees are not well understood.

**Pesticides:** The rusty patched bumble bee may be vulnerable to pesticides. Pesticides are used widely on farms and in cities and have both lethal and sublethal toxic effects.

Bumble bees can absorb toxins directly through their exoskeleton and through contaminated nectar and pollen. Rusty patched bumble bees nest in the ground and may be susceptible to pesticides that persist in agricultural soils, lawns and turf.

**Global climate change:** Climate changes that may harm bumble bees include increased temperature and precipitation extremes, increased drought, early snow melt and late frost events. These changes may lead to more exposure to or susceptibility to disease, fewer flowering plants, fewer places for queens to hibernate and nest, less time for foraging due to high temperatures, and asynchronous flowering plant and bumble bee spring emergence.

### **What is being done to conserve rusty patched bumble bees?**

**U.S. Fish and Wildlife Service:** Several Service programs work to assess, protect, and restore pollinators and their habitats. Also, the Service works with partners to recover endangered and threatened pollinators and pollinator-dependent plants. Concern about pollinator declines prompted formation of the North American Pollinator Protection Campaign, a collaboration of people dedicated to pollinator conservation and education. The Service has a Memorandum of Understanding with the Pollinator Partnership to work together on those goals. The Service is a natural collaborator because our mission is to work with others to conserve, fish, wildlife, and plants and their habitats.

**Other Efforts:** Trusts, conservancies, restoration groups and partnerships are supporting pollinator initiatives and incorporating native plants that support bees and other pollinators into their current activities. For example, the USDA Natural Resource Conservation Service is working with landowners in Michigan, Minnesota, Montana, North Dakota, South Dakota, and

Wisconsin to make bee-friendly conservation improvements to their land. Improvements include the practices of planting cover crops, wildflowers, or native grasses and improved management on grazing lands.

**Research:** Researchers are studying and monitoring the impacts of GMO crops and certain pesticides on pollinators. Efforts by citizen scientists and researchers to determine the status of declining bee species are underway throughout the United States.

### **What can I do to help conserve the rusty patched bumble bee?**

**Garden:** Grow a garden or add a flowering tree or shrub to your yard. Even small areas or containers on patios can provide nectar and pollen for native bees.

**Native plants:** Use native plants in your yard such as lupines, asters, bee balm, native prairie plants and spring ephemerals. Don't forget spring blooming shrubs like ninebark and pussy willow! Avoid invasive non-native plants and remove them if they invade your yard. For more information on attracting native pollinators, visit [www.fws.gov/pollinators/pdfs/PollinatorBookletFinalrevWeb.pdf](http://www.fws.gov/pollinators/pdfs/PollinatorBookletFinalrevWeb.pdf).

**Natural landscapes:** Provide natural areas - many bumble bees build nests in undisturbed soil, abandoned rodent burrows or grass clumps. Keep some unmowed, brushy areas and tolerate bumble bee nests if you find them. Reduce tilling soil and mowing where bumble bees might nest. Support natural areas in your community, county and state.

**Minimize:** Limit the use of pesticides and chemical fertilizer whenever possible or avoid them entirely. Pesticides cause lethal and sublethal effects to bees and other pollinators.