

THE STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION FOR SITE LOCATION OF DEVELOPMENT ACT PERMIT
AND NATURAL RESOURCES PROTECTION ACT PERMIT
FOR THE NEW ENGLAND CLEAN ENERGY CONNECT
FROM QUÉBEC-MAINE BORDER TO LEWISTON
AND RELATED NETWORK UPGRADES

PRE-FILED DIRECT TESTIMONY OF

ROGER MERCHANT

ON BEHALF OF INTERVENOR GROUPS 2 AND 10

FEBRUARY 28, 2019

1 **Please state your name and business address.**

2 Roger Merchant. 1018 Pushaw Road, Glenburn, Maine.

3 **What is the name of your organization?**

4 Roger Merchant, Place-Based Photography

5 **What is your current position?**

6 Photographer and Forestry Naturalist

7 **What are your qualifications?**

8 I am a Licensed Professional Forester ME #727. From 1965-1972 I managed forestry
9 operations on a 100,000-acre working forest. I hold lifelong experience interpreting
10 aerial photographs and am also a photographer and forest resource documentarian. I had
11 a thirty-two-year career with the UMaine Cooperative Extension, now retired, with
12 program specializations in: 1) forestry and woodlot management, 2) environmental and
13 outdoor education, 3) small business and community development, 4) community-based
14 natural resource and cultural heritage tourism.

15 **What is the purpose of your testimony?**

16 The purpose of my testimony is to present a clear picture of current forest conditions
17 along the proposed power line between Coburn Mountain and the Quebec border,
18 including the existence of pre-existing forest fragmentation, then highlighting evidence
19 on selected, interpreted aerial photographs demonstrating how NECEC will increase
20 fragmentation and edge effects deeper in the woods adjacent to the line.

21 **Please state the introduction to your testimony.**

22 This written testimony illustrates the impact the NECEC corridor will have on forested
23 lands in the headwaters of the Upper Moose River between the Quebec border and
24 Coburn Mtn. to the east. For the reader-viewer, interpreted aerial photographs of sections

1 of this landscape provide visible evidence of: 1) the power line track, 2) the deeper edge
2 effect of the corridor, 3) extent of headwater streams, 4) the mix of continuous forest
3 cover and fragmented forest cover, and 5) the extent of permanent logging roads that will
4 intersect the proposed corridor, contributing to increased fragmentation and habitat
5 degradation.

6 My field knowledge as a forester from the Maine Woods began in 1965. Over half a
7 century I've witnessed many changes in forestry and logging practice. For example, with
8 the cessation of river drives in 1976, extensive networks of gravel roads now provide
9 access and transportation. These permanent road and yard alterations mark the beginning
10 of forest fragmentation, township by township. The NECEC corridor is simply the latest
11 iteration of landscape fragmentation by infrastructure that will impact habitat conditions
12 on and adjacent to the power line.

13 **Please provide an overview of basic aspects of forest fragmentation.**

14 Managed forests continually produce trees for forest products. Forest cover creates and
15 sustains wildlife habitat while providing recreational opportunities, now and in the
16 future.

17 Concerns about fragmentation are warranted. A de-forested power line corridor opens up
18 the landscape, permanently. They require large scale, long-term use of herbicides, can
19 lead to disruption of wildlife habitat and behavior, and compromise water quality for key
20 cold-water species like Eastern brook trout. Fragmented landscapes can facilitate
21 additional fragmentation from commercial development and expanded subdivision.

22 According to Michael Snyder, Forester and Commissioner of Vermont Department of
23 Forests, Parks and Recreation, "forest fragmentation is the breaking of large, contiguous,
24 forested areas into smaller pieces of forest; typically, these pieces are separated by roads,

1 agriculture, utility corridors, subdivisions, or other human development.”¹ (see Northern
2 Woodlands, 2014)

3 **Can you describe Maine’s forest cover change?**

4 Forest Cover Change 1942-2016: There was a time when continuous forest cover was the
5 norm for conditions in the Maine Woods. Aerial photographs taken in 1942, compared to
6 the same exact aerial view in 2016, reveal very different patterns in the forest over 74
7 years of forest change (The 1942-2016 Forest Project)². What’s abundant in the 1942
8 views is the presence of largely unbroken, continuous forest cover. And indeed, over the
9 longer span of time-change, trees and forests continue to prevail. However, when
10 contrasting the same aerial views, 1942 - 2016, very distinct patterns of open blocks,
11 patches and strips characterize today’s view of the forest. The extent of continuous forest
12 cover in 2016 has been reduced by a larger, more extensive patchwork pattern from
13 newer forest practices. This pattern reveals evidence of significant alteration and
14 fragmentation of forest cover. Change is the one constant in life and this mirrors just as
15 true for any forest. Further examples of 74 years of forest change can be found at The
16 1942-2016 Forest: (<https://www.facebook.com/The-1942-2016-Forest>). Accelerated
17 Forest Cover Change 1989-1997: Fast forward from 1942 to the 1989 Maine Forest
18 Practices Act (MFPA). Changes in forests, forestry practice and logging technology
19 prompted concerns about the impact of clear cutting on forests and habitat. Questions
20 emerged about the mandates of the 1989 MFPA and whether or not they were
21 contributing to forest and habitat degradation. Research suggests these concerns were

¹ Hagan, John M. and Boone, Randall B. 1997. *Harvest Rate, Harvest Configuration and Forest Fragmentation*, Manomet Center for Conservation Sciences Rpt.#MCDCF-97001

² Merchant, Roger, ME LPF-727. 2016. *The 1942-2016 Forest Project*, A social media page developed to illustrate forest changes from 1942 to and 2016 within the entire Piscataquis Watershed. (<https://www.facebook.com/The-1942-2016-Forest>)

1 not superfluous. In 1997, the Manomet Center for Conservation Sciences conducted
2 research on these effects from the allowances and restrictions dictated by the 1989
3 MFPA. They found that, *“a many-small-clearcut strategy, allowed more harvesting than
4 a fewer-large-clearcut strategy, and that the many-small-clearcut strategy led to greater
5 fragmentation³”*.

6 **Can you describe the continuous forest cover and fragmented forest cover as it
7 relates to NECEC in 2019?**

8 Field observations from Coburn Mtn. to the Quebec border reveal a mix of largely
9 coniferous, and a smaller portion of deciduous forests, each composed of regenerating,
10 younger, and middle-aged stands. Older growth forests are rare. Robust regeneration
11 involves both coniferous and deciduous species. NECEC’s characterization of this
12 landscape as simply “cutover land” diminishes the value of what actually grows there
13 forest-wise; a robust, ever-changing, multiple-use, transitionally fragmented working
14 forest, as well as associated fisheries and wildlife habitats, streams, lakes and wetlands.

15 When you look closely at the photographs attached with this testimony, you will see the
16 patterns of small blocks, patches and strips that provide visible evidence of the extent of
17 forest fragmentation concerns. The red dash-dot lines on each photograph, distinguishes
18 areas of continuous forest cover, cut and uncut, from the visible patchwork areas of more
19 fragmented forest cover.

20 Forest fragmentation from forest practices has a transitional life. For example, when a
21 clear cut is made, that patch and its’ edges are open and obvious. Over time, natural or
22 artificial regeneration fills in the harvested space and edges, so the initial fragmentation

³ Hagan, John M. and Boone, Randall B. 1997. *Harvest Rate, Harvest Configuration and Forest Fragmentation*, Manomet Center for Conservation Sciences Rpt.#MCDCE-97001

1 and edge effects are somewhat mitigated, softened.

2 On the longer-term effects of this transitional fragmentation from newer forest practices,
3 I think the jury is still out. In forest time, we haven't lived long enough in this new age to
4 account for the long-term impacts.

5 Nevertheless, with respect to the distinction between continuous forest cover and more
6 fragmented forest cover, the NECEC corridor will carve through equal portions of both
7 types of forest cover. Fragmented forests occupy 40% of the landscape on and around the
8 power line from Quebec to Coburn.

9 An argument made by proponents of NECEC is that this project will create no greater
10 environmental impact than logging. They insist the power line will pass through "cut
11 over" industrial forestland that has been actively logged for years, and so, what's the
12 difference?

13 I argue there is a huge difference when you consider the area in question includes a
14 significant portion (40%) of forest landscape and habitat that has been transitionally
15 fragmented by block, patch and strip cuts. Factor in the extensive network of permanent
16 gravel roads and yards, the second fragmentation; then factor in the third NECEC
17 fragmentation, a permanent 150-foot-wide corridor with some 300 feet of effects deeper
18 in the woods either side of the corridor, then you are looking at a landscape that is being
19 subjected to three fragmentations.

20 **Can you describe potential negative impacts of NECEC with regard to forest**
21 **fragmentation?**

22 The extent and negative impacts of forest fragmentation are well addressed in Maine
23 Mountain Collaborative, Occasional Paper #2. "Research in Maine, the Northeast and
24 around the world demonstrates unequivocally that fragmentation – whether permanent or
25 temporary – degrades native terrestrial and aquatic ecosystems, and reduces biodiversity

1 and regional connectivity over time and in a number of ways⁴.

2 The NECEC corridor will expand deforestation and fragmentation from Quebec to
3 Coburn Mtn. and south to Moxie. The 300-foot right of way holds great potential for
4 future power line expansion to meet the growing needs of Massachusetts customers, the
5 primary beneficiaries of this distributed power. In return, Maine is expected to shoulder
6 and absorb all the costs - the impacts - of environmental degradation and destruction that
7 will occur as a result of this project.

8 The NECEC proposal will permanently eliminate forest cover and habitat protections in
9 the cleared corridor, and will significantly impact ecological and habitat conditions
10 deeper within forests adjacent to both sides of the deforested power line corridor.
11 Fragmentation upon fragmentation seems an unwise course for sustaining forest diversity
12 and habitat continuity.

13 With two fragmentation strikes already in place, the third NECEC pitch will be a huge
14 contributor to forest and habitat fragmentation. I believe it is deserving of that third
15 classic call, “three strikes - NECEC is out”.

16 **Can you provide representative examples that illustrate NECEC’s environmental**
17 **impacts?**

18 I would like to present Aerial Photography Documentation. Three sections of the
19 NECEC Project were selected to illustrate and highlight existing forest and
19 environmental conditions on the ground, between Coburn Mtn. and the Quebec border to
20 the west, as well as to reveal environmental impacts including NECEC.

21 The photos were extracted from Goggle Earth and edited to enhance and make clear the
22 variety of forest conditions, including permanent gravel roads and streams. The three

⁴ McMahan, Janet M.S. 2018. *The Environmental Consequences of Forest Fragmentation in the Western Maine Mountains*, Maine Mountain Collaborative, Occasional Paper #2.

1 sections selected are approximately 6 miles x 3 miles on each photo. The map scale is in
2 the lower right corner. Interpreted examples for you to investigate further are:

3 Spencer Road - Coburn Mountain

4 Rock Pond - The Notch -Tumbledown

5 Lowelltown - Beattie

6 A close examination of the aerial photographs will show you field details relevant to this
7 testimony. The photos were converted to black and white to highlight forest conditions.

8 Dark areas are coniferous forest; light areas are deciduous forest. When you look closely
9 at the photographs you will note areas that show patterns of blocks, patches, and strips.

10 This is pre-existing fragmented forest cover. Other areas of forest don't have this patch-
11 work pattern. Those are areas of continuous forest cover. The red dash-dot lines on each
12 photo delineate fragmented forest cover, from continuous forest cover.

13 Additional details were interpreted from the photos and USGS maps, and highlighted in
14 color to illustrate additional features relevant to the impacts of NECEC. The cold-water
15 streams network is shown in blue, but do not include all the first order streams crucial to
16 brook trout habitat. The network of permanent, gravel roads is shown in brown on each
17 photo.

18 Last and not least, with the most significant environmental footprint, is the proposed
19 power line, the light-yellow swath across each photo. The approximate 750-foot width on
20 the photos, accounts for the 150-foot wide cleared corridor, plus, an additional 600 feet
21 of environmental impact deeper within the forests adjacent to either side of the power
22 line (300 on each side).

23 Each photograph is presented with two views: 1) a small image and interpretive notes on
24 the front side, 2) a larger view of the same image on the back side to help you better see
the field details addressed on the front.

1 As was said by a tree sage, a forest picture is worth a thousand words. So, follow the
2 stream and roads and the yellow swath in each photo to discover where they all intersect,
3 and particularly the environmental fragmentation that will occur between the Quebec
4 Border and Coburn Mtn.-Route 201 as a result of NECEC.

5 Seeing is believing...

6 First, I present Exhibit 1 - CMP-HQ-NECEC Project - Forest Fragmentation: Spencer
7 Road Pond-Coburn Mtn-Rte 201⁵. Here, you can see continuous forest cover is evident
8 across the heights of Coburn Mt. just above the southern border in the center (S) of this
9 aerial photograph. Dark, unbroken coniferous forests dominate the heights of Coburn,
10 which runs SW – NE to Route 201 at Parlin Pond.

11 The balance of the landscape in this photo is fragmented forest; blocks, patches, strips.

12 The red dash-dot lines delineate fragmented from continuous forest cover types. With the
13 exception of wetlands and partial cuts next to Spencer Road, which runs E-W from
14 Parlin Pond, the bulk of the remaining landscape is fragmented forest cover. From an
15 eagle's eye view, continuous forest cover occupies 40% of this area, fragmented forests
16 60%.

17 Blue indicates the network of streams; brown shows the network of permanent gravel
18 roads. The light-yellow swath (750') across this photo is the track of the proposed power
19 line. This width accounts for the 150-foot cleared corridor, plus 300 feet either side of
20 the corridor to account for ecological impacts deeper within the forests adjacent to both
21 side of the corridor... The larger photo on the next page shows the fragmentation, upon
22 pre-existing fragmentation that will result from NECEC⁶.

23 Next, I direct you to MP/HQ/NECEC Proposal - Forest Fragmentation: North of

⁵ Merchant Aerial Photography Documentation Exhibit 1

⁶ Merchant Aerial Photography Documentation Exhibit 2

1 Tumbledown-The Notch-Rock Pond⁷. This view of NECEC impact reveals the extent of
2 visible, pre-existing forest fragmentation north and west of Tumbledown Mtn. Highly
3 visible blocks, patches and strips characterize fragmented forests in this rugged area.
4 Continuous forest cover of conifers occupies the north slopes of Tumbledown Mtn.,
5 extending across the bottom of the photo to Rock Pond.

6 Continuous forest cover extends from No.6 Mtn. in the NE corner, SW to the Spencer
7 Road west of The Notch (*green circle*). Forest conditions west of the Notch show the
8 extent of forest fragmentation as well as where the power line swath will further
9 fragment the fragmented.

10 Additionally, the proximity of the power line to the blue-ribbon trout waters of Rock
11 Pond and tributaries is evident in the SE corner of this aerial photograph.

12 A crow's eye view of this landscape estimates that continuous forest cover, uncut and
13 partially cut, occupies about 60% of this rugged, scenic landscape. Heavily fragmented
14 forests and habitat occupy about 40%. Beyond the edges of the corridor, this permanent
15 fragmentation will impact forest and habitat conditions 300 feet deeper into the woods
16 either side of the cleared zone⁸.

17 Now look at CMP/HQ/NECEC Proposal - Forest Fragmentation – Lowelltown/Beattie
18 Pond⁹. This image shows forest patterns where NECEC, *yellow swath*, will cross the
19 Quebec-Maine border west of Lowelltown on the CMQ RR, a mile north of Beattie
20 Pond. The dark areas are coniferous forests; lighter are deciduous forests. Blue shows the
20 network of headwater streams, but not all of the first-order streams crucial for Eastern
21 brook trout.

22 Red dot-dash lines delineate two primary types of forest conditions: 1) uncut and

⁷ Merchant Aerial Photography Documentation Exhibit 3

⁸ Merchant Aerial Photography Documentation Exhibit 4

⁹ Merchant Aerial Photography Documentation Exhibit 5

1 partially cut areas that retain continuous forest cover, 2) fragmented forests - visible
2 blocks, patches, strips of harvested forestland. Permanent logging roads are shown in
3 brown.
4 The small summit, left of center, covered in dark conifers shows continuous forest cover
5 on top and all around the summit, southwest of the power line. The forests in the NE and
6 SW corners, and along the south border are areas of continuous forest cover.
7 Note where NECEC intersects streams and roads, as well as where it will cause further
8 fragmentation of forest habitat disruption in a landscape that is highly fragmented.
9 A crows-eye cruise of this landscape estimates that fragmented forests occupy 45% of
10 the area; continuous forest cover occupies 55%. The fragmenting corridor will impact
11 forest and habitat conditions, 300 feet deeper into the woods either side of the cleared
12 zone¹⁰.

13 **Can you provide representative examples from this region to illustrate forest**
14 **fragmentation and continuous forests?**

15 Yes. I would also like to submit a series of supplemental photographs from the Quebec
16 Border to Coburn Mountain-Route 201. These photos cover the entire landscape between
17 the Quebec and Coburn Mtn. They show only the yellow-black power line track,
18 providing an open-view of the percent forest fragmentation versus continuous.
19 Quebec border - Beattie Pond: Extensive fragmentation from strips, blocks, patches
20 occupies 45% of this landscape; the other 55% is in continuous forest cover, coniferous
21 and deciduous¹¹.
22 Wing Pond - S. Branch Moose River – West of Tumbledown: Fragmented block and
23 strip cuts account for 45% of forest cover, the other 55% is in partial and uncut

¹⁰ Merchant Aerial Photography Documentation Exhibit 6

¹¹ Merchant supplemental photo 1

1 continuous forest cover¹².

2 Tumbledown Mtn. to Rock Pond: Strips, patches, light and heavily cut blocks account
3 for approximately 40% of this landscape, 60% is continuous cover, high elevation
4 conifers¹³.

5 Rock Pond – Whipple Pond: A mix of blocks, patches, and continuous forest cover,
6 conifers (dark green) plus some deciduous (light gray). Fragmented forests occupy 35%
7 of this landscape, continuous forest cover, 65%¹⁴.

8 Moore Pond: The intensity of fragmented blocks is less in this section of forested
9 landscape, 70% continuous forest cover, mostly conifers. Extensive permanent road and
10 yard patterns, plus blocks and patches occupy 30%. Extensive wetland and stream at the
11 top (N)¹⁵.

12 Coburn Mtn North: Block cuts are older and not as obvious, however extensive large
13 angular patches east of Gracie Pond suggest large, older patch cuts. Factor in extensive
14 roads and yards, this area is 60% fragmented, 40% continuous forest cover including
15 extensive conifers on Coburn Mtn. to the south (S)¹⁶.

16 Coburn Mtn South: SE of Coburn Mtn, upper left corner, extensive block cutting in this
17 view shows extensive fragmentation 75%; continuous forest cover 25%¹⁷.

18 **What is your conclusion about impacts of this project?**

19 The NECEC Project will significantly add to the base of forest fragmentation that
20 already exists in the working forests between Coburn and Quebec, and it will further
21 degrade habitat, fisheries and wildlife, in and around the power line corridor. I can speak
22 to general impacts from my knowledge and literature review, but I am not a wildlife or

¹² Merchant supplemental photo 2

¹³ Merchant supplemental photo 3

¹⁴ Merchant supplemental photo 4

¹⁵ Merchant supplemental photo 5

¹⁶ Merchant supplemental photo 6

¹⁷ Merchant supplemental photo 7

- 1 fisheries biologist and cannot speak in great detail to those aspects.
- 2 From my interactions with others concerning NECEC, I sense and hear concerns about
- 3 how NECEC will impact forests and habitats.
- 4 It is my view that NECEC is intent upon minimizing their impact overall and
- 5 everywhere, and, minimizing and dismissing any concerns about the environment in the
- 6 public arena. They are on mitigation buy-out-frenzy to assure their will prevails,
- 7 regardless. Economic benefit to NECEC- CMP-HQ-AVENGRID is the sole driving
- 8 force in this project, and their intent to mitigate all environmental costs, their tool of
- 9 choice you could say.
- 10 **Does this conclude your testimony?**
- 11 Yes.

COMMENTS ON NON-HEARING TOPICS

Protect the Scenic and Environmental Values Of the Upper Moose River Basin and Kennebec River

I walked into the Maine Woods as a forester and photographer in 1965 and spent the next fifty years exploring, appreciating and learning from these woods. Maine natural resources contribute to our rural quality of life, our tourism and forest economies. CMP's proposal to construct a new 53-mile corridor through the woods of the Upper Moose River Basin will degrade these treasured natural assets. And NECEC expects us to absorb and carry the costs of the visual and environmental impacts that will result from the CMP-HQ project, and all in the name of delivering power to Massachusetts?

I recall a conversation with colleague Peter Lammert, prior to his retirement from the Maine Forest Service. I asked him what he thought would be the biggest threat to the future of the Maine Woods. His response, "more and more powerlines." They carve up the woods, fragment and degrade forest cover and wildlife habitat, and they erode, if not destroy, the value of magnificent, scenic viewsheds.

During a 32-year career with UMaine Cooperative Extension, I participated in county and regional nature-based tourism initiatives. Maine's forested landscape, full of beautiful streams and lakes, rivers and mountains, are natural golden eggs that draw people to our remote regions and rural communities. Tourists are not coming here to experience power line views and other industrial scale intrusions.

CMP's line will chop up a vast and beautiful forest landscape, eroding and degrading remote scenic viewsheds like Attean View, Coburn and Sally Mountains, Greenlaw Cliffs, The

Notch, No. 5 and Tumbledown, all in the Upper Moose River Basin. There will be similar impacts at the Kennebec Gorge and Lake Moxie, adjacent to Bald Mountain and the Appalachian Trail. My photographs of this unique, scenic region speak to the permanent fragmentation this proposal will have on the forest environment and natural beauty found here. All of this loss will be in the service of CMP feeding Massachusetts hunger for more Hydro Quebec (HQ) generated power.

[REDACTED]

[REDACTED]

We already have enough power lines and wind farms intruding into this beautiful landscape. With the CMP line paving the way, what's next? Yet another expanded power line in the accommodating 300-foot right of way? A re-located East-West Highway? A pipeline? The industrial scale incubation possibilities are endless once the first cut is made. The impacts from these possibilities will destroy the value of the natural golden eggs that nourish our rural quality of life, valued irreplaceable assets that feed our rural forestry, tourism, small business base.

To do nothing to protect these natural assets and our legacy of community-based forestry, tourism and environmental protection is to let CMP-HQ "pave over paradise and put up the power line parking lot" in one of the last unique, remote scenic viewsheds in Maine, the Upper Moose River Basin.

I offer this protective possibility; that the communities, counties, tribal nations, and people associated with the Moosehead Region and the Upper Moose River Basin get together to talk about landscape protection for these woods. Seek agreements and draft documents that officially declare and circumscribe Moosehead and the Upper Moose River Basin as a "Power Transmission-Wind Farm-E.W. Highway Free Zone in Maine."

[REDACTED]

We need to protect the values provided by our environment that support our rural communities, values that feed small businesses, forestry and tourism, and the unbroken scenic beauty that feeds our hearts and souls on a quiet night, by the edge of a lake, on a starlit night.

NOTE: When folks in Massachusetts look at rural Maine, they think there's nothing there. Looking at a NASA nighttime photo of New England, they see the familiar brightness of Boston and Portland. Further north, beyond Route 2 and the "Airline", they see that big black hole on the nighttime map of Maine, leading them to think there's nothing there, so what's the big deal anyway about running a power line through these dark empty woods?

I created this collection of photographs from the Upper Moose River Basin to illustrate the fact that this unique forested environment is Not Empty! It's full and rich in brook trout, wild flowing streams and rivers, wandering souls, magnificent wildlife and scenery to be seen from 'viewshed peaks' like Coburn, Sally, No.5, Tumbledown. Our rural communities as well as visitors, treasure these beautiful natural assets.

This rich natural legacy is in need of our care, attention, management and protection.

Enjoy the following scenic views that include power line tracks.....



Looking west from the base of Tumbledown Mtn. the power line will carve through the gap north of Peaked Mountain on the left. Further west the line drops down and crosses the South Branch Moose River. Trending across the south flank of Moose Mountain in the far distance, the line will turn northwest to the Quebec border near Lowelltown.



Headwaters throughout the Upper Moose River Basin contain cold-water habitat like this that is crucial for the survival of wild Eastern brook trout. Well shaded from direct sunlight, this brook protects cool waters that support the excellent blue ribbon trout fishing found throughout the Upper Moose River Basin.



Concerns about NECEC opening up the forested landscape and warming headwaters, is well illustrated in this photo of a first-order-stream in the Upper Moose River Basin. Forest cover is absent, exposing the water to excessive heat, which in turn feeds and heats downstream cold water habitat. Applications of herbicides will be required to maintain a tree and brush-free power line. How will this impact water quality for brook trout, wildlife and humans? Many first order streams like this are found along the proposed power line pathway through the Upper Moose River Basin.



In between No.5 and Tumbledown Mtn. arises the dramatic remote viewpoint provided by Greenlaw Cliffs, which forms The Notch, just west of Rock Pond. The power line will skirt the north side of Rock Pond, then come straight up through The Notch destroying the rugged beauty found in this unique wild and scenic location.



Coburn Mtn. rises in the eastern end of the Upper Moose River Basin, just west of Rt. 201. In the 1960's, Enchanted Mountain Ski Area, over on the east slope was a wild, downhill ski for the brave and intrepid. Coburn provides for an amazing viewshed, 360 degrees around, when you stand on the summit lookout platform any season of the year.



The viewshed west of Coburn Mtn. looks up the Moose River Basin. Grace Pond and Camps are on the left. Beyond those waters in the distance rises No.5 Mtn. Just to the left of the magnificent view provided by No.5, you see where the NECEC line will come through The Notch. Attean and Sally Mountains rise above Attean and Wood Ponds in the center background. To the far right is lofty Boundary Bald Mtn. The yellow track of the power line carves across this extensive wild, working forest landscape and will be visible from both Sally and Attean Mtns.



Grace Pond with No.5 behind and Attean on the right, the power line track and impact will be even more noticeable in winter. Higher elevation viewpoints such as Coburn, Sally, No.5, Tumbledown, Peaked, Moose, Van Dyke, provide a more complete picture of the power lines visual impact. CMP photo-simulations tend to focus on lower elevation lakeside views that minimize the visual impact. These photos speak directly to the viewshed impacts that the NECEC project will have from multiple viewpoints within the Upper Moose River Basin.



The Coburn East viewshed looks down to Johnson Mountain, wrapped on the west and then the south by NECEC. The power line then extends further south, reaching across the Kennebec Gorge to Moxie Pond, and The Mosquito in the far, far distance. The power line to the left (north) will cross the northeast shoulder of Coburn Mtn, about a half-mile beyond the two unique, high elevation water bodies, Mountain Ponds.



The Attean viewshed looking south from Sally Mtn. begs the classic questions for each and all of us... What is beauty, only in the eye of one beholder? Or is it within the many eyes and hearts that have walked out into the woods, and up a mountaintop to see and touch, to feel and experience what the joy of beauty is about in this spectacular place?

Beauty is boundless; it is not beholding to any boundary lines, public or private, town or county, yours or mine. Here it is limitless to the horizon, and beyond. A power line carved across a real and scenic landscape like this is in fact, the ultimate and deadly antitheses of Beauty.

Indeed, carving up and fragmenting this incredible scenic landscape while compromising wildlife and wild brook trout habitat and further fragmenting the forest environment is the desired, coveted NECEC-CMP-HQ plan going forward with lavish rewards for all... What a loss of treasured natural values and diminishment of human experience that define the incredible outdoors and sense of place for people near and far, who wander the Upper Moose River Basin.

Will the CMP power line through the Upper Moose River Basin come to pass to feed energy hungry Massachusetts's consumers?

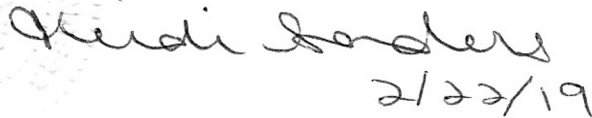
Will we protect and govern what is unique about our particular, shared sense of place, or will we simply be left out, deselected and sold to industrial development by the higher bidders in the global market?

SIGNATURE

Roger Merchant
1018 Pushaw Road
Glenburn, Maine
04401

A handwritten signature in cursive script that reads "Roger Merchant". The signature is written in black ink and has a long horizontal line extending to the right from the end of the name.A second handwritten signature in cursive script, also reading "Roger Merchant". This signature is more compact and lacks the long horizontal line seen in the first signature.

Heidi Sanders
Notary Public, State of Maine
My Commission Expires October 17, 2023

A handwritten signature in cursive script that reads "Heidi Sanders". Below the signature, the date "2/22/19" is written in the same cursive style.

Roger Merchant
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A. Vision: My enduring purpose is to contribute to change through initiatives that provide balanced attention to the social, economic and environmental aspects of sustainable development. These practices guide my work:

1. Community-based assessment of issues, opportunities and solutions
2. Facilitating open inquiry through an interactive process
3. Disseminating fact-finding relevant to local issues and decision making
4. Strengthening leadership through the development process

B. Professional Credentials:

2012-Present: Place-Based Photographer, Rural Community Development Resource
Since retiring I devote time and energy to photography, community development and service to the environment.

1980-2012: Associate Extension Professor, Natural Resources and Community Development, University of Maine Cooperative Extension.

My Extension portfolio includes woodland stewardship, environmental and outdoor education, 4H adventure programs, rural development and tourism. Signature programs include: Taking Care of Your Forest, Penobscot Riverkeepers, Life Jackets, Piscataquis County Economic Development Council and Tourism Task Force.

The last decade of my extension career focused on natural resource and cultural heritage tourism in the Maine Highlands. I taught Community-based Tourism Planning at UMaine - College of Forest Resources.

1976-79: Central Kentucky Re-ED, Lexington, Kentucky.

In a community social worker role I coordinated services for children with learning and behavioral challenges. I facilitated parenting and human relations trainings, and provided backcountry leadership for outdoor programs.

1974-76: Comprehensive Care Center, Winchester, Kentucky

As youth services social worker, I provided counseling for children and adolescents, conducted human relations workshops and supervised graduate social work students.

1965-72: Forester: Dead River Company, Bangor, Maine

I administered all aspects of forestry on a 100,000 acre working forest: timber inventory, mapping, road layout, and implementation of forest practices. Ongoing harvest supervision provided quality assurance for sustainable forestry. I conducted field projects in forest nutrients, timber marketing, natural areas protection, and served as forestry liaison to a tribal project involving the Passamaquoddy's, Dead River Timberlands, and UMaine Cooperative Extension.

C. Educational Credentials:

- 1974 - Masters of Social Work, West Virginia University
- 1965 - Bachelors of Science in Forestry, University of Maine
- 1963 - AAS Forestry, Paul Smith's College, New York

D. Other Credentials:

- *2010-2012 Instructor:* PRT470-Community Tourism Planning included field-based community service learning as an integral part of the requirements for this advanced undergraduate course.
- *2002 Sabbatical:* Community Approaches to Rural Tourism Development in Forested Regions East of the Mississippi.
- *1994 International Exchange:* Quebec Labrador Foundation - Landscape Stewardship Exchange in the Southern Czech Republic
- *1988 Sabbatical:* Adventure Education Strategies for Positive Youth Development via Outward Bound and Experiential Education Programs.

C. Public Service:

- Co-Founder - Piscataquis Tourism Task Force
- Co-Founder - Piscataquis County Economic Development Council
- Founder and Former Board President: Life Jackets and Penobscot Riverkeepers 2000
- Board Membership: Hirundo Wildlife Refuge, Maine Highlands Corporation, Penquis Child Abuse Prevention Council, Maine Appalachian Trail Club
- Volunteer Trail Maintainer since 1980, Maine Appalachian Trail Club
- Maine Forest Service - Fire Lookout Volunteer, Burnt Mtn., Baxter State Park

D. Professional Affiliations and Awards:

- Maine Licensed Professional Forester #727
- NAI Interpretive Guide 2009-2019
- Registered Maine Guide 1993-2002
- Facilitator Project Learning Tree

- 2007 King Cummings Regional Leadership Award
- 2005 Pete Myrick-Piscataquis County Community Service Award

E. Other Talents:

- I authored collections of short stories in *Trust* and *The Maine Forest* for Literacy Volunteers of America in 1982. At my grandchildren's prompting, I am currently working on a collection of stories from my life. As a musician for 45 years, I occasionally gig at open-mic with the story-songs of our times.

- I'm an accomplished photographer of forestry, nature, rural life, railroads and the Maine Woods. I am currently developing a new website, My Encyclopedia of Place-based Photography

- I enjoy the outdoors, backpacking, lake and river canoeing. I'm a seasoned wilderness canoe paddler. Notable on my water travels are the Allagash, Dead River and Penobscot in Maine, the Spanish and Mississagi Rivers in Ontario.

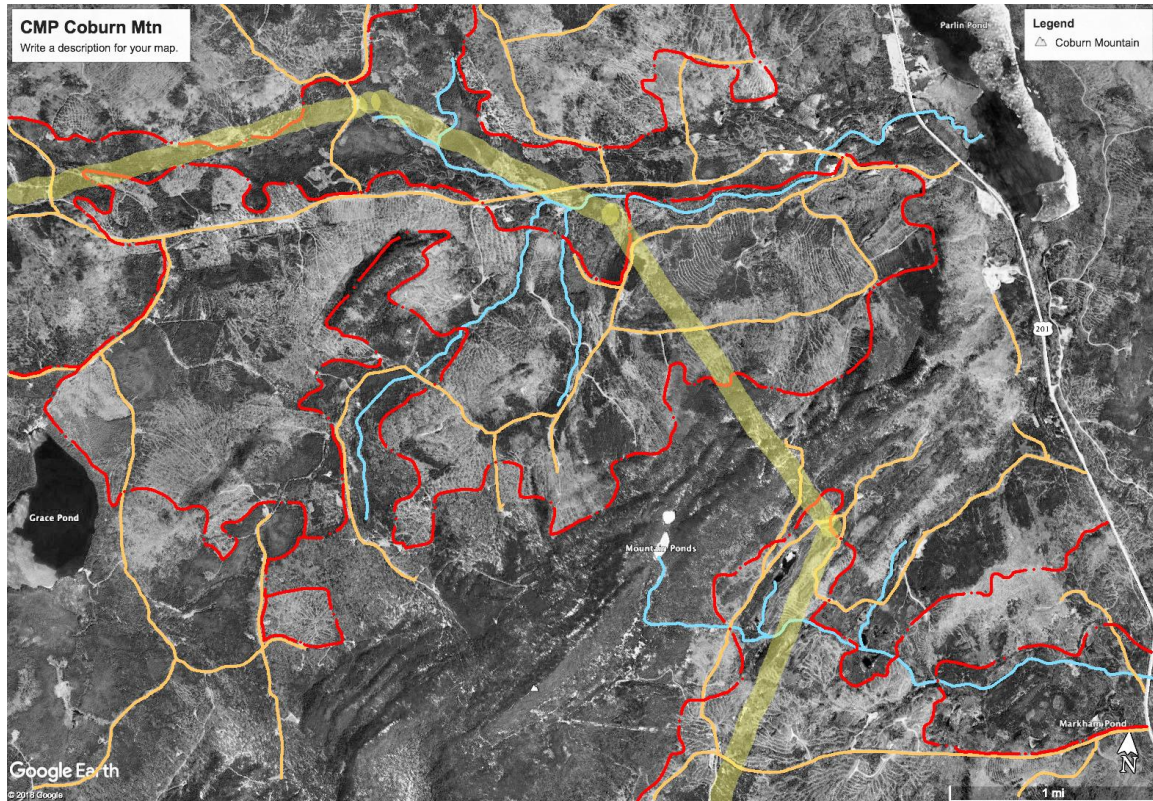
CMP-HQ-NECEC Project

Forest Fragmentation: Spencer Road Pond-Coburn Mtn-Rte 201

Merchant Aerial Photography Documentation Exhibit 1

NW

NE



SW

S

SE

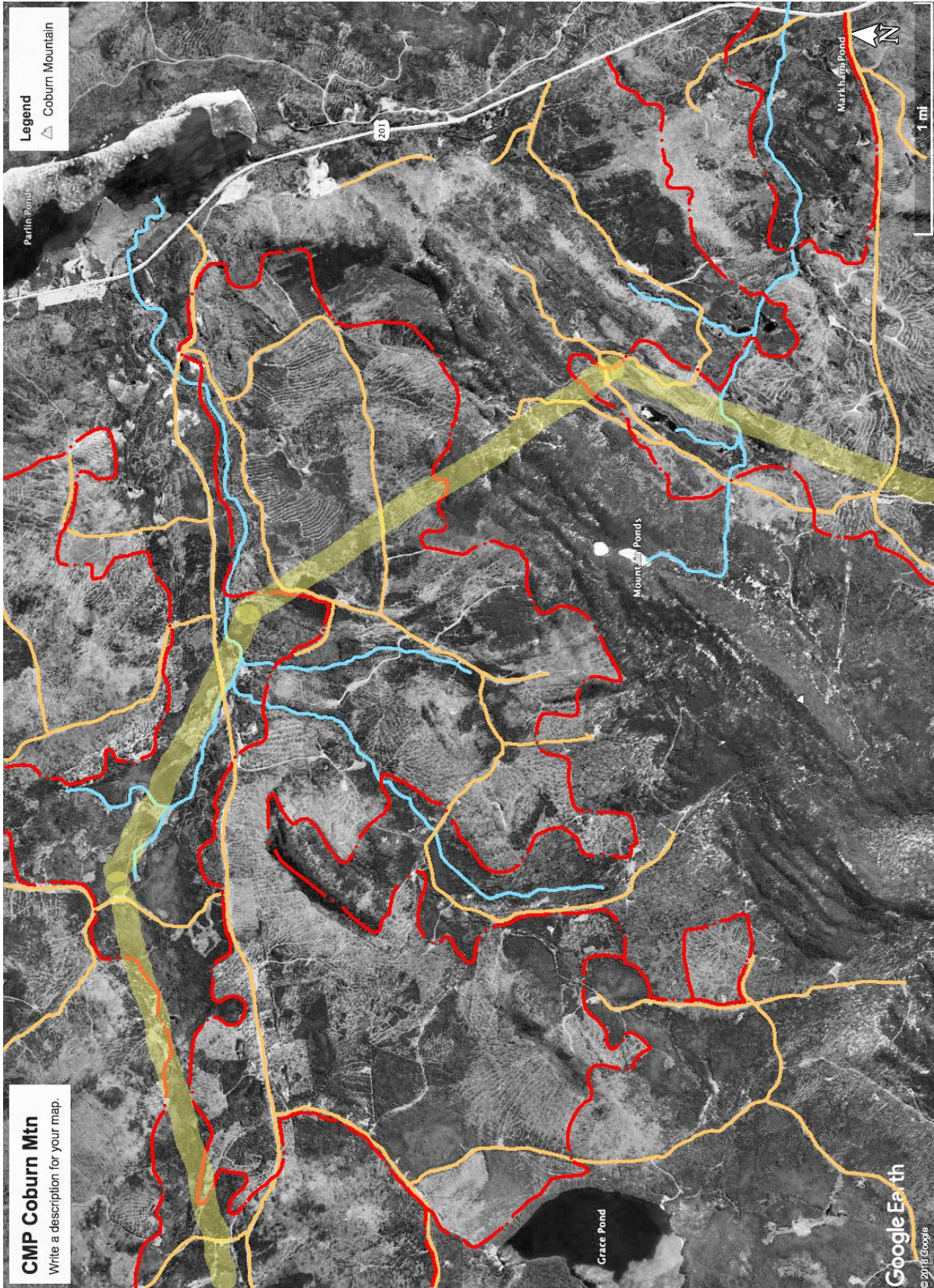
Continuous forest cover is evident across the heights of Coburn Mt. just above the southern border in the center (S) of this aerial photograph. Dark, unbroken coniferous forests dominate the heights of Coburn, which runs SW – NE to Route 201 at Parlin Pond.

The balance of the landscape in this photo is fragmented forest; blocks, patches, strips. The red dash-dot lines delineate fragmented from continuous forest cover types. With the exception of wetlands and partial cuts next to Spencer Road, which runs E-W from Parlin Pond, the bulk of the remaining landscape is fragmented forest cover. From an eagles eye view, continuous forest cover occupies 40% of this area, fragmented forests 60%.

Blue indicates the network of streams; brown shows the network of permanent gravel roads. The light yellow swath (750') across this photo is the track of the proposed power line. This width accounts for the 150 foot cleared corridor, plus 300 feet either side of the corridor to account for ecological impacts deeper within the forests adjacent to both side of the corridor... The larger photo on the next page shows the fragmentation, upon pre-existing fragmentation that will result from NECEC.

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Merchant Aerial Photography Documentation Exhibit 2



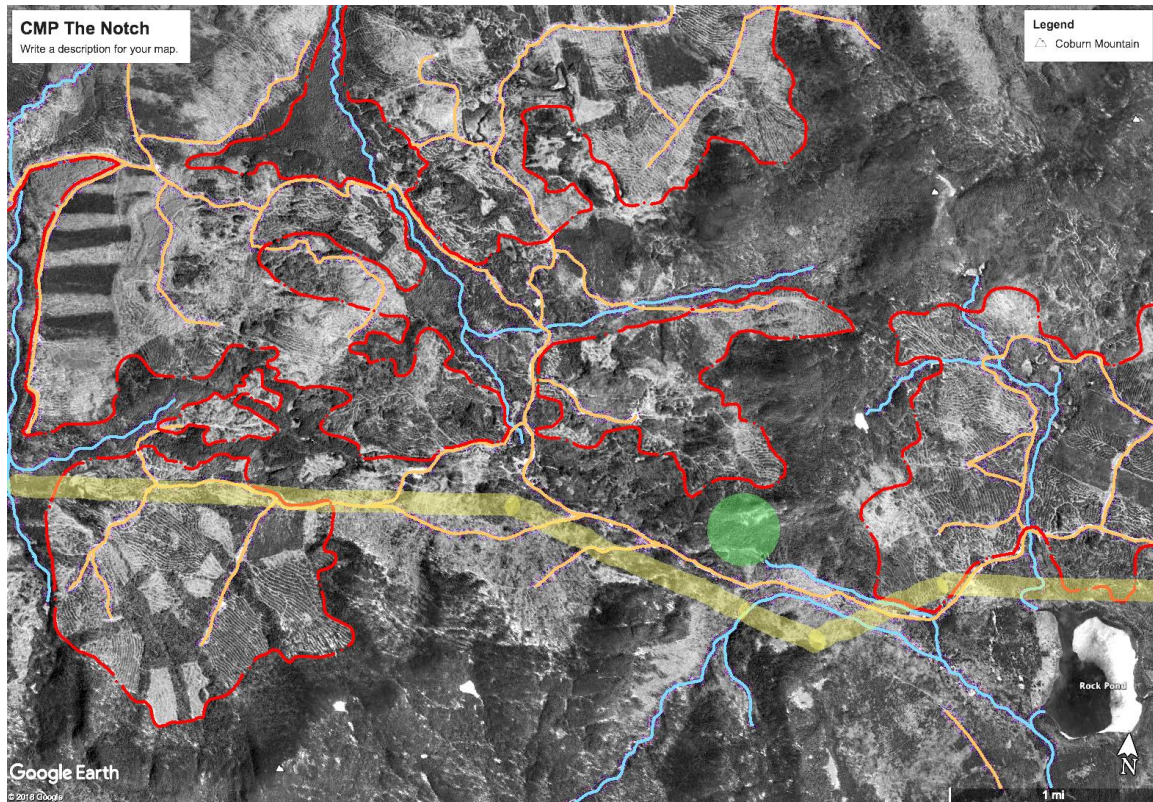
MP/HQ/NECEC Proposal

Forest Fragmentation: North of Tumbledown-The Notch-Rock Pond

Merchant Aerial Photography Documentation Exhibit 3

NW

NE



SW

SE

This view of NECEC impact reveals the extent of visible, pre-existing forest fragmentation north and west of Tumbledown Mtn. Highly visible blocks, patches and strips characterize fragmented forests in this rugged area. Continuous forest cover of conifers occupies the north slopes of Tumbledown Mtn., extending across the bottom of the photo to Rock Pond.

Continuous forest cover extends from No.6 Mtn. in the NE corner, SW to the Spencer Road west of The Notch (*green circle*). Forest conditions west of the Notch show the extent of forest fragmentation as well as where the power line swath will further fragment the fragmented.

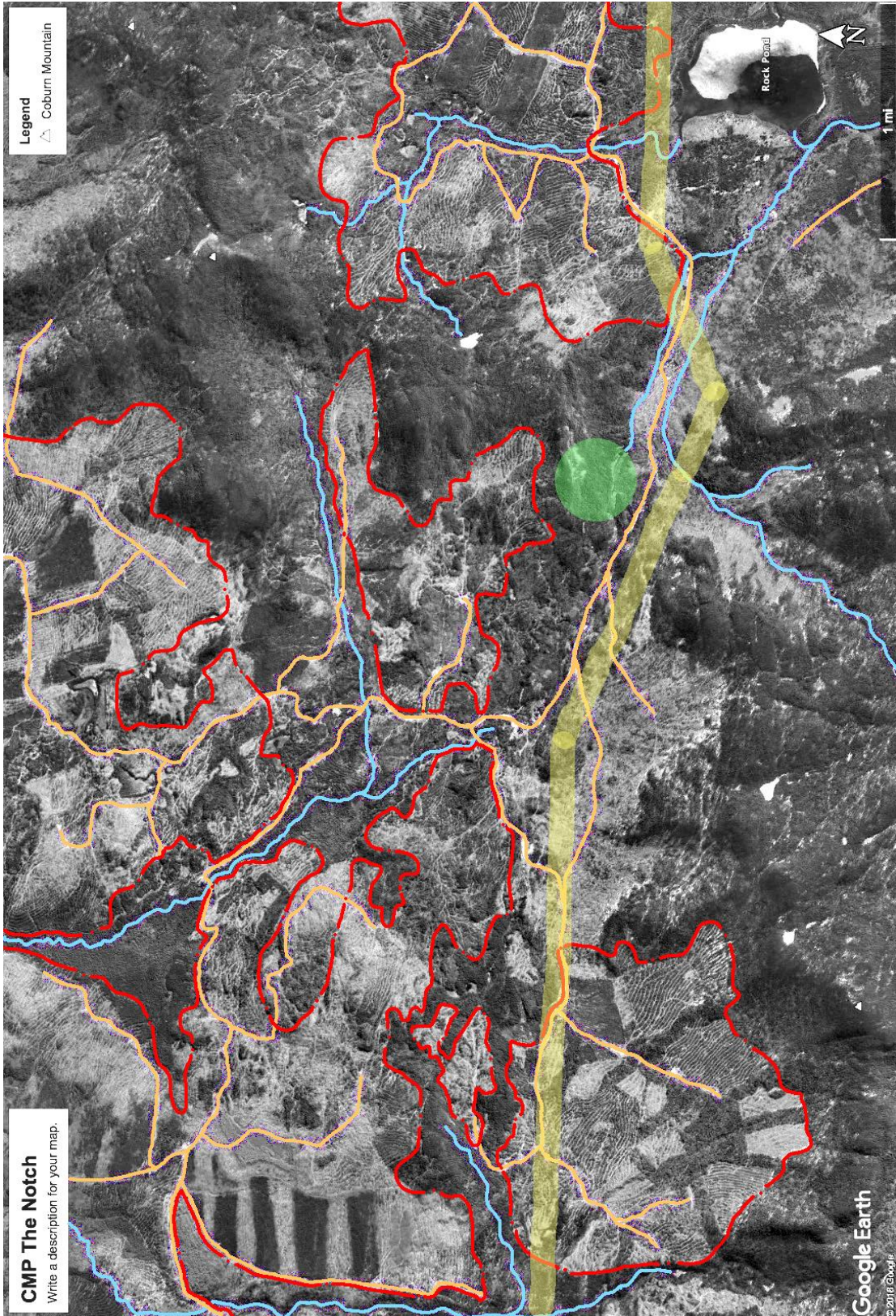
Additionally, the proximity of the power line to the blue ribbon trout waters of Rock Pond and tributaries is evident in the SE corner of this aerial photograph.

A crow's eye view of this landscape estimates that continuous forest cover, uncut and partially cut, occupies about 60% of this rugged, scenic landscape. Heavily fragmented forests and habitat occupy about 40%.

Beyond the edges of the corridor, this permanent fragmentation will impact forest and habitat conditions 300 feet deeper into the woods either side of the cleared zone.

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Merchant Aerial Photography Documentation Exhibit 4



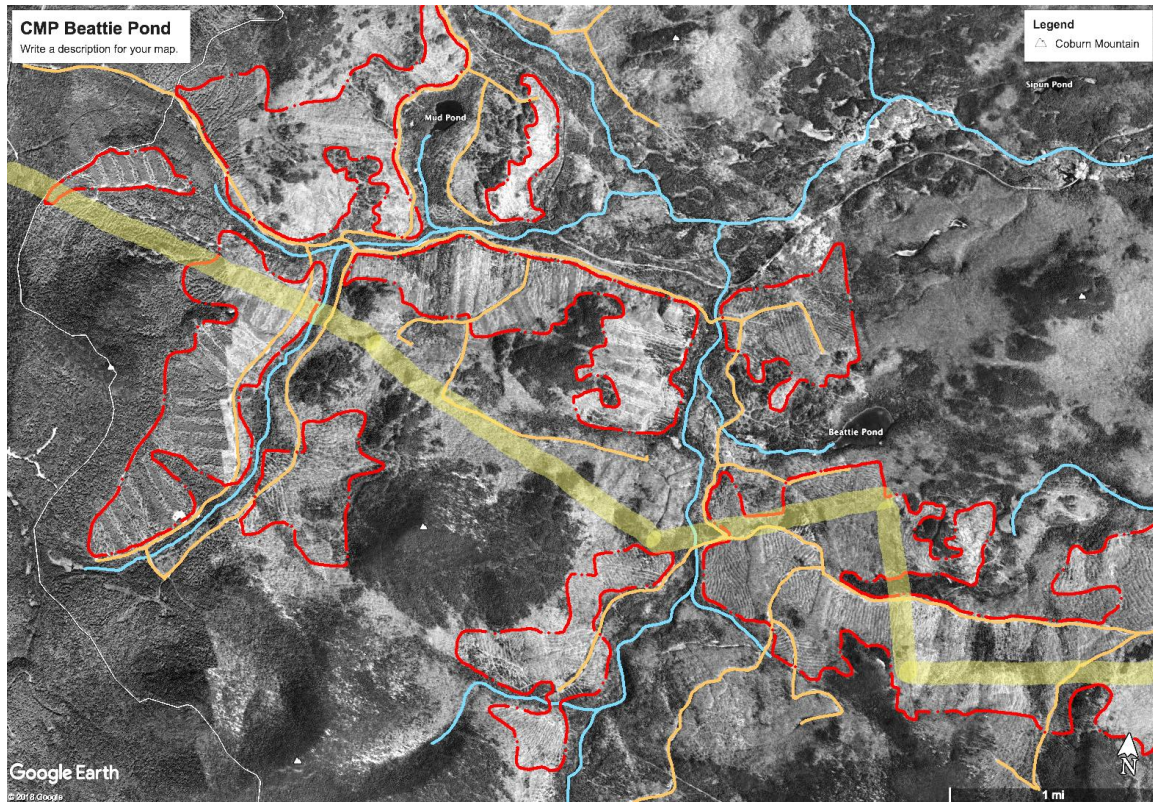
CMP/HQ/NECEC Proposal

Forest Fragmentation – Lowelltown/Beattie Pond

Merchant Aerial Photography Documentation Exhibit 5

NW

NE



SW

SE

This image shows forest patterns where NECEC, *yellow swath*, will cross the Quebec-Maine border west of Lowelltown on the CMQ RR, a mile north of Beattie Pond. The dark areas are coniferous forests; lighter are deciduous forests. Blue shows the network of headwater streams, but not all of the first-order streams crucial for Eastern brook trout.

Red dot-dash lines delineate two primary types of forest conditions: 1) uncut and partially cut areas that retain continuous forest cover, 2) fragmented forests - visible blocks, patches, strips of harvested forestland.

Permanent logging roads are shown in brown

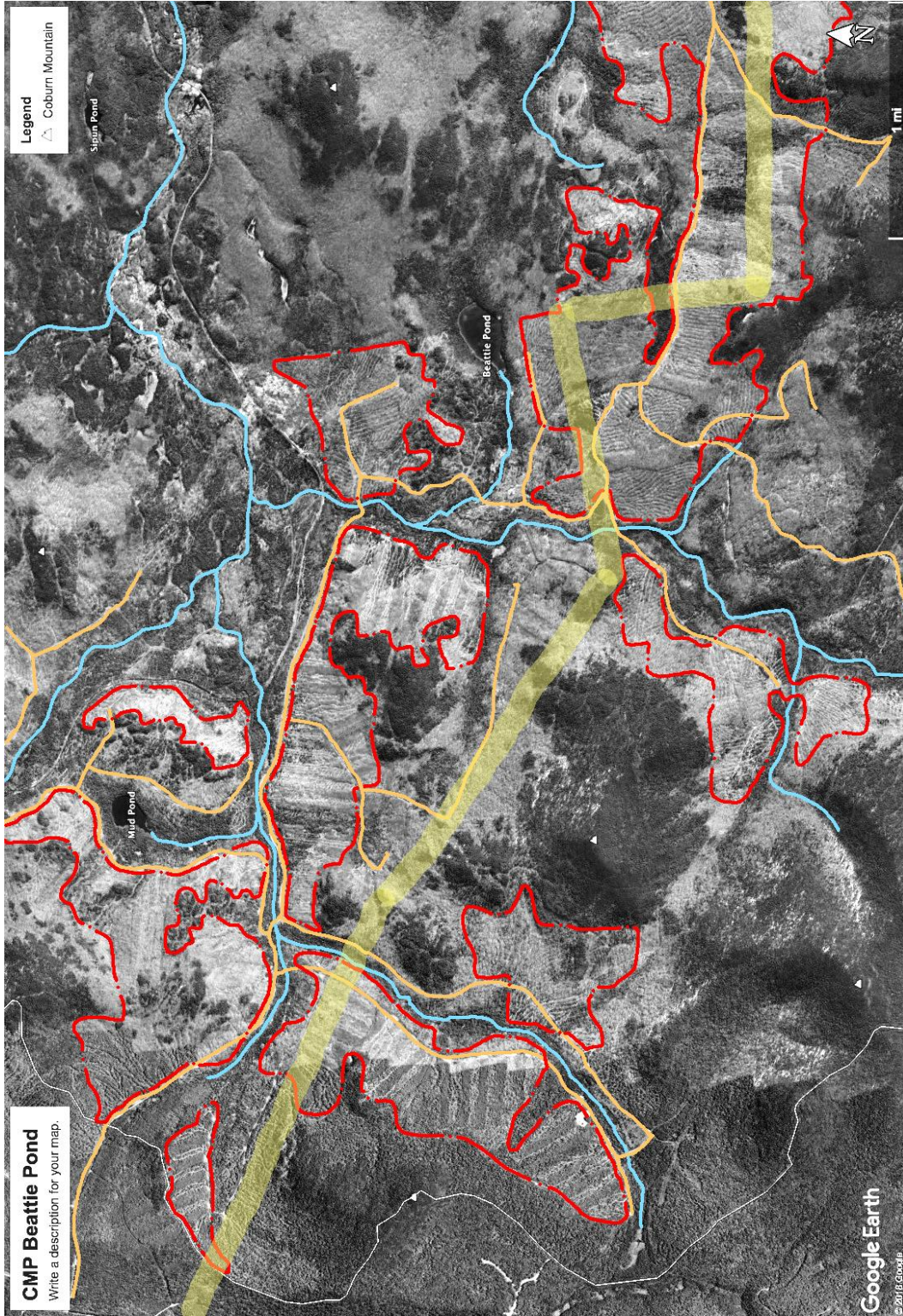
The small summit, left of center, covered in dark conifers shows continuous forest cover on top and all around the summit, southwest of the power line. The forests in the NE and SW corners, and along the south border are areas of continuous forest cover.

Note where NECEC intersects streams and roads, as well as where it will cause further fragmentation of forest habitat disruption in a landscape that is highly fragmented.

A crows-eye cruise of this landscape estimates that fragmented forests occupy 45% of the area; continuous forest cover occupies 55%. The fragmenting corridor will impact forest and habitat conditions, 300 feet deeper into the woods either side of the cleared zone.

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Merchant Aerial Photography Documentation Exhibit 6



Supplemental Photographs: Quebec Border to Coburn Mountain-Route 201... These photos cover the entire landscape between the Quebec and Coburn Mtn. They show only the yellow-black power line track, providing an open-view of the % forest fragmentation vs. continuous.

Quebec border - Beattie Pond: Extensive fragmentation from strips, blocks, patches occupies 45% of this landscape; the other 55% is in continuous forest cover, coniferous and deciduous.

SUPPLEMENTAL PHOTO 1



Wing Pond - S.Branch Moose River – West of Tumbledown: Fragmented block and strip cuts account for 45% of forest cover, the other 55% is in partial and uncut continuous forest cover.

SUPPLEMENTAL PHOTO 2



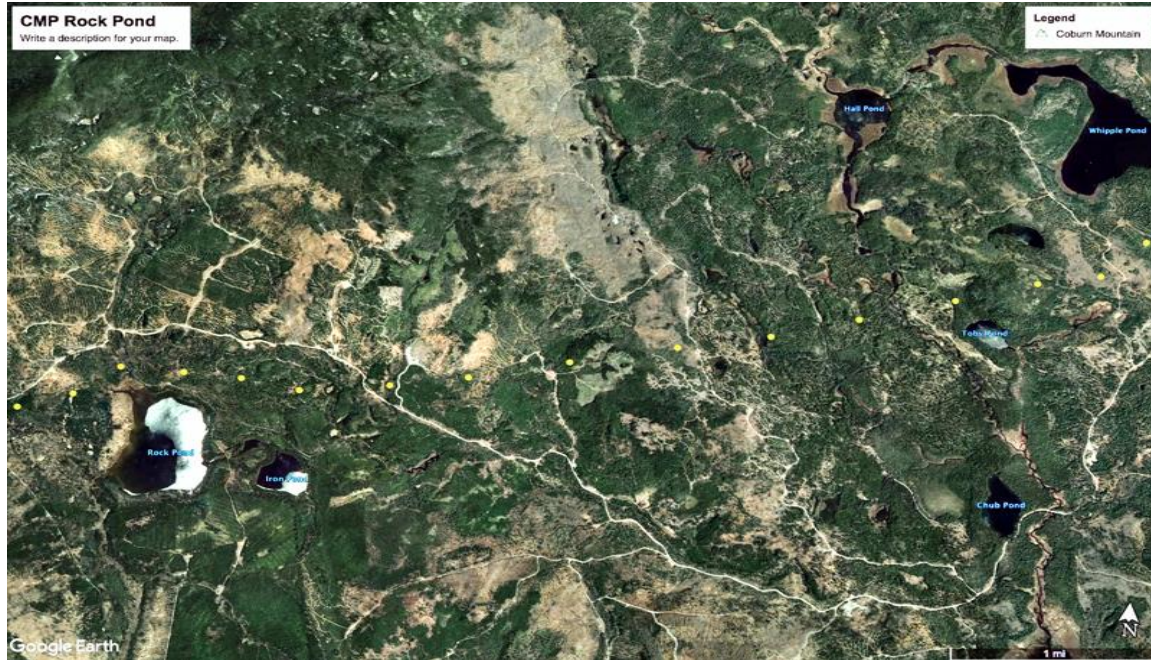
Tumbledown Mtn. to Rock Pond: Strips, patches, light and heavily cut blocks account for approximately 40% of this landscape, 60% is continuous cover, high elevation conifers.

SUPPLEMENTAL PHOTO 3



Rock Pond – Whipple Pond: A mix of blocks, patches, and continuous forest cover, conifers (dark green) plus some deciduous (light gray). Fragmented forests occupy 35% of this landscape, continuous forest cover, 65%.

SUPPLEMENTAL PHOTO 4



Moore Pond: The intensity of fragmented blocks is less in this section of forested landscape, 70% continuous forest cover, mostly conifers. Extensive permanent road and yard patterns, plus blocks and patches occupy 30%. Extensive wetland and stream at the top (N).

SUPPLEMENTAL PHOTO 5



Coburn Mtn North: Block cuts are older and not as obvious, however extensive large angular patches east of Gracie Pond suggest large, older patch cuts. Factor in extensive roads and yards, this area is 60% fragmented, 40% continuous forest cover including extensive conifers on Coburn Mtn. to the south (S).

SUPPLEMENTAL PHOTO 6



Coburn Mtn South: SE of Coburn Mtn, upper left corner, extensive block cutting in this view shows extensive fragmentation 75%; continuous forest cover 25%.

SUPPLEMENTAL PHOTO 7

