



PATRICK K. MCGOWAN
COMMISSIONER

September 6, 2005

Steven J. Wallace Senior Environmental Scientist TRC Environmental Corporation 400 Southborough Drive South Portland, ME 04106

Re: Rare and exemplary botanical features, Kibby Twp & Skinner Twp.

Dear Mr. Wallace:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of July 27, 2005 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in the Townships of Kibby Twp & Skinner Twp, 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 is a Subalpine Fir Forest present at the Kibby Mountain site. We strongly recommend that disturbance of natural vegetation is minimized as much as possible. We would also be interested in knowing how much vegetation you are planning on clearing, and would offer our services to help determine the boundaries of the Subalpine Fir Forest community so that no exemplary vegetation is inadvertently harmed.

If someone is hired to conduct a field survey of the project area, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the



area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

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 Natural Areas Program 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. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The 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 \$75.00 for our services.

Thank you for using the Natural Areas Program 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,

Toni Bingel Pied

GIS Specialist/Assistant Ecologist

ToniBengy

93 State House Station

Augusta, ME 04333-0093

207-287-8044

toni.bingel@maine.gov

Enclosures

Rare or Exemplary Botanical Features in the Project Vicinity

Documented within a four mile radius of the proposed data collection towers, Kibby Twp & Skinner Twp.

Scientific Name Common Name		Last Seen	State Rarity	Global Rarity	State Legal Status	Federal Legal Status	Habitat Description
Dryopteris fragrans Fragrant Cliff Wood-fern			S3	G5	SC .		Dry cliffs and rocky banks (often calcareous).
Fir - heart-leaved birch subalpine forest Subalpine Fir Forest			S3	GNR			Coniferous forest of high elevations, generally above 900m. Occurs both on level ridgetops and on steep, stony, upper slopes Balsam fir usually dominant, often with patches of Mountain ash and Heart-leaved paper birch. A variant is the deciduous forest
Galium kamtschaticum Boreal Bedstraw			S2 .	G5	SC		Cool woods, thickets, streamsides.
			,	•			
Goodyera oblongifolia Giant Rattlesnake-plantain			S2	G5?	Е		Dry coniferous or mixed woods
						•	
Listera auriculata Auricled Twayblade			S2	G3	T		Alluvial banks, calcareous silts or crevices, alder-thickets, and swamps.
	·						
Pyrola minor Lesser Wintergreen			S2	G5	SC		Moist woods.

STATE RARITY RANKS

- 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 (on the order of 20-100 occurrences).
- S4 Apparently secure in Maine.
- **S5** Demonstrably secure in Maine.
- SH Occurred historically in Maine, and could be rediscovered; not known to have been extirpated.
- SU Possibly in peril in Maine, but status uncertain; need more information.
- SX Apparently extirpated in Maine (historically occurring species for which habitat no longer exists in Maine).

Note: State Ranks determined by the Maine Natural Areas Program.

GLOBAL RARITY RANKS

- 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 extirpation from the State of Maine.
- 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 (on the order of 20-100 occurrences).
- G4 Apparently secure globally.
- G5 Demonstrably secure globally.

Note: Global Ranks are determined by NatureServe.

T indicates subspecies rank, Q indicates questionable rank, HYB indicates hybrid species.

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.
- THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.
- SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE POSSIBLY EXTIRPATED; Not known to currently exist in Maine; not field-verified (or documented) in Maine over the past 20 years.

FEDERAL STATUS

- LE Listed as Endangered at the national level.
- LT Listed as Threatened at the national level.

Please note that species names follow Flora of Maine: A Manual for Identification of Native and Naturalized Vascular Plants of Maine, Arthur Haines and Thomas F. Vining, 1998, V.F. Thomas Co., 219 Dead River Road, Bowdoin, ME 04287.

Where entries appear as binomials, all representatives (subspecies and varieties) of the species are rare in Maine; where names appear as trinomials, only that particular variety or subspecies is rare in Maine, not the species as a whole.



PATRICK K. MCGOWAN
COMMISSIONER

February 14, 2006

Dana Valleau E/PRO Engineering and Environmental Consulting, LLC 249 Western Avenue Augusta, ME 04330

Re: Rare and exemplary botanical features, Kibby Wind Power Project, Kibby Twp.

Dear Mr. Valleau:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of January 26, 2006 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in the minor civil division of Kibby Twp., 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.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as



well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

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 Natural Areas Program 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. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The 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 \$75.00 for our services.

Thank you for using the Natural Areas Program 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,

Raque Ross

Information Manager 93 State House Station Augusta, ME 04333-0093

207-287-8046

Raquel.ross@maine.gov

Enclosures

2/14/2006

Rare or Exemplary Botanical Features in the Project Vicinity

Documented within a four mile radius of the Kibby Wind Power Project, Kibby Twp.

Scientific Name Common Name	Dryopteris fragrans Fragrant Cliff Wood-fern	Fir - heart-leaved birch subalpine forest Subalpine Fir Forest	Galium kamtschaticum Boreal Bedstraw	Goodyera oblongifolia Giant Rattlesnake-plantain	Listera auriculata Auricled Twayblade	Pyrola minor Lesser Wintergreen
Last Seen						
State Rarity	S3	S3	S2	S2	8	S2
Global Rarity	છ	GNR	દ	G5?	8	S
State Legal Status	SC		SC	Į T	H	SC
Federal Legal Status						
Habitat Description		Coniferous forest of high elevations, generally above 900m. Occurs both on level ridgetops and on steep, stony, upper slopes. Balsam fir usually dominant, often with patches of Mountain ash and Heart-leaved paper birch. A variant is the deciduous forest				



PATRICK K. MCGOWAN
COMMISSIONER

September 27, 2006

Dana Valleau E-Pro Consulting 249 Western Ave Augusta, ME 04330

Dear Mr. Valleau,

On Thursday September 11, 2006 as per your request I visited the site for the proposed wind power generation facility on Kibby Range and Kibby Mountain in Skinner Twp, Maine. Also along for the survey were both you (Dana Valleau) and Arthur Gilman. The purpose of the site visit was to determine if the proposed location of the wind power generation facility will jeopardize an occurrence of a Fir- Heart-leaved Birch Subalpine Forest Community as well as occurrences of two rare plant species, Auricled twayblade (*Listera auriculata*) on the Dead River and Boreal Bedstraw (*Galium kamtschaticum*) on Kibby Range.

We hiked the southern ridge of Kibby Mountain into an area that falls within the mapped polygon of the Fir- Heart-leaved Birch Subalpine Forest Community. Observations that were made included 1) that the area had historically received a heavy harvest and that current tree density and size reflected to some degree the growth response following the historic harvest, 2) the trees within the southern most portion of the mapped polygon were considerably larger (40-50 feet tall) than what is characteristic of a Fir- Heart-leaved Birch Subalpine Forest Community, and 3) further upslope (northward) on the ridge, the vegetation was characteristic of the mapped subalpine community. Conclusions from the survey of this area at Kibby Mountain are that the Maine Natural Areas Program will modify the polygon of this community to better reflect where the community occurs on the mountain and that the proposed entry into the southern most end of the community to construct and maintain proposed wind power facilities will result in only a minor impact to the subalpine community. If no other facilities are constructed on Kibby Mountain than what is currently proposed, the Subalpine Forest Community should continue function as a viable community for the foreseeable future.

We also hiked sections of Kibby Range, a mountain area where the rare plant Boreal Bedstraw has been documented. We looked at two areas where the proposed access road would likely impact occurrences of the Boreal bedstraw. Options for moving the road away from the plants were discussed. Of interest during the hike was that we encountered the Boreal Bedstraw in four additional locations, all of which were outside of the project area. After observing the species in these other locations, it became apparent that the construction of the access road on Kibby Range would only impact a small amount of the species habitat on the mountain. The

Maine Natural Areas Program suggests that to insure the accuracy of this conclusion, some additional survey work be done to document that the Boreal bedstraw is in fact more wide spread at the site than current data demonstrates.

A third site that was visited was the shore of the Dead River at the location where the proposed transmission line is to cross. A population of the Auricled twayblade has been documented here and some of the plants were still identifiable at the time of the visit. At this site the Auricled twayblade occurs in sandy soil on the riverbank generally within 10-15 feet of the river. Balsam fir and red maple trees also occur along the river bank and the adjacent narrow floodplain terrace. Arthur Gilman indicated that during his botanical survey of the area he had also observed Auricled twayblade plants spread over a long distance downstream of the crossing site. That information, along with the fact that Auricle twayblade has been previously documented by other surveyors at several areas up and down the Dead River suggests that the potential impact from the transmission line will not cause a significant impact to this species existence along the Dead River. We also note that the transmission line may not be incompatible with the species at this site as it will be well above the river, and that the alder and other shrubs will remain along the river bank. Removal of larger balsam firs and red maples from the site should be done when the ground is frozen and no machinery should operate along the river bank within 10 – 15 feet of the river.

Please let me know if there are any questions regarding the summary of this site visit. An invoice for \$675.00 (13.0 hrs.) for the work completed will be forwarded to your office in a separate mailing.

Sincerely,

Donald S. Cameron, Botanist/Ecologist

Maine Natural Areas Program

Department of Conservation #93 State House Station

Augusta, ME 04333-0093

(#207-287-8041/don.s.cameron@state.me.us



PATRICK K. MCGOWAN

COMMISSIONER

May 2, 2006

Dana Valleau E/Pro Engineering and Environmental Consulting 249 Western Ave. Augusta, ME 04330

Re: Rare and exemplary botanical features, Potential Radar Tower, Kibby Mountain, Kibby Twp.

Dear Mr. Valleau:

I have searched the Natural Areas Program's digital, manual and map files in response to your request of April 17, 2006 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in the minor civil division of Kibby Township, 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 Steve Timpano, Environmental Coordinator, Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to our information, a natural community of statewide ecological importance, a Fir-heart-leaved birch subalpine forest (Subalpine Fir Forest), is located on or abuts the site of the potential radar tower and proposed trails (see enclosed map, shapefile of the natural community and natural community fact sheet).

The table below provides information on the unique natural community in terms of state rank and element occurrence rank (see attached explanation of ranks). The element occurrence rank is a system used to rank the overall quality (i.e. condition, landscape context and size) of a natural community or rare plant occurrence.

Scientific	Common	State Rarity	Element Occurrence Rank
Name	Name	Rank	
Fir-heart-	Subalpine Fir	S3	B- Good Viability
leaved birch	Forest		
subalpine			
forest			



As noted in the Maine Natural Areas Programs response letter dated September 6, 2005, we strongly recommend that disturbance of the natural vegetation is minimized as much as possible. We would also be interested in knowing how much vegetation you are planning on clearing, and would offer our services to help determine the boundaries of the Subalpine Fir Forest community so that no exemplary vegetation is inadvertently harmed.

In response to your email dated April 17, 2006 which included a shapefile identifying the potential location of a radar site and relocated trail the Maine Natural Areas Program reviewed the shapefile and reassessed the boundary of the natural community using the most current aerial photography. Based on this assessment of the natural community from the aerial photography, the mapped area of the natural community (see attached map and shapefile) intersects with the proposed location of the radar tower and relocated trail.

If you would like more information on this natural community, or would like to schedule a field visit to this area, please contact MNAP ecologist Don Cameron at 287-8041.

Due to the rarity of this forest type and because high elevation habitats are extremely slow to recover from soil and vegetation disturbances, the Maine Natural Areas Program recommends that every effort be made to minimize impacts to this system:

- <u>Disturbance Minimization:</u> Inadvertent impacts to soil and vegetation should be avoided. This will be best accomplished by setting out strict no disturbance zones adjacent to the construction zones. These no disturbance zones should be clearly marked.
- 2. <u>Off-site Disposal:</u> Construction debris and cleared vegetation should be disposed of off site.
- 3. <u>Restoration Plan:</u> A restoration plan should be developed that addresses how the site will be rehabilitated at the time the facility is decommissioned or if the project is terminated before completion.
- 4. <u>Access Plan:</u> A plan to prevent access to the site by unauthorized motorized vehicles such as ATV's and four-wheel drive trucks should be required. The irresponsible use of off-road vehicles in sensitive habitats such as high elevation terrain can lead to long lasting environmental damage. As part of this plan, gates should be erected on access roads from the outset of the project and any temporary roads needed for construction should be reclaimed as soon as they are no longer needed.
- 5. <u>Erosion Control:</u> Erosion is a chronic problem on steeply sloped mountain roads. Controls need to be in place to prevent erosion from runoff from roads and other unvegetated areas.

6. <u>Access Roads:</u> As the site is part of a large unfragmented area of plant and animal habitat, wherever possible access roads and power lines should follow existing routes to prevent additional fragmentation.

If someone is hired to conduct a field survey of the project area, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

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Thank you for using the Natural Areas Program 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

Raquel D. Ross, Information Manager

93 State House Station Augusta, ME 04333-0093

207-287-8046

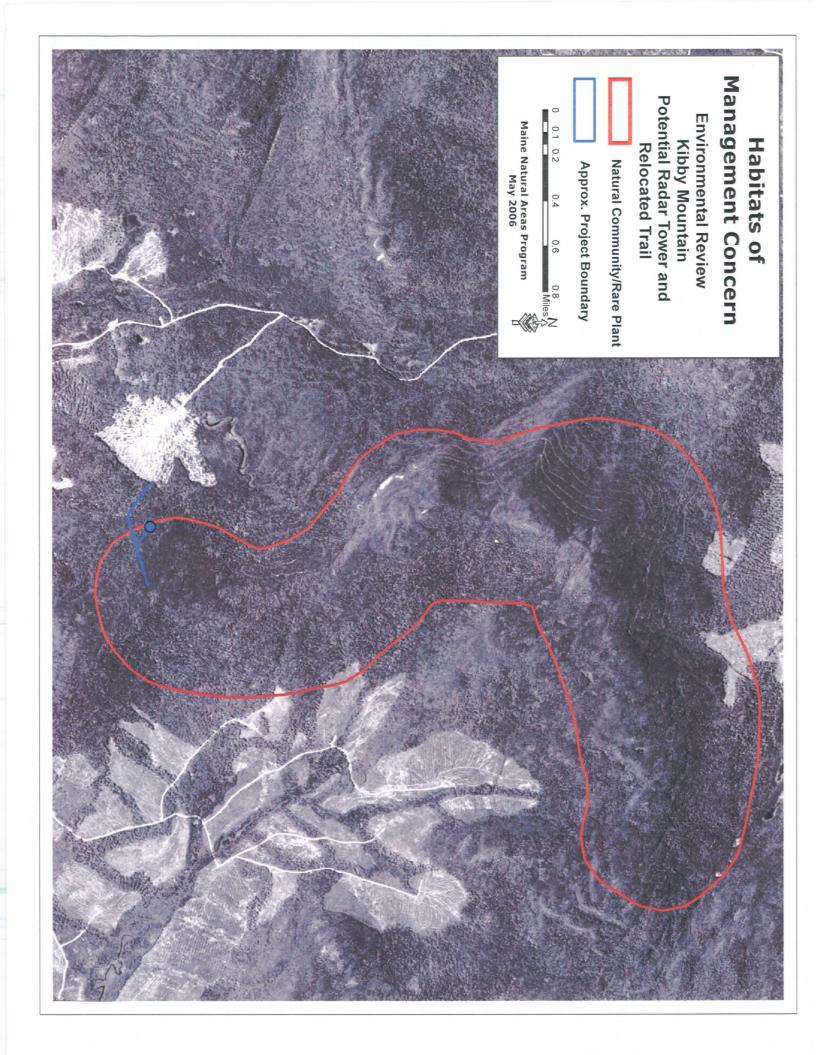
raquel.ross@maine.gov

Enclosures

Rare or Exemplary Botanical Features in the Project Vicinity

Documented within a four mile radius of the potential radar tower, Kibby Mountain, Kibby Township.

Scientific Name Common Name	Dryopteris fragrans Fragrant Cliff Wood-fern	Fir - heart-leaved birch subalpine forest Subalpine Fir Forest	Galium kamtschaticum Boreal Bedstraw	Listera auriculata Auricled Twayblade	Pyrola minor Lesser Wintergreen
Last Seen State Rarit					
Rarity	S3	S3	S2	S2	S2
Global Rarity	G5	GNR	G5	G3	G5
State Legal Status	SC		SC	-	SC
Federal Legal Status					
Habitat Description		Coniferous forest of high elevations, generally above 900m. Occurs both on level ridgetops and on steep, stony, upper slopes. Balsam fir usually dominant, often with patches of Mountain ash and Heart-leaved paper birch. A variant is the deciduous forest			





Fir - Heartleaved Birch Subalpine Forest

FCU5 | STATE RARITY RANK: S3 | SUBALPINE FIR FOREST

Community Description

alsam fir, or mixtures of fir and heart-leaved birch, form a dense canopy of somewhat stunted trees. Patches of heart-leaved birch and mountain ash are common where wind, fire, or landslides have created openings, along with a dense shrub layer of mountain ash, hobblebush, and regenerating fir. Herbs may be sparse, or may form locally dense patches in openings: wood ferns and big-leaved aster in particular tend to be patchy. In some expressions of this type that have developed after fire, the canopy consists almost entirely of paper birch or heart-leaved birch. Fir waves, an unusual landscape pattern of linear bands of fir dieback and regeneration, are another variant of this community.

These forests are commonly found above 2700' on level ridgetops and steep, upper slopes. The mineral soil layer is thin, typically 10–30 cm, and rocky. Natural disturbances such as landslides, wind and fire can exert lasting influences on community dynamics. Recurrent landslides can keep some areas in birch – mountain ash dominance.

Diagnostics

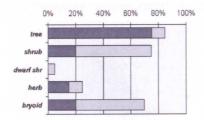
Fir or heart-leaved birch (occasionally paper birch) are dominant in a subalpine setting.

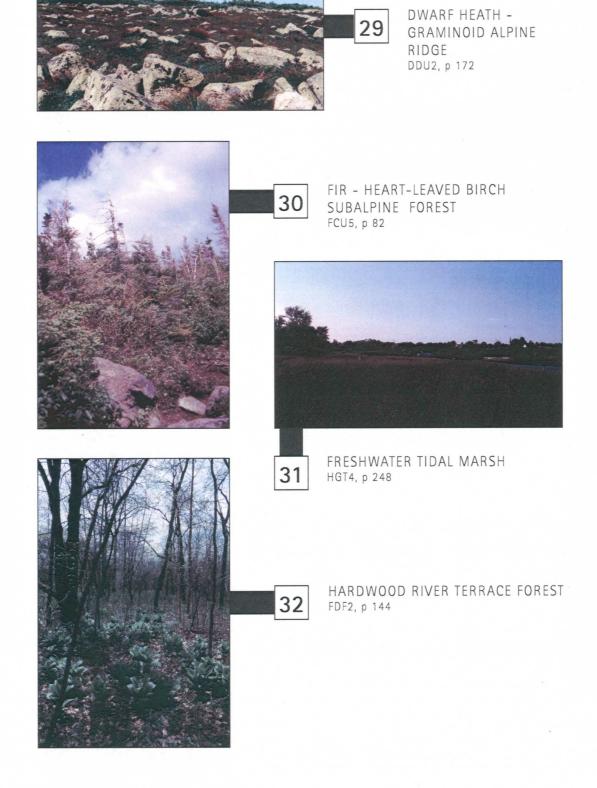
Similar Types

One form of the Maritime Spruce - Fir Forest type is compositionally very similar but occurs at sea level in the extreme environment of the far Downeast coast. Decreasing in elevation, this type can grade into Spruce - Fir - Woodsorrel - Feather-moss Forest or Spruce - Fir - Broom-moss Forest, which are distinguished by their higher proportion of spruce in the canopy and by less stunted trees.

CHARACTERISTIC SPECIE	S
CANOPY: Balsam fir Heart-leaved paper birch Red spruce Paper birch	(F,C) (F) (F) (C)
SAPLING/SHRUB: Balsam fir Mountain ash Wild-raisin Black spruce Heart-leaved paper birch	(F,C) (F,C) (F) (C) (C)
HERB: Spinulose wood fern Bluebead lily Northern wood-sorrel Starflower Mountain woodfern Big-leaved aster Balsam fir	(F,C) (F) (F) (F) (C) (C)
BRYOID: Common broom-moss Three-lobed bazzania	(F) (F)

VEGETATION STRUCTURE (TOTAL COVER BY STRATUM)





STATE RARITY RANKS

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- 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 (on the order of 20-100 occurrences).
- \$4 Apparently secure in Maine.
- S5 Demonstrably secure in Maine.
- SH Occurred historically in Maine, and could be rediscovered; not known to have been extirpated.
- SU Possibly in peril in Maine, but status uncertain; need more information.
- **SX** Apparently extirpated in Maine (historically occurring species for which habitat no longer exists in Maine).
- Note: State Ranks determined by the Maine Natural Areas Program.

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 extirpation from the State of Maine.
- 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 (on the order of 20-100 occurrences).
- G4 Apparently secure globally.
- G5 Demonstrably secure globally.
- Note: Global Ranks are determined by The Nature Conservancy.
 - T indicates subspecies rank, Q indicates questionable rank, HYB indicates hybrid species.

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.
- THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.
- SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE POSSIBLY EXTIRPATED; Not known to currently exist in Maine; not field-verified (or documented) in Maine over the past 20 years.

FEDERAL STATUS

- LE Listed as Endangered at the national level.
- LT Listed as Threatened at the national level.

Please note that species names follow <u>Flora of Maine</u>: <u>A Manual for Identification of Native and Naturalized Vascular Plants of Maine</u>, Arthur Haines and Thomas F. Vining, 1998, V.F. Thomas Co., P.O. Box 281, Bar Harbor, Maine 04069-0281.

Where entries appear as binomials, all representatives (subspecies and varieties) of the species are rare in Maine; where names appear as trinomials, only that particular variety or subspecies is rare in Maine, not the species as a whole.

Visit our web site for more information on rare, threatened and endangered species! http://www.mainenaturalareas.org/