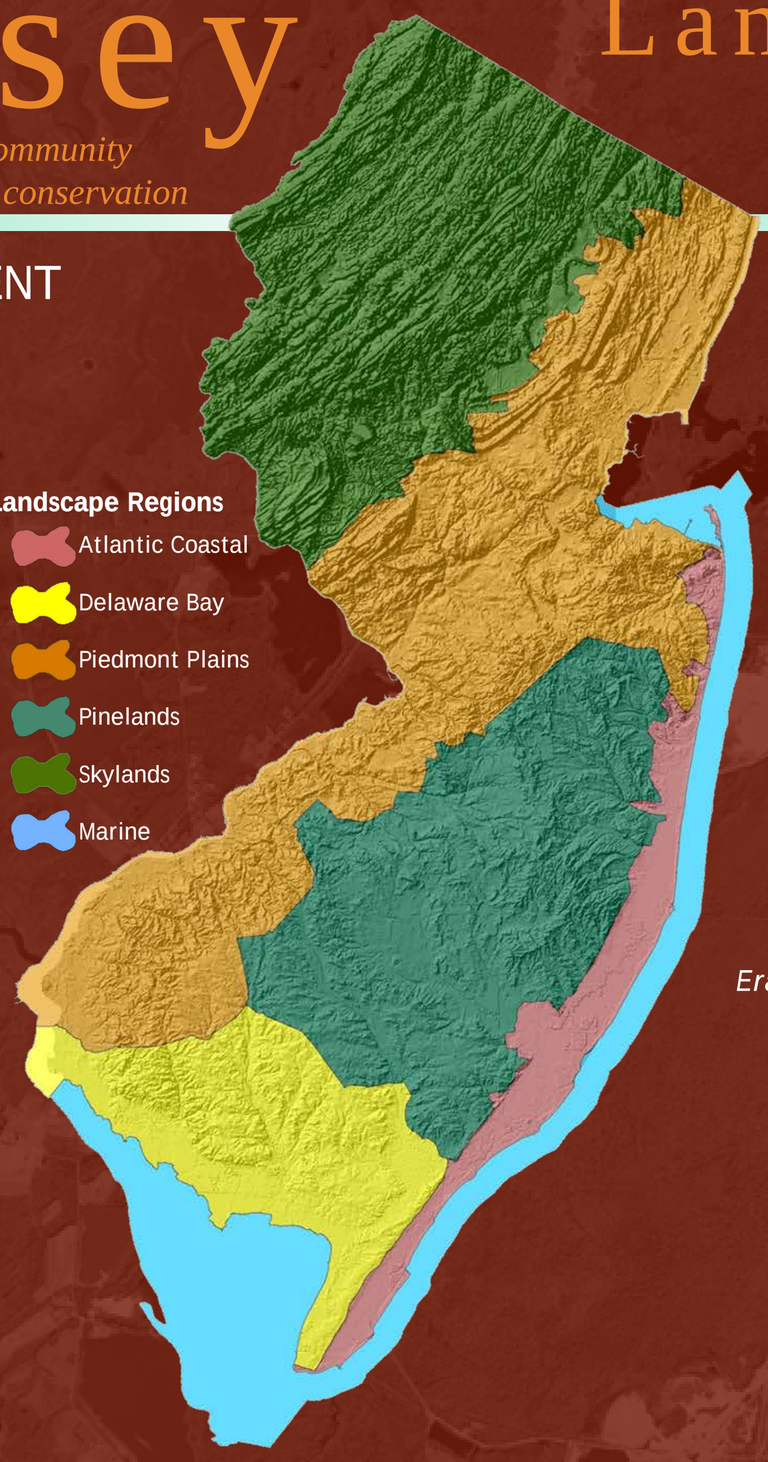
New Jersey Landscape Project Version 3.3

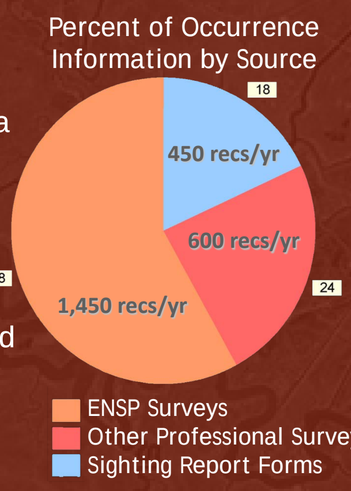
Wildlife habitat mapping for community land-use planning and species conservation



SPECIES OCCURRENCE DATA DEVELOPMENT

• Imperiled wildlife occurrence data are stored and managed in the New Jersey **Biotics** database.

• Occurrence data are based on field observations from a variety of sources including surveys carried out by the **Endangered and Nongame Species Program** (ENSP) and reports from the general public.



• All records are evaluated according to an established protocol to ensure reliability.

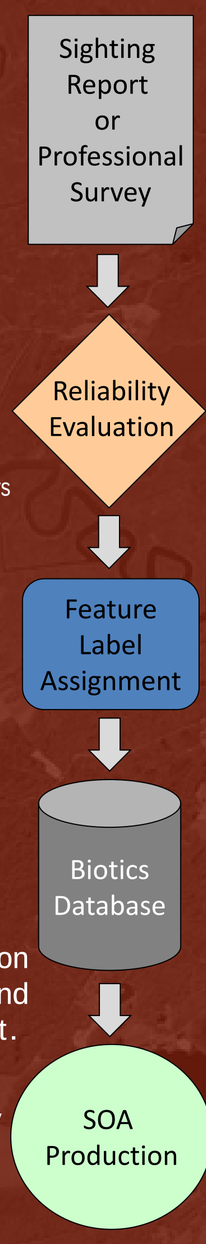
• **Feature Labels** are assigned to describe the type of occurrence (e.g., nest, den, etc.)

Feature Label	SOA
Hibernaculum	4 kilometer buffer
Non-breeding Sighting	2 kilometer buffer
Maternity Colony	2 kilometer buffer
Breeding Sighting	2 kilometer buffer

Indiana Bat Feature Labels and SOAs

• A **Species Occurrence Area** (SOA) is a polygon applied to each species occurrence location and used to value habitat in the Landscape Project.

• The size of a SOA is based on the average territory/home range size or other life history parameters as reported in peer-reviewed scientific literature or through ENSP research.

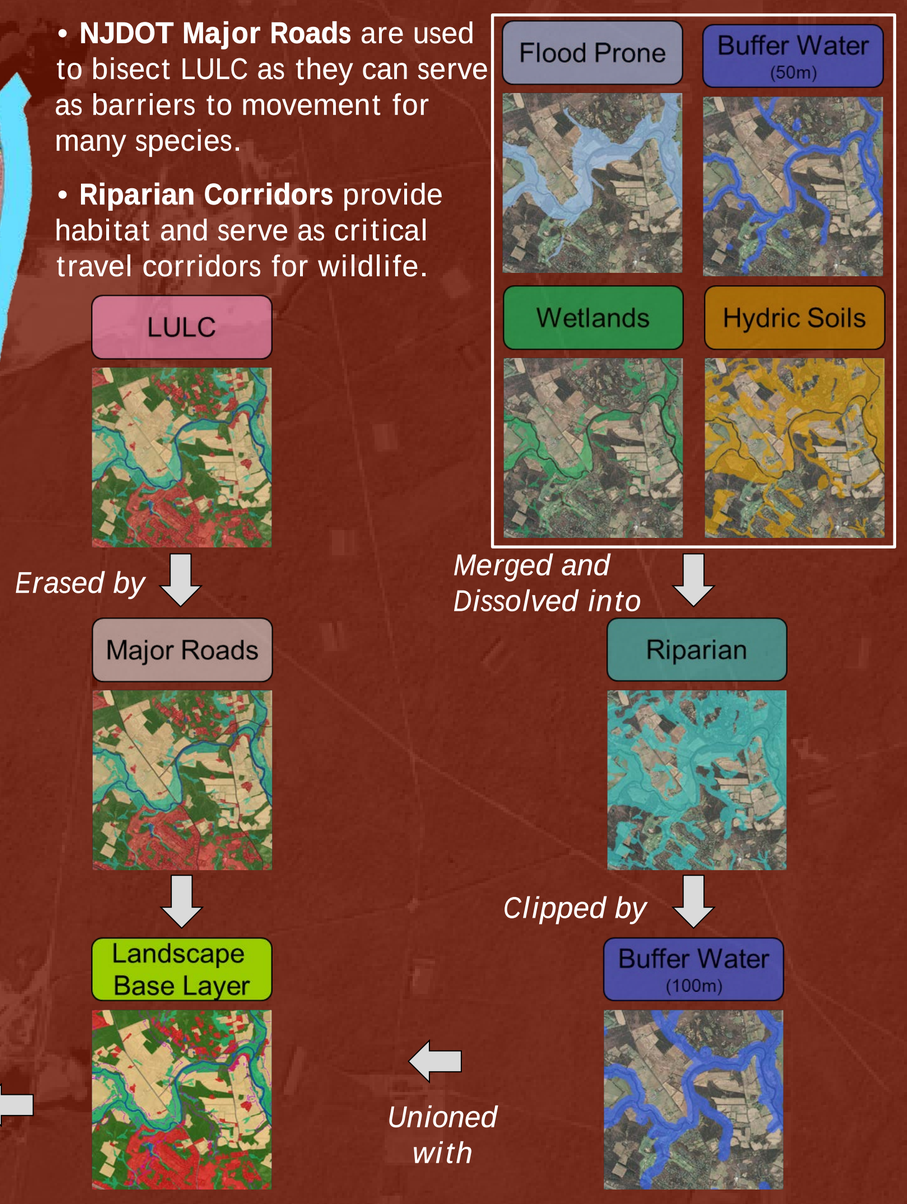


LANDSCAPE BASE LAYER DEVELOPMENT

• **NJDEP Land Use/Land Cover (LULC)** is the foundation of the base layer from which wildlife habitat is derived.

• **NJDOT Major Roads** are used to bisect LULC as they can serve as barriers to movement for many species.

• **Riparian Corridors** provide habitat and serve as critical travel corridors for wildlife.



SPECIES-BASED HABITAT

• SOAs are overlaid onto species-specific habitat patches and patches are classified, or "valued," based on the status of the species present as follows:

► **Rank 5 -** assigned to species-specific habitat patches containing one or more occurrences of wildlife listed as endangered and threatened pursuant to the Federal Endangered Species Act of 1973.

► **Rank 4 -** assigned to species-specific habitat patches with one or more occurrences of State endangered species.

► **Rank 3 -** assigned to species-specific patches containing one or more occurrences of State threatened species.

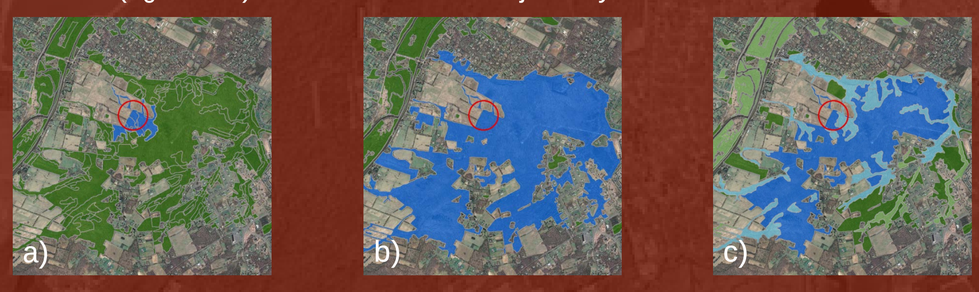
► **Rank 2 -** assigned to species-specific habitat patches containing one or more occurrences of species considered to be species of special concern.

► **Rank 1 -** assigned to species-specific habitat patches that meet habitat-specific suitability requirements such as minimum size or core area criteria for endangered, threatened or special concern wildlife species, but that do not intersect with any confirmed occurrences of such species (see ***Appendix V*** for descriptions of all habitat-specific suitability requirements). Rank 1 habitat patches without documented occurrences are not necessarily absent of imperiled or special concern species. Patches with a lack of documented occurrences may not have been systematically surveyed. Thus, the Rank 1 designation is used for planning purposes, such as targeting areas for future wildlife surveys.

Habitat Ranking
State Threatened (3)
State Endangered (4)
Federal Listed (5)

• The Landscape Project habitat patch mapping approach is designed to capture and represent the habitat needed to support the local population indicated by the individual SOA.

• Below the red circle represents a SOA. Areas depicted in green are LULC polygons that can be valued, while the valued LULC polygons are depicted in blue. a) Limited Extent - LULC polygons that directly intersect the SOA are valued. b) Contiguous Area - LULC polygons are dissolved/combined into contiguous areas and then valued upon intersection with the SOA. c) Cardinal-Proximate - a cardinal set of LULC classes that can be valued is depicted in dark green and dark blue, while a proximate set is depicted in light green and light blue. The cardinal LULC polygons are valued upon intersection with the SOA (dark blue) and the proximate set (light blue) is valued based on adjacency to the valued cardinal set.

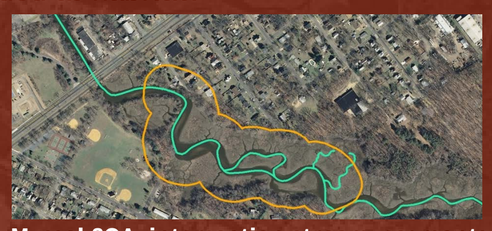


FRESHWATER MUSSEL HABITAT

• Using NJDEP Stream Network data, a subset of the USGS 1:24,000 high-resolution National Hydrography Dataset (NHD), water body centerline and stream centerline data are valued exclusively by freshwater mussel species occurrence areas.

Eastern Pondmussel (Threatened)

•In order to form representative "patches" of habitat from the NHD Streams 2002 layer, centerlines were broken at the confluence of two or more streams or the inflow/outflow of a water body. Stretches of stream intersected by a mussel SOA are valued as habitat.



Mussel SOA intersection stream segments

VERNAL HABITAT

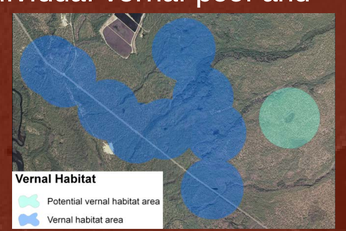
•ENSP partnered with Rutgers University Center for Remote Sensing and Spatial Analysis (CRSSA) to develop a method for mapping potential vernal pools throughout New Jersey.

•"Vernal habitat" includes a vernal pool - or the area of ponding - plus any freshwater wetlands adjacent to the vernal pool.

•All areas mapped as "potential vernal habitat areas" and "vernal habitat areas" are derived from a point location estimated to be the center of an individual vernal pool and include all areas within 300 meters of the point.

► **Potential vernal habitat area** - These are areas identified by CRSSA as possibly containing a vernal pool that meets the criteria of a "vernal habitat" pursuant to N.J.A.C. 7:7A-1.4. These sites include sites that have been field inspected and have been found to meet the physical characteristics of a vernal habitat, but for which biological criteria have not yet been measured, as well as sites that have not been checked by DEP staff.

► **Vernal habitat areas** - These are areas that contain pools that have been field-verified by the Department and have been determined to meet both the physical and biological characteristics of a vernal habitat in accordance with N.J.A.C. 7:7A-1.4.



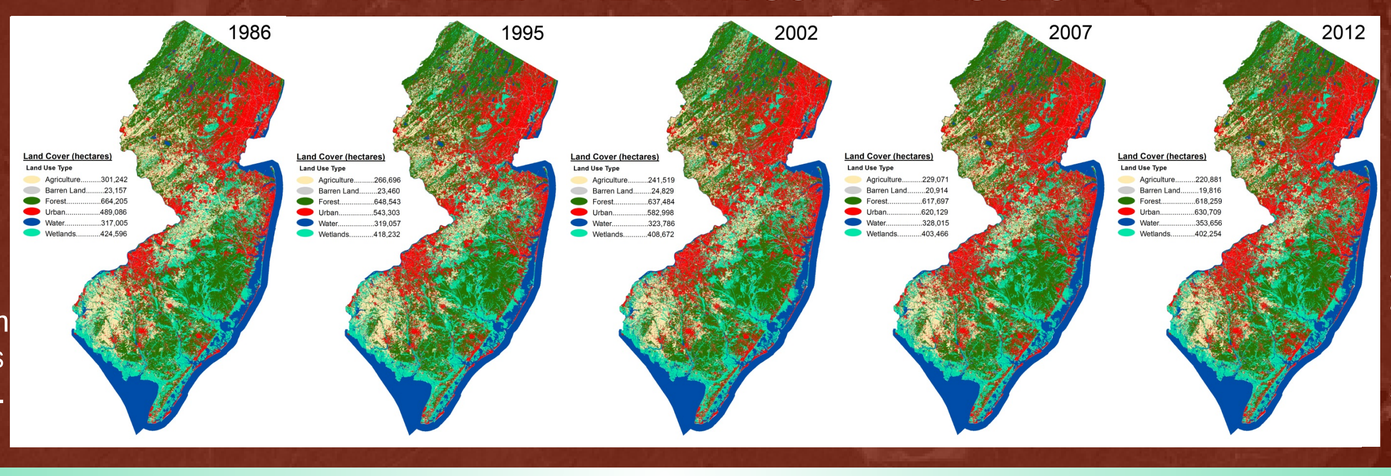
WHY WE NEED THE LANDSCAPE PROJECT

Hasse and Lathrop (2010). ***Changing Landscapes in the Garden State: Urban Growth and Open Space Loss in NJ 1986 thru 2007***:

• In the 1986-2007 period, urbanization resulted in the loss of ~5,000 acres of wildlife habitat per year.

• Although this rate slowed significantly from 2007-2012, much of the habitat that remains is less suitable due to habitat fragmentation.

http://gis.rowan.edu/projects/luc/



•**NJDEP Land Use/Land Cover 1986 - 2007**. New Jersey's Landscape is rapidly changing. Since 1986, urbanization has resulted in the loss of more than 5,000 hectares of wildlife habitat per year. Moreover, much of the habitat that remains is less suitable for wildlife due to habitat fragmentation. This is especially detrimental to imperiled wildlife, as many of these species require large, contiguous tracts of habitat.

LANDSCAPE PROJECT APPLICATIONS

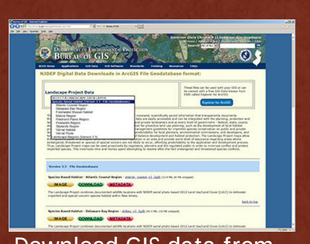
- Prioritize Conservation Acquisitions
- Environmental Review/Impact Assessment
- Environmental/Natural Resource Inventories
- Regional Conservation Planning
- Land Use Regulation and Management

Map Design by Patrick Woerner, 2012 NJDEP, Division of Fish and Wildlife, Endangered and Nongame Species Program (ENSP)
Data Sources: NJDEP Biotics Database, 2012 Land-use/Land-cover
Photo Contributions by ENSP

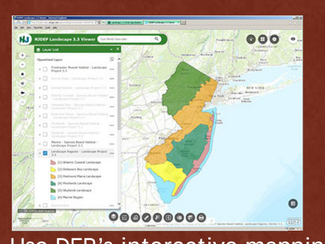
Visit:
http://www.state.nj.us/dep/fgw/ensp/landscape/index.htm

DATA AVAILABILITY

Report and supplemental documentation



Download GIS data from DEP's Bureau of GIS:
http://www.nj.gov/dep/gis/



Use DEP's interactive mapping application site:
http://www.nj.gov/dep/gis/