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New Tools for Improving Wind Project Siting for Biodiversity Conservation

Timothy G Howard - November 16, 2011

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Acknowedgements

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  - New York Natural Heritage Program
- NYS Department of Environmental Conservation
- Current and future partners

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The Cornell Lab of Ornithology

New York Natural Heritage Program

Department of Environmental Conservation · New York State

Set the Stage

Wind energy projects have two primary impacts on biodiversity

1. direct impacts – bird and bat collisions
2. indirect impacts – alteration and fragmentation of habitat

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Set the Stage: Policy Issue

Given the context of both direct and indirect impacts *and* the desire to move forward with wind energy development

How do we inform project siting policy that best balances

- environmental impacts
- wind turbine project viability

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Addressing this policy question

Outline:

- Core data sets and models that help
  - related to direct impacts
  - related to indirect impacts
  - related to wind
- Biggest challenges for future projects

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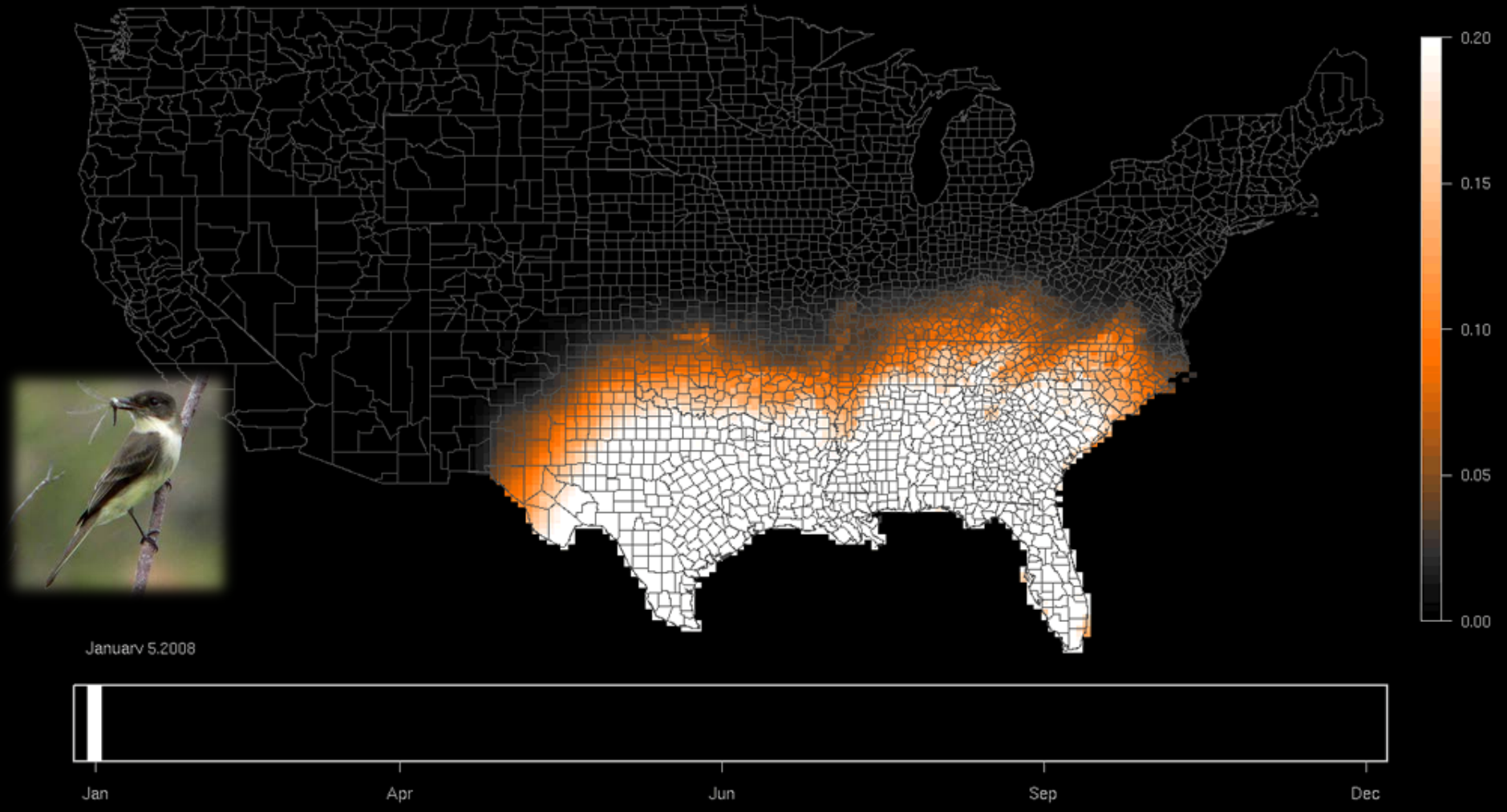
direct impacts: Bird Migration

Annual Cycle of Eastern Phoebe Occurrence



Cornell Lab of Ornithology

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direct impacts: Bat migration and summer roosting

images: Carl Herzog, NYSDEC

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direct impacts: Bat migration and summer roosting

Eastern Red Bat

Larsiurus borealis

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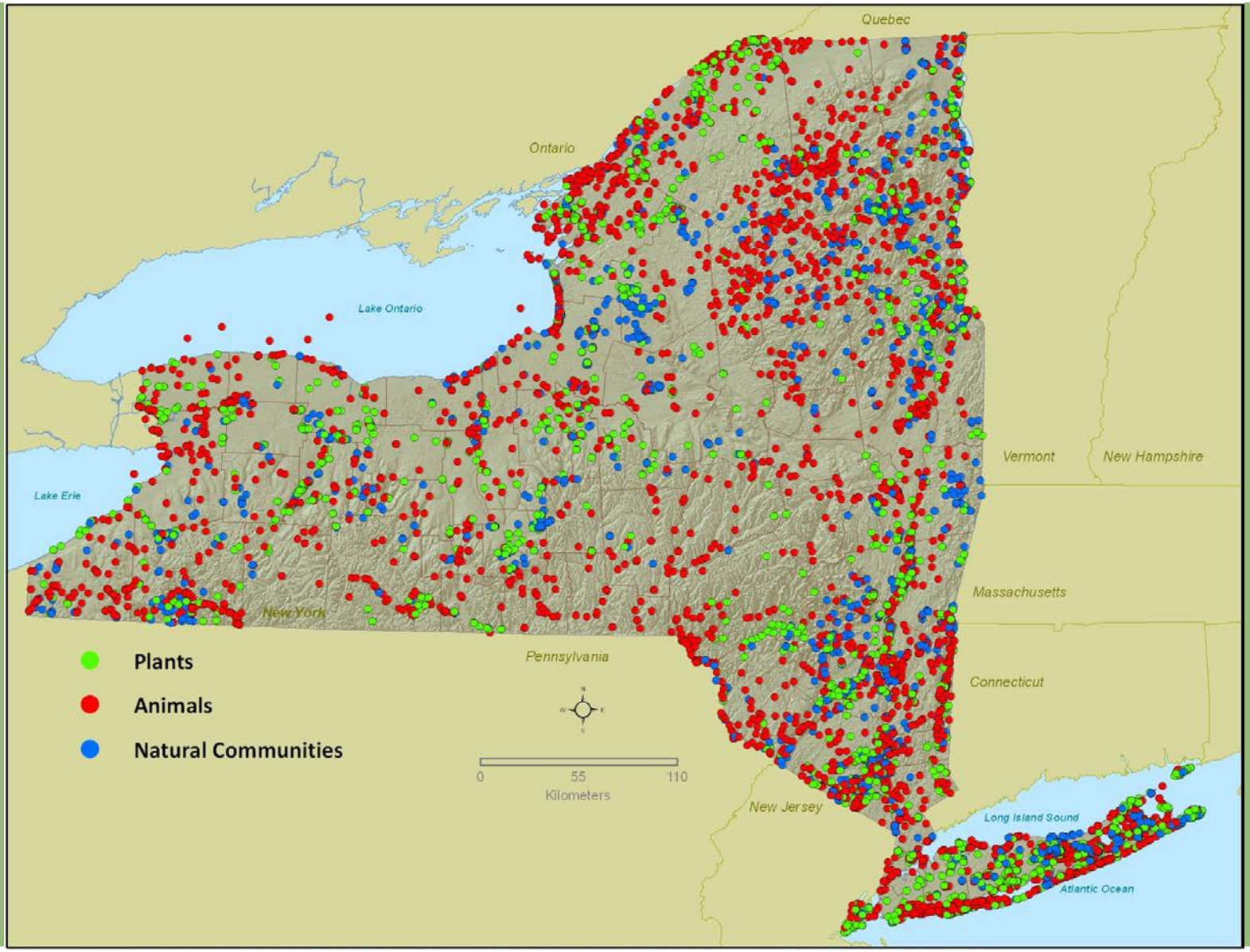
indirect impacts: Rare species distributions



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Blanding's turtle (*Emydoidea blandingii*)

Listed as *Threatened* in New York State
State rarity rank: S2

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Blanding's turtle (*Emydoidea blandingii*)

Blanding's turtle
known locations

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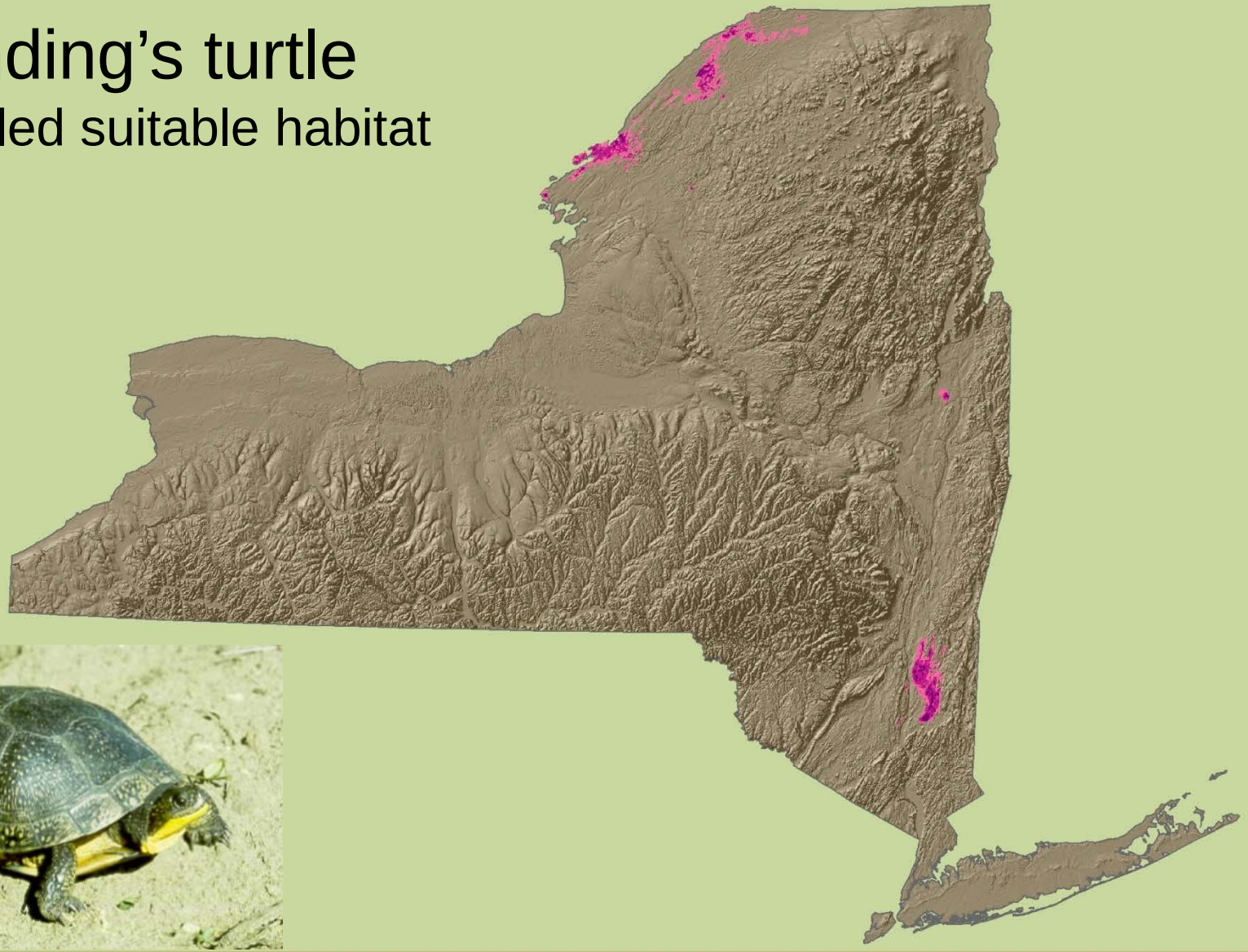
Blanding's turtle (*Emydoidea blandingii*)

Blanding's turtle

Modeled suitable habitat



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Timber Rattlesnake (*Crotalus horridus*)

Listed as *Threatened* in NY
State Rarity rank of S3

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Timber Rattlesnake (*Crotalus horridus*)

Timber Rattlesnake
known locations

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Timber Rattlesnake (*Crotalus horridus*)

Timber Rattlesnake

Modeled suitable habitat

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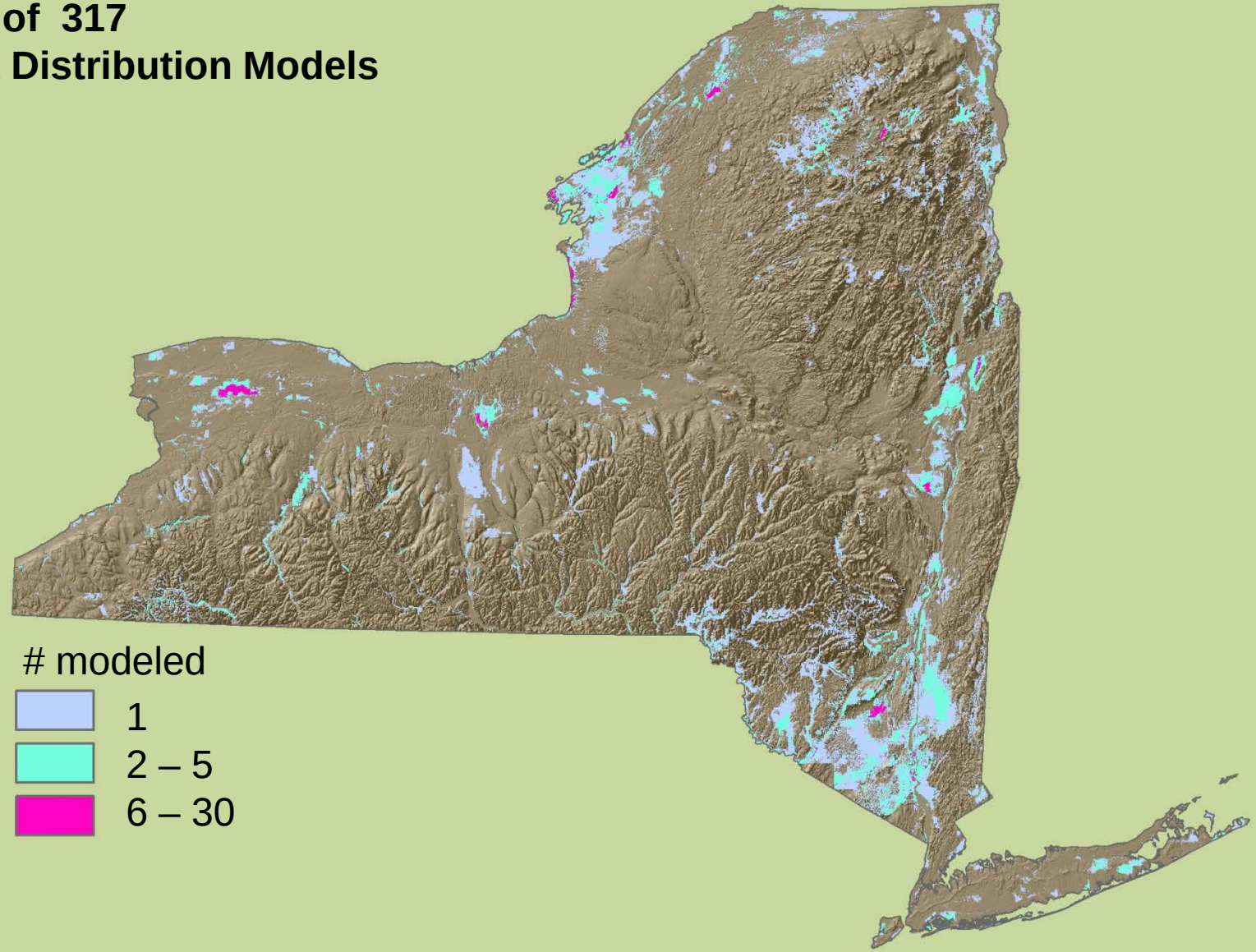
Rare Species 'Hot Spots'

Overlay of 317
Element Distribution Models



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Forested systems

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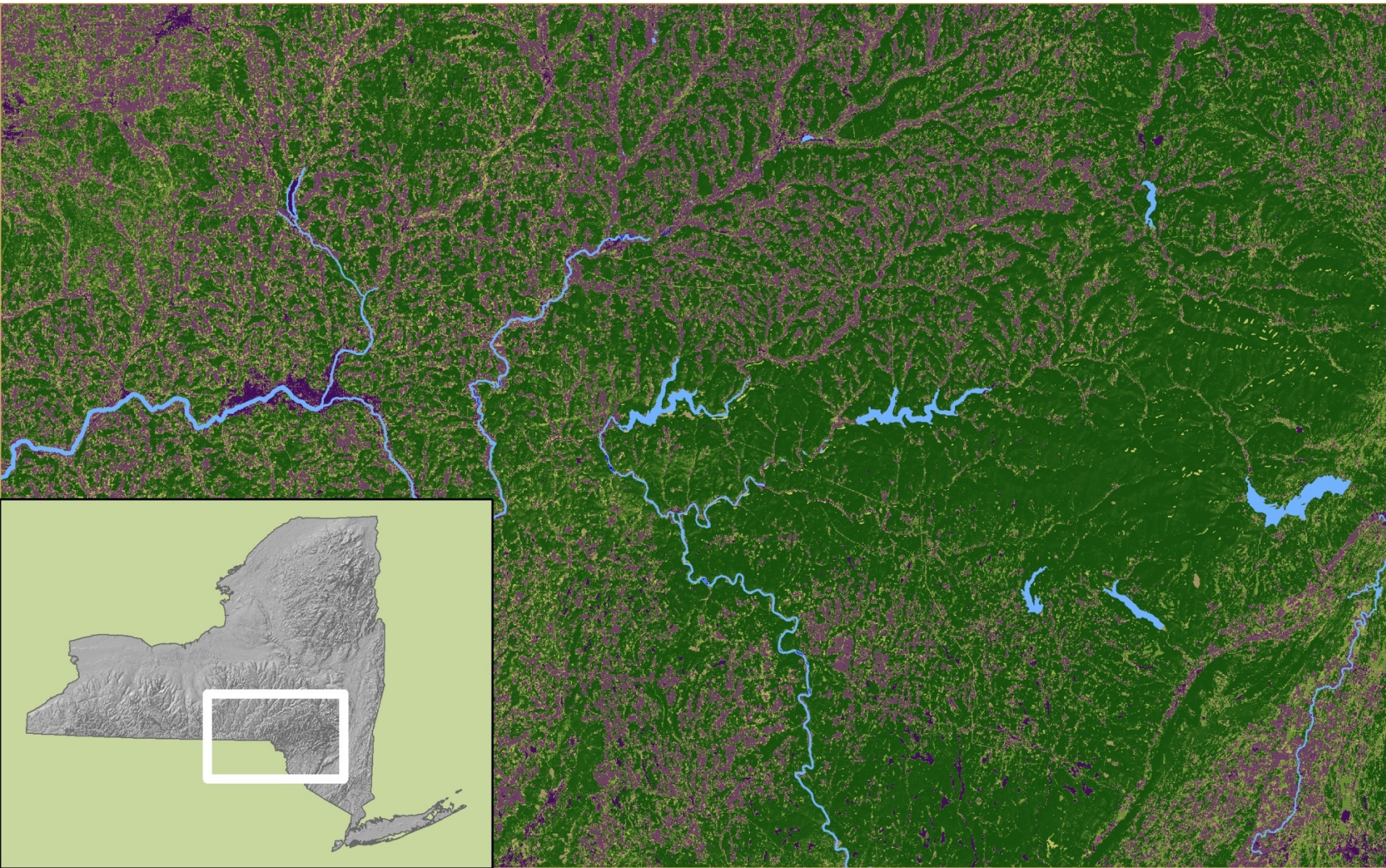
indirect impacts: Integrity of Forested Systems



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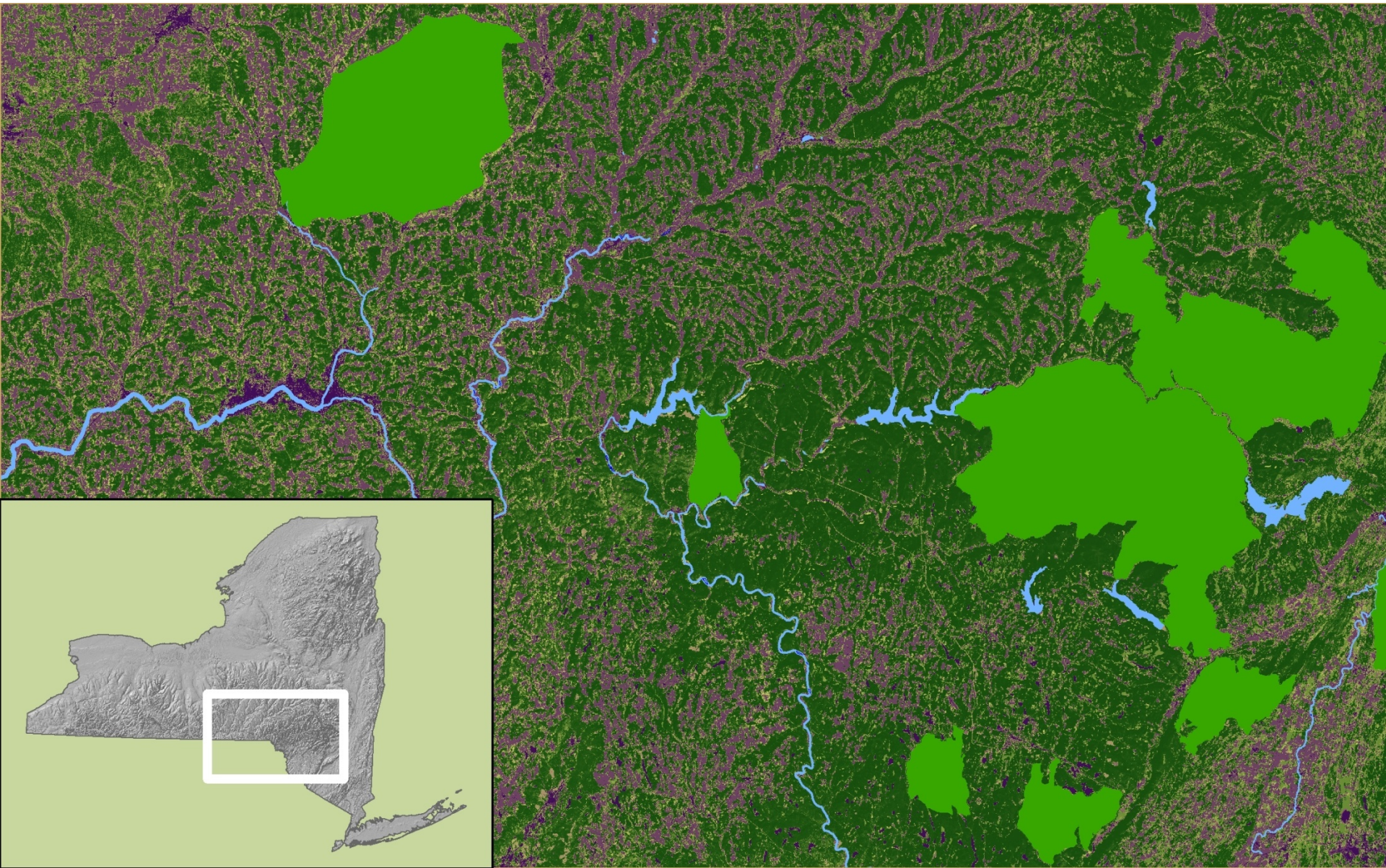
indirect impacts: Integrity of Forested Systems



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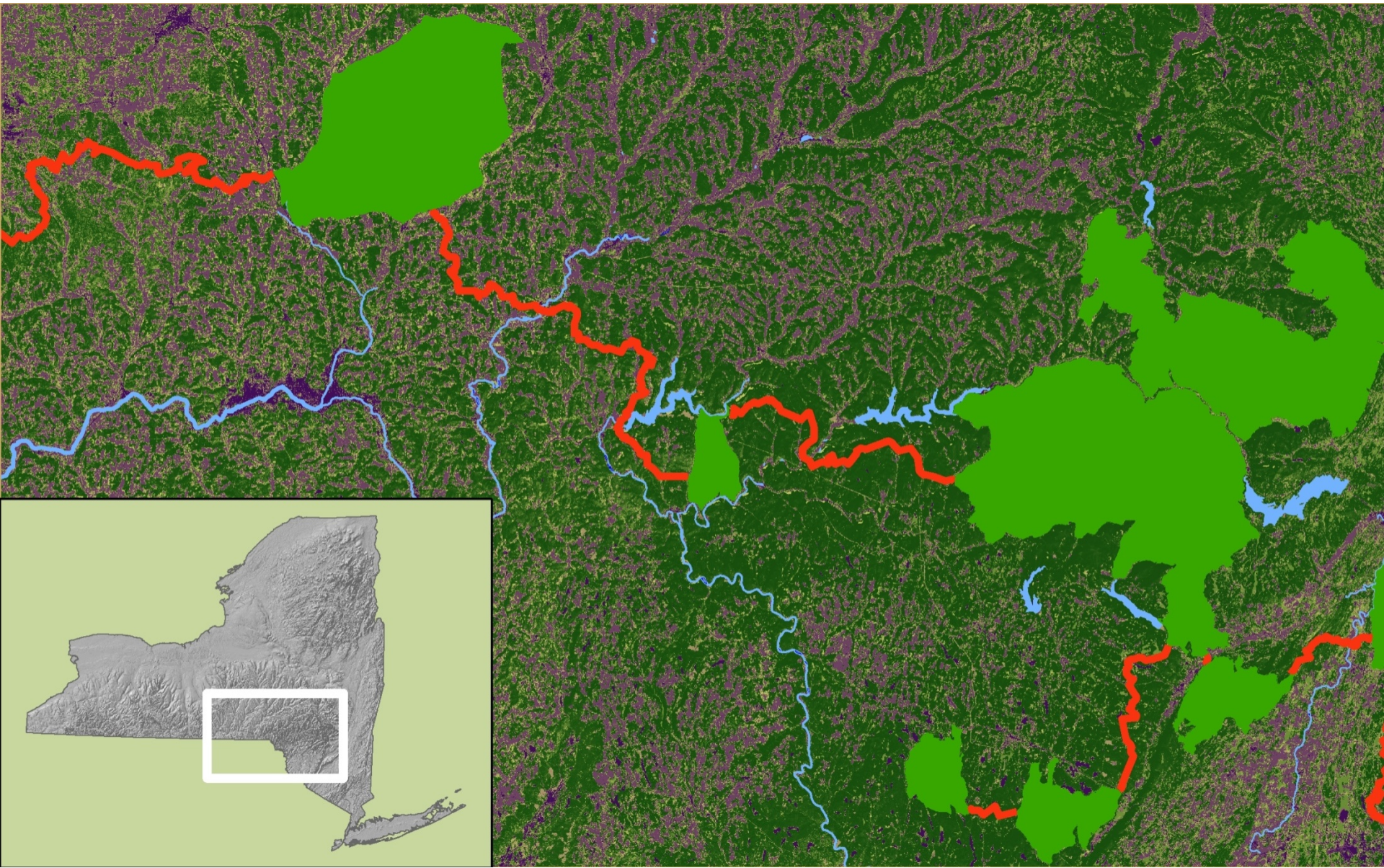
indirect impacts: Integrity of Forested Systems



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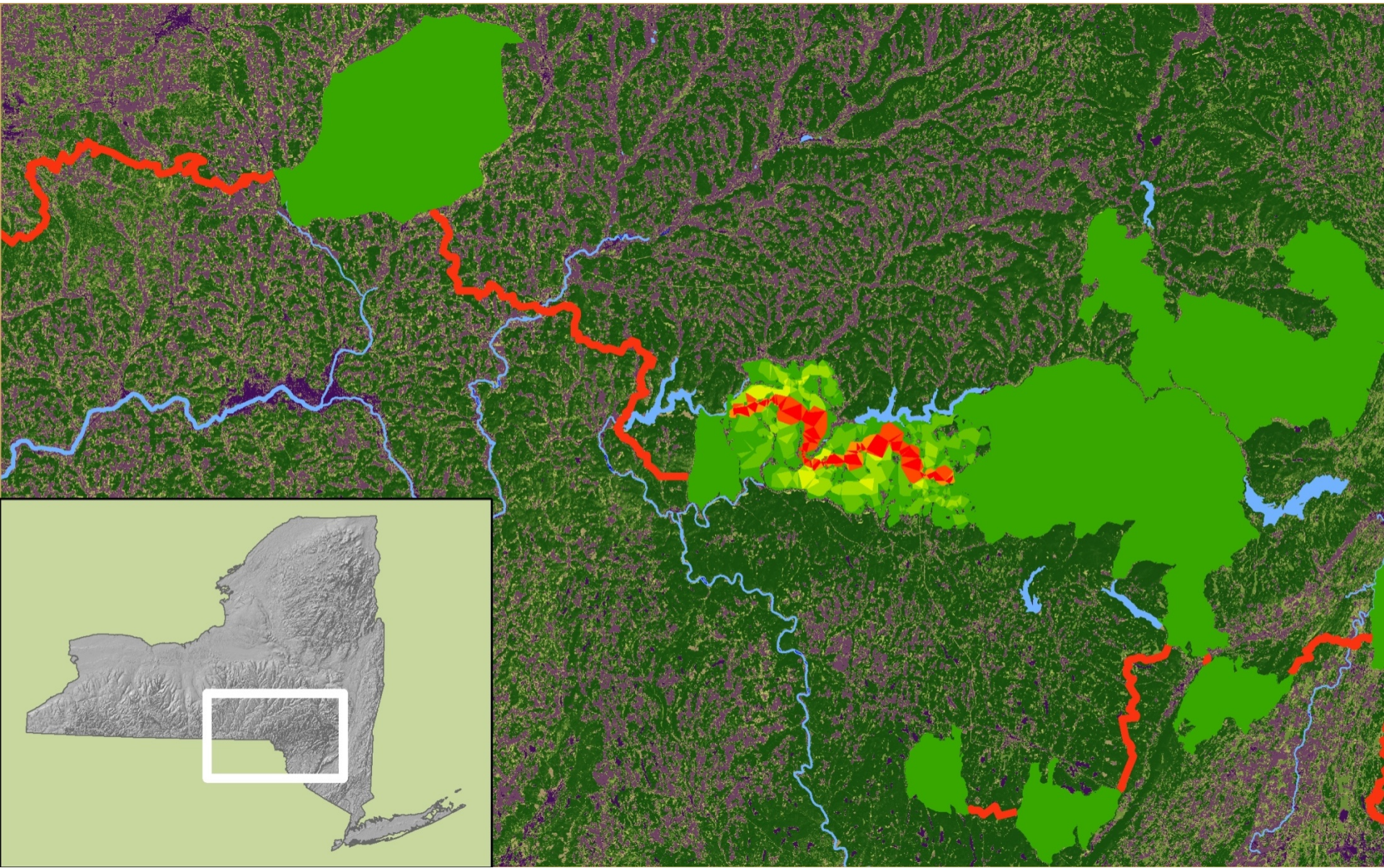
indirect impacts: Integrity of Forested Systems



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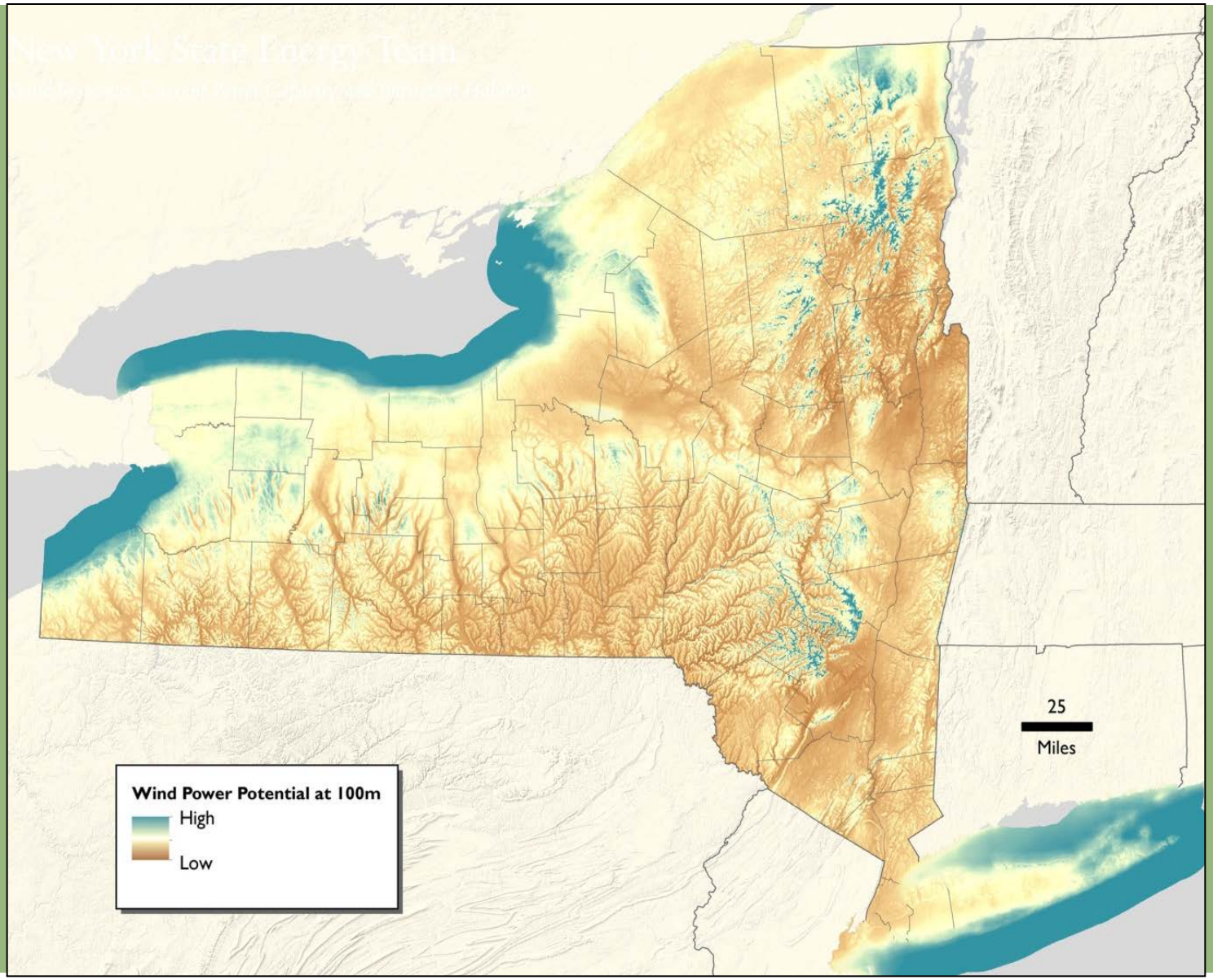
Wind Power potential at 100 meters



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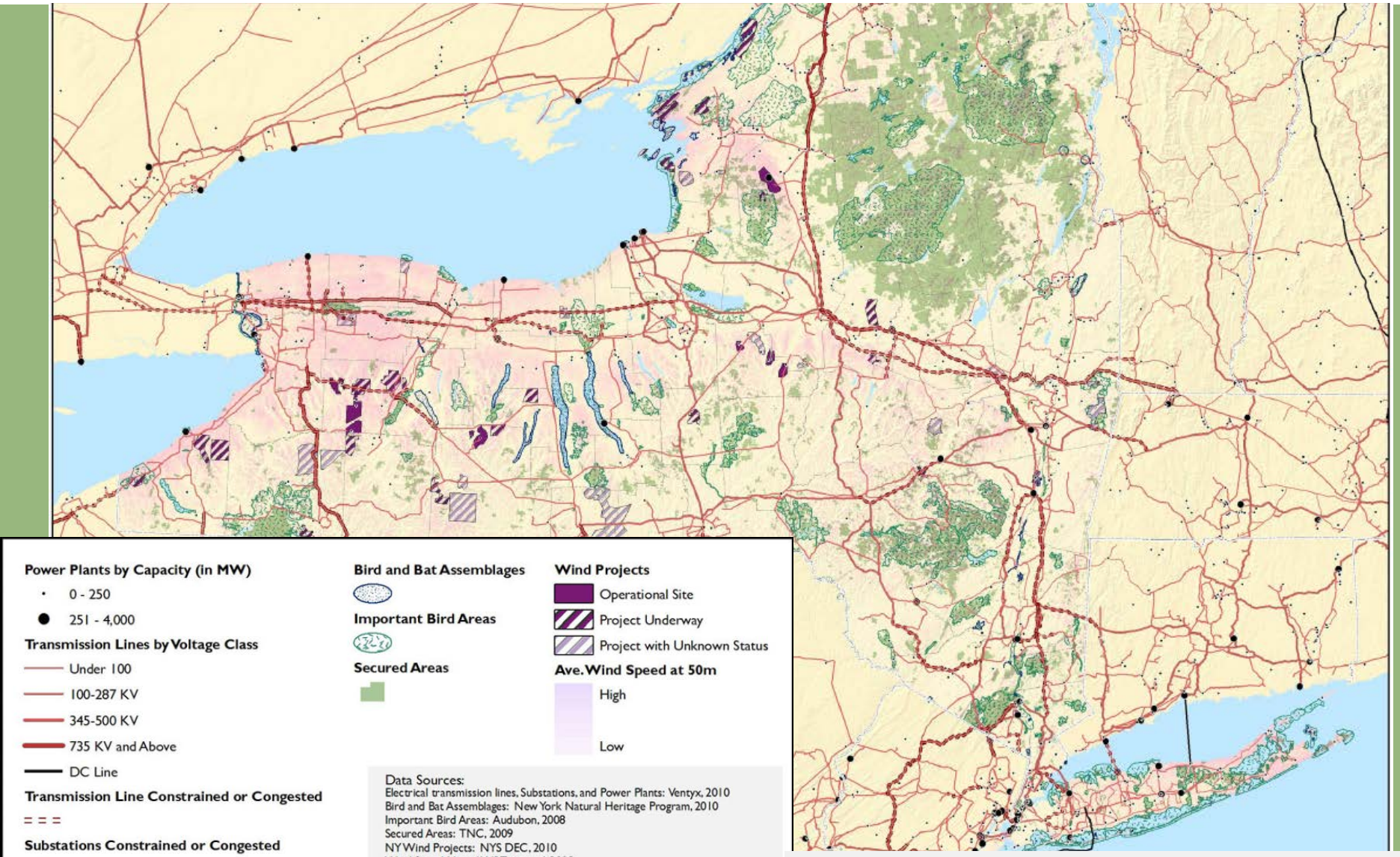
Power Capacity and Transmission Lines



Map by Brad Stratton, The Nature Conservancy

Develop wind project siting priorities

Project Advisory Committee (PAC)

- Facilitated by Abby Arnold (AWWI)
- Representatives from stakeholder groups

Data will be posted online for PAC and public

- Biodiversity priorities
- Energy priorities

Goal: tools for informing policy and development!

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Biggest Challenges

- Keeping data sets current and relevant!
  - Incorporating improved methods into existing monitoring protocols.
  - Contextualize for new challenges
- Managing existing data
- Maximizing impact of current data
  - data interpretation: what forms are most appropriate for public consumption?
- Education and outreach to policy makers and land managers