



STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

January 22, 2020

Peter Thompson
wood., Wood Environment & Infrastructure Solutions
11 Congress Street, Suite 200
Portland, ME 04101

Via email: peter.thompson@woodplc.com

Re: Rare and exemplary botanical features in proximity to: Wolfden Pickett Mountain Site, T6 R6 WELS, Maine

Dear Mr. Thompson:

I have searched the Maine Natural Areas Program's (MNAP's) Biological and Conservation Data System files in response to your request received December 4, 2019 for information on the presence of rare or unique botanical features documented from the vicinity of the project in T6R6 WELS, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

Please refer to the attached supplemental information regarding rare and exemplary botanical features documented to occur within four miles of the project site. The list includes information on one feature, Orono Sedge, known to occur historically in the area. MNAP does not expect that this rare sedge species would be found at the Pickett Mountain site. Also attached is a map showing the features that occur within three miles of the project site. MNAP has received landowner permission to release this map which shows exemplary Montane Spruce – Fir Forest and exemplary Spruce – Pine Woodland at Mount Chase south of the project site. Please also refer to the attached factsheets for more information about these natural community types.

MNAP has also identified a priority area for botanical survey on the property owned by Wolfden Mt. Chase LLC. This area is a lakeside graminoid/shrub fen between Pleasant and Mud Lakes. As this fen is downhill and downstream from the proposed project site near Pickett Mountain, MNAP strongly recommends survey by a qualified ecologist to determine presence/absence of rare plants and natural community type(s) that may be

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING



PHONE: (207) 287-804490
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present at that location per the Maine natural community classification (*Natural Landscapes of Maine: A Guide to Natural Communities and Ecosystems* by Gawler and Cutko, 2018 revised edition). The MNAP is available to conduct this survey, for a fee, if you cannot identify a qualified ecologist. Please contact me at 207-287-8043, kristen.puryear@maine.gov, if you are interested in MNAP conducting this survey.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$375.00 for five hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

Wolfden Pickett Mountain Site T6 R6 WELS, Maine

-  Approximate Project Location
-  Montane Spruce - Fir Forest
-  Spruce - Pine Woodland
-  Town



0 0.25 0.5 Miles

Maine Natural Areas Program, December 2019

T6 R6 WELS



Mount Chase

Spruce - Pine Woodland

Montane Spruce - Fir Forest

Rare and Exemplary Botanical Features within 4 miles of Project: Wolfden Pickett Mountain Site, T6 R6 WELS, Maine

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Montane Spruce - Fir Forest						
	<null>	S5	G3G5	2005-07-18	9	Conifer forest (forest, upland)
Orono Sedge						
	T	S3	G3	1989-06-27	31	Old field/roadside (non-forested, wetland or upland)
Spruce - Fir - Northern Hardwoods Ecosystem						
	<null>	S5	GNR	2003-06-05	16	Conifer forest (forest, upland),Hardwood to mixed forest (forest, upland)
Spruce - Pine Woodland						
	<null>	S4	G3G5	2005-07-18	8	Dry barrens (partly forested, upland),Rocky summits and outcrops (non-forested, upland)

Spruce - Pine Woodland

State Rank S4

Community Description

This type is a mixed canopy woodland (25-70% closure) in which red spruce and/or white pine is always present and associated species vary. Red spruce or white pine is strongly dominant at some sites; at others, the canopy is mixed, with no one tree species strongly dominant. White spruce may rarely replace red spruce at coastal sites. The shrub layer is typically very sparse (and variable in composition), and the herb layer has mostly 15-50% cover. Heath shrubs are the dominant feature of the herb layer; herb species rarely exceed 8% cover. The bryoid layer is sparse at some sites (<25%) and well developed at others (35-70%). Fruticose lichens typically make up half or more of the bryoid cover.

Soil and Site Characteristics

Sites occur on mid to upper slopes (usually 10-20% slope) and low summits at elevations up to 2000'. Soils are thin (<25 cm), consisting of coarse mineral soil or poorly decomposed duff, and form patches over the bedrock substrate. The very well drained soils are acidic

(pH 4.6-5.2) and nutrient poor. Some sites show evidence of past fire, but many do not.

Diagnostics

Sites are woodlands on bedrock, with conifer cover exceeding deciduous cover. Red spruce is typically dominant, or occasionally co-dominant with white pine or red spruce.

Similar Types

Other upland coniferous woodlands may include red spruce but will have other tree species (northern white cedar, pitch pine, red pine, jack pine, or black spruce) in greater abundance. Oak - Pine Woodlands may have considerable red



Spruce - Pine Woodland

spruce (an oak - spruce mix), but have more deciduous than coniferous tree cover. Moving downslope, or into areas of greater soil development, these woodlands can grade into spruce or pine forests, but those have more continuous canopy and less shrub and herb cover.

Conservation, Wildlife, and Management Considerations

Most sites have little pressure from development or timbering; the primary impacts are from recreational use. Communications towers or wind turbines could have an impact on some of these woodlands on mid-elevation summits. Several sites are in public or private conservation ownership.

Birds that may nest in this habitat include the sharp-shinned hawk, gray jay, yellow-bellied flycatcher, boreal chickadee, Blackburnian warbler, red crossbill, and northern parula.

Distribution

New England - Adirondack Province and Laurentian Mixed Forest Province, extending eastward, westward, and northward from Maine.

Landscape Pattern: Small Patch

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy

- Balsam fir*
- Black spruce*
- Northern white cedar*
- Paper birch*
- Red spruce*
- White pine*
- White spruce*

Sapling/shrub

- Bayberry*
- Shadbush
- Wild-raisin*

Dwarf Shrub

- Black huckleberry*
- Lowbush blueberry*
- Sheep laurel*

Herb

- Bracken fern

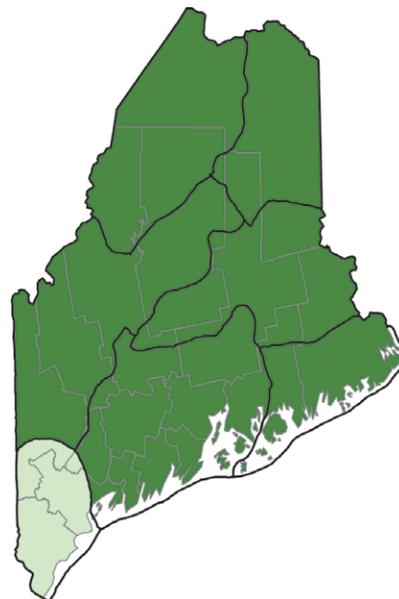
Bryoid

- Dicranum moss
- Red-stemmed moss
- Reindeer lichen*

Examples on Conservation Lands You Can Visit

- Holbrook Island Sanctuary State Park - Hancock Co.
- Mahoosuc Mountain, Mahoosuc Public Lands - Oxford Co.
- Mansell Mountain, Acadia National Park - Hancock Co.
- Nahmakanta Public Lands - Piscataquis Co.
- Petit Manan Point, Petit Manan National Wildlife - Washington Co.

Location Map



- Community is known from this Ecoregion
- Community may occur in this Ecoregion
- Bailey's Ecoregion
- County



Wild Raisin

Montane Spruce - Fir Forest

State Rank S5

Community Description

These closed canopy or sometimes patchy canopy forests are dominated by red spruce (50-95% cover); fir is a common associate (up to 35% cover) in younger stands and in canopy gaps, and yellow birch is the most common hardwood. Other conifers (northern white cedar, hemlock, or white pine) occasionally reduce the spruce dominance to as low as 40% cover. Striped maple is typical in the shrub layer, along with tree saplings. The herb layer is well developed (>15% cover, and often >30%), with tree regeneration and an assortment of herbs. Dwarf shrubs are conspicuously absent, except for a bit of velvet-leaf blueberry. Most of the ground surface is a lush mosaic of feather-mosses and leafy liverworts.

Soil and Site Characteristics

These forests occur on cool and moist microsites at moderate elevations (600'-2500', perhaps slightly higher), and north of 45 degrees latitude. Slopes are moderate to steep (5-50%), and usually north, west, or east facing. Soils are mostly well drained (some imperfectly drained), sandy to loamy, of moderate depth (25-50 cm), with pH 5.0-5.5.

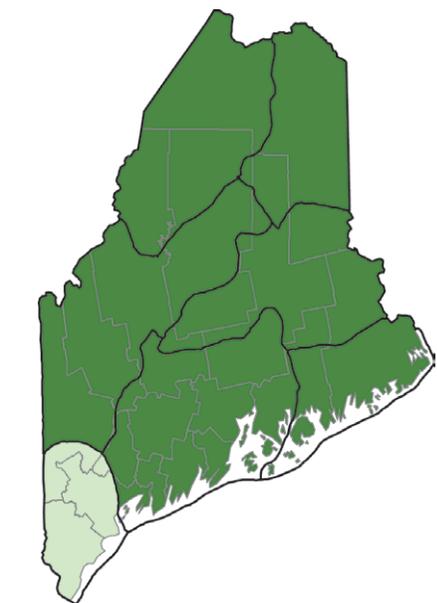
Diagnostics

Red spruce is dominant, and yellow birch is the most abundant hardwood. Herbaceous species exceed 15% cover, with montane/boreal herbs such as bluebead lily, northern wood-sorrel, creeping snowberry, mountain wood fern, and/or rose twisted stalk locally common. Bryoids exceed 40% cover, with a large proportion of feather-mosses.

Similar Types

Fir - Heart-leaved Birch Subalpine Forests can share many species and often grade into this type as elevation decreases, but will have fir more abundant than spruce in the canopy, shorter trees, and canopy gaps more frequent. Spruce - Fir - Broom-moss Forests have similar canopies but much more depauperate herb and bryoid layers. They usually occur on somewhat drier sites and lack the assortment of montane/boreal herbs and the most common mosses will be broom-mosses rather than feather-mosses. Some Maritime Spruce - Fir Forests have a similar herb layer, but if so they have more canopy fir and occur along the immediate coast.

Location Map



■ Community is known from this Ecoregion
■ Community may occur in this Ecoregion
□ Bailey's Ecoregion
□ County



Montane Spruce - Fir Forest

Conservation, Wildlife, and Management Considerations

This is the characteristic spruce - fir type of mountain slopes just below the subalpine zone, and it is extensively harvested and managed. Spruce budworm has impacted many sites as well, creating patchy forest structure. Some areas of high ecological quality, in the hundreds of acres, are known but not necessarily designated as areas reserved from harvesting. Almost all are within a landscape of managed forest rather than surrounded by land that has been permanently cleared and converted to other uses.

This community type may be utilized as nesting habitat by a number of coniferous forest specialist bird species, such as the sharp-shinned hawk, yellow-bellied flycatcher, bay-breasted warbler, Cape May warbler, blackpoll warbler, northern parula, blackburnian warbler, boreal chickadee, Swainson's thrush, red crossbill, white-winged crossbill, gray jay, and spruce grouse.

Distribution

Western Maine westward (New England - Adirondack Province).

Landscape Pattern: Large Patch, mostly as hundreds of acres.

Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy

Balsam fir*
Red spruce*
Yellow birch*

Sapling/shrub

Balsam fir*
Red maple
Striped maple

Dwarf Shrub

Velvet-leaf blueberry

Herb

Bluebead lily*
Bunchberry
Canada mayflower
Creeping snowberry*
Goldthread
Northern wood-sorrel*
Painted trillium
Starflower

Bryoid

Common broom-moss*
Mountain fern moss
Red-stemmed moss
Three-lobed bazzania

Associated Rare Plants

Boreal bedstraw
Lesser wintergreen

Associated Rare Animals

Bicknell's thrush

Examples on Conservation Lands You Can Visit

- Deboullie Ponds Public Lands - Aroostook Co.
- Elephant Mountain, Appalachian Trail - Franklin Co.
- Lower Horns Pond Trail, Bigelow Preserve - Franklin Co.
- Traveler Mountain, Baxter State Park - Piscataquis Co.
- Whitecap Mountain, Appalachian Trail - Piscataquis Co.

STATE RARITY RANKS

- S1** Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2** Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (20-100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.
- SU** Under consideration for assigning rarity status; more information needed on threats or distribution.
- SNR** Not yet ranked.
- SNA** Rank not applicable.
- S#?** Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: **State Rarity Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

GLOBAL RARITY RANKS

- G1** Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2** Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (20-100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.
- GNR** Not yet ranked.

Note: **Global Ranks** are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered and Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E** ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T** THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

- SC** SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE** Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A**, **B**, **C**, or **D**, where **A** indicates an **excellent** example of the community or population and **D** indicates a **poor** example of the community or population. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/dacf/mnap>



Wood Environment & Infrastructure Solutions, Inc.

511 Congress Street

Ste. 200

Portland, ME 04101

USA

T: 207-775-5401

www.woodplc.com

December 4, 2019

Ms Kristen Puryear

Maine Department of Conservation

Natural Areas Program

93 State House Station

Augusta, Maine 04333-0093

Subject: Environmental Site Review, Wolfden - Pickett Mountain Site, T6R6, Maine

Dear Ms Puryear:

It was a pleasure meeting with you and others on November 6, 2019 to discuss aspects of Wolfden's in-progress rezoning petition with LUPC on a parcel located in T6R6. During the meeting you indicated there were potential records of rare and exemplary botanical features within a 3 mile buffer of the proposed site and you kindly offered to follow up with additional information, if possible, from private land owners pending permission.

I am providing this letter with a figure to facilitate your Environmental Site Review of the subject project for rare and exemplary botanical features. Attached please find a figure showing the Preliminary Site Survey Area completed on October 29th and 30th which is consistent with the area currently proposed for development. The property, owned by Wolfden Mt. Chase LLC, is forested with a mix of deciduous and evergreen trees. Developed areas on site are limited to woods/logging roads. The area where development is proposed has been logged within the past 5 to 7 years and is in re-growth.

As discussed in the meeting, we will be conducting a survey in the spring for formal delineation of wetlands, intermittent streams and an assessment of vernal pools. At that time we will also review the subject site for rare, threatened and endangered plants. Your input is appreciated. If you need additional information, please feel free to contact me directly at 207-828-3490.

Sincerely

Wood Environment & Infrastructure Solutions, Inc.

Peter Thompson

Principal Project Manager

Cc; Jeremy Ouellette





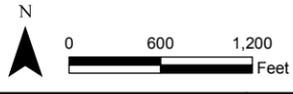
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Legend
 Approximate Limit of Preliminary Site Survey

Preliminary Site Survey Area

Coordinates of approximate center of Preliminary Site Survey Area:
 X: 992,556 Y: 900,791
 (NAD 83 State Plane Maine East, US Survey Feet)



Wolfden Resources
 Pickett Mountain Mine

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STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041



November 25, 2019

Peter Thompson
Wood PLC
511 Congress Street, Suite 200
Portland, Maine 04101

RE: Information Request - Wolfden Resources Metallic Mineral Mining Rezoning, T6 R6 WELS

Dear Peter,

Per your request received November 7, 2019, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of important fisheries, wildlife, and critical habitat resources within the vicinity of the proposed Wolfden Resources project noted above. Please note that our comments should be considered preliminary based on the limited information provided at this stage.

As described during our meeting on November 5, 2019, MDIFW concerns relate to Rare, Threatened, and Endangered (RTE) species occurrences and habitats; Significant Wildlife Habitats (SWHs); and Protected Natural Resources (PNRs). MDIFW's preliminary record searches identify known resources, but site surveys are necessary to identify other important resources that have not yet been investigated but may be present in an area. Some species are limited by specific region or habitat type, which quickly eliminates them from being present in some areas or, alternatively, indicates a potential presence in other areas that needs to be followed up by survey. Locating a project in or in proximity to certain habitats can result in adverse impacts to those habitats and the species that utilize them and, in those situations, MDIFW will likely recommend increased siting and design considerations, operational measures, monitoring practices, and/or other efforts in attempt to avoid, minimize, and possibly mitigate for such impacts. It should be noted that there is no comprehensive statewide inventory that includes all RTE species occurrences and habitats or SWHs and that the completeness of maps varies by habitat, location, and previous survey efforts. Resource surveys, project siting, facility design/layout, and operational practices are all very important steps in this process.

Rare, Threatened, and Endangered Species and Habitats

The Maine Endangered Species Act (MESA; 12 M.R.S, §12801 et. seq.) identifies all inland fish and wildlife species that are listed as Endangered or Threatened in Maine and provides the Commissioner of MDIFW with the authority to implement MESA. Pursuant to MESA, listed species are afforded special protection against activities that may cause "take" (kill or cause death), "harassment" (create injury or significantly disrupt normal behavior patterns), and other adverse actions. Further, the No Adverse Environmental Effect Standard of the Site Location Law (06-096, CMR 375) provides for the preservation of "unusually important wildlife habitats, particularly those of rare or endangered species", as well as protection of "wildlife and fisheries by maintaining suitable and sufficient habitat" and avoiding adverse effects on "wildlife and fisheries lifecycles". Rare or "Special Concern" species are defined by MDIFW as

PHONE: (207) 287-8000

FISH AND WILDLIFE ON THE
WEB:
www.maine.gov/ifw

EMAIL ADDRESS:
ifw.webmaster@maine.gov

species that do not meet the criteria as Endangered or Threatened, but are particularly vulnerable and could easily become Endangered, Threatened, or Extirpated due to restricted distribution, low or declining numbers, specialized habitat needs or limits, or other factors.

Significant Wildlife Habitats

Significant Wildlife Habitats are defined and protected pursuant to the Natural Resources Protection Act (38 M.R.S., §480-B.10) and SWH Rules (06-096 CMR 335; 09-137 CMR 10). Subject to the requirements of the Rules, SWHs include habitats for state and federal endangered and threatened animal species; high and moderate value deer wintering areas and travel corridors; seabird nesting islands; critical Atlantic salmon spawning and nursery areas; significant vernal pool habitat; high and moderate value waterfowl and wading bird habitat; and shorebird nesting, feeding, and staging areas.

Protected Natural Resources

Protected Natural Resources are defined and protected by the Natural Resources Protection Act (38 M.R.S., §480-B.8). PNRs include coastal sand dune systems, coastal wetlands, significant wildlife habitats, fragile mountain areas, freshwater wetlands, great ponds, rivers, streams, and brooks. Some of these resources are specifically managed by MDIFW based on the presence of, and unique habitat value for, certain species of fish or wildlife.

MDIFW's preliminary review of information on record indicated no known occurrences of Endangered, Threatened, or Special Concern species within the project area. Additionally, our Department has not mapped any Significant Wildlife Habitats that would be directly affected by your project, based on the information provided to date. As we discussed, the following resources require further investigation.

Freshwater wetlands

It was indicated in our meeting that a wandering survey has been performed for preliminary locations of natural resources but, formal wetland delineations have not yet been conducted. Therefore, accurate information is not yet available on the extent of wetlands on site. Freshwater wetlands are valuable natural resources that serve important functions to help preserve, protect, and enhance adjacent aquatic and terrestrial habitats as well as provide important habitats themselves for a myriad of species. MDIFW recommends that freshwater wetlands be definitively located and delineated on site to enable an informed assessment of resources and appropriate agency recommendations.

Intermittent and perennial streams

As noted during our meeting, one of our principal concerns will be to identify the presence of intermittent and perennial streams and stream-related species of concern. Rivers, streams, and brooks within remote project sites are often in or near headwaters, providing high water quality and habitat values for fish and other aquatic and wetland species. MDIFW recommends maintaining 100-foot undisturbed, vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by coldwater fish and other aquatic species. As discussed, there are numerous coldwater fisheries resources and watersheds throughout the area that are of importance. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species.

Stream crossings should be avoided but, if a stream crossing is necessary or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent

streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bank-full width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. MDIFW encourages consideration of these factors during initial design of the project, selection of its position in the landscape, site preparation, and installation of infrastructure, to ensure continuation of these important habitat functions.

Significant Vernal Pools

At our meeting, it was noted that site surveys have not yet been conducted for Significant Vernal Pools. Vernal pools are shallow depressions that usually contain water for only part of the year and typically dry out by mid to late summer. Although vernal pools may only contain water for a relatively short period of time, they serve as unique breeding habitat for certain species of wildlife, including salamanders and frogs. The “significance” of vernal pools and their associated buffers (Critical Terrestrial Habitats) is dependent upon several factors, including the presence or use by state RTE species, or the presence and reproductive success of certain pool-breeding amphibians. It should be noted, a comprehensive statewide inventory for SVPs has not been conducted. And, since vernal pools dry out on a seasonal basis, they can easily be missed during dry conditions. Therefore, we recommend that surveys for vernal pools be conducted within the project site boundary by qualified wetland scientists prior to final project design to determine whether there are SVPs present in the area. These surveys should extend out to 250 feet beyond the anticipated project footprint to determine potential impacts to the critical terrestrial habitats of off-site SVPs, assuming such pools are located on land owned or controlled by the applicant. A MDEP Maine State Vernal Pool Assessment Form should be completed for each pool and submitted to MDIFW for pool status determination as soon as possible and **well before the project application is submitted**. The optimal time for assessing the presence of amphibian indicator species coincides with a 2-3-week spring breeding period that varies slightly with geography, elevation, and weather. Vernal Pools are designated as “Potentially Significant” until such time that a seasonally valid survey is conducted, and the true value determined. Because of the limited survey period, some developers may choose to initially consider their pools as Significant and reassess them in the future under viable conditions. Alternatively, a developer may choose to consider them as Significant Vernal Pools, not formally survey them, and design the proposed project accordingly to avoid (recommended), minimize, and mitigate for any impacts to these resources.

Great blue heron colonies

The great blue heron (*Ardea herodias*) is designated as a Species of Special Concern in Maine due to an 82% decline in the coastal breeding population observed from 1983 to 2018. Since 2009, MDIFW has been monitoring the statewide population to determine if the decline seen along the coast is also occurring statewide. Great blue herons build large stick nests in live, dead, or dying trees 8-100 feet or more above the ground, and may nest in uplands, wetlands, or on islands. Great blue herons nest in groups and generally occupy colonies from April 1st thru August 15th (known as the Sensitive Nesting Period). During this time, the birds can be extremely sensitive to disturbances caused by human intrusion, noise, and predators, and may even abandon a colony as a result.

Not all great blue heron colonies have been mapped in Maine. For this reason, MDIFW recommends that, while conducting further site investigations and resource surveys for project design and review, the applicant survey live trees in upland areas within the proposed project boundaries for great blue heron

nest colonies and level of use. Heron surveys should be conducted between May 1 and June 15 for projects in northern and Downeast Maine. If heron nest colonies are known or discovered, MDIFW recommends that these areas be avoided and that any construction activities (land clearing, road construction, and building of permanent structures) within 600 feet occur outside of the Sensitive Nesting Period. Also, any standing dead wood in the vicinity of heron nests that is not commercial and doesn't pose a safety hazard should be left to provide potential nesting habitat for waterfowl, wading birds, or cavity nesting birds/mammals.

Bat habitat

During our meeting, we discussed the dire statuses of bat populations in Maine. Of the eight species of bats that occur in Maine, three *Myotis* species are afforded special protection under Maine's Endangered Species Act: the little brown bat (*M. lucifugus*, State Endangered); northern long-eared bat (*M. septentrionalis*, State Endangered); and eastern small-footed bat (*M. leibii*, State Threatened). The five remaining bat species are designated as Species of Special Concern: red bat (*Lasiurus borealis*), hoary bat (*L. cinereus*), silver-haired bat (*Lasionycteris noctivagans*), tri-colored bat (*Perimyotis subflavus*), and big brown bat (*Eptesicus fuscus*). Different bat species utilize specific types of habitat during critical periods of their life cycles. MDIFW and other parties are conducting surveys throughout the state. As discussed, please document if the project site contains any areas with ½-acre or more of talus fields or rocky outcrops, or cliffs visible from remote imagery.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with other state agencies including the Maine Natural Areas Program, the Maine Land Use Planning Commission, and the Maine Department of Environmental Protection, in order to avoid unintended disturbances of protected resources. Further, as noted above, our comments should be considered preliminary based on the limited information provided at this stage. MDIFW requests the opportunity for further review of complete natural resource reports, application materials, and plans related to Wolfden Resources' proposed activities related to metallic mineral mining, solar energy, transmission line corridors, etc. and how design and operational measures are intended to protect groundwater, surface waters, and natural resources of concern.

MDIFW hopes that this information is of assistance to you in your project design. If you have any questions or concerns, please feel free to contact me at robert.d.stratton@maine.gov or (207) 287-5659.

Sincerely,

Handwritten signature of Robert D. Stratton in cursive, with a small "IFW" monogram at the bottom right of the signature.

Robert D. Stratton
Environmental Program Manager
Maine Department of Inland Fisheries & Wildlife

cc: Ron Little, Jeremy Ouellette (Wolfden Resources)
Stacie Beyer, Billie MacLean, Tim Carr (LUPC)
Kevin Dunham, Mark Caron (MDIFW)

Thompson, Peter H.

From: Stratton, Robert D <Robert.D.Stratton@maine.gov>
Sent: Monday, December 30, 2019 11:53 AM
To: Thompson, Peter H.
Cc: 'rlittle@wolfdenresources.com'; 'Jeremy Ouellette'; Beyer, Stacie R; MacLean, Billie J; Carr, Tim; Dunham, Kevin; Caron, Mark
Subject: RE: Information Request - Pickett Mountain
Attachments: TopoMap_TalusLayer.pdf; Wolfden prelim resource surveys 25Nov2019.pdf

Good day Peter,

I am writing to update some of the information provided in the attached letter of 11/25/19 and in our meeting of 11/05/19 for Wolfden Resources' proposed rezoning and potential mineral mining project in T6R6. Much of the information that we have disseminated in recent years concerning bats has been related to wind energy proposals. Though concerns with population trends and the desire to avoid or minimize detrimental impacts applies universally, we recognize that there are also differences between various types of development. Accordingly, we have been working on developing more general development guidelines. As we discussed, in addition to traditional hibernacula like caves and old mines, recent findings indicate that *Myotis* and Big Brown bats may also overwinter in exposed rocky features. Some species of bat, like the eastern small-footed bat, use rocky features year-round. For wind energy proposals, and as was recommended for Wolfden Resources, MDIFW recommends surveys for areas of "*½-acre or more of talus fields, rocky outcrops, or cliffs visible from remote imagery*" on site. For wind energy proposals, surveys are recommended to extend for a distance of three miles from the project site. MDIFW's draft guidance for solar energy and other significant proposals recommends surveys for rocky features of approximately 1,000 square feet in size or more, including smaller areas of rock piles and tailings (i.e., quarry spoils), on and within 250-feet of a project site. This recommendation is more applicable for a Wolfden Resources' application than the one that was previously provided.

Occupied talus slopes in Maine have consisted of variable rock sizes, ranging in size from softball to car-sized boulders. Rock piles, rock ledges, and small vertical cracks in rocks (>1/2 inch wide) create crevices that allow bats to access deeper cavities that provide protection for predators and suitable temperature and humidity conditions. Detailed photographs and coordinates should be submitted to MDIFW for review, and acoustic monitoring may be recommended to document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these features are not present in the project area, MDIFW does not anticipate significant impacts to any of the bat species as a result of this project based on currently best available science.

MDIFW has incorporated a new "*Maine Cliff and Talus Areas*" feature in its habitat map layers. This new layer is not a comprehensive record of such features and does not replace onsite surveys. However, it does provide an initial starting point for interested parties. MDIFW has added this feature to the attached preliminary resource map for Wolfden Resources. You will see that rocky/talus features, depicted as dotted polygons, are shown south of Pickett Mountain and some distance away from the project search area, based on current known information.

I hope this information is of assistance to you. Please let me know of any concerns or questions. Thank you and happy new year, Bob.

Bob Stratton
MDIFW

From: Stratton, Robert D
Sent: Monday, November 25, 2019 11:51 AM

To: Thompson, Peter H. <peter.thompson@woodplc.com>
Cc: rlittle@wolfdenresources.com; Jeremy Ouellette <JOuellette@wolfdenresources.com>; Beyer, Stacie R <Stacie.R.Beyer@maine.gov>; MacLean, Billie J <Billie.J.MacLean@maine.gov>; Carr, Tim <Tim.Carr@maine.gov>; Dunham, Kevin <Kevin.Dunham@maine.gov>; Caron, Mark <Mark.Caron@maine.gov>
Subject: RE: Information Request - Pickett Mountain

Peter,

Please find attached, MDIFW's preliminary review of known natural resources and recommended surveys associated with Wolfden's request for rezoning in T6R6 WELS. If you have any concerns or questions, please feel free to contact me. Thank you, Bob.

Bob Stratton
Wildlife Biologist
Environmental Program Manager

Maine Department of Inland Fisheries & Wildlife
284 State Street; 41 State House Station
Augusta, Maine 04333-0041
Tel: (207) 287-5659
mefishwildlife.com

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From: Thompson, Peter H. <peter.thompson@woodplc.com>
Sent: Thursday, November 07, 2019 2:12 PM
To: Stratton, Robert D <Robert.D.Stratton@maine.gov>; IFWEnvironmentalreview <IFWEnvironmentalreview@maine.gov>
Cc: Jeremy Ouellette <JOuellette@wolfdenresources.com>
Subject: RE: Information Request - Pickett Mountain

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Thanks Bob

Much appreciated

Peter

From: Stratton, Robert D [<mailto:Robert.D.Stratton@maine.gov>]
Sent: Thursday, November 07, 2019 1:54 PM
To: Thompson, Peter H. <peter.thompson@woodplc.com>; IFWEnvironmentalreview <IFWEnvironmentalreview@maine.gov>
Cc: Jeremy Ouellette <JOuellette@wolfdenresources.com>
Subject: RE: Information Request - Pickett Mountain

Peter,

It was good to meet with the Wolfden team and learn about the proposal. It was also a flashback to run into you after so many years! Thank you for forwarding this information. As I mentioned, I will be away from the office next week, but we have begun assembling information and I will work on this request further when I return. Thanks, Bob.

Bob Stratton

Wildlife Biologist

Environmental Program Manager

Maine Department of Inland Fisheries & Wildlife

284 State Street; 41 State House Station

Augusta, Maine 04333-0041

Tel: (207) 287-5659

mefishwildlife.com

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From: Thompson, Peter H. <peter.thompson@woodplc.com>

Sent: Thursday, November 07, 2019 11:33 AM

To: IFWEnvironmentalreview <IFWEnvironmentalreview@maine.gov>

Cc: Stratton, Robert D <Robert.D.Stratton@maine.gov>; Jeremy Ouellette <JOuellette@wolfdenresources.com>

Subject: Information Request - Pickett Mountain

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Greetings Bob

It was a pleasure meeting with you this last Tuesday. At your suggestion, and on behalf of Wolfden Resources, I am transmitting by this e-mail a request to Inland Fish and Wildlife to provide information concerning potential significant habitats, endangered and threatened species, species of special concern and other information the Department will require to be evaluated and reviewed for the Pickett Mountain Project located in T6R6.

To facilitate your review and in locating the Site I am attaching a copy of the Site figure presented by Jeremy Ouellette at the meeting. In addition I am providing a figure with a topographic background that shows the area covered by our recent preliminary "meander" survey. The coordinates of the approximate center of the Site are provided in a note below the legend (NAD 83 State Plane East).

If you have any question please feel free to reach out to Jeremy or myself.

Best Regards

Peter

Peter Thompson

Principal Project Manager

Environment & Infrastructure Solutions

511 Congress Street, Suite 200

Portland, Maine 04101

Direct: 207 828 3490

Mobile: 207 522 7171

www.woodplc.com

wood.



Safety Shield

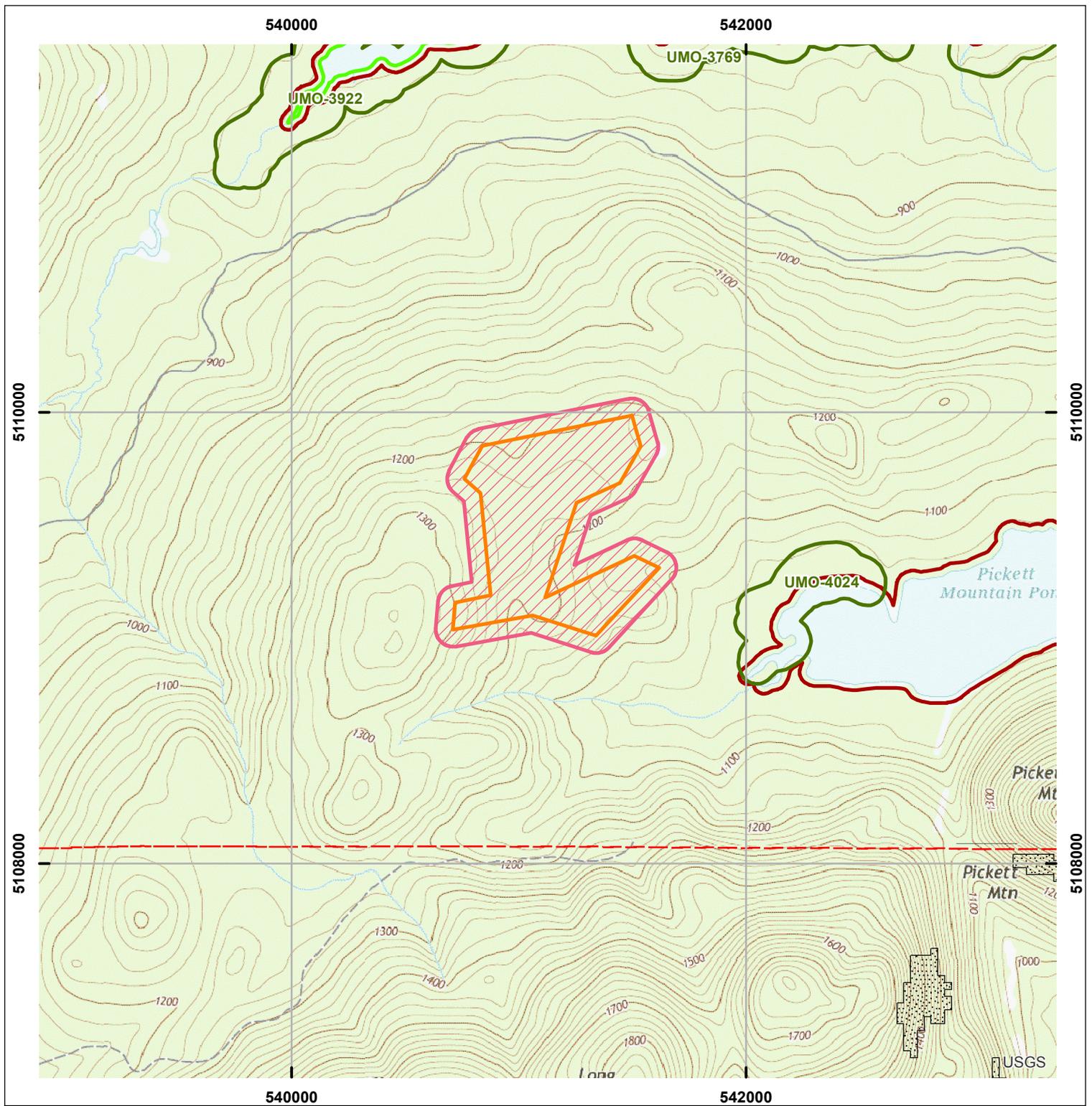
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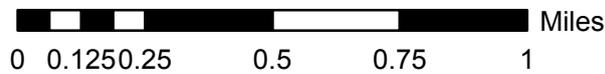


Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: T6R6, Wolfden metallic mineral mining rezoning



Maine Department of
Inland Fisheries and Wildlife



Projection: UTM, NAD83, Zone 19N

Date: 12/30/2019

