

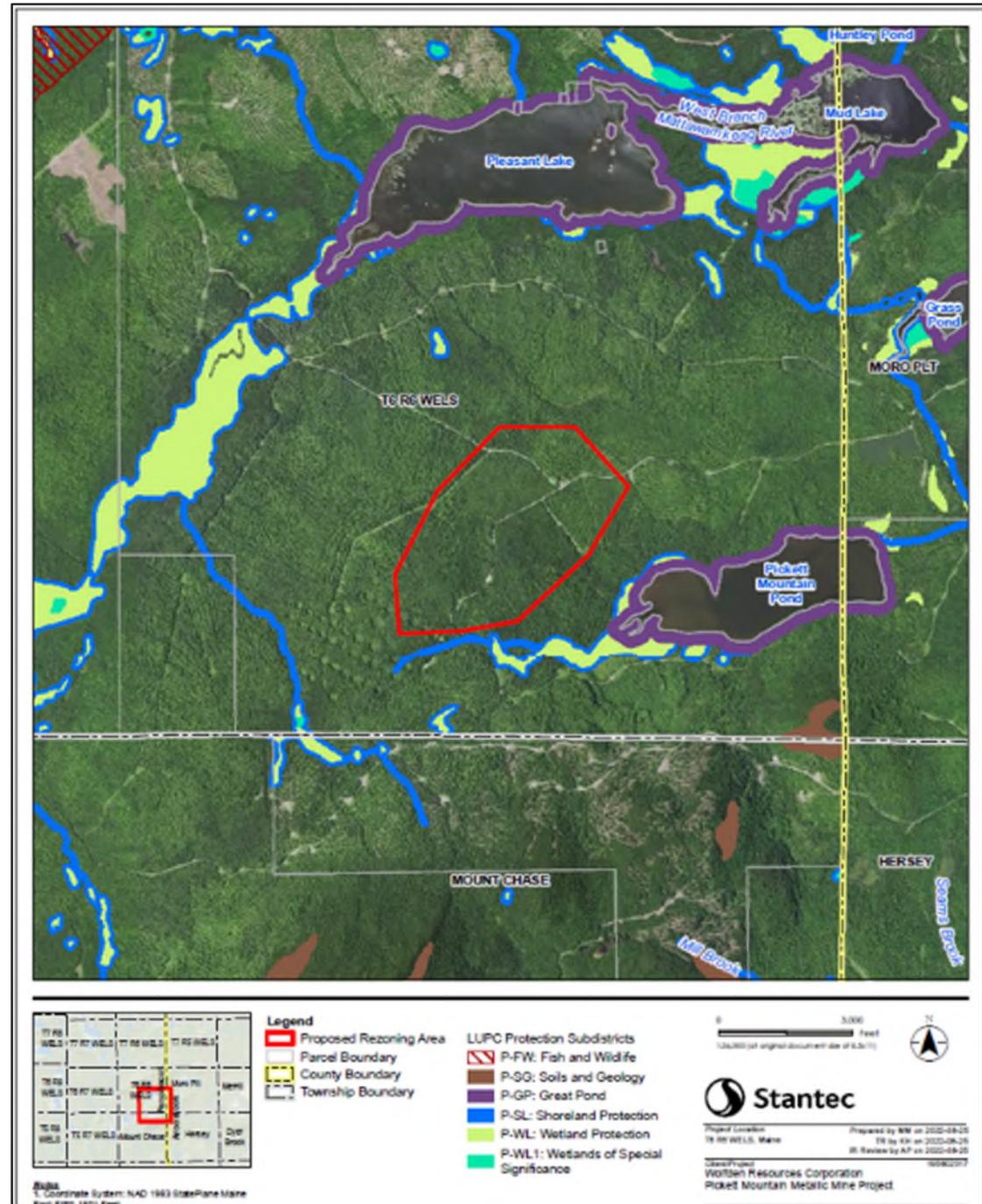


Wolfden Mt. Chase, LLC  
Pickett Mountain Mine

Testimony:  
Doug Stewart

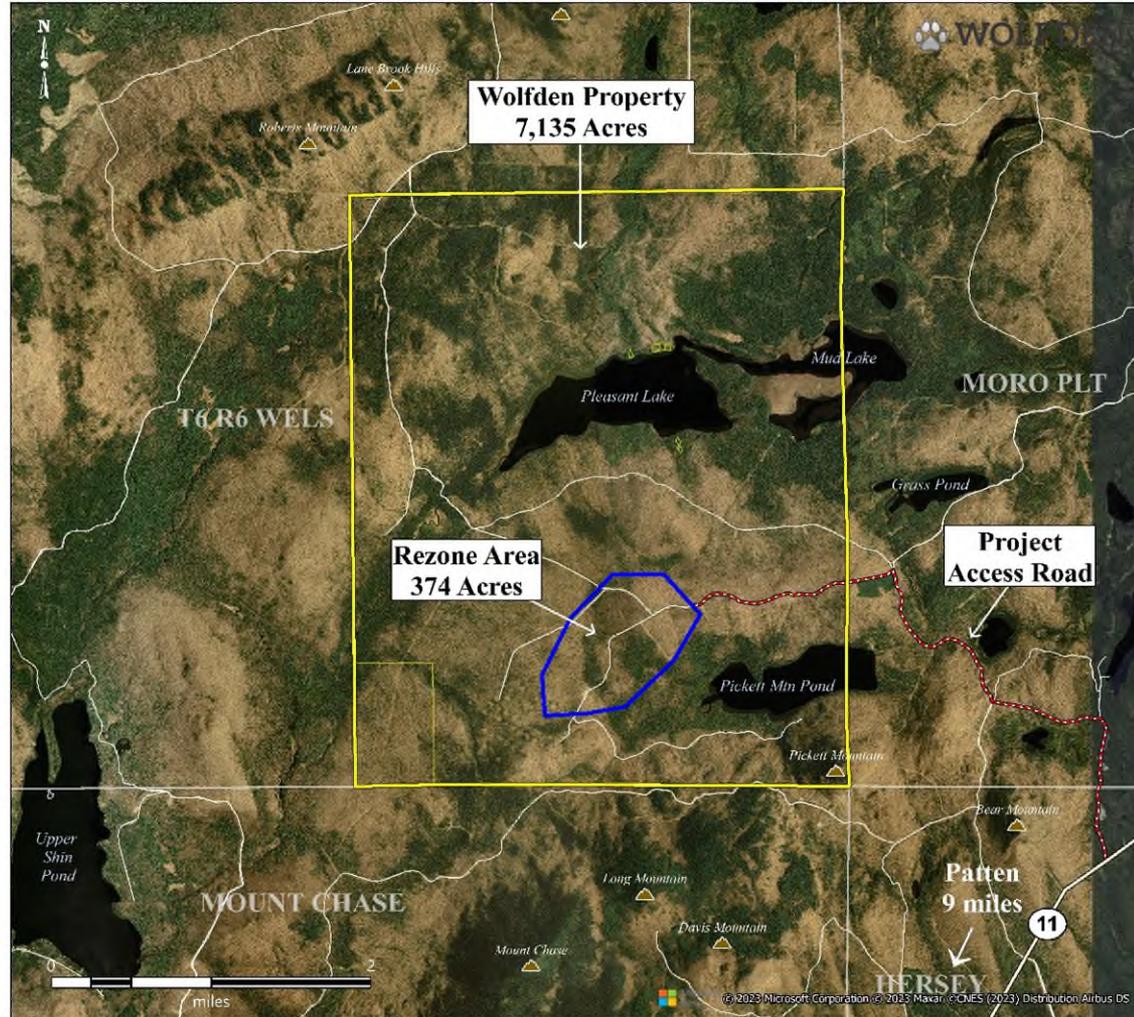
# Overview & Project Area

- Site is currently forested and fragmented by roads
- Approximately 129 acres to be cleared
- No residences within the Rezone Area
- Seasonal camps ~1 mile north along Pleasant Lake
- No commercial businesses within 3 miles (forest management practices only)

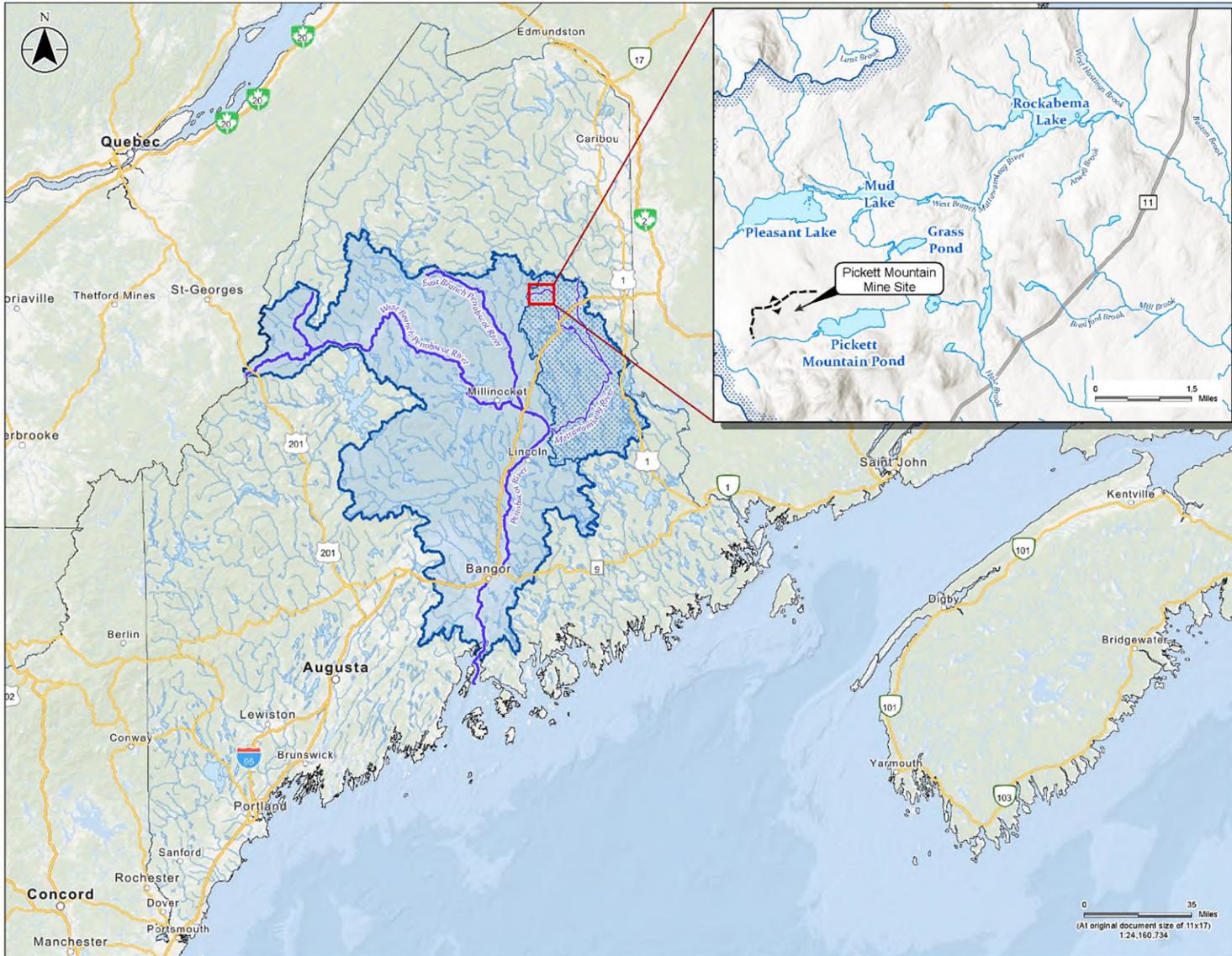


# Natural Character

- Project Area and surrounding region are commercial forests
- Minimal recreational opportunities within the Rezone Area
- Recreational opportunities occur primarily outside the Rezone Area and include things like: hiking, hunting, fishing, ATVs, and snowmobiling
- Recreational opportunities will continue outside the Rezone Area



# Watersheds



**Legend**

- Penobscot River
- Mattawamkeag River
- River/Stream
- Penobscot River Watershed
- Mattawamkeag River Watershed
- Lake/Pond
- Site Drainage Boundary

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
  2. Data Sources: HERS, LUPC, USGS, ESRI
  3. Background: ESRI World Ocean Base Map



**Project Location**  
 T6 RE WELS, Maine  
 Prepared by DC on 2023-08-15  
 Reviewed by DS on 2023-08-15

**Client/Project**  
 Wolfden Resources Corporation  
 Pickett Mountain Metallic Mine Project  
 195602017

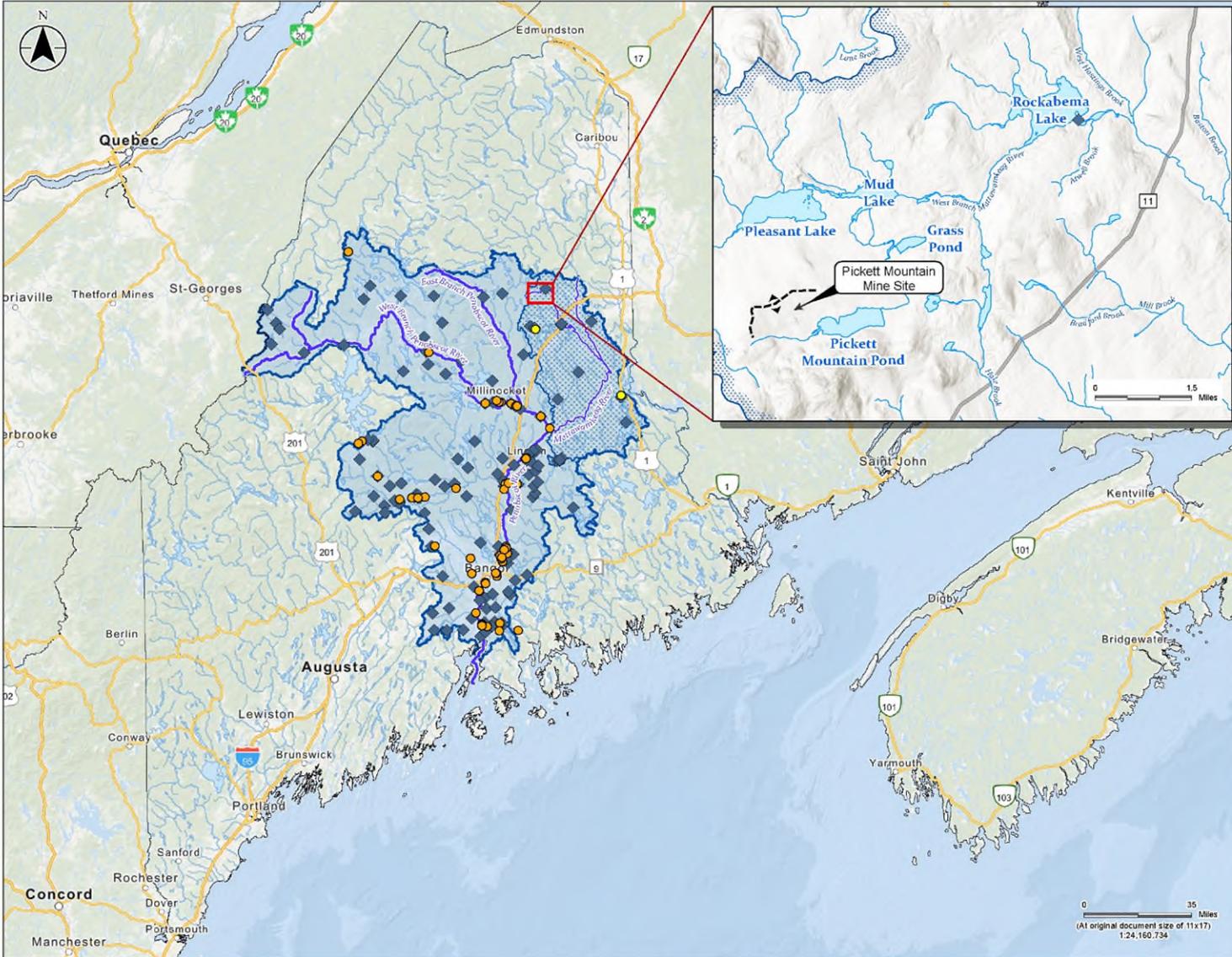
**Figure No.**  
**Exhibit 2**

**Title**  
**Penobscot River Watershed**

0 35 Miles  
 (At original document size of 11x17)  
 1.24.160.734

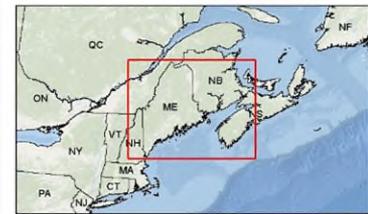
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# Watersheds



- Legend**
- ◆ Penobscot River Watershed Dam
  - Mattawamkeag River Permitted NEPDES Discharge Location (2)
  - Penobscot River Permitted NEPDES Discharge Location (54)
  - Penobscot River
  - Mattawamkeag River
  - River/Stream
  - ▭ Penobscot River Watershed
  - ▭ Mattawamkeag River Watershed
  - ▭ Lake/Pond
  - ⬇ Site Drainage Boundary

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
  2. Data Sources: HERS, LUPC, USGS, ESRI
  3. Background: ESRI World Ocean Base Map
  4. There are a total of 54 NEPDES discharge locations and 2 along the Mattawamkeag River



**Project Location**  
 TO RE: WELS, Maine  
 Prepared by DC on 2023-10-05  
 Reviewed by DS on 2023-10-05

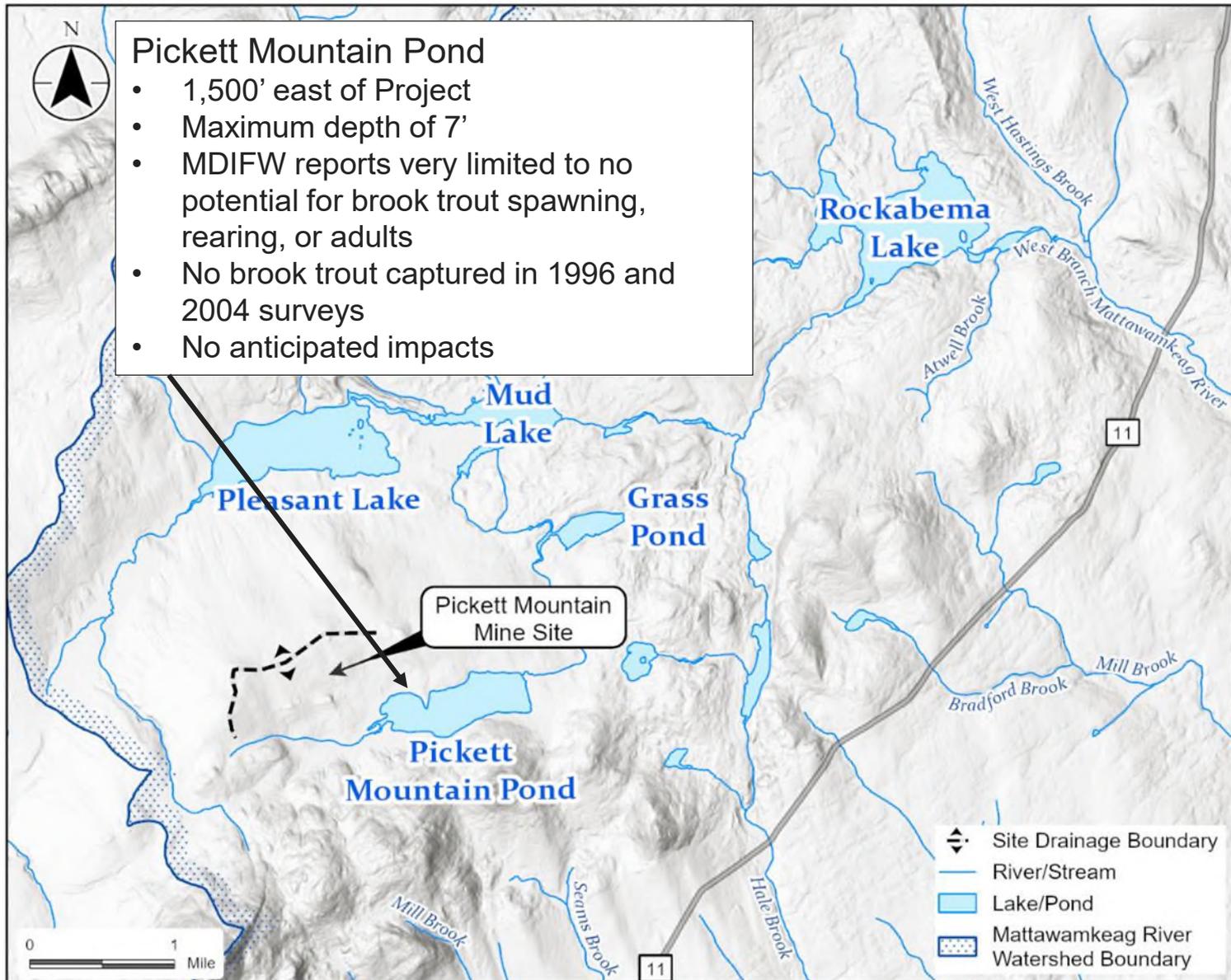
**Client/Project**  
 Wolfden Resources Corporation  
 Pickett Mountain Metallic Mine Project  
 195602017

**Figure No.**

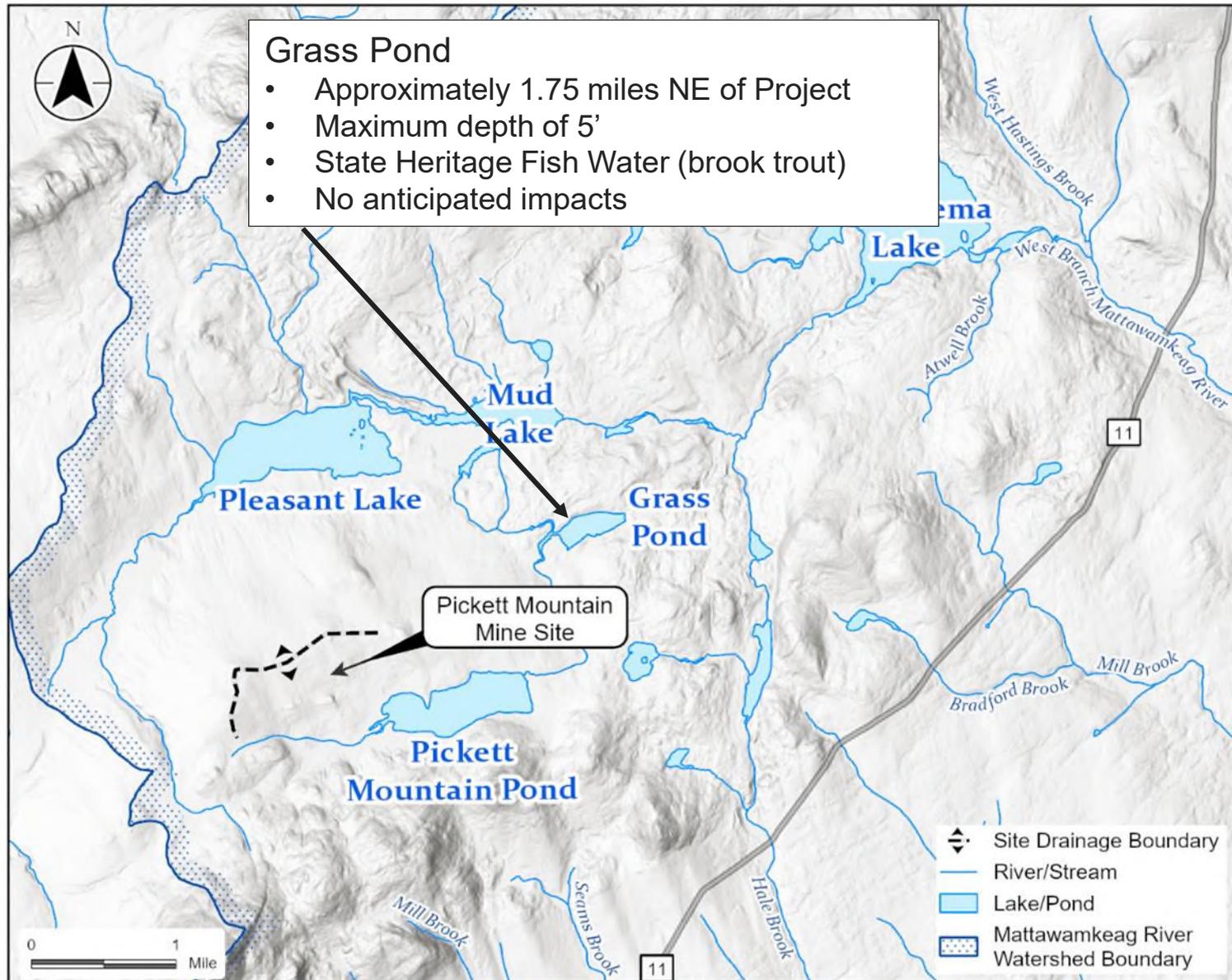
**Title**  
**Penobscot River Dams**

0 35 Miles  
 (At original document size of 11x17)  
 1.24.160.734

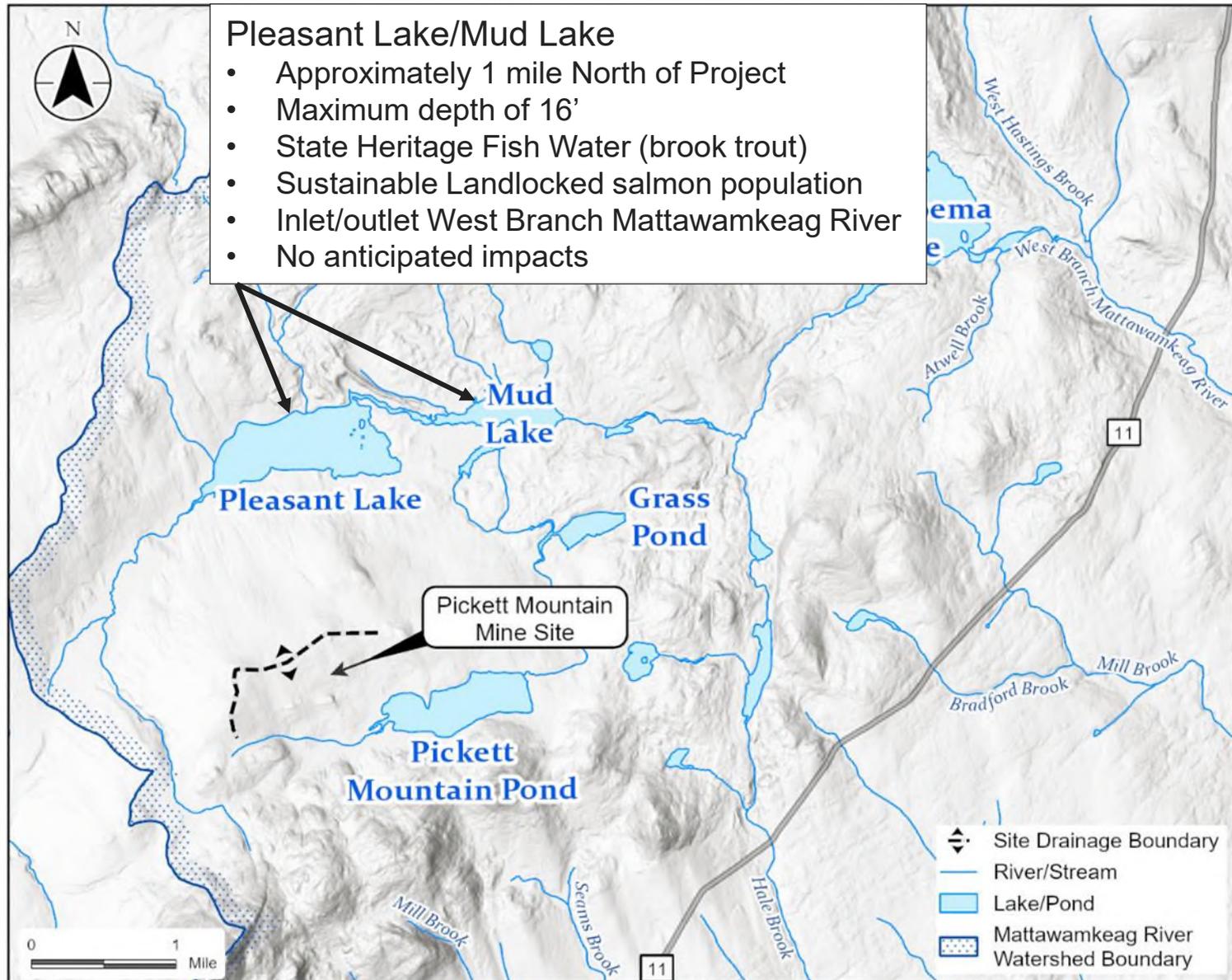
# Aquatic Resources



# Aquatic Resources

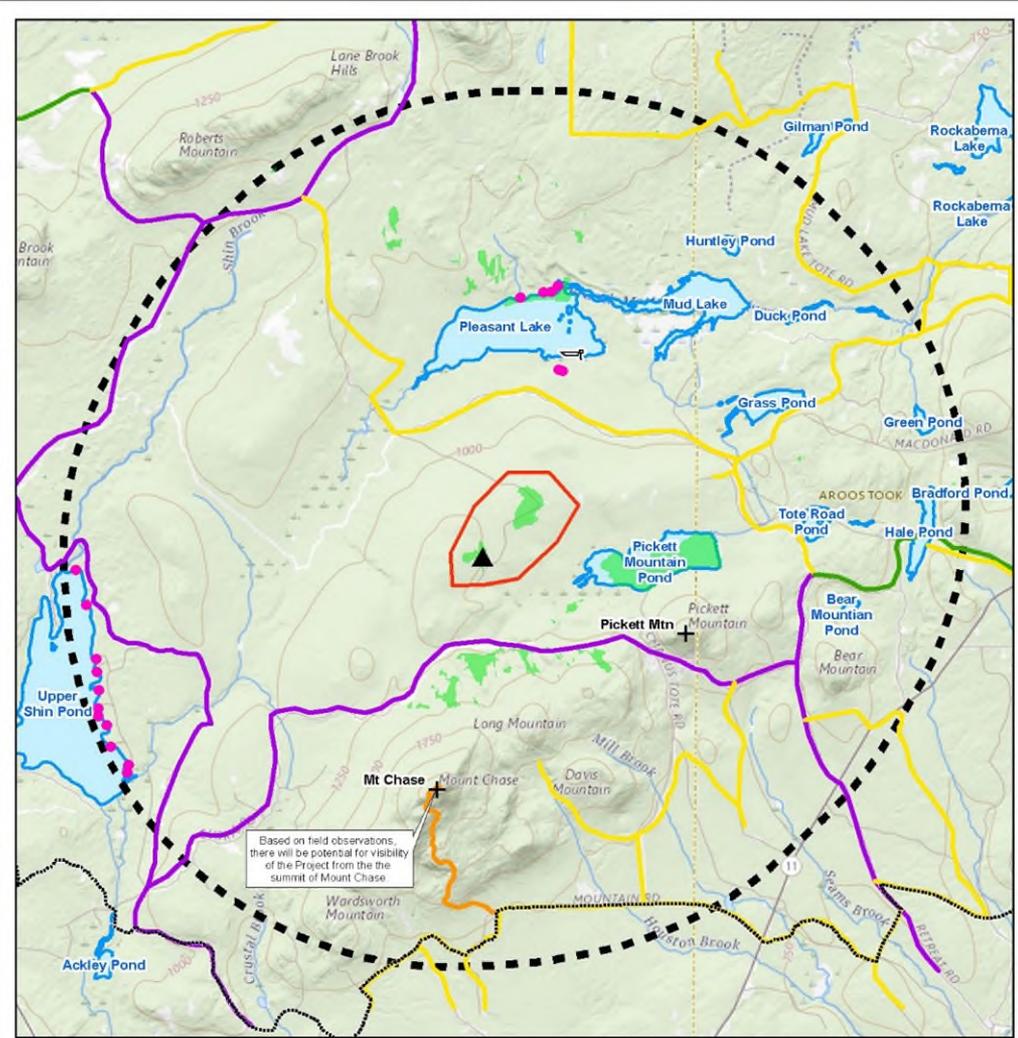


# Aquatic Resources



# Viewshed Analysis

- 3-mile Viewshed Analysis
- Digital Elevation GIS Analysis using headframe height (120' above ground)
- 40' tree canopy
- Visibility from:
  - Snowmobile/ATV Trail south of Project Area
  - Pickett Mountain Pond
  - North shore of Pleasant Lake
  - Summit of Mt Chase



**Notes**  
 1. Coordinate System: NAD 1983 StatePlane Maine East FIPS 1901 Feet  
 2. Data Sources: MEGIS, Wolden Resources Corporation  
 3. Background: Topographic base map provided by USGS National Map web mapping service. Befast Quadrangle.

- Legend**
- ▲ Proposed Headframe Location
  - Proposed Project Location
  - ⬜ 3 Mile Headframe Buffer
  - ⬜ Potential Visible Area of the Head Frame
  - ⚓ Boat Launch
  - ⊕ Mountain Peak
  - Approximate Camp Location
  - ⋯ International Application Trail
  - Hiking Trail
  - ATV Trail
  - Snowmobile Trail
  - ATV/Snowmobile Trail
  - Lakes
  - ⬜ Township Boundary



**Stantec**

Project Location: Prepared by MM on 2022-10-13  
 16 RE WELS, Maine TR by GC on 2022-10-13  
 IR Review by AP on 2022-10-13

Client/Project: Wolden Resources Corporation  
 Pickett Mountain Metallic Mine Project

Figure No.: 16-2

Title: 3-Mile Viewshed Analysis  
 Considering Forest Cover and  
 40-foot Canopy Heights

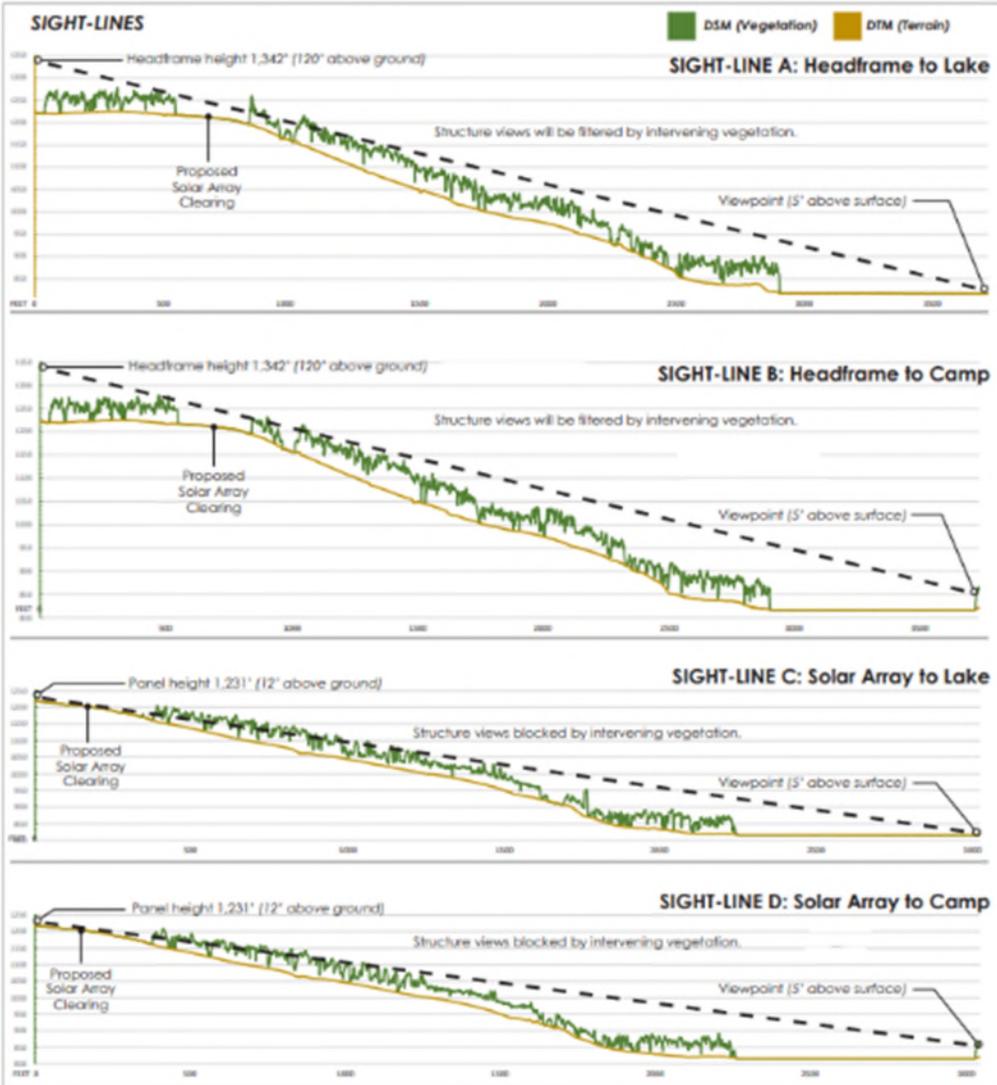
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# Visual Line of Sight Analyses

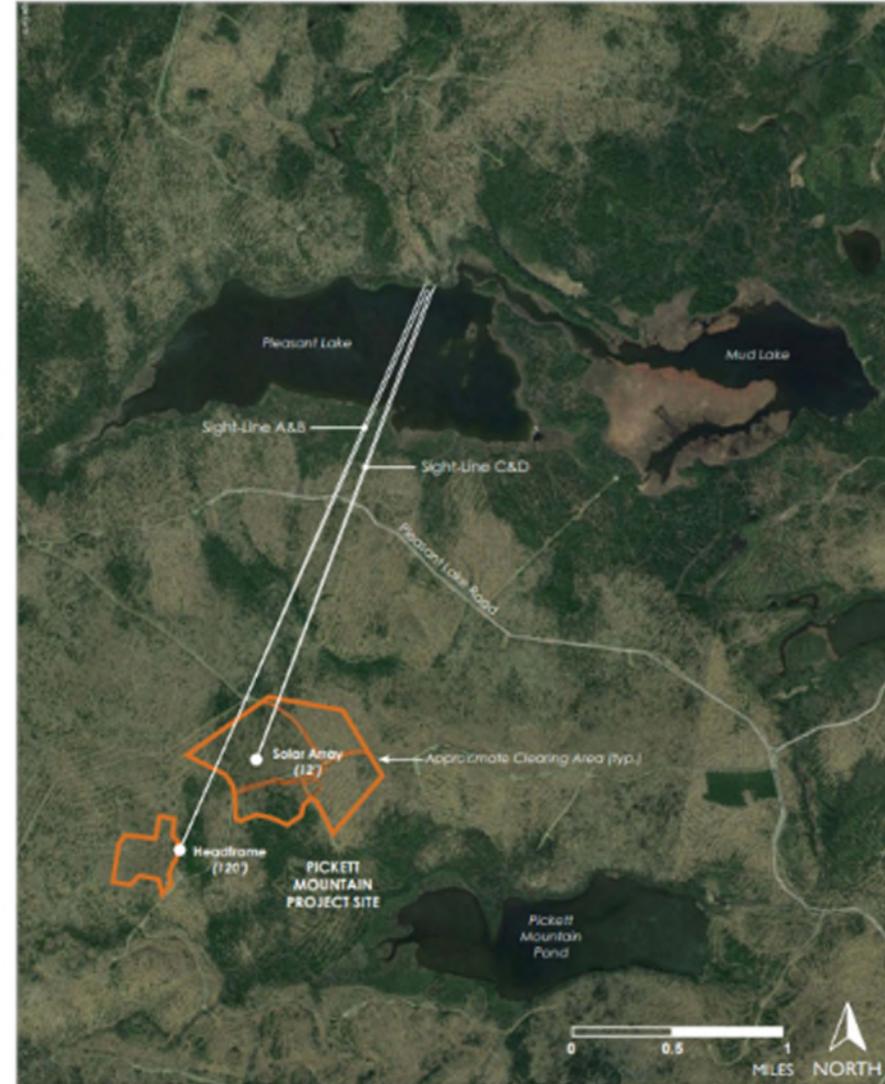


## PLEASANT LAKE SIGHT-LINE ANALYSIS

PICKETT MOUNTAIN PROJECT, T6 R6 WELS, Maine  
October 13, 2022



### CONTEXT MAP

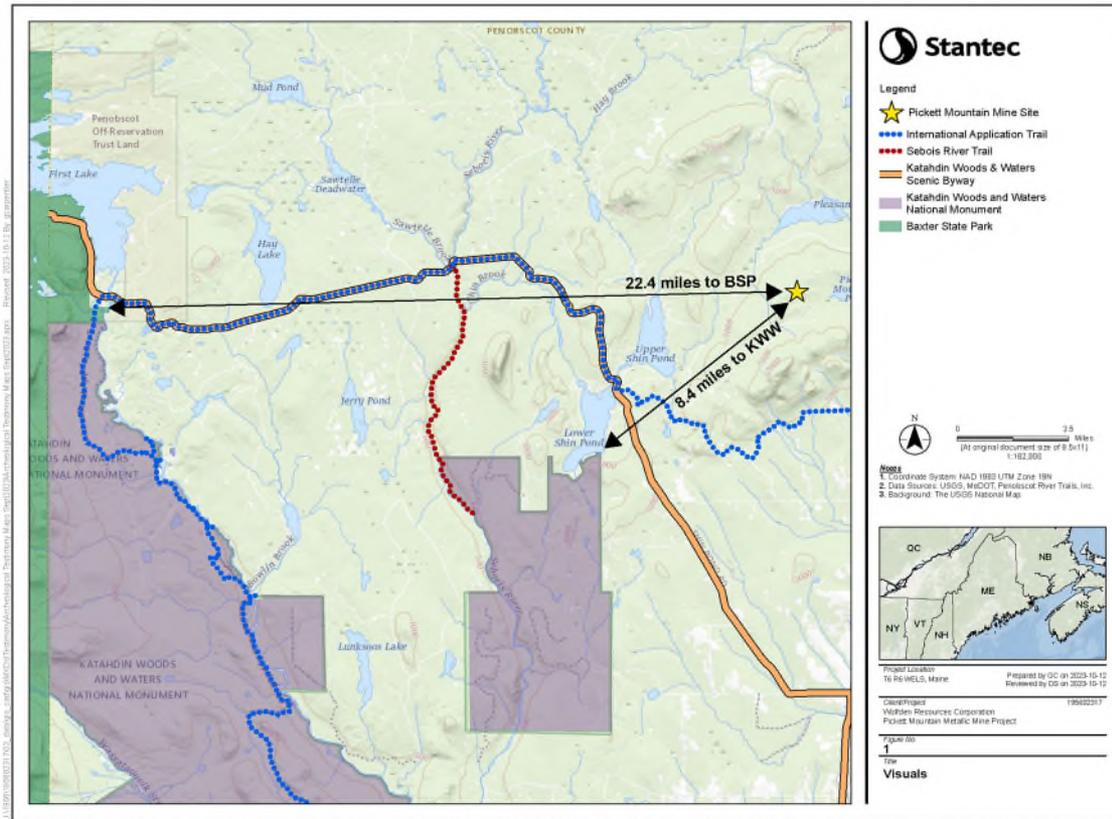


*Follow-up visual analysis shows limited visibility of headframe structure from Pleasant Lake.*

# Visual

Due to distance and intervening topography, no visibility from recreational areas beyond the area of analysis including:

- Baxter State Park
- Katahdin Woods and Water National Monument
- Katahdin Woods and Waters Scenic Byway
- Sebois River Trail
- International Appalachian Trail



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# Dark Sky Responsible Outdoor Lighting Practices

## Five Lighting Principles for Responsible Outdoor Lighting

DarkSky

Responsible outdoor lighting is

- 1 Useful**

**Use light only if it is needed**  
All light should have a clear purpose. Consider how the use of light will impact the area, including wildlife and their habitats.


- 2 Targeted**

**Direct light so it falls only where it is needed**  
Use shielding and careful aiming to target the direction of the light beam so that it points downward and does not spill beyond where it is needed.


- 3 Low Level**

**Light should be no brighter than necessary**  
Use the lowest light level required. Be mindful of surface conditions, as some surfaces may reflect more light into the night sky than intended.


- 4 Controlled**

**Use light only when it is needed**  
Use controls such as timers or motion detectors to ensure that light is available when it is needed, dimmed when possible, and turned off when not needed.


- 5 Warm-colored**

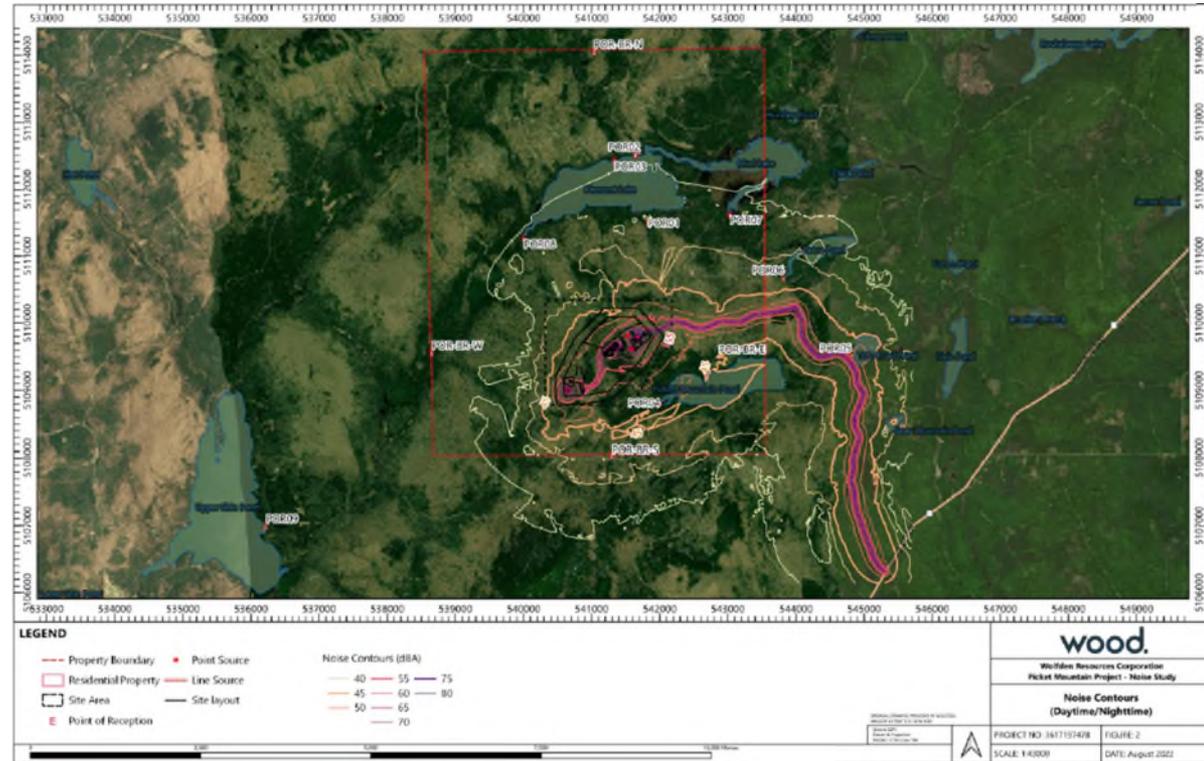
**Use warmer color lights where possible**  
Limit the amount of shorter wavelength (blue-violet) light to the least amount needed.



Rev. 09-2023

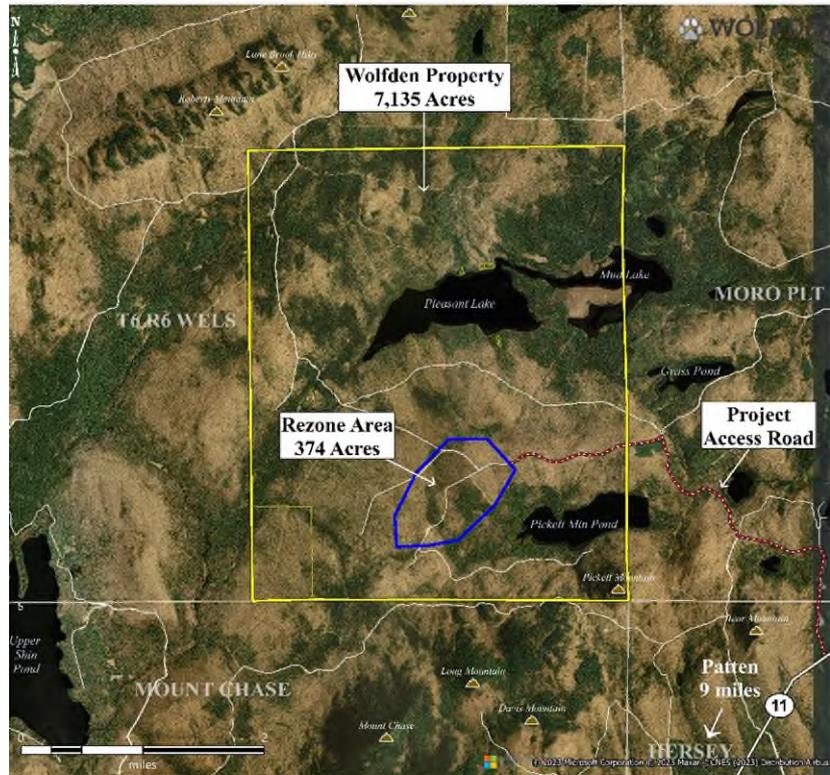
# Noise Assessment

- Considered expected mining equipment
  - Generators
  - Front-end Loaders
  - Backfill Plant
  - Haul Truck  
(Underground and Surface)
- Results indicate sound levels below MDEP and LUPC standards



# Other Resource Information, Surveys, Assessments

- Soil Suitability Evaluation
- MNAP and Botanical Assessment
- MDIFW Significant Wildlife Habitat
- USFWS Atlantic Salmon Critical Habitat



# Conclusions

- 400 feet undisturbed vegetated buffer around the developed area
- Operations largely below ground to minimize surface disturbance
- Limited visibility and sound impacts
- No significant wildlife habitat is impacted
- No wetlands/streams will be adversely impacted
- Aquatic habitat and hydrology will be maintained
- Infrastructure removal, site restoration and continued aquatic and groundwater monitoring after closure



# 12 M.R.S. § 681

The Legislature finds that it is desirable to extend principles of sound planning, zoning and development to the unorganized and deorganized townships of the State: To preserve public health, safety and general welfare; to support and encourage Maine's natural resource-based economy and strong environmental protections; to encourage appropriate residential, recreational, commercial and industrial land uses; to honor the rights and participation of residents and property owners in the unorganized and deorganized areas while recognizing the unique value of these lands and waters to the State; to prevent residential, recreational, commercial and industrial uses detrimental to the long-term health, use and value of these areas and to Maine's natural resource-based economy; to discourage the intermixing of incompatible industrial, commercial, residential and recreational activities; to prevent the development in these areas of substandard structures or structures located unduly proximate to waters or roads; to prevent the despoliation, pollution and detrimental uses of the water in these areas; and to conserve ecological and natural values.

The Legislature declares it to be in the public interest, for the public benefit, for the good order of the people of this State and for the benefit of the property owners and residents of the unorganized and deorganized townships of the State, to encourage the well-planned and well-managed multiple use, including conservation, of land and resources and to encourage and facilitate regional economic viability. The Legislature acknowledges the importance of these areas in the continued vitality of the State and to local economies. Finally, the Legislature desires to encourage the appropriate use of these lands by the residents of Maine and visitors in pursuit of outdoor recreation activities, including, but not limited to, hunting, fishing, boating, hiking and camping.

## § 681. Purpose and scope

The Legislature finds that it is desirable to extend principles of sound planning, zoning and ~~subdivision control~~ **development** to the unorganized and deorganized townships of the State: To preserve public health, safety and general welfare; to ~~prevent inappropriate~~ **support and encourage Maine's natural resource-based economy and strong environmental protections; to encourage appropriate** residential, recreational, commercial and industrial **land** uses **; to honor the rights and participation of residents and property owners in the unorganized and deorganized areas while recognizing the unique value of these lands and waters to the State; to prevent residential, recreational, commercial and industrial uses** detrimental to the ~~proper use of~~ **long-term health, use and** value of these areas **and to Maine's natural resource-based economy**; to ~~prevent~~ **discourage** the intermixing of incompatible industrial, commercial, residential and recreational activities; ~~to provide for appropriate residential, recreational, commercial and industrial uses~~; to prevent the development in these areas of substandard structures or structures located unduly proximate to waters or roads; to prevent the despoliation, pollution and ~~inappropriate use~~ **detrimental uses** of the water in these areas; and to ~~preserve~~ **conserve** ecological and natural values.

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### Credits

1969, c. 494; 1971, c. 457, § 1; 1973, c. 569, § 1; 1975, c. 508, § 1; ~~2009, c. 401, § 1.~~ **2009, c. 401, § 1; 2011, c. 682, § 3.**

**MAINE LAND USE PLANNING COMMISSION**

Department of Agriculture, Conservation, and Forestry



**BASIS STATEMENT and SUMMARY OF COMMENTS**

**For PROPOSED AMENDMENTS to**

**CHAPTER 12: LAND USE DISTRICT REQUIREMENTS FOR METALLIC  
MINERAL MINING AND LEVEL C MINERAL EXPLORATION  
ACTIVITIES**

April 8, 2013

**STATUTORY AUTHORITY:** 12 M.R.S.A §685-A,3 and §685-C,5,A; and P.L. 2011, Chapter 653, LD 1853

**FACTUAL AND POLICY BASIS FOR THE RULE AMENDMENT:**

Chapter 12 of the Commission's rules, adopted in accordance with 12 M.R.S.A. §206-A, contains the rules for rezoning to and portions of the rules for permitting (the remainder of the permitting rules are contained in Commission's Chapter 13 rules) of the development in a D-PD Planned Development Subdistrict for the purposes of metallic mineral mining and level C mineral exploration activities.

In response to P.L. 2011, ch.653 (enacting LD 1853), the Commission must update its rules regulating metallic mineral mining and level C mineral exploration activities. The Commission will no longer be responsible for issuing permits for metallic mineral mining and level C mineral exploration activities. This function has been transferred to the Department of Environmental Protection. The Commission will only be responsible for rezoning for these activities.

Consequently the Commission must modify Chapter 12 of its rules (Land Use District Requirements for Metallic Mineral Mining and Level C Mineral Exploration Activities) to reflect the fact that the Commission is only reviewing

the rezoning portion of the application (rezoning to a D-PD subdistrict) and not the permitting portion of the application. The DEP will be responsible for issuing permits. It should be noted that following any issuance of a permit by the DEP, the LUPC will be responsible for certification review of that permit.

**EFFECTIVE DATE OF THE RULE AMENDMENT:**

**COMMENTS AND RESPONSES:**

Comments and responses are contained in the following table:

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p><b>Opposed to Legislation:</b></p> <ul style="list-style-type: none"> <li>• Strongly oppose rushing major changes through the legislative process like what LD 1853 proposes, weakening Maine’s mining standards just so one company might get a permit more easily.</li> <li>• Concerned about the proposed watering down of the regulations. Politicians are more concerned with the interests of ‘big money’ corporations than they are regarding the interests of people they are supposed to represent.</li> <li>• It is the responsibility of government to protect our water resources. I become concerned when the very entity instituting and strengthening such protections suggests that they should be weakened. If our legislature and state agencies fail to be vigilant in the safeguarding of our water resources, then it will only be a matter of time before we have fish kills in what were previously pristine rivers.</li> <li>• Have never seen such a reckless slice and dice of statutes and key state agencies as was delivered to us by the 125<sup>th</sup> Legislature. It was a very hurried incomplete and ultimately disastrous response to a long boiling reality of ownership patters in the UT.</li> <li>• LD1853 and LD 1798 impede what the two statutes purport to strengthen and protect.</li> <li>• No diligent effort by LUPC or DEP can produce sensible good government resulting from these mandated rules.</li> <li>• Revoke the mining statute and suspend all work pursuant to it – establish a statewide moratorium on all metallic mining until we can do some more homework with reference to relevant science.</li> </ul>	<p>Linda Woods, Steve Spear, Lindsay Bowker, Anna Nellis Smith, Jim Barresi, Bob Klotz</p>	<p>Comments on the legislative process are not relevant to this rule making process. The LUPC must respond to legislation resulting from LD 1853 and revise its rules for the rezoning process for metallic mineral mining.</p>	<p>No change.</p>
<p><b>Do not think revision of Chapter 13 [12?]is the wisest approach:</b></p> <ul style="list-style-type: none"> <li>• While understandable, I don’t feel that the cut and paste of existing Chapter 13 rules is the wisest response. I think it is possible to do much more and that it is imperative for LUPC to use what is left of its authority to hold the line in transparency and clarity until we all get back to the table</li> </ul>	<p>Lindsay Bowker</p>	<p>The LUPC must operate within its current rezoning framework when revising its rules for the rezoning process</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p>to clarify and patch up the many flaws in the statutory framework under which we are otherwise forced to proceed.</p> <ul style="list-style-type: none"> <li>• The rule must address the nature of what we call rezoning for an activity like metallic mining. Metallic mining as an activity does not lend itself to usual static mapping of allowed uses. It would be better as a special district zoning. The ‘rezoning’ would be a list of specific allowed technologies and the protocols which must ensure, through proof, that there is no off-site degradation of water, air, habitat, or wildlife.</li> <li>• Rezoning from a management subdistrict to a development subdistrict is a reckless, irresponsible standard for anything to do with metallic mining unless the proposed standard of .05% sulfur-sulfide (for ore content) is also adopted as part of the new title 12 rule.</li> <li>• ‘Conditional permit’ rather than ‘rezoning’ makes it much clearer that the day by day performance of the applicant is the central concern.</li> </ul>		<p>for metallic mineral mining.</p>	
<p><b>Do not support mining and general concerns about mining:</b></p> <ul style="list-style-type: none"> <li>• Strip mining is a bad idea in both the short and long term</li> <li>• Maine’s mountains, forests, pristine rivers, lakes, streams and wildlife are an important part of Maine’s “brand”. Open-pit mining could spoil all of that for the short term profits gained by temporary jobs.</li> <li>• Do not think that the minerals can possibly be worth the cost to the state’s environment, which is a principal source of revenue for Maine</li> <li>• Open-pit mining in Maine could result in arsenic, lead and other toxic chemicals contaminating lakes, rivers, streams and soils as it has done in other states.</li> <li>• Providing for a particular business opportunity such as mining is an important consideration. But any mining project is a very short proposition in comparison to the ongoing need for resources from which many of us glean our food, our livings, and our sense of place.</li> <li>• Please prevent the devastation of mining in Aroostook and elsewhere would reap upon the great state of Maine.</li> <li>• While there may be some places in Maine where carefully regulated mining could be profitable and possible without undue environmental impact, I urge caution so as not to kill the goose which lays the golden egg. Tourism has and will continue to grow in Maine and is the economic future of inland Maine. The future is not in the one-time extraction of minerals at the expense of our natural environment.</li> <li>• Open pit mines can have very significant environmental and scenic impacts, greatly altering the landscape and viewsheds. The negative environmental impacts of mining practices are not minimal, and given the passage of LD</li> </ul>	<p>Sharon Sprague,  Linda Woods,  Ann Waldron,  Phyllis Gibson,  Tammy Cloutier,  Susan Cottle,  Josh Jackson,  Burt Knapp,  Steve Spear,  AMC,  Tony Sousa,  Carole Jean,  Al Justice,  Anna Nellis Smith,  Sandra Wright,  Joanne Dunlap,  Norton Lamb,  Robert Kimber,  Jason Johnston,  Tyler Arndt,  Jeanie McGowan,  Scott Belair,  Roger LeClair</p>	<p>While the LUPC appreciates the concerns about mining, it is not the LUPCs responsibility to advocate for or against mining in its rules. It is the LUPC’s responsibility to revise its Chapter 12 rules to clarify the rezoning process for mining. In revising its rules the LUPC should be mindful of the concerns that are raised here. Many of these concerns are repeated in more detailed comments below and will be responded to there.</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p>1853, we want to assure that the best zoning practices are implemented.</p> <ul style="list-style-type: none"> <li>This will not create any substantial jobs. The profits will go to Canada. In Canada they do not care about the environment. Mining will create severe environmental damage to our lakes, streams and wildlife. Maine will be stuck with all of the environmental damage and cleanup costs.</li> <li>If this is a transfer of regulatory control it means one thing. If however, it is expanding mining concepts to open pit mining it means quite another.</li> <li>Rules should require a complete description of all aspects of the project. Rules should require disclosure of all persons or organizations making significant investments in the project whether or not they are owners.</li> <li>Urge the Commission to come up with the most rigorous possible regulations to ensure protection of surface and groundwater, soils, and our scenic and recreational resources.</li> </ul>			
<p><b>Whether members of the public support mining or not is irrelevant</b></p> <ul style="list-style-type: none"> <li>Whether individual members of the public think mining should be allowed in Maine is not relevant to the LUPC’s rule making task. And it is not one of the standards set by the legislature.</li> </ul>	Aroostook Timberlands	LUPC agrees.	No change.
<p><b>Concerned about Bald Mountain:</b></p> <ul style="list-style-type: none"> <li>Impacts on the Bald Mountain area could be enormous. Mining activities there would likely drain into the Fish River and the Fish River Chain of Lakes. Fish River Chain of Lakes is the last remaining cold water fishery in the state that is free of any invasive or exotic species of fish. Protecting this area is important ecologically and economically.</li> <li>Aroostook Timber Holdings should be denied a rezoning for an open pit mine at Bald Mountain to prevent ruining two river systems, Fish River and Aroostook River, with acid.</li> </ul>	Theo Nykreim, Anna Nellis Smith, Jim Barresi, Roger LeClaire	The current rule making process does not pertain to a specific site or applicant. The rule making process is intended to clarify the rules for evaluating rezoning petitions anywhere in the jurisdiction.	No change.
<p><b>Concerned about Monitoring of the Site over time:</b></p> <ul style="list-style-type: none"> <li>Control of acid mine drainage is expensive. Mining companies are rarely willing to invest in the technology, operation and maintenance of dealing with acid mine drainage once the mining has ceased. The taxpayers are left to foot the bill.</li> <li>A trust fund needs to be created by law into which the mining company makes payments of \$10 million every year that ore is extracted.</li> <li>Without a trust fund, there is no compelling reason for the mining company to stick around for mitigation. Iron Mountain, MI, Bathurst NB, Callahan Mine ME are examples of acid pollution with unsuccessful mitigation.</li> </ul>	Don Holmes, Theo Nykreim, CLF, Lindsay Bowker, Joanne Dunlap	Monitoring and closure of the site will be part of the DEP permitting process. However, the LUPC believes that an understanding of site conditions following closure and potential future reclamation of the site is relevant	No change.

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<ul style="list-style-type: none"> <li>LUPC should not give up oversight of certain requirements prior to DEP assuming same. Given the poor track record of metallic mines to operate or be closed without causing significant environmental harm, there should be no gaps in regulatory oversight and significant communication and discussion between LUPC and DEP during this rule-making process.</li> <li>The DPD must include information on ‘closure’ – technology and protocols. Virtually all of the most severe degradation from metallic mining occurs post closure.</li> </ul>		contextual information in the rezoning process and consequently has asked for information on this during the rezoning process.	
<p><b>Which sections of D-PD will be replaced by proposed mining rule revisions?</b></p> <ul style="list-style-type: none"> <li>Clarify which sections of the Planned Development Subdistrict (D-PD) description the proposed mining rule revisions are meant to replace. Based on conversations with LUPC staff, we are under the impression that the revised mining rules will replace Chapter 10.21, G, Sections 6-8 of the LUPC rules.</li> <li>The Commission should make it clear in the rules that, given the changes made by the new Mining Act, Chapter 10.21,G(9) (previously 10) does not apply to a D-PD for mining.</li> </ul>	NRCM	The sections of the Planned Development Subdistrict (D-PD) that do not pertain to mining are clearly listed in the D-PD subdistrict in Chapter 10. Chapter 10.21,G states that sections 6-8 of that chapter do not apply to mining activities. Chapter 10.21,G should also state, but does not currently, that section 9 of this chapter does not apply to a D-PD for mining either. This oversight needs to be corrected. Chapter 10.21,G will be revised as soon as possible to correct this error.	No change at this time. But will revise chapter 10 as soon as possible.
<p><i>Sections 1 through 4</i>  <b>Rule should use definitions contained in the recently enacted Maine Metallic Mineral Mining Act:</b></p> <ul style="list-style-type: none"> <li>It makes no sense to use definitions that are based on the prior statutory structure, when the new Act uses different definitions. Using old terms leads to confusion. <ul style="list-style-type: none"> <li>The proposal references Level C Mineral exploration activities. The Mining Act uses the terms ‘exploration’ and ‘advanced exploration’</li> <li>‘Advanced exploration’ is included in the definition of ‘mining’ in the Mining Act and requires rezoning from the Commission and a Mining Act permit from DEP</li> </ul> </li> </ul>	Aroostook Timberlands	The LUPC uses specific terms for describing various levels of mining exploration in Chapter 10 in order to parse out what level of activity is allowed in each subdistrict. The LUPC believes that it makes the most sense to continue	No change.

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<ul style="list-style-type: none"> <li>○ ‘Exploration’ may occur without a Mining Act permit, and presumably without rezoning, but is subject to DEP regulatory standards.</li> </ul>		<p>using these existing terms for the time being. The LUPC intends to change the terms that are used in Chapter 10 in order to align with the new definitions during a separate rule making effort aimed at revising the exploration rules. Changing the terms used in Chapter 12 needs to be part of this larger effort. For now, the use of these terms has little to do with clarifying the rezoning process.</p>	
<p><i>Section 1. Purpose</i>  <b>Rule should have a purpose statement:</b></p> <ul style="list-style-type: none"> <li>• Rule should have a clear purpose statement focused on the inherent incompatibility of use issues between ‘metallic mining’ and the vast watershed network of the UT. DPD for mining is not a right. It will only be granted where it can be demonstrated that this incompatibility can be resolved. Only those specific technologies for any aspect of mining that have a demonstrated history in comparable sites of reliably overcoming the inherent incompatibility between metallic mineral mining and off site environmental degradation will be allowed.</li> </ul>	Lindsay Bowker	<p>The rule has a clear purpose statement which is that it ‘establishes procedures and changes to land use subdistrict boundaries for metallic mineral mining activities’...</p>	No change.
<p><i>Section 3. Certain Mining Activities to be Conducted in the Planned Development (D-PD) Subdistrict</i>  <b>Rezoned area should not be limited by size:</b></p> <ul style="list-style-type: none"> <li>• The only restriction on the size of the subdistrict should be what is necessary for the mining operation. Buffers need not be included in the rezoned area, and DEP permitting will govern the appropriate buffers. Permitting of metallic mineral mining is now within the sole purview of DEP.</li> </ul>	Aroostook Timberlands, Patrick Strauch	<p>One of the Commission’s responsibilities is to discourage the intermixing of incompatible industrial, commercial, residential and recreational activities. The Commission also has a statutory charge to ensure that the creation of a D-PD</p>	No change.

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		<p>for mining will not have an undue adverse impact on existing uses or resources. Buffers must be included in the rezoned area for the Commission to have assurance that it has adequately carried out its statutory charge. Therefore the LUPC feels that requiring the size of the rezoned area be adequate to buffer mining activities from surrounding uses or resources is appropriate.</p> <p>In addition, this language on the minimum size of the rezoned area and ‘buffers’ was part of the original Chapter 12 rule. In revising Chapter 12, the Commission has been mindful of limiting revisions to those that are aimed at the legislative mandate of separating the permitting process from the rezoning process. Therefore the Commission believes that it is important to leave this language as is.</p>	
<p><i>Section 3. Certain Mining Activities to be Conducted in the Planned Development (D-PD) Subdistrict</i>  <b>Rezoned area for mine site should include an adequate surrounding buffer:</b></p> <ul style="list-style-type: none"> <li>The actual mine site should be created so that in addition to the amount of land needed for the most likely mining</li> </ul>	<p>Lindsay Bowker, NRCM</p>	<p>The LUPC agrees that the rezoned area should include enough area to create an adequate buffer. Section 3 of</p>	<p>No change.</p>

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<p>operations, it includes an adequate amount of land strictly needed for the most likely mining operations. It includes an adequate surrounding buffer, on which no mining operations or related uses may be undertaken and wide enough to provide early warning and early alert to any emerging off site degradation threats.</p>		<p>the Chapter 12 rule reads, “The size of such Subdistrict shall be limited to an area necessary to reasonably conduct mining..., and to adequately buffer those activities from surrounding uses and resources or uses...”</p>	
<p><i>Section 4.A Commission Approval Required</i>  <b>Mining Act does not require rezoning application to be filed first:</b></p> <ul style="list-style-type: none"> <li>The Mining Act does not require that the rezoning application must be filed before the DEP application. Section 2 of PL 2011, Chapter 653 amends 12 MRS 685-B(1-A)(B-1) to provide that a notice of intent must be filed with LUPC before “or concurrently with” submission of the DEP application. There is no reason the LUPC rezoning and DEP development applications cannot proceed concurrently.</li> </ul>	<p>Aroostook  Timberlands</p>	<p>The LUPC agrees and believes that the draft rule already reflects this point. Section 4 states that an applicant who seeks a mineral mining permit from the DEP “must petition and receive approval from the Commission for a change in subdistrict boundary”. It does not state that an applicant must petition the Commission <i>first</i>.</p>	<p>No change.</p>
<p><i>Section 4.A Commission Approval Required</i>  <b>Hearing should not be subject to Chapter 5:</b></p> <ul style="list-style-type: none"> <li>A rulemaking hearing is not subject to APA adjudicatory hearing procedures, and thus should not be subject to Chapter 5. See 5 MRS 8052(2). The last sentence in section 4.A should simply say that the petition shall be subject to the rulemaking requirements of the APA.</li> </ul>	<p>Aroostook  Timberlands</p>	<p>The provisions for the adoption or amendment of land use district boundaries are contained in statute at 685-A(7-A), and in the Commission’s Chapter 4 Rules of Practice. Chapter 4 states that with regard to adoption or amendment of land use district boundaries, holding a hearing “is at the discretion of the Commission unless otherwise required</p>	<p>No change.</p>

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		<p>by the Constitution of Maine or statute or if five or more interested persons request in writing that the Commission hold a hearing”. Chapter 5 of the Commission’s rules “govern all public hearings before the Land Use Regulation Commission.” Although these hearings are not “adjudicatory” as that term is defined in the APA, 5 M.R.S. § 8002(1), they are evidentiary hearings with many characteristics of adjudicatory hearings. See <i>Forest Ecology Network v. Land Use Regulation Comm’n</i>, 2012 ME 36, ¶¶ 36 – 46, 39 A.3d 74 (explaining the role of the hearing within Commission rezoning proceedings, which are rulemakings by statute).</p>	
<p><i>Section 4.A Commission Approval Required</i>  <b>Hearing should be subject to Chapter 5:</b></p> <ul style="list-style-type: none"> <li>• Mining rezoning petitions should be treated in the same manner as other rezoning matters. Chapter 5 rules are appropriate for those projects where adjudicatory hearings are held.</li> </ul>	<p>NRCM  (rebuttal)</p>	<p>See response immediately above.</p>	<p>No change.</p>
<p><i>Section 4.B Criteria for Approval...</i>  <b>Section 4.B should not go beyond the rezoning criteria:</b></p> <ul style="list-style-type: none"> <li>• The rule should not attempt to redefine the statutory rezoning criteria. Recommend that Sections 4.B(2) and 4.B(3) be deleted. <ul style="list-style-type: none"> <li>○ The factors listed in Section 4.B(2) go well beyond the new Mining Act. What does it mean to consider Maine’s ‘natural resource-based</li> </ul> </li> </ul>	<p>Aroostook  Timberlands,  Patrick Strauch</p>	<p>The LUPC believes that it is important to retain these sections which provide further guidance on the rezoning criteria. These sections are</p>	<p>No change.</p>

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<p>economy’.</p> <ul style="list-style-type: none"> <li>○ What are ecological and natural ‘values’.</li> <li>○ Natural resource impacts will be considered by DEP</li> <li>○ At a minimum Section B(3) should contain an acknowledgement that the determination under Section B(1)(b) must be made recognizing that the DEP, in reviewing the mining permit application, will be considering impacts on and protection of existing uses and resources within the affected area.</li> <li>○ 12 MRS 685-A(8-A)(B) allows rezoning not only when the proposed land use district has no undue adverse impact on existing uses or resources, but , alternatively, when a new district designation is more appropriate for the protection and management of existing uses and resources within the affected area. The question in section B(3) is not whether the proposed mining activity has undue adverse impacts on existing uses and resources, but how the proposed protection and management of existing uses and resources compares to the current protection and management of existing uses and resources. The last sentence of Section B(3) should be amended to recognize this distinction.</li> <li>○ Why is the note proposed to be removed? Believe that if Section B(3) is to be retained then the Note should also be retained but that the words ‘has no undue adverse impact or is more appropriate’ should be substituted for the words ‘is beneficial’.</li> </ul>		<p>intended to be helpful and to give applicants and the public further information about how the Commission interprets and applies the statutory standard. This is not the only instance where the LUPC has clarified rezoning criteria in rule. For example, in Chapter 10, sections 10.08 B and C provide further information on how the Commission interprets and applies the statutory standard in the case of rezoning areas adjacent to lakes and in prospectively zoned areas respectively.</p> <p>Section 4.B(2) provides, in rule, clarification on what the LUPC will look at in order to satisfy the statutory criteria of “consistency with the purpose, intent and provisions of 12 M.R.S.A. Chapter 206-A.” Section 4.B(3) provides, in rule, clarification on what the LUPC will look at in order to satisfy the statutory criteria that “the change in districting will have no undue adverse impact on existing uses or</p>	

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		<p>resources or a new district designation is more appropriate for the protection and management of existing uses and resources within the affected area.”</p> <p>Furthermore, the terms used in Section 4.B(2)(a) are taken directly from the purpose and scope language in statute recently amended by the legislature.</p> <p>With regard to Section 4.B(3) and the argument that this section assumes that the applicant chooses to rely on the first clause in Section 685-A(8-A)(B) and fails to acknowledge that the applicant may rely on the second clause (“more appropriate for protection and management”), while the Commission agrees that Section 685-A(8-A)(B) may be satisfied in two ways, it has typically viewed the second clause in the context of rezoning to protection or management districts and has not used it as a justification for rezoning to</p>	

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		development districts.	
<p><i>Section 4.B Criteria for Approval...</i>  <b>Section 4.B does not go beyond the rezoning criteria:</b></p> <ul style="list-style-type: none"> <li>While impacts to Maine’s natural resource economy and ecological and natural values may be considered by DEP in their permitting review, such factors will be considered using a narrow site specific lens. The Commission has the capacity to consider impacts on a landscape level during the rezoning process and thus will consider such factors in a manner wholly different and not duplicative of DEP’s permitting review.</li> <li>The location of the project in relation to ecological and natural values and natural resource based economies is essential to rezoning decisions.</li> <li>Recommend that the Commission retain Sections 4.B(2) and 4.B(3)</li> </ul>	NRCM (rebuttal to Aroostook Timberlands above)	See the response immediately above.	No change.
<p><i>Section 4.B Criteria for Approval...</i>  <b>Section 4.B should retain ‘ecological and natural values’ language:</b></p> <ul style="list-style-type: none"> <li>“ecological and natural values” language comes the closest to capturing the connection of the Houlton Band of Maliseet Indians has to our ancestral homeland the St. John watershed. We ask that this language be retained. It reflects a key difference between the roles of the LUPC and the MDEP.</li> </ul>	Chief Commander (rebuttal to Aroostook timberlands above)	The terms used in Section 4.B, to include ‘ecological and natural values’ are taken directly from the purpose and scope language in statute recently amended by the legislature. The LUPC believes that it is important to retain this language in the rule.	No change.
<p><i>Section 4.B Criteria for Approval...</i>  <b>Section 4.B(1) contains an incorrect reference:</b></p> <ul style="list-style-type: none"> <li>Section 4.B(1) should refer to 12 MRS 685-a(8-A) not 685-A(8)</li> </ul>	Aroostook Timberlands	The LUPC agrees. The section should refer to 12 MRS 685-A(8-A).	Changed. See Section 4.B(1) of the rule.
<p><i>Section 4.B Criteria for Approval...</i>  <b>Section 4.B(2)(a) suggested wording changes:</b></p> <ul style="list-style-type: none"> <li>Recommend the following changes to the last sentence of subsection 4(B)(2)(a) which specifies criteria to be considered during rezoning: “Such impacts may include, <b>but are not limited to</b>, impacts to regional economic viability, Maine’s natural resource-based economy, local residents and property owners, ecological and natural values <b>including conservation and preservation of natural resources</b>, recreation, and <b>health and safety</b>.”</li> </ul>	CLF	The LUPC believes that adding the language “but are not limited to” is consistent with both the Commission’s intent and the original language in Chapter 12 and so has added this language back into the rule.	Changed. See Section 4(B)(2)(a) of the rule.

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		<p>The LUPC believes that the language “including conservation and preservation of natural resources” is not necessary. The terms used in this section of the rule, section 4.B(2)(a), are taken directly from the LUPC’s purpose and scope in statute.</p> <p>“Including conservation and preservation of natural resources” is not a term included in the Commission’s purpose and scope.</p> <p>LUPC feels that it is appropriate to add language on health and safety as it adds another important factor for consideration. However, the Commission believes that it is important to use the language contained in statute which is “public health, safety and general welfare.”</p>	
<p><i>Section 4.B Criteria for Approval...</i>  <b>There should be no off-site degradation:</b></p> <ul style="list-style-type: none"> <li>• A privilege is being granted that would otherwise not be allowed and therefore a minimum applicable standard is “no offsite degradation”.</li> </ul>	Lindsay Bowker	The LUPC’s criteria for evaluating proposals to change a subdistrict boundary are spelled out in statute. The LUPC cannot change these criteria or deviate from them in rule.	No change.
<i>Section 4.B Criteria for Approval</i>	Andy Cadot,	The language	No change.

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<p><b>Concern for protection of natural areas:</b></p> <ul style="list-style-type: none"> <li>Rules must protect sensitive natural resources, including aquifers, wildlife, wildlife habitat, wetlands, shore lands, high mountain areas, scenic resources, and recreational resources. The proposed rule affords no such protection. Maintain or increase the level of protection for sensitive natural areas within protection zones such as wetlands, shore lands, etc. Impacts should be avoided. Any unavoidable impacts should be mitigated.</li> <li>Impact on fragile protection subdistricts in Maine should not be removed.</li> <li>Section 4(B)(2)(b) should read: “Positive and negative impacts upon the areas within and adjacent to the Commission’s jurisdiction, including the impact on protection subdistricts or other land uses likely to be affected by the proposed activities, resulting from the use and development of associated transportation routes and other infrastructure...”</li> <li>LUPC should modify section 4(B)(3) to require applicants to provide substantially equivalent protection of natural resources. Currently the D-PD requires that the Commission ensure that an applicant’s proposal: “Incorporates, where the land proposed for inclusion in the D-PD subdistrict is in a protection subdistrict, a substantially equivalent level of environmental and resource protection as was afforded under such protection subdistrict.”</li> </ul>	<p>Debbie McCarthy,  Diane Walker,  Tammy Cloutier,  Susan Cottle,  Scott Cronenweth,  Maine Audubon,  AMC,  NRCM,  CLF,  Sandra Wright</p>	<p>suggested for addition to section 4.B(3), that the Commission must ensure that an applicant’s proposal “Incorporates, where the land proposed for inclusion in the D-PD subdistrict is in a protection subdistrict, a substantially equivalent level of environmental and resource protection as was afforded under such protection subdistrict” is a paraphrasing of Section 8 of the D-PD rule contained in Chapter 10.21,G. The D-PD rule contained in Chapter 10.21,G specifically states that Section 8 does not apply to development related to metallic mineral mining and level C mineral exploration activities.</p> <p>Section 8 of the D-PD rules has never applied to D-PDs for mining activities as mining is a unique activity with its own set of standards (the Chapter 12 rules) that replace specific sections of the D-PD rule.</p>	

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<p><i>Section 4.B Criteria for Approval</i>  <b>LUPC should not be concerned with the Protection of Natural Areas</b></p> <ul style="list-style-type: none"> <li>• Protection of natural resources is regulated by MMMMA and not by LUPC in the rezoning process.</li> </ul>	<p>Aroostook Timberlands (rebuttal to comments immediately above)</p>	<p>The LUPC is responsible for resource protection in the context of rezoning and the standards for this are contained in the Chapter 12 rule.</p>	<p>No change.</p>
<p><i>Section 4.B(3) Criteria for Approval...</i>  <b>Commission should include ‘avoidance’ of impacts:</b></p> <ul style="list-style-type: none"> <li>• Recommend that the Commission consider whether impacts can be avoided on existing uses and natural resources before considering the potential for a permittee to minimize and mitigate potentially adverse impacts on existing uses and resources. <ul style="list-style-type: none"> <li>○ Suggest the following revisions to Section 4(B)(3): “In considering these impacts and determining whether any undue adverse impact associated within the proposed rezoning is an undue adverse impact on existing uses and resources, the Commission <b>may</b> consider the potential for a metallic mineral mining or Level C mineral exploration permittee to <b>avoid</b>, minimize, or mitigate to the extent permitted by law, a potentially adverse impact so that the resulting impact is not an undue adverse impact.”</li> </ul> </li> <li>• Subsection 4(B)(3) adds language referencing “no undue adverse impact.” This provision must be strengthened. Without a strong definition of “undue adverse impact” a permittee can argue that an adverse impact is not “undue” and therefore does not warrant mitigation.</li> </ul>	<p>Maine Audubon, NRCM, CLF</p>	<p>The LUPC agrees that the Commission should consider whether impacts can be avoided before considering the potential to minimize and mitigate impacts.</p> <p>LUPC believes that the term “shall” is appropriate.</p> <p>LUPC does not think that it is appropriate to define “no undue adverse impact” in rule. Its legal interpretation is up to the Commission to decide on a case by case basis given the specific facts and circumstances of that case.</p>	<p>Changed. See section 4.B(3) of the rule.</p>
<p><i>Section 4.B Criteria for Approval...</i>  <b>Primary and Secondary Services should be defined:</b></p> <ul style="list-style-type: none"> <li>• Define primary and secondary services in Section 4(B)(3)(b) of the proposed rule revisions.</li> <li>• The changes from current subsection 4(B)(3)(a)(v) referencing “essential services” to new subsection 4(B)(3)(b) referencing “primary and secondary services” are puzzling. Please explain the change in terminology.</li> </ul>	<p>NRCM, CLF</p>	<p>The LUPC agrees that this change in terminology is confusing. It would be less confusing to refer to “services” rather than differentiating between primary and secondary services. The LUPC also feels that it would be helpful to give a few examples of the types of services it is</p>	<p>Changed. See section 4(B)(3)(b) of the rule.</p>

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		referring to in the rule. Further, the Commission feels that it is appropriate to include consideration of the obligations and burdens on ‘county’ government to provide these services.	
<p><i>Section 4.B Criteria for Approval...</i>  <b>Concerned about deletion of list of factors:</b></p> <ul style="list-style-type: none"> <li>Subsection 4(B)(3)(a) has been revised to delete the list of factors that LUPC might consider during the rezoning process, presumably because LUPC has deemed them to be provisions relating to permitting. The list of factors, however, also may be appropriate considerations for a rezoning process and should not be removed at this time.</li> </ul>	CLF	While this list of factors is shown as deleted in the text, the LUPC did not remove these ideas from the rule. Rather the list has been consolidated, reworded, and reorganized in section 4(B)(3)(a), (b), (c), and (d).	No change.
<p><i>Section 4.C Submittal Requirements</i>  <b>Too many requirements have been eliminated. LUPC shouldn’t worry about duplicating information in the DEP permit process. Gaps in regulation should not be created. The submittal requirements are not duplicative:</b></p> <ul style="list-style-type: none"> <li>Recognize that some provisions of the current rule may be proposed to be removed because the issues addressed in those provisions will be addressed by DEP in the permitting process. However, recommend that these provisions not be removed until DEP permitting rules are finalized. Due to the serious environmental consequences of metallic mineral mining, such a gap in regulation must not occur. LUPC should not at this time remove any requirements from Chapter 12 that reasonably relate to rezoning. If necessary, LUPC can revise its rules again once DEP has completed its rule-making process</li> <li>Some of these issues – namely water quality, soil suitability, and equivalent natural resource protection – are vital to rezoning decisions and deserve consideration by LUPC during the rezoning process at some level, even if DEP will be doing a later, and possibly more detailed, review.</li> <li>DEP has published for public comment its amendments to rules related to exploration and advanced exploration. Apparently DEP drafted its proposed rules in isolation rather than pursuant to the collaborative process mandated by the Mining Act. Strongly urge LUPC to</li> </ul>	Maine Audubon, NRCM, CLF	The LUPC does not want to create gaps in regulation. At the same time, the LUPC does not want to unnecessarily duplicate requests for information with the DEP permit process. Statute outlines, in general form, the information that the DEP must ask for in its permitting process. The LUPC can rely on this to determine what information will be duplicative of the DEP permitting process. In view of what is provided in statute, this rulemaking is not creating a gap in regulation, but in	No Change.

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<p>consult with the DEP before it deletes requirements from its current mining rules to ensure that DEP does not promulgate rules without LUPC input and in direct contravention to the Mining Act.</p> <ul style="list-style-type: none"> <li>Because the Commission is unique in its capacity to consider environmental and natural resource impacts on a landscape level, the submittal requirements do not duplicate DEP’s review.</li> </ul>		<p>the event that the LUPC determines in the future that a relevant piece of information is not picked up by the DEP, the LUPC can regulate in accordance with Title 12 and revise its rules as necessary.</p> <p>The LUPC also agrees that the Commission is tasked with considering environmental and natural resource impacts on a landscape scale which is fundamentally different from DEP’s permitting review and the Commission needs adequate information in order to do this.</p>	
<p><i>Section 4.C Submittal Requirements</i></p> <p><b>The Commission should not duplicate DEP’s review:</b></p> <ul style="list-style-type: none"> <li>DEP will review environmental and natural resource issues during the permitting process, and the Commission should not duplicate that review as part of the permitting process.</li> <li>LUPC should delete any requirements that it deems to be a permitting provision regardless of what DEP might do later. The legislature left that second step to DEP not LUPC. When there is ambiguity about whether a requirement may relate to rezoning or to permitting, LUPC must defer to DEP regulation and remove that requirement from Chapter 12.</li> <li>The following provisions are related to permitting as they are listed in MMMA and therefore should be removed from LUPC: ground water and surface water quality, flora and fauna, hydrology, geology and geochemistry, soil types, closer and reclamation, hazardous materials, financial assurance, existing uses, scenic character, air quality, other natural resources, public and private water supplies, solid waste, flooding, public safety.</li> </ul>	<p>Aroostook  Timberlands,  Patrick Strauch,  George  Kendrick</p>	<p>As stated above, the LUPC does not want to unnecessarily duplicate requests for information with the DEP permit process. At the same time, the LUPC does not want to create gaps in regulation and must fulfill its statutory charge.</p>	<p>No change.</p>

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<p><i>Section 4.C Submittal Requirements</i>  <b>The Commission has not duplicated DEP’s review:</b></p> <ul style="list-style-type: none"> <li>Obtaining information necessary to evaluate “ecological and natural values” such as soils, geology, hydrology, vegetation, and fish and wildlife populations is not a duplicative review.</li> </ul>	<p>Chief Commander (rebuttal to Aroostook Timberlands above)</p>	<p>See responses in two rows immediately above.</p>	<p>No change.</p>
<p><i>Section 4.C Submittal Requirements</i>  <b>Submittal Requirements should not go beyond the rezoning requirements in the Commission’s statute:</b></p> <ul style="list-style-type: none"> <li>Section 4.C(1)(h) goes beyond the rezoning requirements by looking beyond the area to be rezoned. Should only consider the area to be rezoned.</li> <li>Section 4.C(1)(i) and (j) go beyond the rezoning requirements by looking beyond the are to be rezoned, to include a three mile radius. These paragraphs should be amended to clarify that they only consider the area to be rezoned. DEP will consider impacts beyond the area to be rezoned, as applicable to their review standards.</li> <li>Section C(1)(k) assumes that the applicant chooses to rely on the first clause in Section 685-A(8-A)(B) and fails to acknowledge that, alternatively, the applicant may rely on the second clause(“more appropriate for protection and management”). Also this paragraph should use the term “undue adverse impact” not “significant adverse impact.”</li> <li>Section C(1)(o) is not appropriate, because reclamation and closure will be considered by DEP. Reclamation and closure should not be considered by LUPC as part of the initial rezoning process.</li> </ul>	<p>Aroostook Timberlands</p>	<p>LUPC does not believe that the referenced submittal requirements (h,i, and j) go beyond the rezoning requirements in statute. The impacts of a mining project may extend beyond the project boundary. To evaluate the proposal and its impacts, to include impacts on existing uses, and fulfill the Commission’s purpose and scope, the LUPC needs information on uses and resources in the surrounding area that may be impacted.</p> <p>With regard to Section 4.C(1)(k) and the argument that this section assumes that the applicant chooses to rely on the first clause in Section 685-A(8-A) and fails to acknowledge that the applicant may rely on the second clause (“more appropriate for protection and management”), as</p>	<p>No change.</p>

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		<p>stated previously above, the Commission has typically viewed the second clause in the context of rezoning to protection or management districts and has not used it as a justification for rezoning to development districts.</p>	
<p><i>Section 4.C Submittal Requirements</i>  <b>Submittal Requirements do not go beyond the rezoning requirements in the Commission’s statute:</b></p> <ul style="list-style-type: none"> <li>Section 4.C(1)(h) does not go beyond the rezoning requirements by looking beyond the area to be rezoned. This information is crucial from a broad planning perspective.</li> <li>It is crucial that the Commission consider impacts within a three mile radius of the site. The Dead River (a Class A river) is less than two miles from the Alder Pond site and so are several Class A tributaries/ The Commission needs information about water resources in proximity to mining sites to consider impacts on a variety of resources.</li> </ul>	<p>NRCM (rebuttal to Aroostook Timberlands above)</p>	<p>See response immediately above.</p>	<p>No change.</p>
<p><i>Section 4.C Submittal Requirements</i>  <b>Values of natural world do not begin and end at boundaries of a mine site:</b></p> <ul style="list-style-type: none"> <li>We can’t come up with a specific area that should be considered when evaluating rezoning request for mining activity, the values of Maliseet people place on our natural world do not begin or end at the boundaries of a mine site.</li> </ul>	<p>Chief Commander (rebuttal to Aroostook Timberlands two rows above)</p>	<p>See response to Aroostook Timberlands two rows above.</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p><i>Section 4.C Submittal Requirements</i>  <b>Concern for water resources. Request for groundwater information should not be deleted:</b></p> <ul style="list-style-type: none"> <li>Given the potential for negative impacts resulting from open pit mining on water resources, it is crucial for decision-making that the LUPC has thorough scientific information of the water resources in the vicinity of any proposed mining operation.</li> <li>Request that any revision of the regulation pertaining to zoning for mineral mining continues to require that mining companies conduct a thorough analysis of groundwater characteristics, including flow rates, and travel direction, and that the study details in what way any possible contamination of groundwater and surface waters might affect nearby lakes, streams, and wetlands and the wildlife they support.</li> <li>LUPC needs information about groundwater in order to consider impacts on drinking water sources for homes and businesses downstream, and the likelihood of groundwater mixing with lakes, streams and wetlands, affecting fish and wildlife habitat.</li> <li>LUPC should retain submittal requirement: “A description of groundwater characteristics which delineates flow rates and travel direction of the groundwater for the property proposed for D-PD Development Subdistrict designation.”</li> </ul>	<p>Andy Cadot,  Debbie McCarthy,  Lucy W. Hull,  Diane Walker,  Tammy Cloutier,  Susan Cottle,  Scott Cronenweth,  Steve Spear,  Maine Audubon,  NRCM,  CLF,  Sandra Wright,  Judy Rowe, Jeff Reardon</p>	<p>The LUPC agrees that some information on groundwater is important to the rezoning phase in order to evaluate whether the area contains groundwater supplies that are of such high value and sensitivity that mining in the area poses too much risk. The LUPC believes that information on public, private and industrial water supplies as well as mapped aquifers should be required at the rezoning phase and has added this to the draft rule. The LUPC does not believe that additional information beyond this is warranted at the rezoning phase as the DEP is required by statute in the permitting process to ensure that there is no contamination of groundwater beyond the mining area. DEP will also be responsible for regulating withdrawals of groundwater.</p>	<p>Changed. See section 4(C).1 of the rule.</p>
<p><i>Section 4.C Submittal Requirements</i>  <b>Concern for water resources. Request for surface water information should be included:</b></p> <ul style="list-style-type: none"> <li>The Commission should make sure that it has adequate</li> </ul>	<p>Maine Audubon,  AMC,  NRCM,</p>	<p>The LUPC has asked for surface water information in</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p>information about surface waters within and adjacent to potential mining sites.</p> <ul style="list-style-type: none"> <li>• The Planning Commission must have a description of both surface and groundwater characteristics in order to fully understand the potential impacts on drinking water sources, nearby lakes, streams and wetlands, and surface runoff from the project site. Maine is required to maintain its water quality standards and not allow for water quality degradation.</li> <li>• Maps submitted should identify all surface waters.</li> <li>• LUPC should not delete the requirement to include P-SL2 districts on the existing site condition map that an applicant must submit as part of exhibit 4(C)(1)(c)(1)(f)</li> <li>• LUPC should change the term “water courses” in Section 4 (C)(1)(f) to a list of all potential water courses including lakes, ponds, rivers, streams and estuaries.</li> </ul>	<p>CLF, Jeff Reardon</p>	<p>submittal (k), “a map identifying significant natural resources... including protected water bodies...” This would include information on streams (P-SL1 and P-SL2), ponds (P-GP), and wetlands (P-WL). In addition, with regard to other possible surface water related concerns, the Commission has asked for information on significant wildlife and plant areas and recreational uses. The LUPC feels that all relevant information for the rezoning phase should be captured in these submittals and feels that additional surface water information is more appropriate at the permitting phase.</p> <p>It should also be noted that the DEP is required by statute as part of its permitting process to ensure that the mining operation will not cause a direct or indirect discharge of pollutants into surface waters or discharge groundwater containing</p>	

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
		pollutants into surface waters that results in a condition that is in nonattainment of or noncompliance with the standards in article 4-A or section 414-A or 420.	
<p><i>Section 4.C Submittal Requirements</i>  <b>Concern for soil resources. Request for soils information should not be deleted:</b></p> <ul style="list-style-type: none"> <li>• To ensure that there are suitable soils on the site for the type of activity proposed, LUPC has routinely required soils maps for rezoning for large developments. But under the proposed mining rules, soils maps would also not be reviewed by LUPC, despite the fact that mining activities involve many developments and soils maps are available from the NRCS at no cost. LUPC should require soils information and ensure soil suitability for the site.</li> <li>• To ensure soil suitability, the applicant must be required to submit at minimum: <ul style="list-style-type: none"> <li>○ a low-intensity soil map for the whole project area, of which the attributes and data can be obtained by the NRCS;</li> <li>○ a higher resolution soils data for the specific areas of where any proposed infrastructure would be built; and</li> <li>○ an erosion control plan which would include demonstration of proof that the erosion would be minimal and indication of what the applicant would do if their erosion control plan proves insufficient.</li> </ul> </li> <li>• LUPC should retain submittal requirement: “A soils map of high intensity or equivalent that encompasses those portions of the property proposed for D-PD Development Subdistrict designation, including identification of soils used in the USDA Soils Series.”</li> <li>• LUPC should retain submittal requirement with some minor modifications: “A soils map of appropriate intensity that encompasses those portions of the property proposed for D-PD Development Subdistrict designation, including identification of soils used in the USDA Soil Series.”</li> </ul>	<p>Andy Cadot,  Debbie McCarthy,  Lucy W. Hull,  Diane Walker,  Tammy Cloutier,  Susan Cottle,  Maine Audubon,  AMC,  NRCM,  CLF,  Sandra Wright</p>	<p>The LUPC agrees that some soils information is relevant at the rezoning phase in order to determine if there are large areas of soils types that would be so unsuitable as to pose significant risks to the environment. The LUPC believes that it is appropriate to ask for a low intensity soil map for the area. DEP will be considering more detailed soils information during the permitting phase.</p>	<p>Changed. See section 4(C).1 of the rule.</p>
<p><i>Section 4.C Submittal Requirements</i>  <b>Request for geological information should be included:</b></p> <ul style="list-style-type: none"> <li>• Applicant must be required to submit a geological map identifying bedrock and any underlying features. It is important for the applicant to identify what metal and</li> </ul>	<p>AMC</p>	<p>The LUPC agrees that geologic maps should be required during the rezoning phase. It has</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p>other contaminants could be released through oxidation processes which contaminate both surface water and ground water.</p>		<p>already asked for this information in section 4(C).1.g of the current draft rule. However, the LUPC does not believe that asking for a contamination assessment is appropriate at the rezoning phase. The DEP will be responsible for ensuring that there is no contamination of surface or ground water during the permitting phase. Additionally, as specified in the MMMA, the DEP will request “a description of the geochemistry of the ore, waste rock, overburden, ..., including characterization of leachability, reactivity and acid-forming characteristics” as part of the permitting process.</p>	
<p><i>Section 4.C Submittal Requirements</i>  <b>Request for visual impacts Information should be included:</b></p> <ul style="list-style-type: none"> <li>• Must require more than a map showing visual impacts. To properly assess the visual impact of open pit mining it is paramount that the Commission’s rules include the requirement to submit a specific analysis of the level of visual impact from critical scenic resources using accepted visual analysis techniques. This analysis should be required for an eight mile radius with the option of requiring a fifteen mile radius if the project is either highly visible or in a sensitive location. Beyond this radius of identified critical scenic resources, we recommend that a topographic and vegetative screen be applied to these resources, and if the location is screened by one of these features, then this would be the only exception to the requirement of an in-depth, site specific visual study.</li> </ul>	<p>AMC</p>	<p>The LUPC does not believe that it would be practicable to require a specific analysis of the level of visual impact from critical scenic resources since detailed information on the size or configuration of the project will not yet exist. Consequently, the details of visual impact will be difficult if not</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
		<p>impossible to determine at the rezoning phase. That said, during the rezoning phase it seems entirely possible that an applicant could identify areas from which the project location is visible. Consequently, the Commission has asked for a map of scenic resources within a three mile radius of the project site. LUPC does not believe that the 8 mile radius applied during the wind turbine permitting process is necessarily transferable to rezoning for mining as mining projects are unlikely to occupy ridgelines in the way that wind turbines do and are unlikely to have an array of equipment as visible as turbines.</p> <p>Additionally, visual impact evaluation will be part of the DEP permitting process. As specified in the MMMA, the applicant must make “adequate provision for fitting the mining operation harmoniously into the existing natural environment and</p>	

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
		the development will not unreasonably adversely affect ...scenic character” during the permitting process.	
<p><i>Section 4.C Submittal Requirements</i></p> <p><b>Evaluate natural resource impacts with different radius:</b></p> <ul style="list-style-type: none"> <li>The proposed rule would only require natural and scenic resources within three miles of the proposed mine and associated facilities to be identified by the applicant, even though wind power rules appropriately require maps showing impacts within an eight mile radius. Impacts of open pit mines, particularly those on mountains, will affect resources and uses much further than three miles, including downstream rivers, streams and lakes, scenic vistas and recreation areas. Like current wind power rules, the proposed mining rules should require maps showing impacts within an eight mile radius.</li> </ul>	<p>Andy Cadot,  Debbie McCarthy,  Scott Cronenweth,  Maine Audubon,  AMC,  NRCM</p>	<p>The LUPC believes that a “three-mile radius” is a reasonable area within which to ask for natural resource information during the rezoning process. This distance was part of the original Chapter 12 rule and the Commission does not see a compelling reason to change it. However, that does not mean that information on natural resources located at a greater distance could not be entered in the record during the hearing process and, therefore, considered by the Commission. The Commission feels that the rule should be clarified to read that the three mile radius is measured from the “mining area or exploration site” rather than the “mine or exploration site”.</p>	<p>Changed. See section 4.C(i),(k) and (l) of the rule.</p>
<p><i>Section 4.D Subdistrict Boundary Change for a Limited Period</i></p> <p><b>Section 4.D goes beyond the legislative directive:</b></p> <ul style="list-style-type: none"> <li>The changes to subsection 4(D) are substantive changes that are not related to removing permitting provisions; as such they are not authorized by Section 29 of the Mining Act and must not be enacted as routine technical rules.</li> </ul>	<p>CLF</p>	<p>As required by the applicable legislation, these rule changes are limited to separating the LUPC rezoning</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<ul style="list-style-type: none"> <li>○ Object to increasing the time period a subdistrict boundary change is effective to ‘the longer of a period of 10 years from the date of approval of the subdistrict change (current rule is 7 years) or the expiration date of a permit issued by the Department or the Commission.</li> <li>○ Object to the changes in the last sentence that now require a landowner to petition LUPC for rezoning rather than allowing the land to automatically revert to its prior zoning designation.</li> </ul>		<p>and DEP permitting functions from one another. Because the permitting process is changing and is anticipated to take longer than was envisioned in the past, it is appropriate to increase the effective time period of the subdistrict boundary from 7 to 10 years in the case where no mining activities have occurred.</p> <p>The LUPC believes that it would be irresponsible to allow the land to automatically revert to its prior zoning designation as that designation may no longer be appropriate. The LUPC believes that the landowner should bear the burden of the necessary work of rezoning. The LUPC can assume this role if the landowner does not for whatever reason.</p>	
<p><i>Section 4.D Subdistrict Boundary Change for a Limited Period</i>  <b>Section 4.D should not limit the duration of the rezoning:</b></p> <ul style="list-style-type: none"> <li>• There is no statutory basis for such a limitation.</li> <li>• The second sentence in Section 4.D suggests that the mining activity may only continue for 10 years of the term of the DEP permit, regardless of whether the mining activities are underway. Is that the intent?</li> <li>• There is no basis for an automatic reversion to “the appropriate subdistrict designation” even if no mining activities have occurred within 10 years of the zone change.</li> </ul>	<p>Aroostook  Timberlands,  Patrick Strauch</p>	<p>The rule states that a subdistrict boundary change is limited to the longer of a period of 10 years from the date of approval of the subdistrict change or the expiration date of a permit issued by DEP. If a</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
		<p>permit is issued by DEP the expiration of that permit will determine the life of the subdistrict. If a permit is not issued by DEP the calculation of 10 years from the date of approval of the subdistrict will determine the life of the subdistrict. LUPC does not believe that this is confusing or warrants further clarification.</p> <p>Statute gives the Commission discretion to determine the boundaries of areas within the unorganized and deorganized areas of the State that fall into land use districts and designate each area in one of the following major district classifications: protection, management and development. The Commission also possesses the statutory authority to rezone. Rezoning an area for a defined period, as opposed to for an indefinite period, is wholly consistent with the Commission's zoning and rezoning</p>	

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		<p>authority. The Commission has applied other time limited zones such as D-CI zones for gravel pits and P-RP zones for concept plans or resource protection plans. So limiting the life of a zone is not a new practice. Additionally, the existing Chapter 12 contains a time limit.</p>	
<p><i>Section 4.D Subdistrict Boundary Change for a Limited Period</i>  <b>Section 4.D should not limit the duration of the rezoning:</b></p> <ul style="list-style-type: none"> <li>Support the provision that if no mining activity occurs within 10 years of the zone change, the D-PD shall automatically revert to the appropriate subdistrict designation. Conditions may change over a 10 year period that may render the Commission’s zone change inappropriate.</li> </ul>	<p>NRCM (rebuttal to Aroostook Timberlands above)</p>	<p>LUPC agrees. See response immediately above.</p>	<p>No change.</p>
<p><i>Section 4.D Subdistrict Boundary Change for a Limited Period</i>  <b>Need to clarify that LUPC must make its zoning decision before DEP can make permit decision:</b></p> <ul style="list-style-type: none"> <li>Contrary to the suggestion in the first sentence of this paragraph, the LUPC must make its rezoning decision before DEP can make its decision. See 38 MRS 490-NN(2).</li> </ul>	<p>Aroostook Timberlands</p>	<p>LUPC agrees.</p>	<p>Changed. See first sentence in Section 4.D</p>
<p><b>Comments on Presentations given by Robert Marvinney, Carol White and George Kendrick to the Commission at their February 1<sup>st</sup> meeting</b></p> <ul style="list-style-type: none"> <li>Disagree with some points in each presentation and with the tone which strongly implied that the Commission should not be worried about the environmental impacts of mining in Maine.</li> <li>LUPC has the ability to protect important resources, such as fisheries resources, during rezoning in ways that DEP cannot. While DEP can deny a permit for a particular application that is not likely to meet existing standards, it cannot say that an area is too valuable to risk siting a mine. LUPC can find that an area is too valuable for mines through its planning and zoning process.</li> <li>Dr Marvinney strongly implied that mining operations were likely to be small in Maine. However, Maine has one of the largest sulfide deposits in the world near Katahdin Iron Works. The Commission should not assume that mining operations will be small in Maine.</li> </ul>	<p>NRCM (rebuttal to Aroostook Timberlands above)</p>	<p>The LUPC recognizes that the rezoning and permitting processes are different from one another and that they fulfill different functions. The LUPC recognizes that part of the rezoning process is determining if there are places that may not be appropriate to rezone as the risks to various resources may be too great. The decisions that the</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<ul style="list-style-type: none"> <li>• Advocates for the mining industry claim they have developed new, advanced technologies that will solve mining’s environmental problems. The Commission should be skeptical of this claim. These technologies have been around for a while. They are expensive and the mining industry has therefore been resistant to use them. In addition, technologies like liners are not foolproof. They can leak and if the mining company then goes bankrupt, the government is left with the cleanup costs. As the LUPC considers a rezoning request, the Commission should consider the consequences if mining companies fail to pay to treat wastewater for decades or even centuries after a mining project stops generating income.</li> <li>• Mining companies typically underestimate the water quality consequences of their operations. More often than not water treatment plants that must operate in perpetuity must be installed to deal with water quality issues. The Commission should assume that adverse impacts on water quality will often be greater than predicted.</li> <li>• All of the “model” modern mines that Mr Kendrick described have had water quality problems and all will require long-term or even perpetual maintenance and water treatment. According to Mr Kendrick, Flambeau mine has violated water quality standards. It must truck wastewater off site to have it treated periodically. Greens Creek mine in Alaska, which Mr Kendrick cited as a “model” has a number of potentially serious and expensive environmental issues. A consulting firm recently conducted an audit of the mine and identified a number of “highly significant” problems.</li> <li>• Heavy metal concentrations in water are naturally elevated in some parts of Maine, but mining operations will increase these levels. The natural presence of arsenic in the ground or surface water should not serve as a justification for allowing mining in the vicinity. Just the opposite: if levels are already high, extra scrutiny is required because mining is extremely likely to make the problem worse.</li> <li>• Mining companies frequently overstate the economic and employment benefits of mining.</li> <li>• The Commission should not rezone areas for mining near population centers, public or private drinking water sources, or valuable fish and wildlife resources. Ms White said that it would not be a good idea to put mines near population centers, public or private drinking water sources, or wetlands and waterbodies that are significant for wildlife habitat or recreational values. We strongly agree with this.</li> <li>• Request the opportunity to address the Commission orally</li> </ul>		<p>Commission is making on the types of information needed during rezoning are aimed at determining what resources are going to be impacted by a mine and if those impacts pose a risk that is too great to allow rezoning to go forward. The Commission has tried to ask for the type of information and level of detail that will most adequately inform this process. The Commission has not in general asked for highly technical information that will be required by DEP as part of their more technical site review.</p>	

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<p>to ensure that the Commission members and staff receive multiple perspectives on issues raised by mineral mining. The information presented has not been balanced and needs to be augmented by the perspective of someone representing public, environmental and conservation interests.</p>			
<p><b>Articles, publications and other documents submitted into the record</b></p> <ul style="list-style-type: none"> <li>• Acid Rock Drainage Prediction for Low-Sulfide, Low-Neutralization Potential Mine Wastes. Michael G. Li</li> <li>• Appendix to statement of Lindsay Newland Bowker on LUPC Draft Rule on DPD’s for Metallic Mining <ul style="list-style-type: none"> <li>○ The attached discussion on open pit sulfide mining focuses on issues of reliable prediction of ARD (acid rock drainage) and the inadequacy of what have been widely accepted as threshold standards for allowing open pit sulfide mining. Science tends to support both DEP and LUPC adopting a minimum threshold of 0.05% sulfide-sulfur content (or NP:AP&gt;5 under the EPA standard) at which any extensive disturbance of sulfide ores would be allowed.</li> <li>○ Discussion on cyanide heap leach processing speaks to the complex chemistry of cyanide and its tendency to form complex compounds that cause substantial environmental impairment at great distances from the site and for very long periods. Modern science supports a ban on cyanide heap processing and no DPD in the UT should include this as an ‘allowed use’.</li> </ul> </li> <li>• CAO Marlin Mine Assessment: Technical Responses. Robert E. Moran, Ph.D. <ul style="list-style-type: none"> <li>○ Importance of extracting samples for the % sulfide – sulfur analysis and the NP:AP ratios from the same depths at which the ore will be extracted and not from the surface</li> <li>○ Proper testing for any reliable prediction of ARD takes at least 20 weeks</li> <li>○ Even the ,0.05% standard is not a fool proof indicator and the NP:AP ratio affects lag time for ARD reactivity</li> <li>○ Importance of taking into account of history at other comparable sites using the exact same technology proposed by applicant.</li> <li>○ Mine sites all over the world with as little as 0.2% sulfur-sulfide have generated ARD.</li> </ul> </li> <li>• Appendix II to statement of Lindsay Newland Bowker on LUPC Title 12 Draft Rule <ul style="list-style-type: none"> <li>○ Do not mine an area where there is potential for eventual formation of ARD. Once ARD</li> </ul> </li> </ul>	<p>Lindsay Bowker</p>	<p>These comments are voluminous and general in nature, and they do not pertain to a specific section of the revised rule; thus the Commission does not feel that a response to all of this information is necessary.</p> <p>The regulatory issues raised by the type of information in these comments are more relevant during the permitting stage. DEP is receiving this type of information as part of permit review and therefore when LUPC gets to the certification phase of rulemaking, this information may be considered at that time.</p>	<p>No change.</p>

COMMENT	MADE BY	LUPC RESPONSE	REVISION TO RULE
<p>commences it cannot be effectively managed or mitigated with any known technology.</p> <ul style="list-style-type: none"> <li>○ Research challenges the premise that rezoning can be accomplished in advance of even preliminary explorations.</li> <li>○ Important to try to establish when ARD will start to generate.</li> <li>○ The characteristics of the mine site and the results of kinetic tests, not some arbitrary time frame, should determine the period of time over which the operator remains fully accountable for all damages arising from its operations.</li> <li>○ The generally accepted minimum for kinetic tests is 20 weeks.</li> </ul>			

# KATAHDIN WOODS AND WATERS NATIONAL MONUMENT

International Dark Sky Sanctuary Application 2019



*Katahdin Loop Road Overlook August 14, 2016 © Taylor Walker*

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## Executive Summary

Katahdin Woods and Waters National Monument (KAWW), the eastern neighbor to Maine's prominent Baxter State Park, was established on August 24, 2016 by President Obama, through the Antiquities Act of 1906 as proclamation 9476. Excerpt from the Presidential Proclamation: *“Katahdin Woods and Waters contains a significant piece of this extraordinary natural and cultural landscape: the mountains, woods, and waters east of Baxter State Park (home of Mount Katahdin, the northern terminus of the Appalachian Trail), where the East Branch of the Penobscot River and its tributaries, including the Wassataquoik Stream and the Seboeis River, run freely. Since the glaciers retreated 12,000 years ago, these waterways and associated resources -- the scenery, geology, flora and fauna, **night skies**, and more -- have attracted people to this area. Native Americans still cherish these resources. Lumberjacks, river drivers, and timber owners have earned their livings here. Artists, authors, scientists, conservationists, recreationists, and others have drawn knowledge and inspiration from this landscape.”*

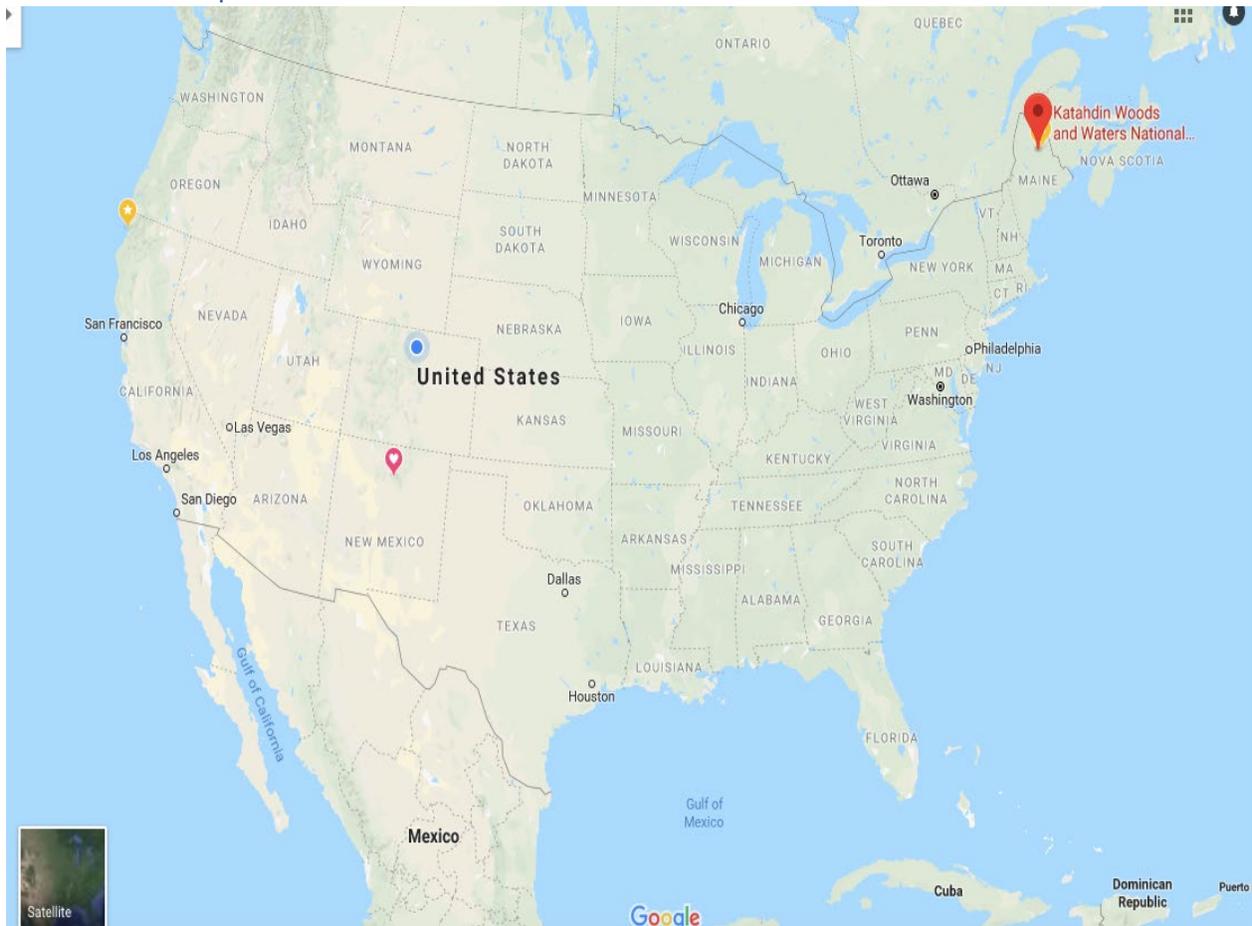
Katahdin Woods and Waters National Monument is comprised of over 87,500 acres of land in the northern Maine Woods, gifted to the people of the United States through public and private conservation efforts. The proposed Dark Sky Sanctuary would include all 13 parcels of land comprising the monument as illustrated in the map on page 6, including those in the northeastern and southern sections of the monument that are not contiguous with the rest. There are no inholdings within the monument boundaries but there are parcels of privately owned land located between the eastern and western portions of the monument. At this time, none of the park lands abut paved roads, so access is by gravel logging roads, hiking, biking or skiing trails and snowmobile trails in the winter. The closest boundary line is .6 miles from a state road with little development nearby.

The monument has exceptional quality of starry nights. Night sky readings, as included in this application, consistently prove that KAWW and its surrounding neighbors have some of the “darkest skies east of the Mississippi.” KAWW is in its infancy as a National Park Service unit and thus to a greater extent a “blank canvas” for park design and planning purposes. Within its 87,564 acres there are no electric lights, and no commercial power sources within its boundaries.

NPS continues their dedication to preserving the night skies through its Director’s Call to Action “*#27 Lead the way in protecting natural darkness as a precious resource and create a model for dark sky protection by establishing America’s first Dark Sky Cooperative on the Colorado Plateau in collaboration with other federal agencies, partners, and local communities.*”

KAWW is significantly poised to follow this to the letter from its inception. A Dark Sky Sanctuary designation would help promote and encourage the planners and designers as well as local communities to take note of the importance of protecting some of these last and darkest of skies in the eastern United States.

## Location Map of Katahdin Woods and Waters National Monument



### Location of Katahdin Woods and Waters National Monument

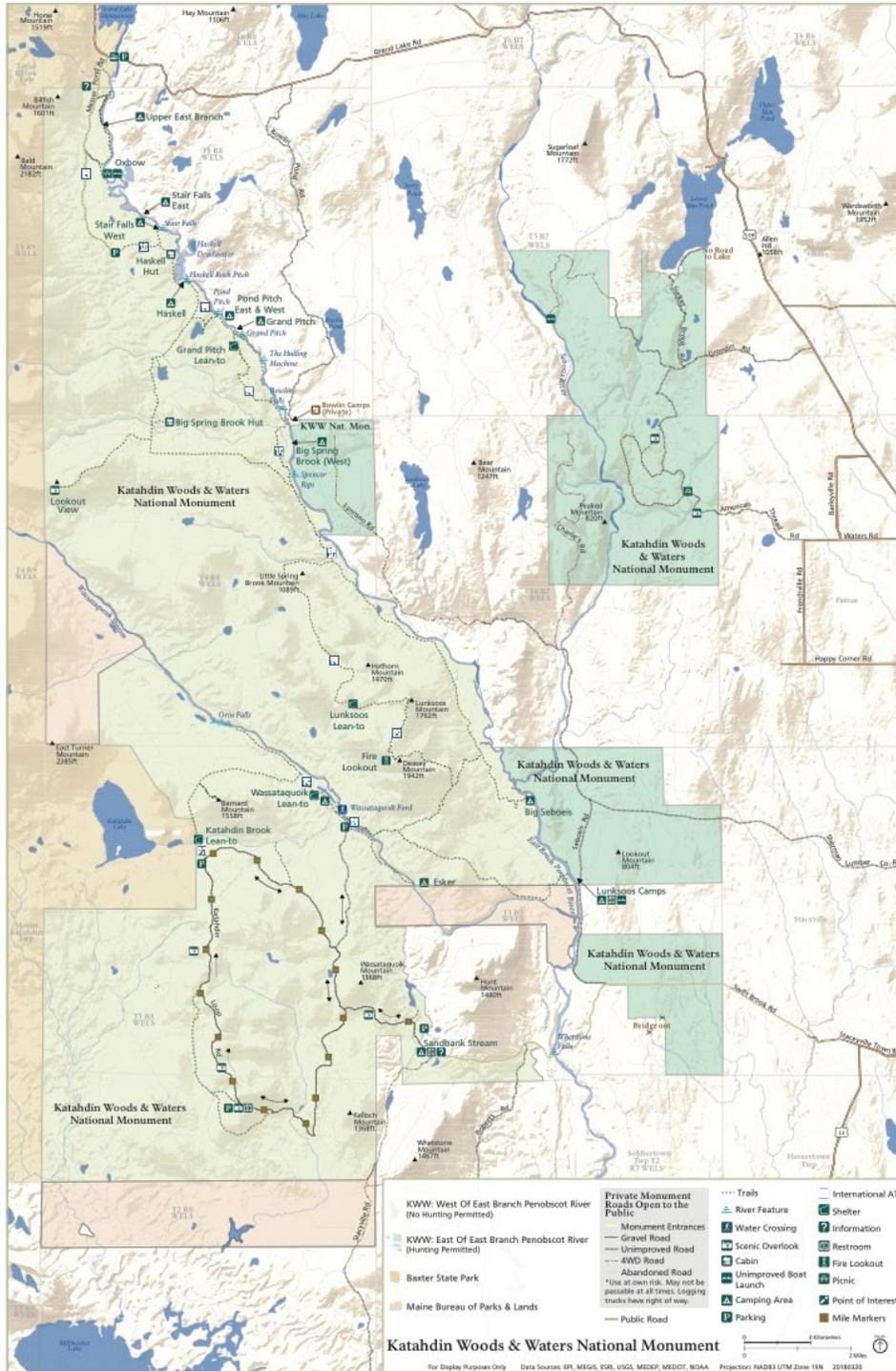
Overlook Loop Road KAWW

Latitude: 45.84608

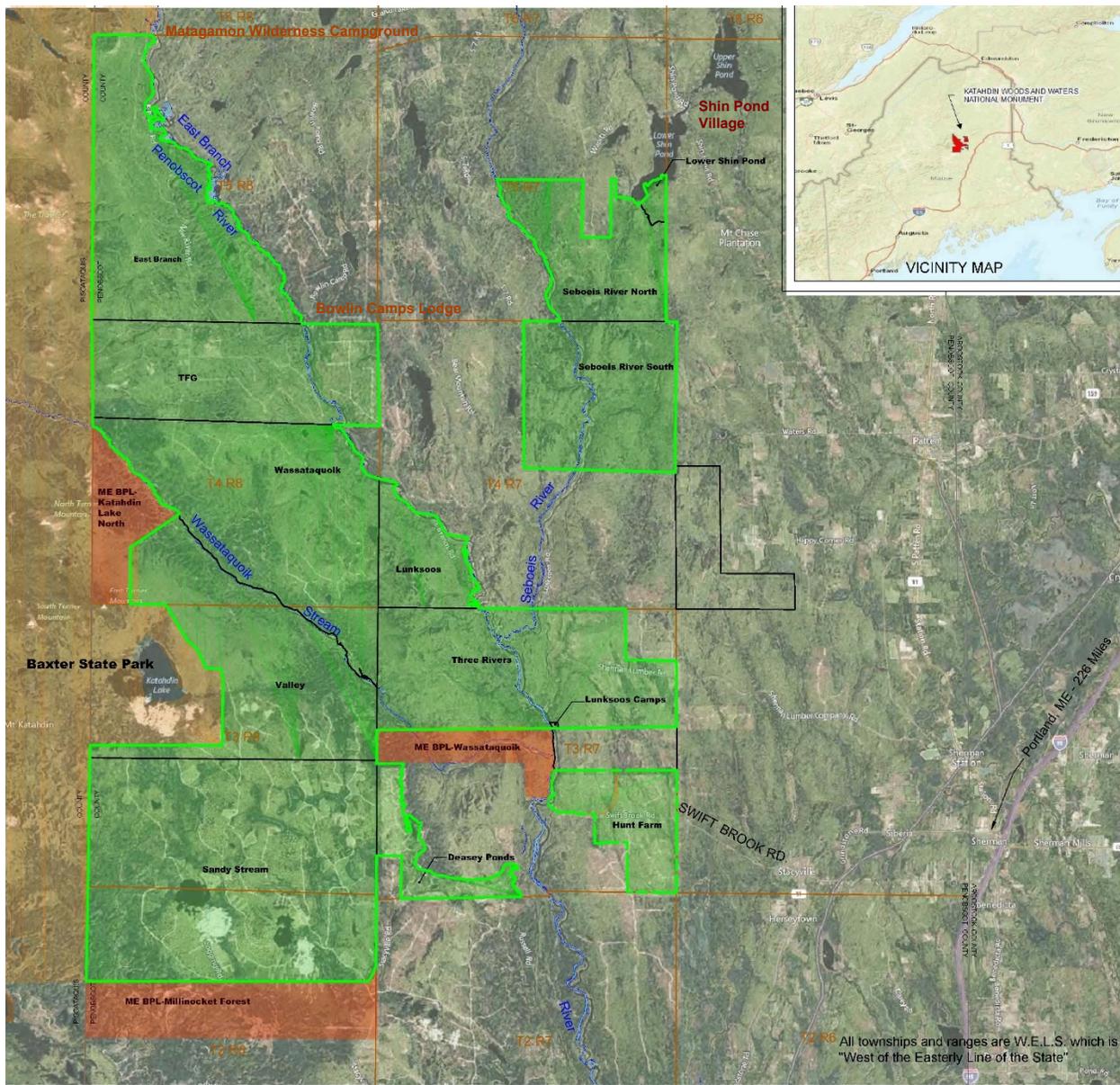
Longitude: -68.74747

# Recreation Map of Katahdin Woods and Waters National Monument

## Katahdin Woods & Waters National Monument



## Map of parcels comprising Katahdin Woods and Waters National Monument



### Night-Time Access to the Monument

At the time of this application, night time access to the monument is unlimited, except by the remoteness and darkness itself, which limit the ability to navigate using signage. There are limited primitive camping options, mainly accessible by foot, canoe, bike, ski, or snowshoe. A total of three primitive camping areas are accessible by vehicle. There are a

variety of private camping areas and other accommodations, some with their own dark skies, within 30-45 minutes of KAWW. All roads are currently gravel logging roads.

### [Reserved Rights](#)

Limited Reserved Rights are currently held by Elliottsville Plantation Incorporated (now Elliottsville Foundation Incorporated or EFI) as part of the donation of the lands to the U.S. with regards to improvement of infrastructure in the immediate future. EFI has pledged to support the Lighting Management Plan by KAWW Superintendent.

### [Neighboring Public and Private Lands](#)

As illustrated on the map on page 5, Katahdin Woods and Waters National Monument shares its western boundary with Baxter State Park, which has strict guidelines for restrictions to development of any sort. Their [management plan](#) has more clarification.

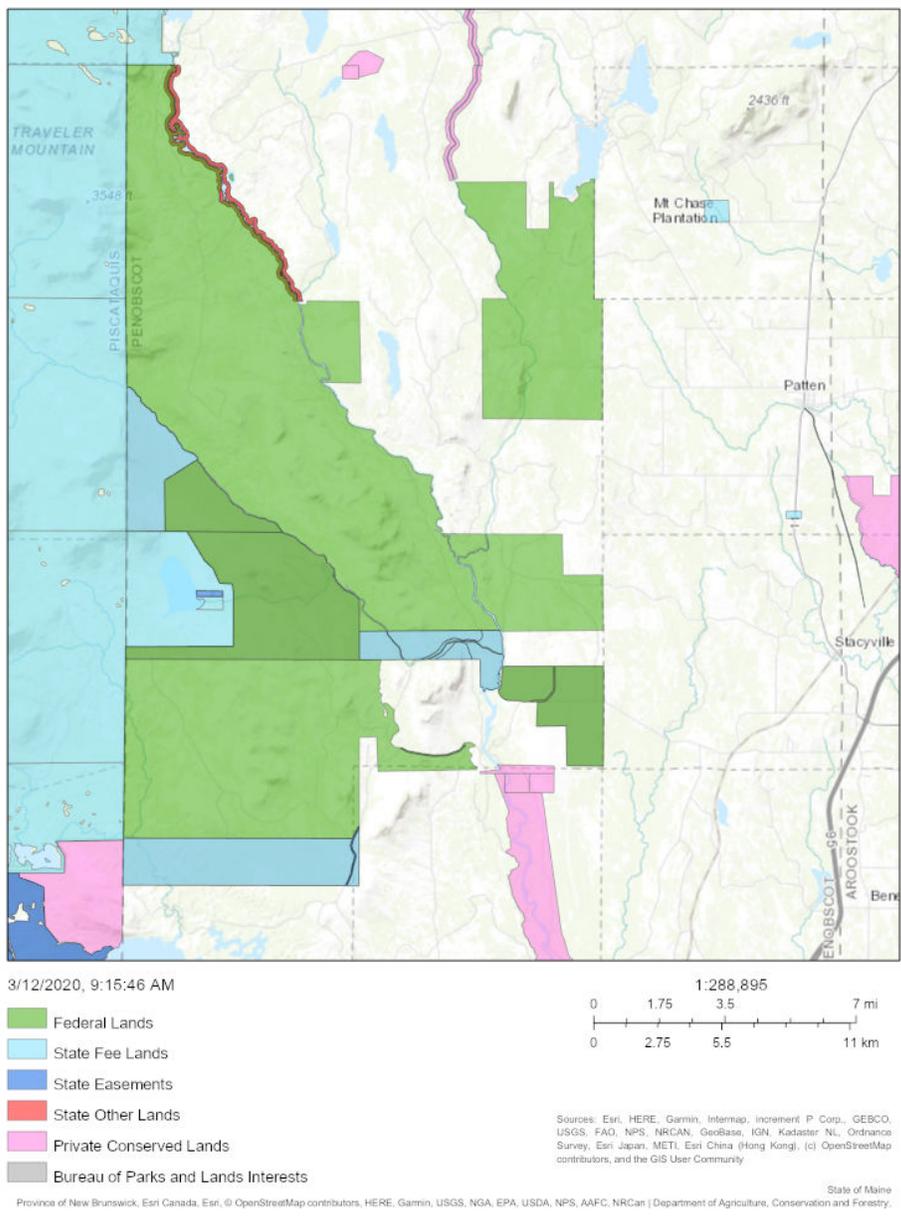
Baxter covers 209,644 acres in northern Maine, encompassing its own mountain range dominated by Katahdin, Maine's highest mountain. To Percival P. Baxter, the resources — the land and the animals — were primary, and people were secondary. A continuing effort to live up to this important resource-first and people-second requirement is the guiding philosophy of park management today.

Other adjacent parcels of public land include those managed as public reserved land by the Maine Bureau of Parks and Lands. These parcels include the [Millinocket Forest](#) parcel on the southern boundary and the [Wassataquoik Public Land](#) along the East Branch of the Penobscot River.

There has been an upswing in conservation efforts around the monument since its inception including the [Butler Foundation](#) acquisitions for recreation and preservation, such as [Penobscot River Trails](#) located near the southern boundary of the monument.

Other neighboring, but not abutting, lands include those held by The Nature Conservancy and the Appalachian Mountain Club. A helpful online tool for viewing all conserved lands in the vicinity of the monument is the [Maine Conserved Lands](#) map. Details of the conserved lands depicted in the map below can be viewed online by clicking each parcel.

Maine Conserved Lands



In addition to the public and conserved land neighboring the monument, there are private timber holdings that are managed as working forests. This includes the majority of the land between the eastern and western sections of the monument. Development on these parcels is primarily gravel roads for access to timber holdings.

[Bowlin Camps Lodge](#), a recreational sporting camp, is located on the East Branch of the Penobscot River adjacent to the TFG monument parcel. On the map on page 5, it is located just north of the Big Spring Brook (West) camp site. As of March 2020, the 264-acre Bowlin Camps Lodge property is [for sale](#).

[Matagamon Wilderness Camps](#) is a privately owned campground with 36+ sites located close to the north entrance of the monument and 1.5 miles from the north entrance of Baxter State Park.

Shin Pond Village is a recreational facility with 30 campsites and lodging options including cottages, guest suites, and 2 homes located approximately 15 miles from the north entrance of the monument.

Other private lands include those with camps or cabins for seasonal recreational use, such as parcels along the southern shore of Lower Shin Pond adjacent to the northeastern portion of the monument in the Lower Shin Pond and Seboeis River North parcels.

Currently, the privately owned land adjacent to the monument is minimally developed but there is the possibility that parcels may be sold and developed in the future.

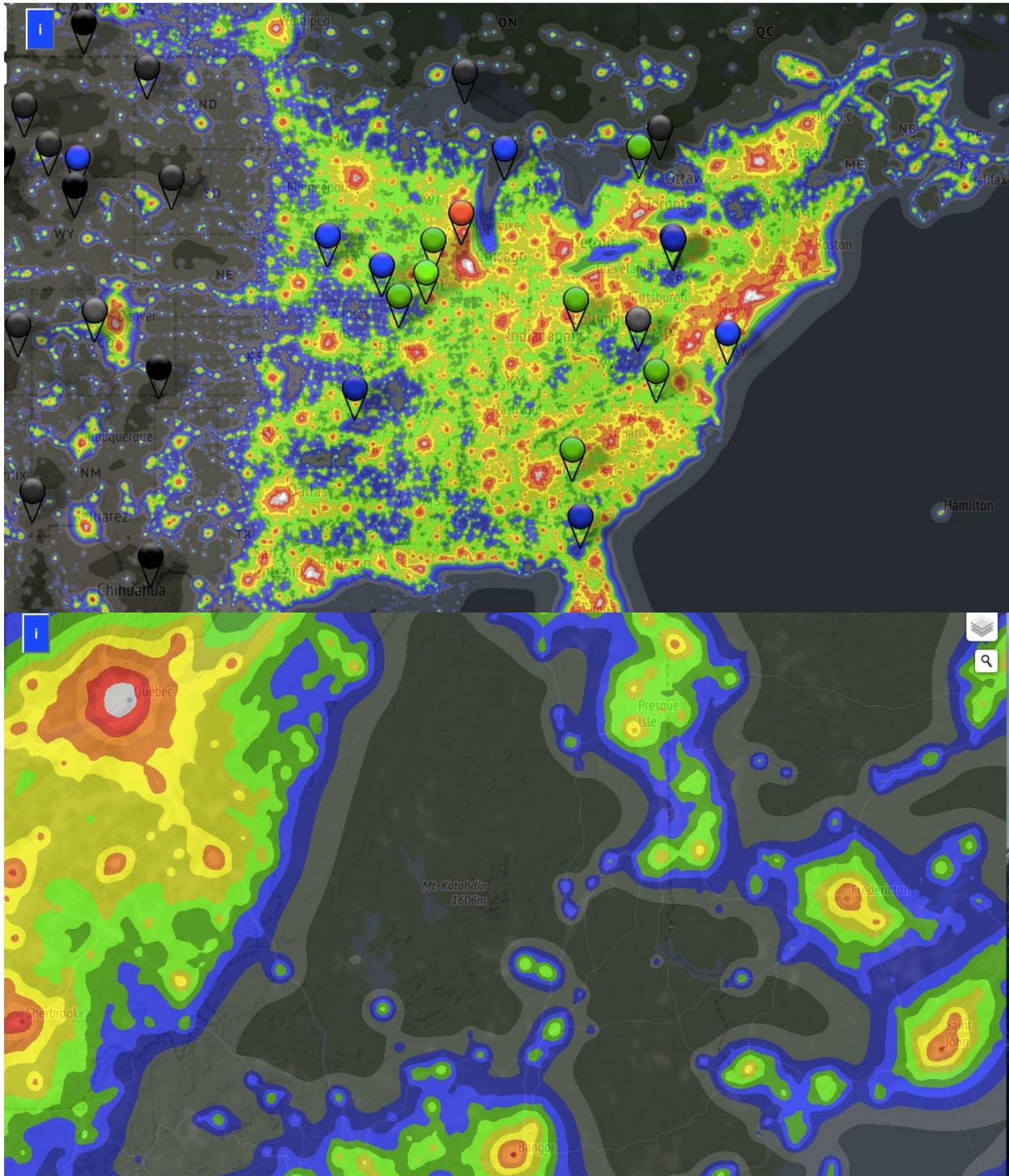
### [Isolation from Light Pollution](#)

Low light pollution conditions and dark skies are one of the most important properties of a good astronomical observation site. When viewed on the attached light pollution map, development on the eastern side of the United States provides a striking contrast to the proposed Dark Sky Sanctuary area east of Mount Katahdin, an island of exceptionally dark skies in a sea of light pollution, well deserving of our protection and conservation.

<https://darksitefinder.com/maps/world.html#7/45.951/-68.406>

Note area to the east of Mount Katahdin

### Light Pollution /Dark Sky Maps



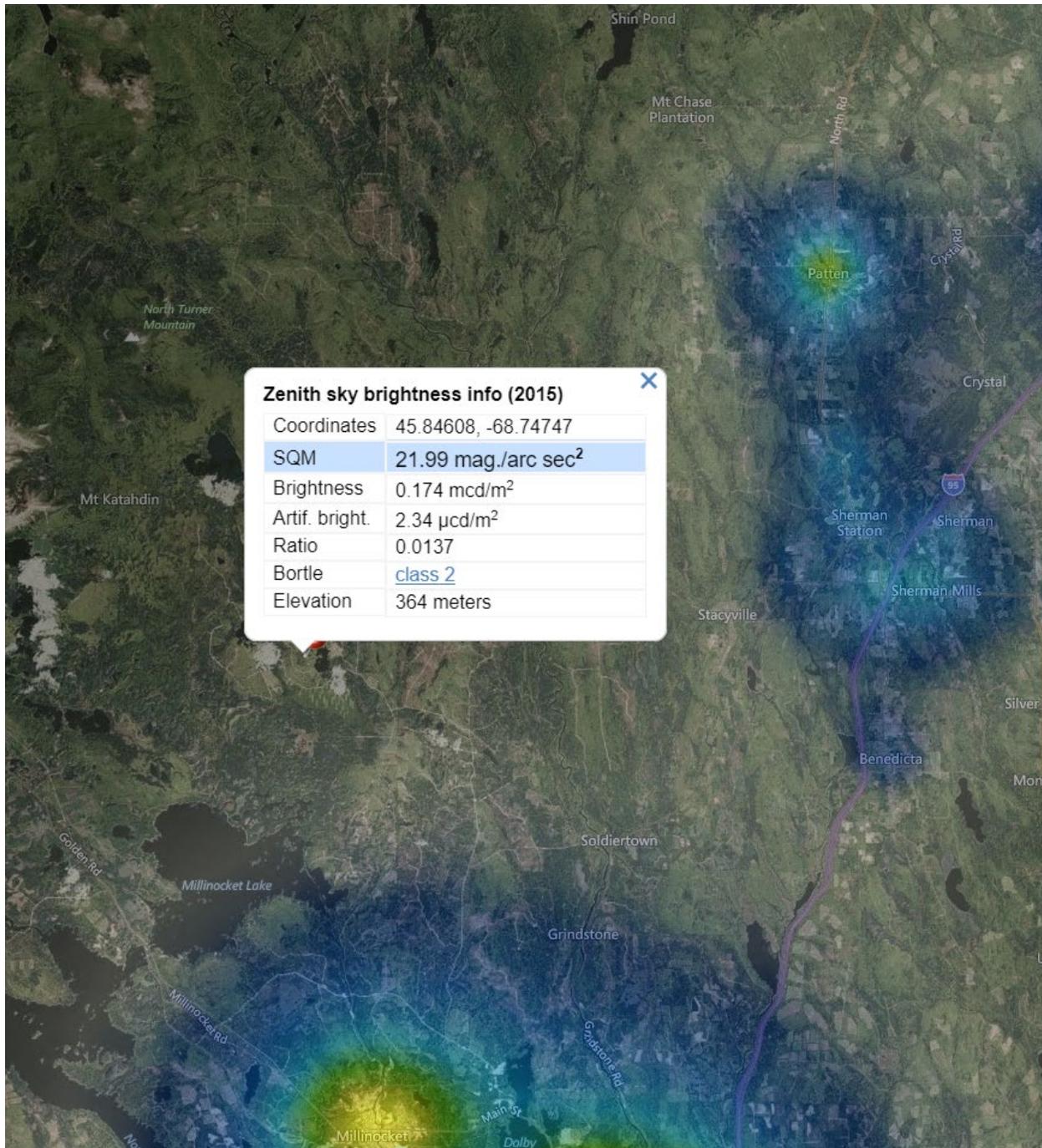
## Preliminary Assessment of Sky Quality

National Park Service staff and Susan Adams, an NPS Volunteer In Parks (VIP), took a series of measurements from August 2018 through October 2018 in and near KAWW using a Sky Quality Meter (SQM-L). The unit number of the SQM-L is 219 and the serial number is 0563. The SQM-L was sent to Unihedron for recalibration in fall 2018.

Measurements used the following criteria:

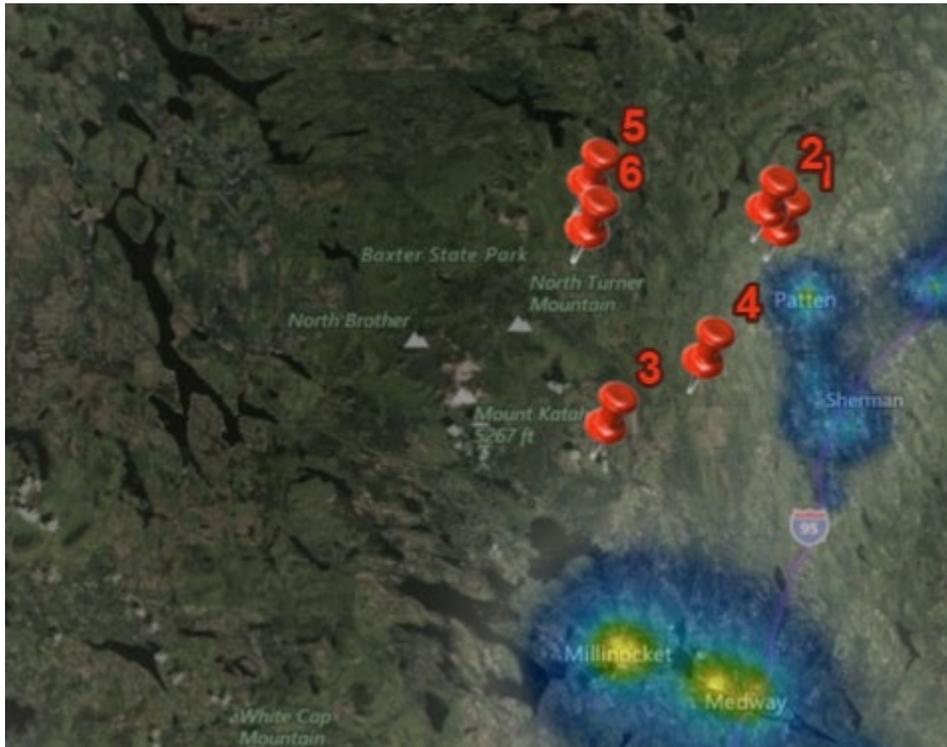
- Astronomically dark (sun was 18 degrees below the horizon)
- The moon was completely below the horizon
- As clear a night as possible-any cloud conditions were noted in the record
- Measured directly overhead
- Noted date, time, temperature, weather conditions, location, and minimum of six readings with a Sky Quality Meter (SQM) device discarding the 1<sup>st</sup> reading.

During this time period, none of the measurements fell below 21.39 magnitudes per square arcsecond and the average was 21.53 mag/arcsec<sup>2</sup>. Weather was a challenge on some of the evenings. Stars too bright appeared to be another issue! Perseid meteor showers were observed the night of August 10, 2018. The measurements may not have captured the dark sky quality of KAWW completely. As seen in the image below from the Light Pollution Map at [lightpollutionmap.info](http://lightpollutionmap.info), the projected sky quality for KAWW via satellite data is 21.9 mag/arcsec<sup>2</sup>.



As Adam Dalton from the International Dark Sky Association stated, the average measured sky quality for KAWW on clear nights is roughly 21.7 mag/arcsec<sup>2</sup>, which is decidedly below the 21.9 mag/arcsec<sup>2</sup> projected via satellite data.

In 2020, NPS staff and VIPs will continue to record readings on a monthly basis. Readings will be taken later in the evening/after midnight to avoid the Milky Way and its interference. Year-round readings can be taken at 881 Shin Pond Rd, just outside the monument boundaries, and Grondin Rd. From May-October, additional readings can be taken at the overlook on the Katahdin Loop Rd, Lunksoos Camp and the Big Spring Brook Hut and Haskell huts. Winter readings can be taken at Big Spring Brook and Haskell huts as well, since the area can be accessed by snowshoe and cross-country skis. The image below illustrates the locations where SQM readings have been taken. The numbers correspond to the numbers listed in the left column of the light readings chart.



Additional readings are provided thanks to Astro VIPs from Acadia National Park and a member of the IDA.

## Light Readings Charts

	Location	Coordinates	Date	Time	Temp °C	SQM average	Weather	Comments
1	881 Shin Pond Rd	46.03466, -68.50636	8/10/18	2152	19	21.55	Clear, cool	3.5 miles from KAWW, average of 7 readings
			8/12/18	2215	24	21.64	Clear	3.5 miles from KAWW, average of 4 readings
			9/8/18	2136	6	21.43	Clear	3.5 miles from KAWW, average of 7 readings
			9/9/18	2225	4	21.42	Clear	3.5 miles from KAWW, average of 6 readings
			11/7/18	2015	14	21.28	Partly cloudy	3.5 miles from KAWW, average of 11 readings
			1/7/19	0300	-15	21.43	Clear, cold	3.5 miles from KAWW, average of 5 readings
			3/10/19	2130	2	21.19		3.5 miles from KAWW, average of 7 readings
			8/3/19	0330	21	21.39	Clear, a bit hazy	3.5 miles from KAWW, average of 9 readings
			2	Grondin Rd	46.05339, -68.52380	8/12/18	2200	24
9/8/18	2106	6				21.53	Clear	Average of 7 readings

			9/9/18	2240	4	21.48	Clear	Average of 6 readings
			11/7/18	1943	14	21.27	Partly cloudy, clear overhead	Average of 6 readings
			8/31/19	2130	22	21.51	Clear, shooting stars	Average of 12 readings
3	Loop Rd Overlook	45.84608, -68.74747	9/9/18	2057	4	21.39		Average of 6 readings
			9/21/19	2013	16	21.42	No clouds, a bit hazy	Stars Over Katahdin, average of 11 readings
4	Lunksoos Camp	45.90890, -68.61290	10/5/18	2145	13	21.78	Partly cloudy	Stars Over Katahdin, average of 6 readings
5	Haskell Hut	46.07951, -68.76996	2/14/19	2034	-9	19.33	Waxing gibbous moon	Average of 6 readings
6	Big Spring Brook Hut	46.034189, -68.774292	8/7/19	0000	23-25	21.33	Clear	Average of 6 readings

### Additional Readings State Wide by Kelly Beatty

In 2017, Dwight Lanpher (Penobscot Valley Sky Gazers) took meter readings in Katahdin Woods and Waters National Monument as well as readings at other locations in Maine. The 2017 KAWW readings and Kelly Beatty's from Millinocket are in red in the table below.

Basically, KAWW has the darkest reading Mr. Lanpher has ever taken in Maine. To convert these values ("magnitudes per square arcsecond") to "naked-eye limiting magnitude" (NELM, faintest stars visible by eye), go to: <http://www.uni-hedron.com/projects/darksky/NELM2BCalc.html>

SQM Mag/Arc sec <sup>2</sup>	Location	Town	Year	Date
------------------------------	----------	------	------	------

21.62	KAWW Nat'l Mon.	Stacyville	2017	16-Sep-17
<b>The reading above was taken at KAWW Overlook Katahdin Loop Road Coord. Above</b>				
21.57	Cobscook Bay State Park	Edmunds	2017	25-Aug-17
21.58	Cobscook Bay State Park	Edmunds	2016	27-Aug-16
21.58	Cobscook Bay State Park	Edmunds	2014	23-Aug-14
21.55	Acadia Nat'l Park, Seawall Picnic Area	Manset	2016	26-Jul-16
21.48	Acadia Nat'l Park, Otter Cliffs	Bar Harbor	2016	3-Aug-16
21.42	Mt. Mégantic Observatory	Quebec	2012	21-Jul-12
21.40	Brower Observatory: (night 2)	Whitefield	2014	27-Jul-16
21.38	Brower Observatory: (night 1)	Whitefield	2013	
21.36	Acadia Nat'l Park, Cadillac Mountain	Bar Harbor	2016	3-Aug-16
21.28	Galaxy Quest Observatory	Lincolnville	2014	
21.06	Damariscotta River Assoc. land trust	Damariscotta	2014	27-Jul-16
20.98	Starfield Observatory	Kennebunk	2013	26-Jul-16
20.95	Jerry Pond	Millinocket	2017	15 Sep-17
20.44	Bombahook Observatory	Augusta	2016	2-Jul-16
19.62	University of NH Observatory Site	Durham, NH	2016	9-Sep-16

### Threats to Sky Quality

Currently the most significant threats to sky quality at KAWW are the outlying communities of Millinocket (pop. 4500), East Millinocket (pop. 1700), Medway (pop. 1350), Sherman (pop. 850), Stacyville (pop. 400), Patten (pop. 1017) and Mount Chase (pop. 200). Other potential threats down the road could involve the sale and break up of more of the north woods currently in the unorganized territories of northern Maine. Future protection could be influenced by its proximity to a Dark Sky Sanctuary. KAWW will continue to work with neighboring communities and Baxter State Park to explore options for preserving the dark sky quality of this area.

### Exterior Light Inventory

As of December 2019, there are zero lights (indoor or outdoor) within Katahdin Woods and Waters National Monument.

### National Park Service Management Policies

An assortment of laws and directives at the federal and park level serve as guidelines for Katahdin Woods and Waters National Monument in its mission to protect natural night skies. From the 1916 Organic Act to the

Lightscape Management Plan in 2006, the federal government has laid out a basis for the idea of protecting night skies. In addition to these, the Director's Call to Action Report 2011 Action 27 reaffirms the National Park Service's support towards the protection of dark sky resources.

### **National Park Service Organic Act (1916)**

The Organic Act was passed in 1916 to protect and manage the national park lands of the United States. The act protected the ecological and scenic values within federal lands, under which falls dark sky resources.

“The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

### **4.10 Lightscape Management (2006)**

This service-wide document of management policies provides the National Park Service with required and recommended actions to manage programs and parks. Included within is a Lightscape Management Plan, which lays out specific guidelines and recommendations for light management and use.

“The Service will preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human caused light...The stars, planets, and earth's moon that are visible during clear nights influence humans and many other species of animals, such as birds that navigate by the stars or prey animals that reduce their activities during moonlight nights.

“Improper outdoor lighting can impede the view and visitor enjoyment of a natural dark night sky. Recognizing the roles that light and dark

periods and darkness play in natural resource processes and the evolution of species, the Service will protect natural darkness and other components of the natural lightscape in parks. To prevent the loss of dark conditions and of natural night skies, the Service will minimize light that emanates from park facilities, and also seek the cooperation of park visitors, neighbors, and local government agencies to prevent or minimize the intrusion of artificial light into the night scene of the ecosystems of parks. The Service will not use artificial lighting in areas such as sea turtle nesting locations where the presence of the artificial lighting will disrupt a park's dark-dependent natural resource components. The Service will:

- restrict the use of artificial lighting in parks to those areas where security, basic human safety, and specific cultural resource requirements must be met;
- use minimal-impact lighting techniques;
- shield the use of artificial lighting where necessary to prevent the disruption of the night sky, natural cave processes.”

### **The Green Parks Plan (2012)**

The Green Parks Plan is a long-term strategic plan for management of NPS operations in a sustainable manner.

“The NPS will minimize the impact of facility operations on the external environment. Outdoor experiences can be adversely affected by facility operations. Exterior lighting can reduce dark night sky quality and vehicle traffic can diminish the natural silence and sounds of an ecosystem. Reducing the impact of NPS operations on the environment will improve the visitor experience and protect natural and cultural resources through the preservation of night skies, natural sounds, water quality, ecosystems, and viewsheds.

### **Objectives**

- 1: The NPS will reduce light pollution from park facilities with the goal of dark night sky preservation.
- 2: The NPS will minimize sound pollution in the outdoor environment.

3: The NPS will ensure that all facilities and operations are sustainably integrated into the park landscape to minimize impact on the natural and cultural environment.”

### **NPS Natural Sounds and Night Skies Division (last webpage update 2018)**

Natural Sounds and Night Skies issues across the NPS are managed from an office in Fort Collins, CO.

“America’s national parks contain many cherished treasures; among them are captivating natural sounds and awe-inspiring night skies. The joy of listening to the quiet symphony of nature or the beauty of seeing the Milky Way stretching overhead have become rare experiences in our lifetimes, but they can still be found in many of our national parks. Natural sounds and natural darkness, though often overlooked, are essential in keeping our national treasures whole. They are magnificent in their own right, but also inspirational to the visitors who come to national parks, vital to the protection of wilderness character, fundamental to the historical and cultural context, and critical for park wildlife.

“The Natural Sounds and Night Skies Division uses science, engineering, and technology to understand and better manage these spectacular resources. We pioneer innovative techniques to measure the impact of noise and light pollution, develop new approaches to safeguard natural sounds and natural darkness, and identify management solutions to restore these public resources.

“The Natural Sounds and Night Skies Division works to protect, maintain, or restore acoustical and dark night sky environments throughout the National Park System. We work in partnership with parks and others to increase scientific understanding and inspire public appreciation of the value and character of soundscapes and star-filled skies. We welcome your interest in learning about these sublime resources of our national parks and the efforts you can take to help us preserve them for future generations. Whether it’s simply talking a little

softer or turning off an outdoor light, you too can make a difference in the protection of these vital resources. Most of all, we encourage you to experience for yourself the natural soundscapes and lightscapes of your national parks.”

### **The Director’s Call to Action Report 2011**

The Director’s Call to Action Report is a guideline for employees and partners that contains specific goals and measurable actions, and charts a path towards unified goals.

#### **“Starry, Starry Night: Action 27**

Lead the way in protecting natural darkness as a precious resource and create a model for dark sky protection by establishing America’s first Dark Sky Cooperative on the Colorado Plateau in collaboration with other federal agencies, partners, and local communities.”

## Lighting Management Plan

### Katahdin Woods and Waters National Monument Lighting Management Plan

The Lighting Management Plan for Katahdin Woods and Waters National Monument reflects the dark sky character of the monument and is intended for all operational and special event use.

#### Philosophy

All instances of use of artificial light at night in Katahdin Woods and Waters National Monument (KAWW) will adhere to the principle outdoor light should be deployed only: (1) when it is needed; (2) where it is needed; (3) in the appropriate amount for a specific task; and (4) with the appropriate spectrum.

#### Applicability

This Lighting Management Plan (LMP) meets or exceeds all applicable agency and/or departmental policies regarding outdoor lighting and conforms to all local, regional, and national laws.

#### Exemptions

The following types of outdoor lighting installations shall be permitted:

1. Lighting required by local, regional or national mandates.
2. Temporary outdoor lighting required for the safe performance of nighttime tasks, such as construction, at the discretion of the Superintendent (See "Temporary Lighting," below)

3. Outdoor lighting controlled with motion-activated switches limiting the duration of illumination to less than five (5) minutes after activation.
4. Unshielded, low-intensity 'holiday' lighting whose use is specific to events or time periods as prescribed by the Superintendent

### Warranting of outdoor lighting installations

The installation of new outdoor lighting in the park is permitted where the Superintendent determines a public safety hazard exists and can only be mitigated through the use of outdoor light. Where light is required for the safe performance of tasks or safe transit between locations, it will be used; otherwise, the default policy of the park will be to not light.

### Shielding

All outdoor lighting fixtures whose lamps have an intensity equal to or greater than 500 initial lamp lumens shall be fully shielded and make appropriate use of adaptive controls. Lighting whose lamps have an intensity of less than 500 initial lamp lumens may be left unshielded for special purposes, such as historical preservation, upon determination by the Superintendent. These lights shall not be exempt from other requirements of the LMP, and must be designed in such a way as to minimize impact to the nighttime environment.

### Spectrum

Outdoor lighting fixtures in the park shall be chosen to minimize the amount of shortwave length (blue) light emitted into the nighttime environment. Lighting must meet one of the following parameters:

1. The correlated color temperature of all lamps shall not exceed 3000 Kelvins.
2. Lamps shall emit no more than 25% of their total spectral power at wavelengths less than 500 nanometers.

3. The scotopic-to-photopic (S/P) ratio of allowed lighting shall not exceed 1.3.

### Electronic Signs

Electronic signs are internally-illuminated (aka 'cabinet') signs, and signs illuminated by electronic means such as LEDs and similar lighting. If park operations warrant their use, the following conditions apply:

1. Use of such signs from one hour after local sunset to one hour before local sunrise is generally prohibited. Such signs will be equipped such that they are extinguished automatically at these times.
2. Displays must be single-color on a black background (aka 'reverse pan channel') in design.
3. Illuminance of such signs after sunset may not exceed 100 nits (100 candelas per square meter).
4. A temporary exemption to these prohibitions will be made for safety reasons, i.e., road blockage.

### Temporary Lighting

Installations of temporary outdoor lighting, as exempted above, will be limited to the minimum number of nights required to complete the task. Such installations will limit off-site impacts of such lighting to the maximum extent practicable.

### Visitor Lighting

Lighting of vehicle exteriors, tents, and other personal property belonging to park visitors shall be limited to provide for reasonable use while maintaining the natural character of the park and avoiding the creation of nuisance for other visitors.

1. All lighting shall be restricted in intensity and extent to provide for the needs of visitors at their campsites.
2. High-intensity light painting of park landscapes, the use of searchlights, and similar uses of outdoor lighting by visitors is prohibited.

### Definitions

**Adaptive controls:** Any device that, when used in conjunction with outdoor lighting, limits the duration, intensity or area illuminated by the lighting. Examples include automatic switches, timers, and motion sensors.

**Correlated color temperature:** A metric characterizing the color properties (spectrum) of lighting, specified in units of Kelvins.

**Initial lamp lumens:** The number of lumens of light emitted by a lamp when new, not accounting for depreciation due to age. Initial lamp lumens are specified by manufacturers on product packaging or in data sheets.

**Light painting:** The use of portable lighting directed at landscape features for illumination during long-exposure landscape photography.

### Approval

The Lighting Management Plan is valid as of the date of the Superintendent's signature. Any changes to the plan will require the Superintendent's approval

Approved: 

Tim A. Hudson, Superintendent

30 October 2019

## Community Outreach

For 2 years prior to the national monument proclamation and now for the past 4 years as a National Park Service (NPS) unit, Elliotsville Foundation, Inc, Friends of Katahdin Woods and Waters, and the National Park Service have continued to increase public awareness for the special dark skies here through the annual Stars over Katahdin Event (SOK) and activities in and around KAWW. A travelling planetarium, Northern Stars Planetarium, and more recently, Astro VIPs from Acadia National Park visited local schools for daytime programs. An evening star party for families offers a night under the stars with astronomers, telescopes and stories each fall in the remote monument setting. The SOK event is coordinated to complement Acadia National Park's Night Sky Festival, a week-long event held annually at the end of September. We hope to keep the fans of dark skies here in Maine for two weeks each year instead of the one.

At SOK events we provide sky charts, learning projects for younger children, learned speakers and more. Astro lessons are included in both the school programs and night programs. This past year an Astro VIP even provided a 14 year old astronomy enthusiast with his own telescope! Eighth graders from Mount Desert Elementary School had the opportunity to assist with sky quality readings. Reflections from the students demonstrate the impact of the Stars Over Katahdin event:

*“We did so much on this field trip, we got to look at the stars and had an astronomer who showed our group all the constellations. Also there was a woman who was recording the dark sky levels so we got to help record it and use this cool little machine. We also learned a lot of cool stories and facts about the stars and the dark sky program. Overall this is a trip I will never forget.” -Mallory*

*“The stars were my favorite part, we even got to help this one woman out with her experiment with the dark sky. It was such a fun experience that I will never forget!” -Kaitlyn*

Each year’s SOK event ends with an astronomer’s breakfast where discussions are held on how we can further the IDA mission and its goals *“To preserve and protect the nighttime environment and the heritage of dark skies through environmentally responsible outdoor lighting.”*

KAWW discusses advocacy for the protection of the night sky, education and policy, outdoor lighting innovations, and invites the public to join us to learn what part they can play.

SOK outreach has included cooperation from Acadia National Park staff and Astro VIPs, Maine Appalachian Mountain Club, Sierra Club, International Appalachian Trail Association, Colby College, and Eastern Maine Community College.

The Friends of KAWW have funded a place-based learning program, called the Katahdin Learning Project, for the past two years. This is staffed with a regional educator who oversees this and future events such as the annual Stars over Katahdin event. Curriculum will be developed as well to educate future community planners in the value of dark sky preservation and protection.

A more recent project involves a local middle school science class who are researching and planning solar lighting for a local park in Patten. They have been using resources from the IDA website, as well as consulting with Kelly Beatty, an IDA member. Dark sky lighting has been brought up in both the classroom and in the Teacher Camp sponsored each spring within the monument. In teacher participant exit interviews for this past year, the most requested information is on local

astronomy and the dark sky projects. We will be working on more comprehensive units for regional teachers going forward.

A volunteer visited local municipal offices in Sherman, Staceyville and Patten to talk with selectmen and community planners about lighting, dark skies and astrotourism. In the near future we are working with a Maine film company on a project on the Dark Sky resources of Maine. For more information check out:

<https://spark.adobe.com/page/L7x9ieQiyfifw/>

With support from an NPS volunteer, the Elliotsville Foundation, Inc provided an overnight for the Wabanaki Youth in Science (WaYS) program students in 2019, which will continue in future years. In 2019, elder John Dennis, cultural director for the Aroostook Band of Micmacs, shared many stories of the stars and planets and their importance to the tribes for wayfinding and perpetuating these stories for future generations when no written word was used. John Dennis grew up in the Eskasoni Mi'kmaw Nation in Cape Breton, Nova Scotia, where he was raised by his mother and formed bonds with many members of his extended family. Although he remembers being part of many traditional Micmac customs such as seasonal fishing and listening to stories from elders, he did not become fully immersed in tribal ceremonies, spirituality, culture and history until moving to the Micmac community in Presque Isle decades later.

There will be an opportunity to include the indigenous people of Maine in our Dark Sky Sanctuary efforts through viewing and on site sharing. <https://umaine.edu/nativeamericanprograms/wabanaki-youth-science-program/>

KAWW hired its first seasonal interpretive ranger in 2019 and the ranger presented at the SOK campfire chats. In 2020, the KAWW NPS presence may increase as additional permanent and seasonal positions are filled. The Friends of Katahdin Woods and Waters now coordinate future SOK events, with continuing support from EFI, Inc and the NPS.

<b>Event</b>	<b>Date</b>	<b>Attendance</b>
Stars Over Katahdin 2019	09/21/2019	56 attendees, 46 students, 40 teachers, 11 VIPs, 3 Astro VIPs, 2 NPS rangers from Acadia NP and Katahdin Woods and Waters NM
Stars Over Katahdin 2018	10/01/2018-10/08/2018 (10/06/2018)	40 attendees, 14 VIPs, 3 Astro VIPs, 1 NPS ranger from Acadia NP
Stars Over Katahdin 2017	09/14/2017-09/17/2017 (09/16/2017)	50+ attendees (15 youth), 14 KAWW VIPs, 3 Astro VIPs, 1 NPS ranger from Acadia NP
Stars Over Katahdin 2016	10/01/2016	1 NPS ranger from Acadia NP
Stars Over Katahdin 2015	09/12/2015	35+ attendees, 12+ VIPs
Stars Over Katahdin 2014	9/27/2014	32+ attendees, including Terry Tempest Williams and members of the Colby College Space Club, 10 VIPs
Planetarium (schools)	2019	320 students, 40 teachers
Planetarium (schools)	2018	281 students, 12 teachers in Stacyville and East Millinocket
Planetarium (schools)	2017	487 students, teachers and residents in Stacyville and Medway
Planetarium (schools)	2016	1 <sup>st</sup> evening program for families at Katahdin Elementary School, Stacyville
Planetarium (schools)	2015	
Planetarium (schools)	2014	200+ students in Millinocket and Stacyville

Teacher Camps		34
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## Letters of Support

Katahdin Woods and Waters National Monument  
Tim Hudson, Superintendent

Friends of KWW National Monument  
Andrew Bossier, Executive Director

Elliottsville Foundation Inc.  
Lucas St. Clair, Executive Director

Northern Star Planetarium  
John Meader, Owner/Educator/VIP

Katahdin Learning Project  
Scarlet McAvoy, Educator/VIP

East Millinocket and Woodville School Departments  
Dawn Pray, Superintendent

Kelly Beatty  
IDA Member

Eben Sypitkowski  
Director, Baxter State Park

# United States Department of the Interior



NATIONAL PARK SERVICE  
Katahdin Woods and Waters National Monument  
PO Box 446  
Patten, ME 04765

December 10, 2019

Board of Directors  
International Dark Sky Association  
3225 North First Avenue  
Tucson, AZ 85719

Dear Board of Directors:

I am writing to share my strong support for the designation of Katahdin Woods and Waters National Monument (KAWW) as an International Dark Sky Sanctuary. The monument was established by the President of the United States by Proclamation 9476 on August 24, 2016 as the 413<sup>th</sup> unit of the National Park Service. The Proclamation states the many natural, cultural, and geologic and other values that led to the monument's establishment, including specific references to the night skies of the Katahdin region.

We have a great opportunity here at KAWW to start from almost inception to create a Dark Sky Sanctuary where few such areas exist in the eastern United States. The monument is in the heart of the Katahdin Region and has adjacent areas with dark skies, such as over 200,000 acres of Baxter State Park which borders the monument to the west.

Night skies were recognized as a significant resource with the previous owners of the land (Elliotville Plantation, Incorporated) who began an annual night sky event before the monument was established. Katahdin Woods and Waters National Monument has continued that event, as well as promoting the dark skies of the region throughout the year, and we are starting to get visitors looking for a night sky experience throughout the year

For these reasons and more I feel that Katahdin Woods and Waters National Monument is an excellent candidate for Dark Sky Sanctuary designation and heartedly support its nomination.

Sincerely

Tim Hudson  
Superintendent  
Katahdin Woods and Waters National Monument



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**ENGAGEMENT**  
**COORDINATOR**  
*Kala Rush*

**CONTACT**

Friends of Katahdin  
Woods & Waters  
PO Box 18177  
Portland ME 04112  
207-808-0020  
[www.friendsofkww.org](http://www.friendsofkww.org)  
[info@friendsofkww.org](mailto:info@friendsofkww.org)

501(c)3 nonprofit

November 21, 2018

**International Dark Sky Association**  
3223 North First Avenue  
Tucson, Arizona 85710-2103

To the IDA Board of Directors,

Friends of Katahdin Woods and Waters is glad to support for the application for designation of Katahdin Woods and Waters as an International Dark Sky Sanctuary.

Katahdin Woods and Waters' 87,564 acres is of vital importance in protecting the largest, unadulterated remaining dark sky east of the Mississippi River.

Friends of Katahdin Woods and Waters pledges to continue the work started five years ago to bring public awareness to this dark sky resource, both within the Monument as well as in its surrounding communities. We will continue to sponsor and lead the Stars Over Katahdin events held each year and will promote dark sky information resources and information through media and public outreach.

Friends of Katahdin Woods and Waters also funds and coordinates dark sky education through our place-based education program, the Katahdin Learning Project. We are very eager to explore new ways of promoting astro-tourism within the Katahdin region as well. The total eclipse that will take place in the Katahdin Woods and Waters in 2024 is a great opportunity to share with the world the spectacular night sky resources our park has to offer.

Friends of Katahdin Woods and Waters urges you to consider this designation in the infancy of our new park, a new plan, and a great opportunity.

Sincerely,

**Andrew Bossie**  
Executive Director



December 12, 2018

International Dark Skies Association  
3223 North First Avenue  
Tucson, Arizona 85710-2103

To the IDA Board of Directors:

Elliotsville Plantation, Inc. (EPI) enthusiastically supports the application of Katahdin Woods and Waters National Monument to be designated as an IDA Dark Skies Sanctuary.

Since acquiring the lands that now constitute the Monument, EPI has been a consistent supporter of programs to bring public awareness to the area's unique dark sky resource through the Katahdin region schools and public "Stars Over Katahdin" events. On August 24, 2016, EPI and its founder, Roxanne Quimby, donated this remote landscape of 87,500 acres to the United States. The dark skies were specifically identified as key elements having outstanding scientific, natural, cultural and scenic value in the Proclamation signed by President Obama for the creation of the Monument.

EPI is committed to preserving and protecting this important public resource. As part of the donation of the Monument lands, EPI retained certain Reserved Rights that include the right to build improvements including a visitor contact station and related infrastructure within the Monument. In exercising its Reserved Rights, EPI will continue to consult with the National Park Service and to incorporate a lighting management plan that is consistent with the IDA Dark Skies guidelines.

Designation as an IDA Dark Skies Sanctuary would be an important additional step in protecting and highlighting the unique value of this national resource for generations to come. We strongly encourage the IDA Board to accept this application!

Sincerely,

Lucas St. Clair  
Executive Director

Northern Stars Planetarium  
15 Western Ave.  
Fairfield, Maine 04937  
[www.northern-stars.com](http://www.northern-stars.com)  
[john@northern-stars.com](mailto:john@northern-stars.com)  
207-453-7668

Board Of Directors  
International Dark Sky Association  
3225 North First Avenue  
Tuscon, AZ 85719

Dear Board of Directors,

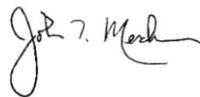
I want to express my support for the work done by staff and volunteers at Katahdin Woods and Waters National Monument in northern Maine. For the past five years I have been involved with an event at the monument called *Stars Over Katahdin*. This is an annual event held near the new moon closest to the autumnal equinox, celebrating the dark skies of the monument. While it culminates in a star party on the Saturday night of the event, there is much more that goes on.

I run a portable planetarium business here in Maine, servicing elementary and middle school children, reaching 18,000 students per year. I have been doing this since 1987. For the past five years, Elliotsville Plantation Inc and now since receiving Monument status, the Friends of Katahdin Woods and Waters National Monument has hired me to bring the planetarium to area schools around the monument. I have offered grade level appropriate presentations for students during the day, while doing public presentations in the evening hours. Students and community members who attend my planetarium shows are fascinated by the night sky and proud to learn that they live in a very dark region of the northeastern United States, perhaps one of the darkest.

The Saturday night star party is held at a very scenic overlook within the monument that features outstanding views of Mount Katahdin—Maine's highest peak—and Millinocket Lake, all surrounded by the vast Maine Northwoods. It is a magical location. When it gets dark the Milky Way stretches high overhead and woos everyone who is lucky enough to be there. This event is supported by the Friends group, an Astronomer VIP program through the support of Acadia National Park, area astronomy clubs, as well as local businesses.

The weekend of *Stars Over Katahdin* is filled with hikes, solar observing, and talks about the night sky, as well as discussions about preserving the precious dark skies that Katahdin Woods and Waters National Monument now possesses.

Please support the efforts to promote the astronomy programming and dark skies at the monument, it is a treasure, not just for the people of Maine, but also for people everywhere who value the night sky.



# Katahdin Schools

## RSU 89

Marie Robinson, PK - 12 Principal  
Debra Marquis, Guidance Director, KMHS  
Jaide Berry, Guidance Director, KES

800/805 Station Rd. Stacyville, ME 04777  
365-4285 KES/365-4218 KMHS

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November 27, 2018

To Whom It May Concern:

Stars Over Katahdin has become a yearly event that students at Katahdin Elementary School (K.E.S.) look forward to. For the last five years, during the week before Stars Over Katahdin, a traveling planetarium has visited K.E.S. giving students an opportunity to learn about the planets, stars, and the universe.

Beginning in 2017, in partnership with the Katahdin Learning Project, students have been invited back to the school in the evening with their families to experience a Family Star Party. These star parties have included another visit to the planetarium with their families and other activities focused on constellations. In 2017, Astro volunteers brought telescopes and allowed students and families to view the sky through them. In 2018, students created their own Big Dipper Craft.

These events have helped to encourage local families to attend the main event of Stars Over Katahdin at the Lookout in Katahdin Woods & Waters National Monument. A fireside chat is held each year to kick off the evening. At the fire a variety of stories are shared. These stories have included explanations for the creation of constellations, moving stories from folks when they first experienced a dark sky night and the stars, as well as local ghost stories. As Place-Based Educator, I participated in the fireside chat and shared a ghost story that my grandmother shared when I was young of the historic Aroostook Road in Benedicta.

Sincerely,

Scarlet McAvoy  
Place-Based Educator

**East Millinocket &  
Woodville School  
Departments**

*Eric Steeves  
Superintendent*



**Medway  
School Department**

*Dawn C. Pray  
Superintendent*

International Dark-Sky Association  
3223 North First Ave.  
Tucson, AZ 85719  
(520) 293-3198

To the Board of Directors:

I am writing this letter of support for the Katahdin Woods and Waters National Monument (KAWW) and their application for the Dark-Sky Sanctuary designation. Each year the KAWW has provided our schools with a traveling planetarium, where our elementary students are able to participate and learn about the sky. They have also invited Astro VIPs to our middle school classrooms to do many hands-on presentations.

Also with their support, we have put on star parties, where families and community members are invited to view the stars behind the school. We provide hot chocolate, snacks, and all of the equipment needed to observe the beautiful northern Maine sky. It is a great community event and we hope to continue this tradition in the future.

With the KAWW in our backyard, it would be great to have the resources and ability to access areas to enjoy the outdoors, both during the day and at night. KAWW also provides many resources and opportunities for educators to access resources, as well as providing professional development for placed-based learning.

It would be very beneficial to our schools and community to have this designation at KAWW. It would not only be accessible to our communities, but would hopefully boost the economy with visitors from around the world.

If you have any further questions, feel free to reach out anytime.

Sincerely,

A handwritten signature in cursive that reads "Dawn C. Pray".

Dawn C. Pray  
Superintendent: Medway School Department, Burlington School Dept., RSU#89  
Asst. Superintendent: East Millinocket School Department, Woodville School Dept.  
Principal of Medway Middle School

45 North Street, Suite #2  
East Millinocket, ME 04430  
207-746-3500

25 Middle School Drive  
Medway, ME 04460  
207-746-3470



February 19, 2019

Mr. Adam Dalton, Manager  
International Dark Sky Places Program  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, Arizona 85719

Dear Adam:

I am honored and excited to nominate Katahdin Woods and Waters National Monument for consideration of International Dark-Sky Sanctuary status.

In my roughly 20 years of IDA membership and dark-sky activism in New England, I have visited a lot of "dark" places. But the Katahdin Woods and Waters area of north-central Maine ranks as what is arguably one of the most pristinely dark locations anywhere in the eastern United States. Guided by the vision of its original owner and by the foundation she created, this remote tract of 87,500 acres has only a handful of artificial lights now. Further, having gained National Monument status in 2016, oversight is now in place to assure that this vast "island of darkness" can be preserved for future generations.

Almost as important as the land itself are the outreach efforts by local enthusiasts. For several years, an annual "Stars Over Katahdin" stargazing event has drawn amateur astronomers from Maine and adjacent states. It was at one of these that an amateur astronomer logged the darkest Sky-Quality Meter reading he has ever recorded in New England. Now that Katahdin Woods and Waters National Monument is under the jurisdiction of the National Park Service, these local dark-sky activists are planning dark-sky-themed after-school programs as well as a wintertime star party within the property.

KWWNM's enthusiastic management team is both preserving the site's uniquely pristine nocturnal environment and expanding its appeal and economic value to the small communities that surround it. Their dedication and drive will ultimately lead to the creation of an IDA International Dark-Sky Sanctuary that will be admired and celebrated worldwide.

Clear skies,

  
J. Kelly Beatty  
Senior Editor

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Director, Maine Forest Service  
**AARON FREY**  
Attorney General  
**JUDY CAMUSO**  
Commissioner, Inland Fisheries and Wildlife

**STATE OF MAINE  
INFORMATION**

**baxterstatepark.org**  
Reservations (207) 723-5140

**PARK HEADQUARTERS**

**EBEN SYPITKOWSKI**  
Director  
64 Balsam Drive  
Millinocket, Maine 04462  
(207) 723-9616

21 March 2019

Mr. Adam Dalton, Manager  
International Dark Sky Places Program  
International Dark-Sky Association  
3223 North First Avenue  
Tucson, Arizona 85719

Dear Mr. Dalton,

I'm no astronomer, but I sense a tinge of irony that I write this letter of support for the Katahdin Woods and Waters National Monument's application to become a Dark Sky park as the last super moon of 2019 shines down on my desk.

As a neighbor, the Park would only benefit from a thoughtful plan to keep light pollution to a minimum next door. We strive to preserve a wilderness park and protect a wilderness experience--a dark sky neighbor clearly supports and expands such an experience.

As a resident of the region, I'm pleased to see one of the new organizations in town thinking hard about what we've got here and how to celebrate and share it. Organizations like KWWNM can help the citizens of this region to contextualize their riches; without connections to a wider audience, we tend to forget what makes this place special.

Thank you for your consideration of the KWWNM's application.

Sincerely,

Eben Sypitkowski  
Director, Baxter State Park



“ TO PRESERVE AND PROTECT ”

# OCT. 6<sup>TH</sup> & 9<sup>TH</sup> STARS OVER KATAHDIN

## Celebrate the Dark Skies of the Katahdin Region

You're invited you to celebrate the stunning night skies of the Katahdin region!

On Saturday Oct. 6<sup>th</sup>, join volunteers of Katahdin Woods and Waters National Monument for a guided day hike exploring the history and geology along the banks of the Wassataquoik Stream north to Orin Falls. Hikers will meet at Sandbank Stream Campsite to carpool at 10:30am.

Hikers with small children or a part of a family are welcome to meet Katahdin Learning Project place-based educator Scarlet McAvoy for a guided hike at Sandbank Stream Campsite at 2pm with an optional picnic to follow (families provide their own food). Please RSVP to [smcavoy@rsu89.org](mailto:smcavoy@rsu89.org) if you plan to attend the Family Hike.

Saturday evening, astronomers, monument volunteers, and star enthusiasts will gather at the Loop Road Overlook at Mile 6.7 for a campfire program (s'mores included) followed by a guided telescope viewing of the stars. A limited number may camp at the Overlook with reservations. Carpools and a reservation-only shuttle bus will be meeting at Sandbank Stream Campsite at 5pm. Please contact [lunksoos@gmail.com](mailto:lunksoos@gmail.com) on the shuttle or a campsite for the night.

Tuesday, Oct. 9<sup>th</sup> at 7pm, the Millinocket Memorial Library will be screening "Saving the Dark", a film about night skies and the effects of light pollution.



**SAT, OCT. 6<sup>th</sup>**  
**Katahdin Woods & Waters**  
**National Monument**

**10:30am – 4pm**  
**Guided Hike to Orin Falls**

**2pm**  
**Family Hike and Picnic**

**5:30pm – 10:30pm**  
**Star Viewing at Loop Road Overlook**

**TUES, OCT. 9<sup>th</sup>, 7pm**  
**Millinocket Memorial Library**

**"Saving the Dark"**  
**Film Viewing**

## FOR MORE INFO

email  
[lunksoos@gmail.com](mailto:lunksoos@gmail.com)

visit  
[www.friendsofkww.org/SOK](http://www.friendsofkww.org/SOK)

## Photos



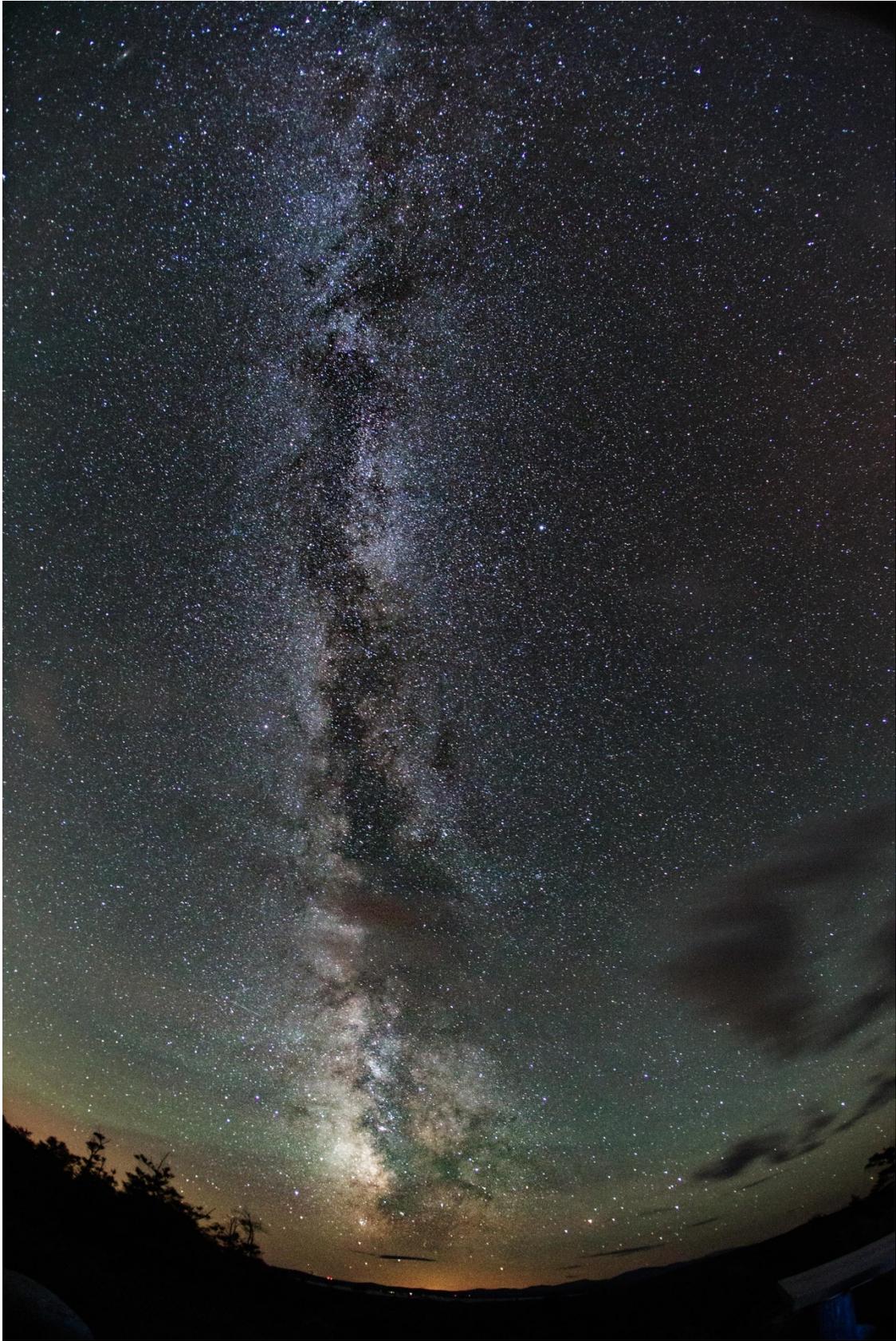
*NPS staff and VIPs prepare for night viewing from the Katahdin Loop Road Overlook at Stars Over Katahdin on September 16, 2017. (c) John Meader*



*First Stars Over Katahdin event on September 27, 2014 with Mount Katahdin in the background, taken from Katahdin Loop Road Overlook. © Colby College Astronomy Club.*



Students at Katahdin Elementary School listen to planetarium program presented by John Meader on September 14, 2017. © Susan Adams



*Millinocket Lake from Katahdin Loop Road Overlook on September 16, 2017. © John Meader*

Zortman Landusky



