



<http://www.nrcan.gc.ca/energy/funding/current-funding-programs/cef/4979>

Placing Wind Turbines: Impacts on Natural Areas in PEI

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National Trust 2014 Conference, Charlottetown, PEI



ISLAND NATURE TRUST

- We are a land trust, working to conserve and protect natural areas across Prince Edward Island.

We own and lease over 3,500 acres of land – yup, that’s acres, not hectares or square kilometers!

Protected Areas

- Prince Edward Island's goal is 7% of the Island's land base to be protected, versus 12% for most other provinces and territories
- PEI has reached the 3.6% mark – a significant portion of this protected area is Wildlife Management Areas where some resource extraction is allowed
- This 3.6% includes PEI National Park, and some provincial parks

PEI Natural Areas are Fractured and Fragmented

- Protected natural areas are small, scattered and heavily impacted by human use



Our Natural Area Types include:

- Hardwood forest
- Softwood forest
- Wetlands: marshes (fresh and salt), swamps, bogs, ponds and riparian zones
- Dunes and Shores
- Cliffs
- Marine areas – to date one at Basin Head is a federal responsibility

Other habitat considerations for placement of turbines or other development

- Critical Habitat for endangered species (Piping Plover)
- Buffer Zones
- Natural Areas currently protected under the PEI Natural Area Protection Act

Forest Regions of Canada





PEI has a great deal of forest that has regenerated after a severe disturbance such as conversion to farmland. This second-growth is generally poor quality woodland from a biological point of view.

What Hardwood Forest is Left?

- According to the *State of the Island's Forests Report* in 2002, only 9,000 hectares of hardwood dominant, shade tolerant forest remains, in scattered patches throughout the island. The entire Island is approximately 567,000 ha (1.4 million acres) in size.

True plots of Acadian Forests are rare, especially old growth stands, due to over 400 years of change. The Acadian Forest Region has been identified by the World Wildlife Fund as one of 6 endangered forest regions of North America.

Commonly, AFR forests are dominated by species that are long lived and shade tolerant, providing important old growth forest habitat.

From Clean Annapolis River Website

Bio-diversity and Old Growth Forests

- More beetles live in old-growth than other forest types.
- Dragonflies are more common and in greater variety where streams and lakes are next to old-growth forests.
- Several kinds of hawks and owls prefer older forests



Old Growth Forests are Rare on PEI

- Woodpeckers and 39 species of songbirds are more frequent in older forests than younger.



Pileated Woodpecker feeding holes at Townshend Woodlot, 1988. Pileated need large diameter trees to nest.



© Dwaine Oakley 2009

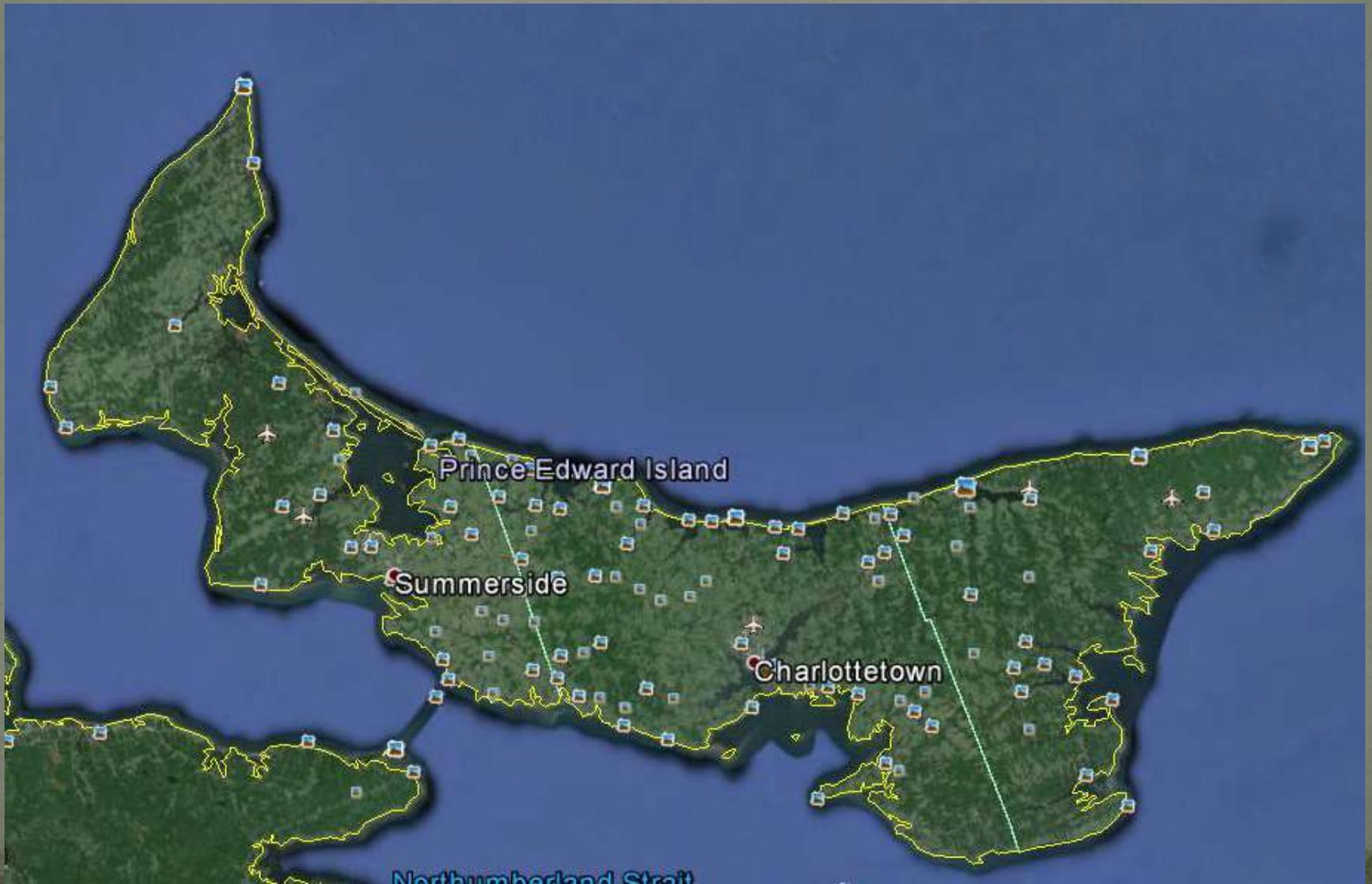
The Acadian Forest Region

The Acadian Forest Region (AFR) is geographical region characterized by the presence of red spruce. The Acadian Forest Region includes all the Maritime Provinces, New York, New Hampshire, Vermont and Maine.

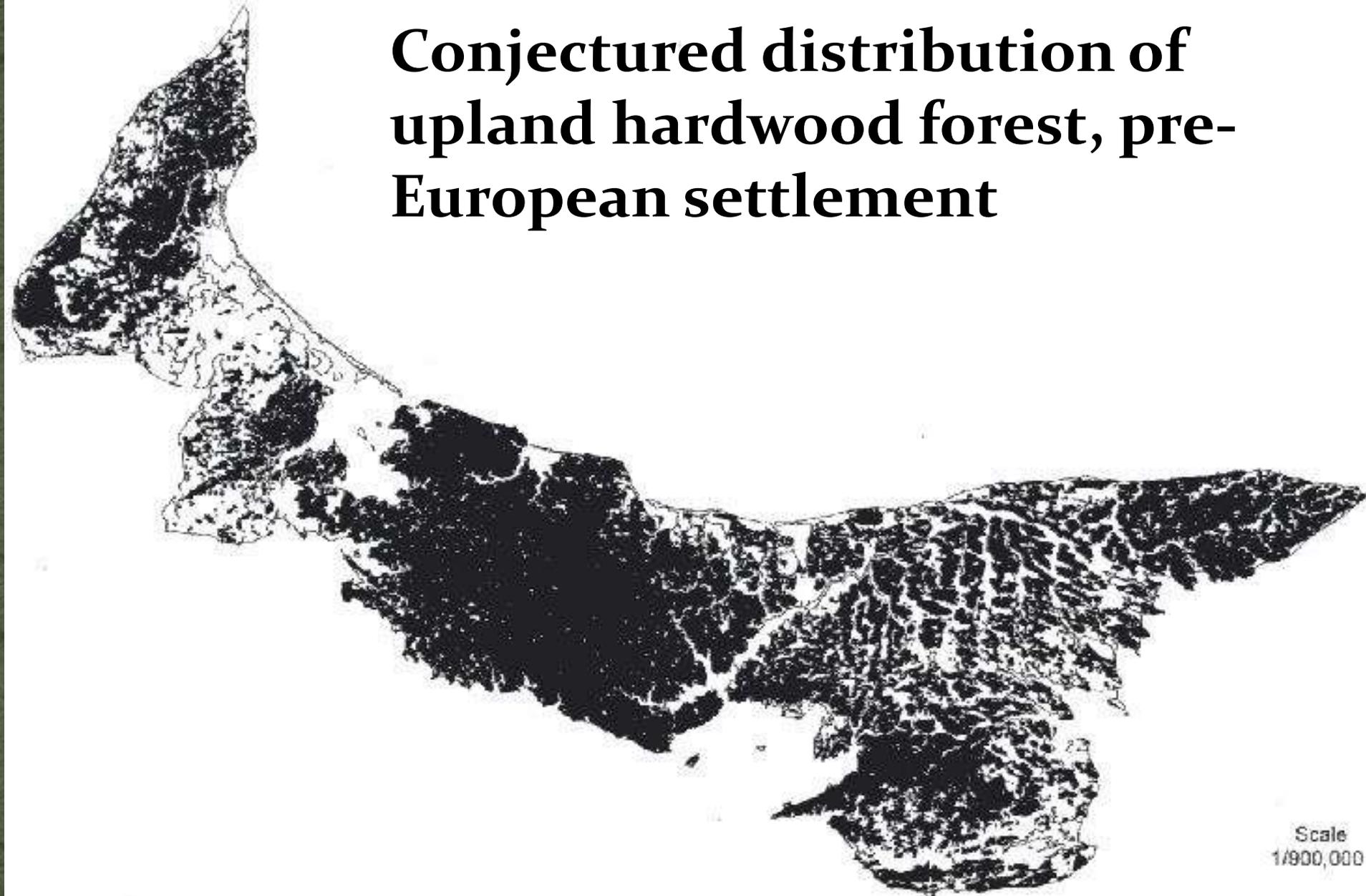


From the Clean Annapolis River website

PEI, 90% privately owned land, no province-wide land use planning



Conjectured distribution of upland hardwood forest, pre- European settlement



PEI Forests

- Virtually all of PEI has been influenced by human land use
- Fire has burned many thousand acres of Old Growth since first human settlement and before.
- By 1900 approximately 30% of the Island was forested
- In 1990, the Island was approximately 48% forested. This fell to 45% in 2000. That remaining forest was and is very different from the pre-settlement forest.

Prince Edward Island Forest Cover 1700 to 2000



This figure represents all forests in PEI, not just old hardwoods.



Distribution of upland hardwood forest in 1990

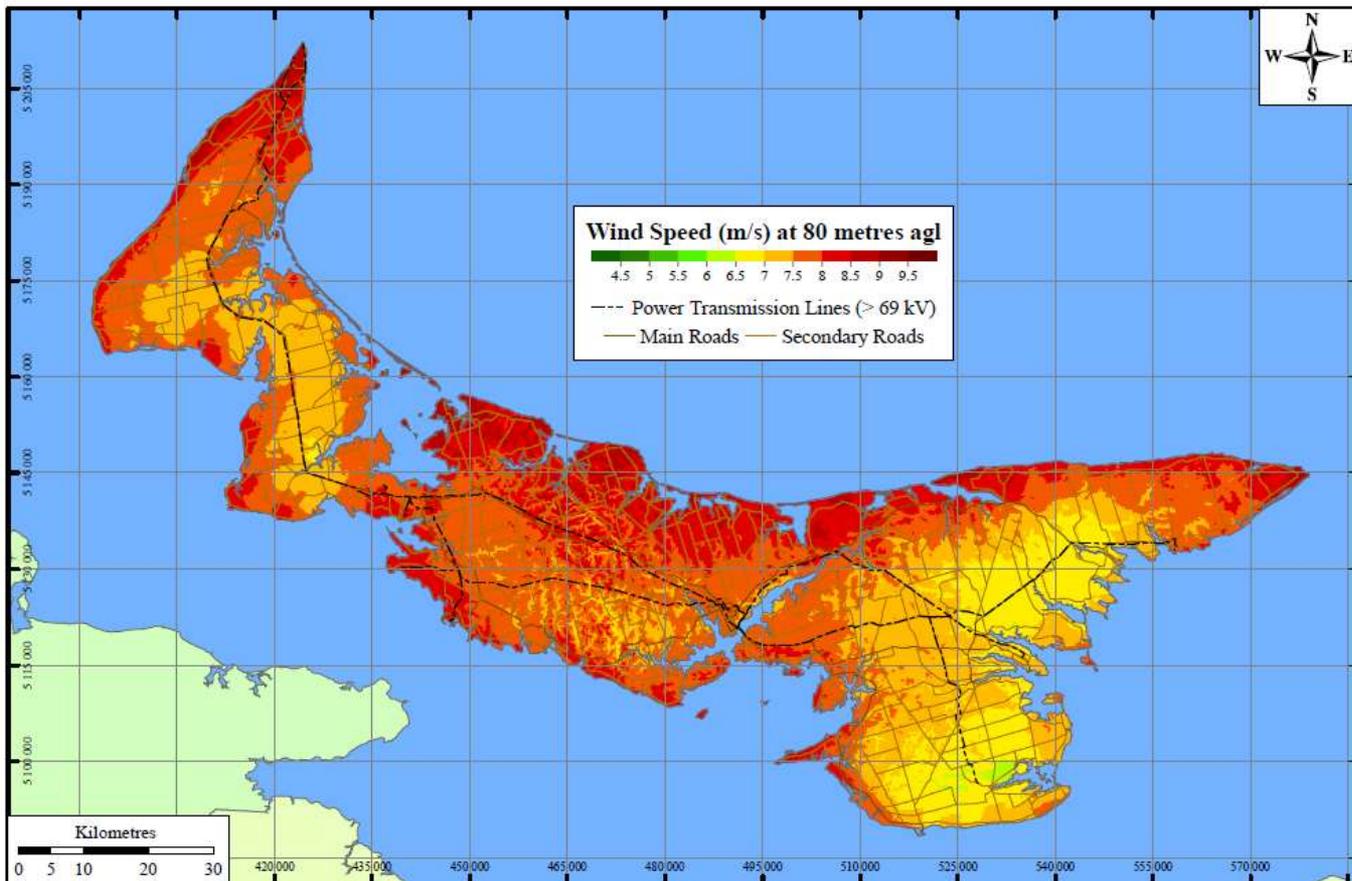






Wind Resource Map of Prince Edward Island

<http://www.peiwindatlas.ca>



Atlantic Canada
Opportunities
Agency

Agence de
promotion économique
du Canada atlantique

Canada

This map describes the wind resource of the Province of Prince Edward Island at 80 meters above the ground level (agl) at a resolution of 200 m. Created by the Université de Moncton, it is based on the Canadian Wind Energy Atlas (2004) data at 5 km resolution (www.windatlas.ca) and WASP 8.2 model. Although it is believed to represent an accurate overall picture of the wind energy resource, estimates at any location should be confirmed by measurement. The authors are not responsible of the use of the present map.



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Wind Farm at North Cape and Norway, PEI

Impacts on breeding birds as well as those migrating in spring and fall.

Impacts on bog and forest patches by turbine placement, construction and access roads.



Norway and North Cape



<http://renews.biz/31324/dewind-switching-out-blades-in-pei/>

East Point wind farm (PEI Government)



<http://nupge.ca/content/4161/wind-energy-profits-more-3-million-2010>

East Point – a birders’ “hot spot”



http://www.gov.pe.ca/photos/original/wind_energy.pdf

Hermanville/Clearspring Wind Farm

Fracturing
and
fragmenting
one of the
last large
blocks of
forest on PEI



<http://www.gov.pe.ca/energy/hermanville>

Access Roads and construction of new transmission lines fracture natural areas



<http://www.gov.pe.ca/energy/hermanville>

West Cape – PEI's largest wind farm

- 55 turbines at 1.8 MW
- Agricultural landscape
- Private
- Two phases
- Complete



Summerside Wind Farm on Malpeque Bay, Important Bird Area



The Future of Wind Farms in PEI

Expansion at East Point is possible

More turbines in the western portion of the island including a long forest area down the spine of the north end has been proposed but appears to have stalled

Private turbines for homes, farms and industry are poorly controlled or regulated other than setbacks from buildings

