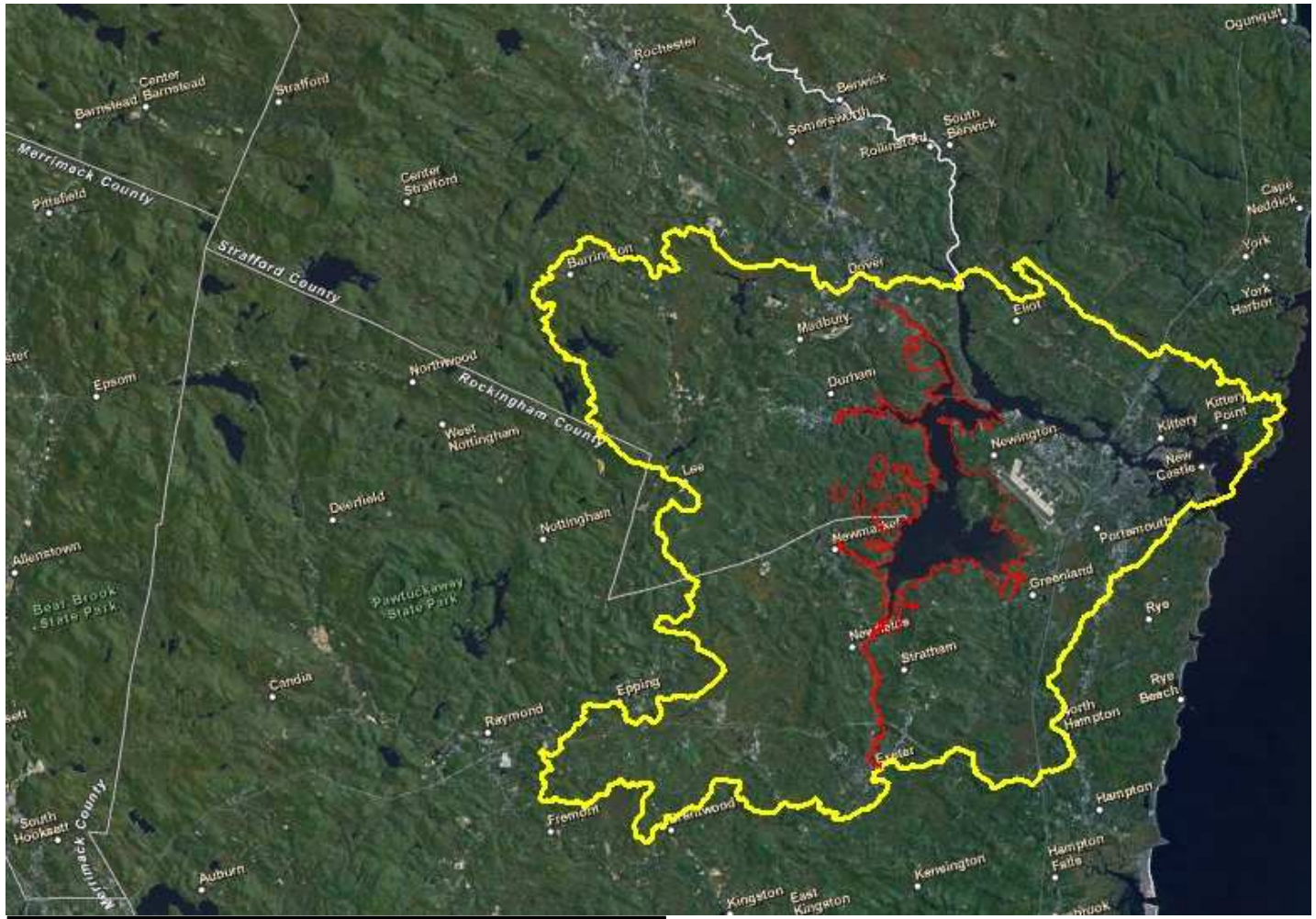
Appendices

Appendix A

Great Bay National Estuarine Research Reserve's Targeted Watershed Boundary

Great Bay National Estuarine Research Reserve's Targeted Watershed Boundary



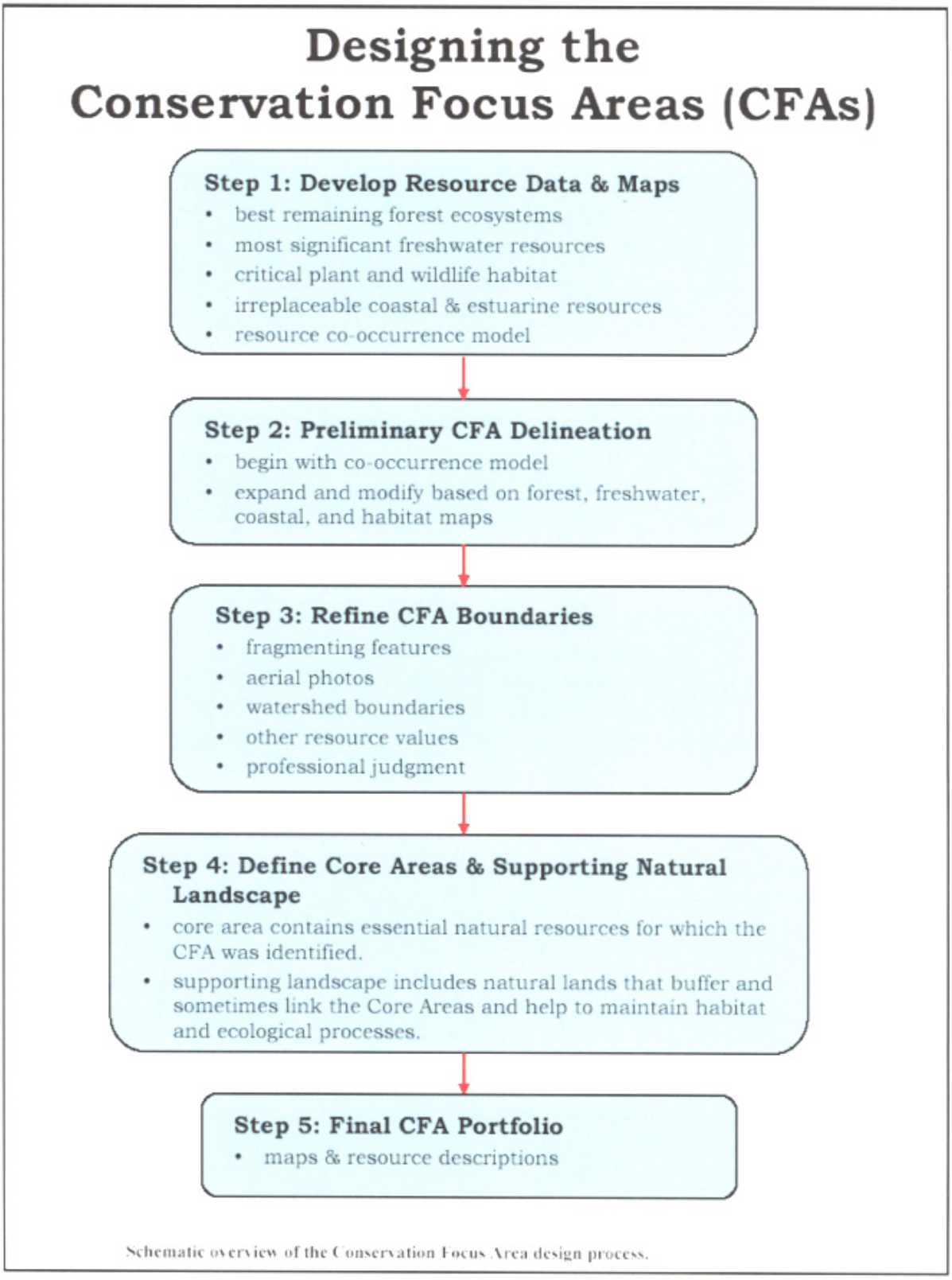
Reserve Boundary

Targeted Watershed Boundary

Appendix B

Designing Conservation Focus Areas (CFAs)

Appendix B

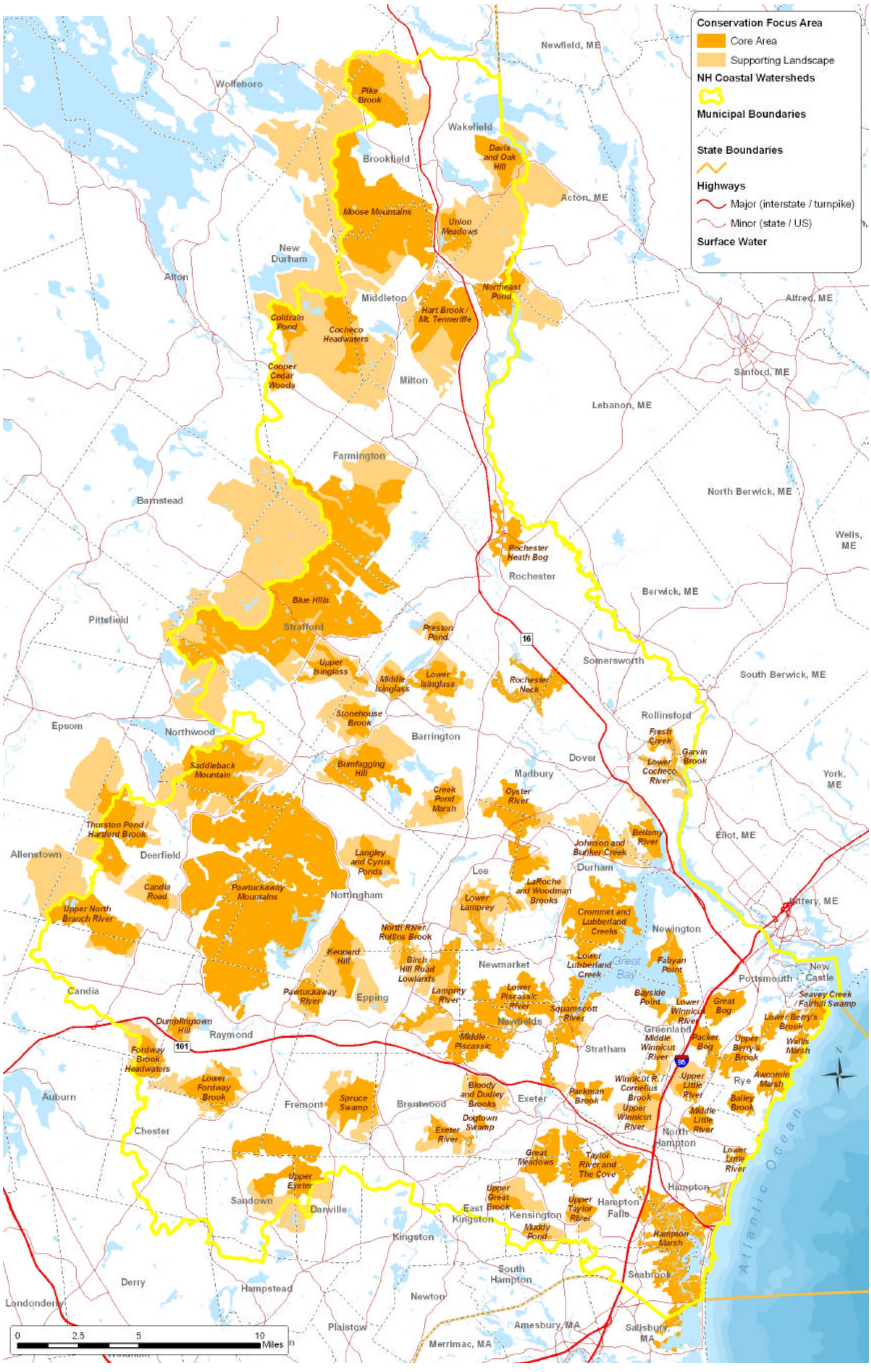


Schematic overview of the Conservation Focus Area design process.

Appendix C

Conservation Focus Areas Map

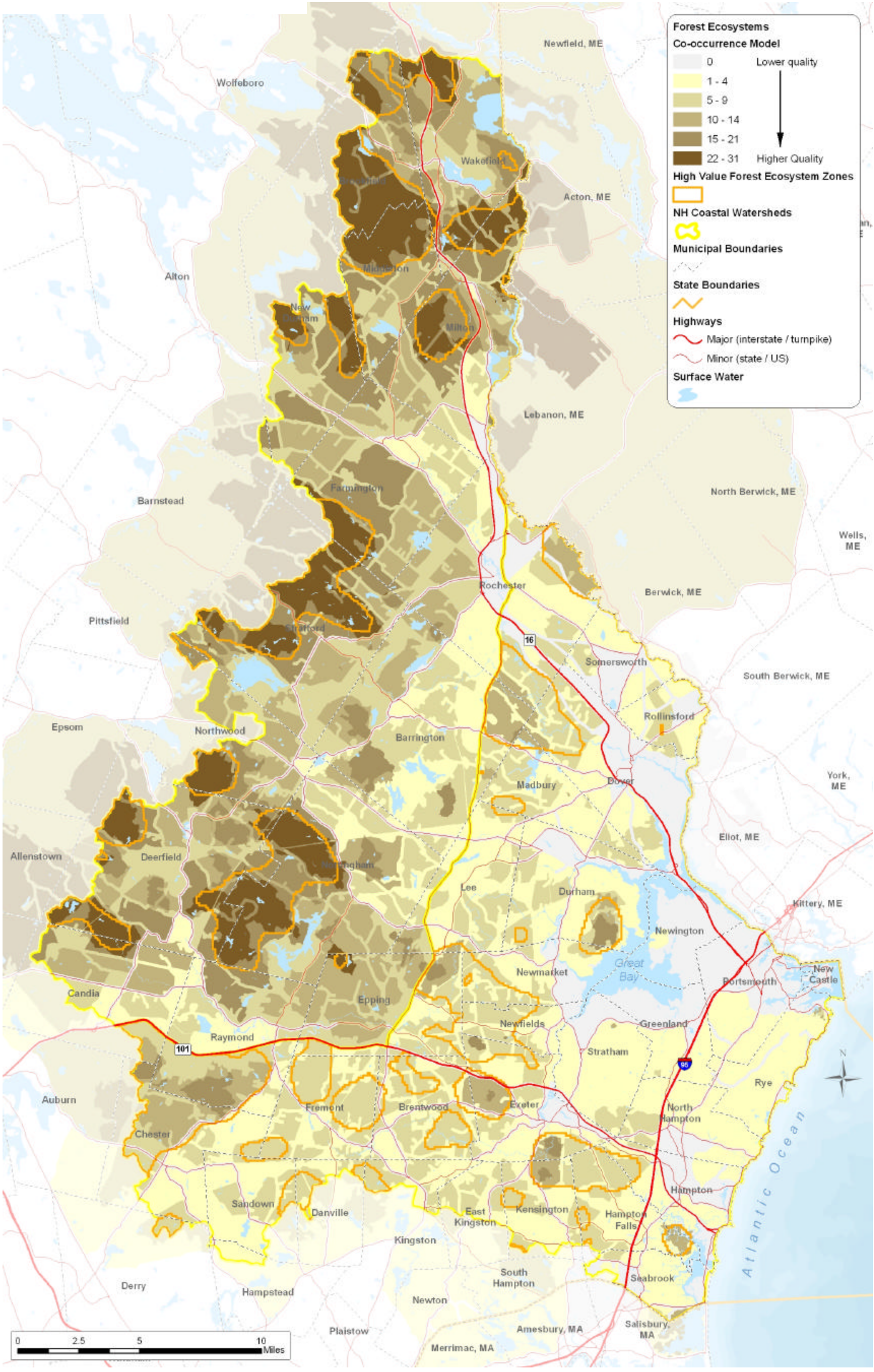
Conservation Focus Areas



Appendix D

Forest Ecosystems Map

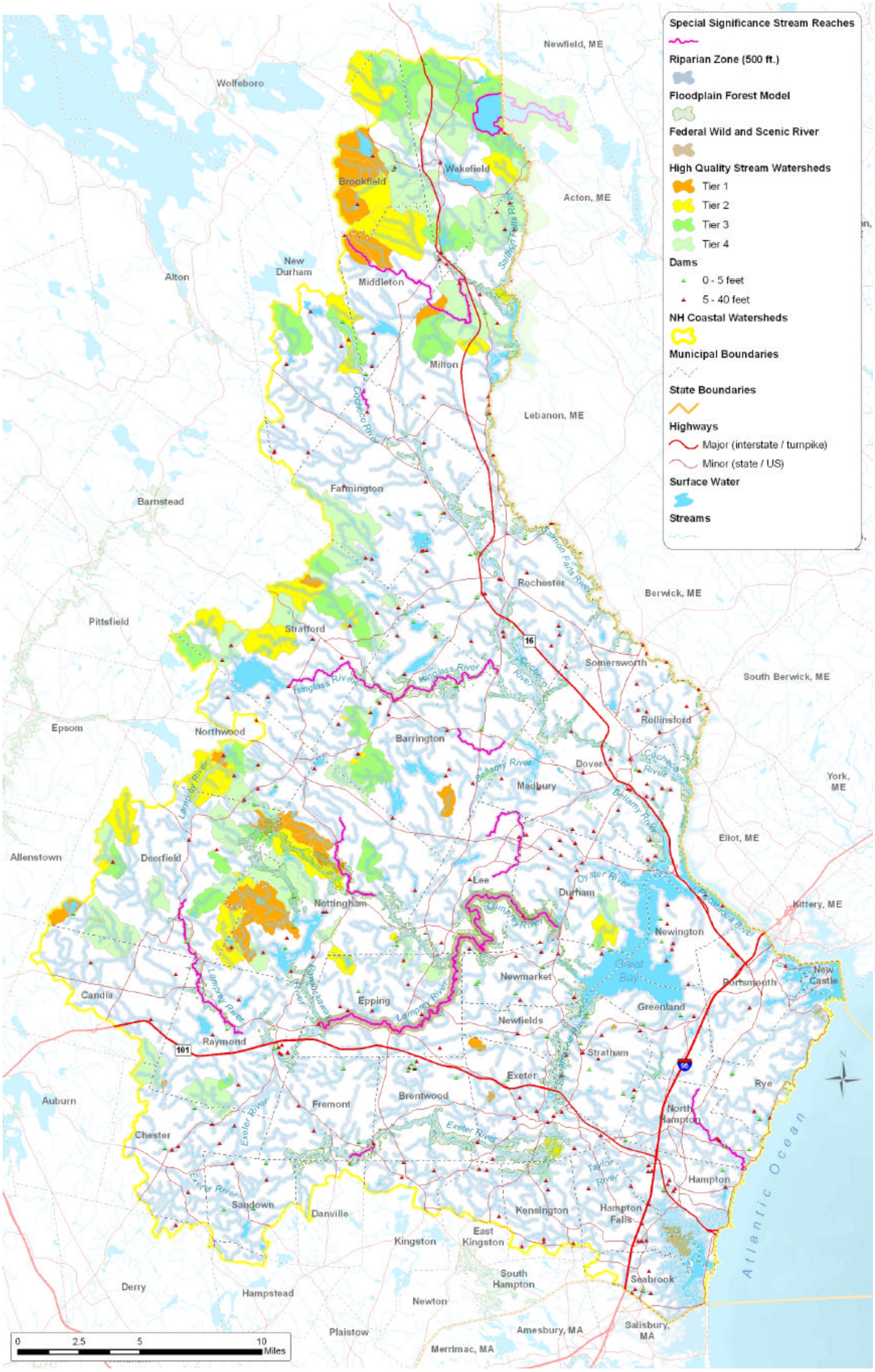
Forest Ecosystems



Appendix E

Freshwater Systems Map

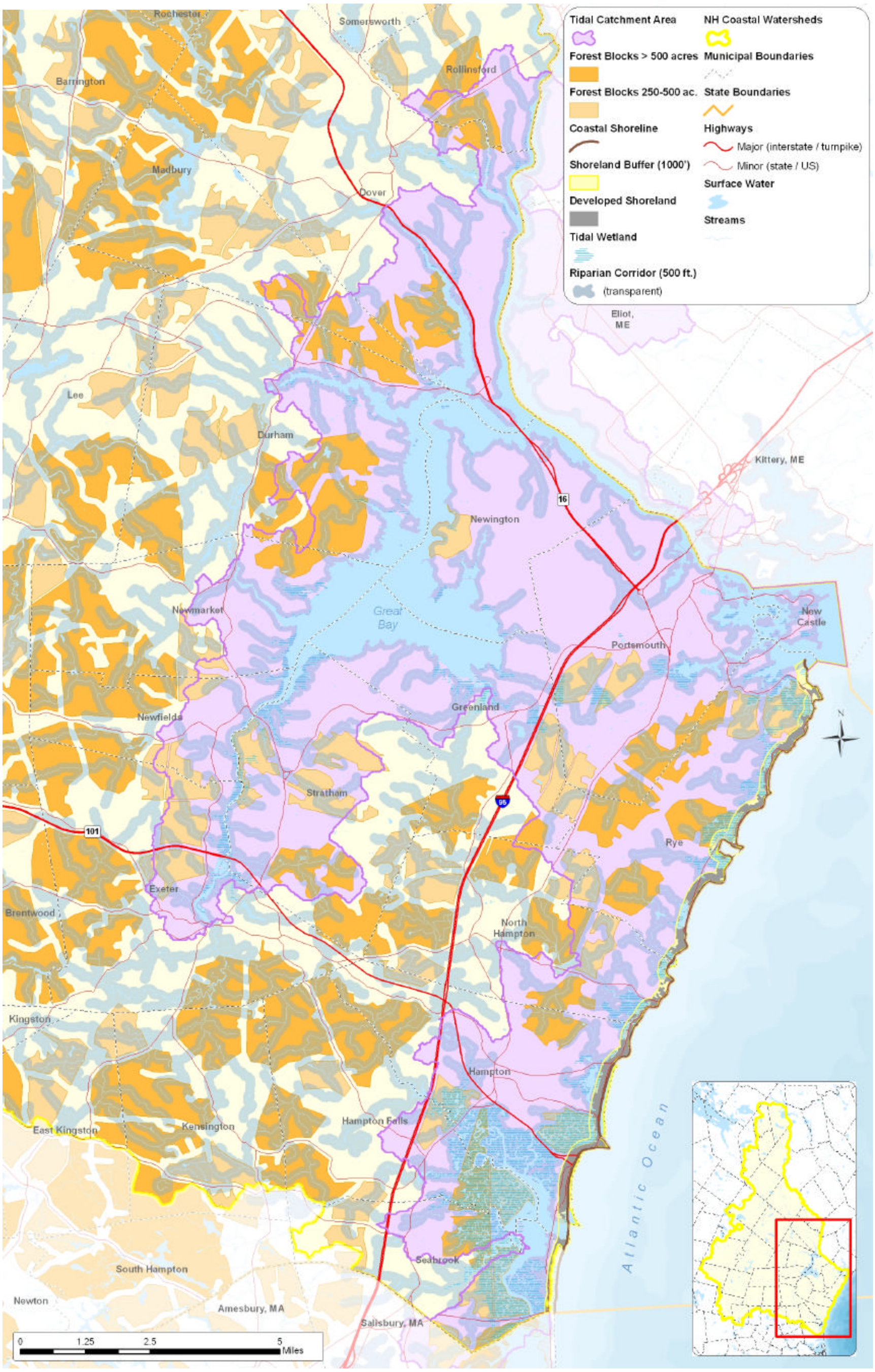
Freshwater Systems



Appendix F

Critical Coastal and Estuarine Resources Map

Critical Coastal and Estuarine Resources



Appendix G

Critical Plant and Wildlife Habitats Map

Critical Plant and Wildlife Habitat

Appendix H

Coastal Resources

Appendix H

Coastal Resources

1. Forest Ecosystems

- **Unfragmented forest blocks** include forestland and embedded natural habitats and naturally occurring land cover types - such as forests, wetlands, streams, and ponds – that are not bisected or otherwise significantly fragmented by publicly accessible roads, powerlines, railroads, or other development. Regionally significant blocks exceed 1,000 acres, and mostly occur west of Route 125. We attribute higher ecological significance to larger blocks because of increasing capacity to support interior forest species and greater ability to withstand and be resilient to natural disturbances. Locally significant blocks range from 250 to 1,000 acres.
- **Aggregated forest blocks** are collections of unfragmented forest blocks in close proximity to one another, and generally bounded by highways and other large, relatively impermeable fragmenting features. While unfragmented forest blocks indicate forest systems unbroken by development, aggregated forest blocks are important because they reflect the landscape character and context. Larger aggregated blocks indicate a landscape with few major fragmenting features, while smaller blocks indicate a more dissected landscape.
- **High quality stream watersheds** are small stream catchments with the highest landscape integrity and water quality based on population density, developed land cover, and agricultural land cover. They are described in more detail under Freshwater Systems. We identified the highest value areas through a statistical analysis of the forest ecosystems co-occurrence model results. For each half of the coastal watershed planning area (upper and lower), we identified zones representing the top 20 percent of model values (by area). We then overlaid these zones on top of the raw co-occurrence model results to determine the best remaining opportunities to conserve forest ecosystems.

2. Freshwater Systems

- **Pristine Watersheds** -- Each catchment includes the land area draining into an individual stream section, and most are only a few square miles in extent, compared to the much larger river system delineations commonly used to define watersheds. We isolated those catchments with high landscape integrity and water quality. This subset, in turn, is stratified into tiers by breaks in population density and percent of developed land cover and agricultural land cover. The top four tiers of watershed were used in the analysis ranging from pristine to high quality (up to 5 percent developed land) and cover approximately 16 percent of the watershed.
- **Riparian Zones** are the natural corridors along streams and rivers that are essential for maintaining stream habitat and water quality, offering important wildlife habitat structure and connectivity, and providing storage for floodwaters. The riparian zone is delineated by placing a buffer of 500’ on either side of all streams (and the ponds, lakes, and tidal estuaries through which they flow), ranging from 1st order tributary streams high in the watershed to 6th order mainstem rivers draining to the coast.
- **Floodplain Forests** are riparian areas where the physical landscape periodically floods during high water discharge events.

- **Important Stream Reaches** are limited to stream or river segments, and their associated floodplain and riparian zones in the study area, known to have special significance for living resources, including fish species of conservation concern (as determined by N.H. Fish & Game biologists) and globally rare species**.**

3. Critical Coastal and Estuarine Resources.

- **Undeveloped coastal shoreline** is the very limited open, undeveloped land remaining along our marine coastline for a distance of 1,000' inland. Undeveloped shoreline is found only in small, scattered localities, generally defined by permanently protected parcels or undevelopable coastal wetlands.
- **Tidal and estuarine riparian zones** are similar to freshwater riparian zones discussed previously, and utilize the same 500' buffer, but are limited to estuaries along the coast, including Great Bay and various salt marsh complexes, as well as rivers and streams with tidal influence. In some cases, barriers such as dam structures truncate natural watercourses with tidal influence; these barriers then define the upper limit of the tidal zone, as well as the associated catchments described below.
- **Tidal wetlands** include all mapped, tidally influenced wetlands such as salt marsh and brackish marsh.
- **Forest blocks > 500 acres within tidal catchments** are scarce in the overall mosaic of land cover close to Great Bay and the coast, and are of special interest in this study due to their significance for water quality and biodiversity conservation. The watershed of each tidal watercourse is defined by the aggregate of SPARROW stream catchments flowing directly into that watercourse. The outer boundary of all contiguous catchments in turn defines the land area within which forest blocks >500 acres are included. SPAtially Referenced Regressions On Watershed (SPARROW) is a watershed model used to evaluate the contributions of selected contaminant sources and watershed properties throughout large river networks. According to the U.S. Geological Survey; "SPARROW (a) utilizes monitoring data and watershed information to better explain the factors that affect water quality, (b) examine the statistical significance of contaminant sources, environmental factors, and transport processes in explaining predicted contaminant loads, and (c) provide a statistical basis for estimating stream loads in unmonitored locations."

4. Critical Plant and Wildlife Habitats

To estimate critical wildlife habitat, we utilized several habitat models representing important habitat for many of the state's imperiled animals.

- **Rare Plants, Exemplary Natural Communities, and Supporting Natural Habitat -** Natural Heritage Program ecologists reviewed all known occurrences of rare plants and exemplary natural communities in the N.H. coastal watersheds (approximately 900 occurrences). They prioritized occurrences which are in excellent condition, are limited to the coastal region in their distribution, exhibit floristic qualities not seen in other portions of the state, or occur in high quality clusters. These priority occurrences represent approximately 28 percent (257) of the total, and were used to focus attention on the most significant habitat. To illustrate the portions of the landscape that are important to the priority natural heritage features, we mapped supporting natural habitat areas. These areas represent the immediate landscape surrounding an occurrence (or group of occurrences) and are delineated based on relevant natural habitat, stream catchment

boundaries, and breaks in the forest canopy. They should be considered as the absolute minimum area necessary to maintain or enhance the viability of these features.

Appendix I

Documented Public Session Attendees

Appendix I

Documented Public Session Attendees

Delphi Process:

Fay Rubin - UNH Complex Systems
Cliff Sinnott - Rockingham Planning Commission
Doug Bechtel - TNC
Kate Hartnett - Jordan Institute
Jennifer Hunter - NHEP
Emily Brunkhurst - NH Fish & Game
Ted Diers – NH Coastal Program
Dan Sundquist - SPNHF
Cynthia Copeland - Strafford RPC
Dale Abbott - Strafford RPC
Mark Zankel - TNC
Theresa Walker - Rockingham PC
Pete Ingraham - TNC
Jenn Alford - SPNHF
Mike Speltz - SPNHF

Oct 17, 2005 Public Meeting (based on sign-in sheet & Q&A write-up, which may not be comprehensive):

Cynthia Belowski - Moose Mtns Regional Greenways
Bob Landman - N. Hampton
Jennifer Landman - N. Hampton
Donald Clement - Exeter
Tim Moody - Lee
Barbara Maurer - Madbury
Eric Fiegenbaum - Madbury
Dick Dodge - Seabrook
David Funk - Dover
Peter Wellenberger - Great Bay NERR
Laurel Cox - Lee
Chuck Cox - Lee
Dorothy Watson - Newington
Tom Fargo - Dover
Pete Richardson - Exeter
Harmony Anderson - Strafford
Greg Tillman - Epping
Ann Schultz - Barrington
Dan Kern - Greenland
Danna Truslow - Rye
Bruce DeBeer - Fremont
Forest Griffin - Exeter

May 1, 2006 Land Trust Partner Outreach Meeting:

SPNHF - Jenn Alford, Dan Sundquist
TPL - Gregg Caparossi, Julie Iffland
Seacoast Land Trust - Kristen Grubbs
Dover Open Lands - Marcia Colbath
Strafford Rivers Conservancy - Anna Boudreau
NH Coastal Program - Beth Lambert
Lee Conservation Commission - Bill Humm
Bear-Paw Regional Greenways - Dan Kern
Moose Mountains Regional Greenways - Steve Panish, Don Whittum, Nancy Spencer Smith