

Biodiversity and Energy Online Mapping

About the layers

Layer: Predicted Mussel Richness

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Layer developed by: The New York Natural Heritage Program

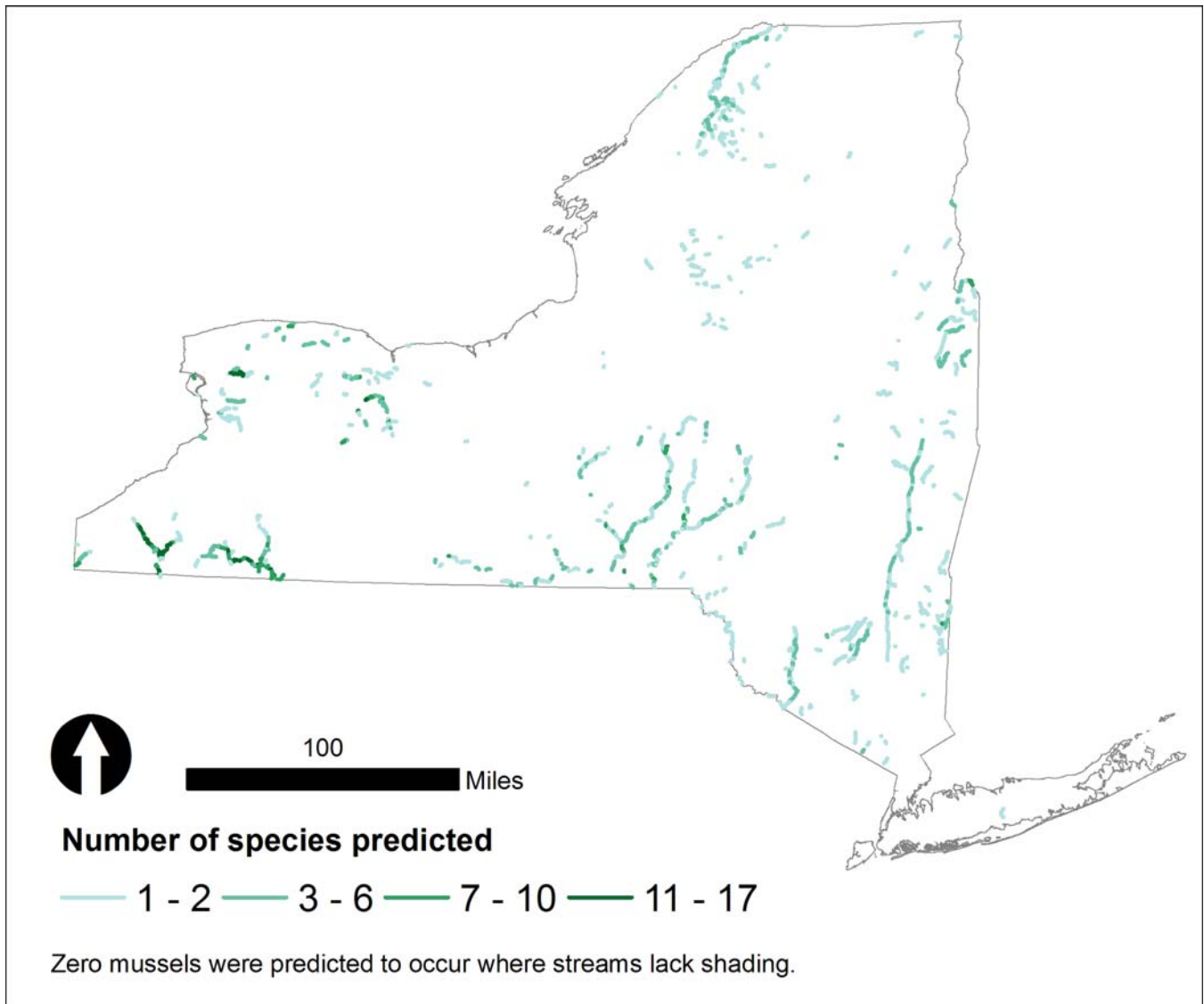
Short Description: This layer depicts stream segments in which one or more species of mussel are predicted to occur, based on 2750 separate records for the 39 species known to currently occur in New York.

Why this layer matters: Mussels respond rapidly to changes in stream condition and thus may be good indicator species, both in terms of natural flows and water quality. Many species are imperiled, and a high diversity of mussels is recognized as an important conservation target.

Source: The New York Natural Heritage Program developed this layer in collaboration with The Nature Conservancy as part of their Freshwater Blueprint project for New York (White *et al.* 2011).

Processing Overview:

1. Mussel locations were acquired from the *Pearly Mussels of New York State* (Strayer and Jirka 1997) and six other data sets of mussel locations from various researchers and groups (see White *et al.* 2011).
2. All locations were attributed to the stream reaches in which they occur, using the National Hydrography Dataset medium-scale (1:100,000) stream data (nhd.usgs.gov). We used a version of this dataset already attributed with many environmental variables developed for The Northeast Associated of Fish and Wildlife Agencies (<http://rcngrants.org/spatialData>).
3. For each of the 39 species, the association between species presence and 146 environmental variables was modeled using the random forests routine.
4. For those species passing cross-validation, their distribution was modeled statewide. For those not passing validation, we simply used their known locations as input for the next step.
5. Separate maps of each species were generated, either based on the modeled presence or only the known locations. The number of species was then summed for each stream reach.
6. For additional details, see (White *et al.* 2011).



Literature Cited:

- Strayer, D. L., and K. J. Jirka. 1997. The pearly mussels of New York State. New York State Education Department, Albany, NY. 113 pages.
- White, E. L., J. J. Schmid, T. G. Howard, M. D. Schlesinger, and A. L. Feldmann. 2011. New York State Freshwater Conservation Blueprint Project, Phases I and II: Freshwater Systems, Species, and Viability Metrics. The New York Natural Heritage Program, Albany, NY. 85 pages.
Available at: <http://nynhp.org/FBP>.