Terrestrial and wetland core areas are intact, well-connected places that, if protected, will support a diversity of fish, wildlife, and plants, and the ecosystems they depend upon. Core areas contain important or unique features, including intact, resilient examples of every major ecosystem type in the Northeast and Mid-Atlantic. Core areas contain widespread ecosystems (such as hardwood forests), rare natural communities (such as bogs), and important habitat for a variety of fish, wildlife, and plants. By design, they encompass approximately 25% of the landscape of the region.

Core areas are linked together by a network of connectors. If protected, the connectors will foster the movement of animals and plants between core areas and across the landscape into the future.

Core areas are also embedded within road-bounded natural blocks. These blocks are natural areas that surround and help support the integrity of core areas. They maintain ecological processes and foster the movement of animals and plants across the landscape. By following the boundaries between natural and developed areas, they also provide practical units for conservation action.

This set of products also includes a network of core areas for grassland birds. Due to their unique association with habitat that has been created and maintained for human use, grassland birds are treated separately from wildlife that use habitat such as forests and wetlands. Forest and wetland species typically are not as reliant on intensive management as are grassland birds. Grassland bird core areas therefore represent an important complement to terrestrial and wetland core areas. These core areas are not linked by connectors.
because grassland birds are less dependent on naturally-vegetated corridors for movement compared to many of the species that inhabit terrestrial and wetland core areas.

Together with aquatic core areas and buffers, the terrestrial core areas and connectors provide the primary network of resilient and ecologically intact habitats that will support biodiversity under changing conditions in the Northeast and Mid-Atlantic region. These areas represent a “coarse-filter” approach to biodiversity conservation and provide strategic guidance for conserving natural areas and the fish and wildlife that they support. They are complemented by the “fine-filter” approach of the Core Habitat for Imperiled Species.

Intended uses

- Identify the best places to begin land and water protection
- Sustain natural resources on private lands by promoting stewardship with private landowners
- Inform strategic acquisition of parcels by public or nonprofit organizations
- Set local conservation priorities with a regional perspective
- Protect biodiversity by understanding the ecological importance of individual areas
- Identify important natural areas vulnerable to future development
- Determine which areas in the network remain unsecured from development

Get started

You can explore the Terrestrial Cores and Connectors map on the North Atlantic LCC Conservation Planning Atlas. Notice that there are two copies of terrestrial core areas: one that includes connectors and one that includes road-bounded natural blocks. For either type, you can zoom into areas of interest using the Zoom Tool, and you can find information about why a core area is important using the Identify Tool. You can learn more about the ecosystem types identified as being important by referring to the Northeast Habitat Guides: A Companion to the Terrestrial and Aquatic Habitat Maps.

You can also get more information by turning on the individual component products that are available in the map but not activated when you open it. To see the list of these products, click on the “Layers” tab on the left side of the map. Click in the
boxes to the left of the product names to activate them, and click on the arrows to the right of the product names to find out more details about the products and perform other tasks. Once a product is activated, you can also learn more about what you are seeing in the map using the Identify Tool. The terrestrial core-connector network can serve as a starting point for a regional conservation network that can be used in combination with other sources of information to direct action. You might explore it in combination with:

- Other data layers to identify additional areas of high ecological value. Layers to consider include: 1) aquatic cores and buffers, 2) index of ecological integrity, 3) The Nature Conservancy’s (TNC) terrestrial resiliency index, 4) individual species landscape capability indices, and 5) habitat condition for imperiled species.
- The secured lands (Eastern U.S.) layer to identify the places in the network that remain unsecured from development, and thus could represent priorities for land protection.
- The probability of development layers (2030 and 2080) and regional vulnerability layers to identify places in the core-connector network that are relatively vulnerable to future development, and thus could represent priorities for land protection.
- Resource priorities identified at the state or local level, but that are not available across the entire region (e.g., from State Wildlife Action Plans, towns, and land trusts), to further rank areas for land protection.

With a free DataBasin account, you can upload your organization’s priorities into a private map for comparison with the terrestrial core-connector network, or you can download the network if your organization has GIS analysis capabilities.

The core-connector network is based on GIS analyses designed to assess the physical and biological value of resources across the Northeast and Mid-Atlantic, and to identify the most important places and connections for them. Core areas integrate four components:

1. High integrity examples of more than 90 terrestrial and wetland ecosystem types across the Northeast and Mid-Atlantic. Ecosystem locations have been mapped through a partnership of The Nature Conservancy and the Northeast state fish and wildlife agencies (**Ferree and Anderson 2013**). Their integrity has been assessed using the Index of Ecological Integrity developed by the University of Massachusetts Amherst (**McGarigal et al. 2016**).
2. Terrestrial sites assessed as having the greatest potential to be resilient over the long term, as identified by The Nature Conservancy (Anderson et al. 2016).

3. Rare natural communities identified and mapped by state natural heritage programs.

4. High quality habitat for 27 terrestrial and wetland wildlife species carefully selected to represent the habitat needs of a large number of species that share many of the same habitats. These habitats have been mapped by UMass Amherst (McGarigal et al. 2016).

Connectors, also identified by UMass Amherst, are intended to represent the best areas for movement between core areas for a variety of species with varying abilities to travel and disperse. They are based on existing natural landscapes.

Grassland bird core areas were derived from the analysis of the habitat of a species representative of the grassland bird community, the Eastern Meadowlark.

As with any project carried out across such a large area, the terrestrial core-connector network is subject to limitations. The results by themselves are not a prescription for on-the-ground action; users are encouraged to verify, with field visits and site-specific knowledge, the value of any areas identified in the project. Known issues and uncertainties include the following:

- The results do not incorporate important social, economic, or feasibility factors.
- Users are cautioned against using the data on too small an area (for example, a small parcel of land), as the data may not be sufficiently accurate at that level of resolution.
- The mapping of ecosystem locations and development is known to be imperfect, which consequently affects the mapped values for ecosystem integrity and species habitat. While the ecosystem mapping is anticipated to correctly reflect broad patterns of ecosystem occurrence, errors in classification and placement do occur, as with any regional GIS data. In addition, errors in mapping and alignment of development, roads, traffic rates, and a number of other data layers can affect the model results.
- It is not possible to map all factors affecting ecosystem integrity and species habitat across the Northeast, and the omission of such factors can be anticipated to pose some limitations in the results. An example is the limited
ability to map the regional impact of invasive species.

- Not all locations of rare natural communities have been mapped by states and therefore may not be components of core areas. The current version of core areas does not reflect rare natural community data from Rhode Island.

- The habitat needs of the representative species used in the project do not fully reflect the habitat needs of all species with which they co-occur; some specialized habitats may be missed entirely.

- The identification of core areas is predicated on the assumption that biodiversity is best supported by intact, well-connected landscapes. While this assumption is soundly grounded in conservation biology theory and findings, it is recognized that many species of conservation concern may depend on habitat currently existing in a less intact state or otherwise missed by core areas. The Habitat Condition for Imperiled Species product, in particular, is intended to complement the core areas by focusing on such areas.

Links for technical information

**Terrestrial and wetland core-connector network**

Inputs to terrestrial and wetland core areas:

  - Northeast terrestrial ecosystem classification
  - Index of Ecological Integrity
  - Landscape capability models for representative wildlife species

**Additional documentation** from UMass Designing Sustainable Landscapes project