Remedial Priority System

Ecological Health Layers

Landscape

March 2012

Human Health Layers

The Ecological Receptor Layers developed by the Department are:

- **Pinelands**,
- **Highlands**,
- **Water Bodies (Surface Water Quality Standards)**,
- **Natural Heritage**,
- **Landscape - Habitats and Animals**,
- **Other Freshwater Wetlands**,
- **Salt Water Marsh**

Landscape Layer

- Reason for Inclusion:
  - The Landscape Project is a pro-active, ecosystem-level approach for the long-term protection of imperiled species and their important habitats in New Jersey. The Program began in 1994.
  - Its goal is to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy, functioning ecosystems.
  - The 2008 Landscape Coverage consists of the following layers: Emergent Wetlands, Beach, Forested Wetlands, Grasslands, Forest, Wood Turtle, Urban Peregrine Falcon, Bald Eagle Foraging.
- Source Layers:
  - Lanscape Project (version 2) Layer
    - Basis for layer: Layer was created as part of the Landscape Project and is managed by the N.J. Division of Fish and Wildlife

Landscape Layer

- Cell Values
  - The Landscape Layer is a combination of five habitat layers (Emergent Wetlands, Beach, Forested Wetlands, Grasslands, Forest) and three distinct animal layers (Wood Turtle, Urban Peregrine Falcon, Bald Eagle Foraging).
  - The habitat areas are ranked from 0 – 5 based on the following criteria:
    - **Rank 5:** assigned to patches containing one or more occurrences of at least one wildlife species listed as endangered or threatened on the Federal list of endangered and threatened species.
    - **Rank 4:** assigned to patches with one or more occurrences of at least one State endangered species.
    - **Rank 3:** assigned to patches containing one or more occurrences of at least one State threatened species.
    - **Rank 2:** assigned to patches containing one or more occurrences of species considered to be species of special concern.
    - **Rank 1:** assigned to patches that meet habitat-specific suitability requirements such as minimum size criteria for endangered, threatened or priority wildlife species, but that do not intersect with any confirmed occurrences of such species.
  - **Cell Values** for these five layers are assigned based on the Rank.

Landscape Layer

- Cell Values
  - The Cell Values for the three distinct animal layers are assigned as follows:
    - Wood Duck Cell value = 3
    - Urban Peregrine Falcon Cell Value = 3
    - Bald Eagle Foraging Cell Value = 5
  - The final Landscape score is a result of a three step process
    1. Convert the five habitats layers and the three distinct animal layers into 100 by 100 foot raster grid files using the above cell values.
    2. The eight layers are stacked and then summed to attain one resultant value for each cell.
    3. The following table is used to reassign the cell value based on the resultant cell value calculated in step 2.

Landscape Layer

Cell Values

Table 1 Final Cell Values for the Landscape Layer

Landscape Ranking	Cell Value
1	300
2	341
3	382
4	424
5	465
6	506
7	547
8	588
9	629

Landscape Ranking	Cell Value
10	671
11	712
12	753
13	794
14	835
15	876
16	918
17	959
18	1,000

Landscape Layer

- Cell Values:
  - The cell values were established to give weight to more critical and sensitive ecological receptors. Values were created to reflect inter-relationships between this layer and all other Ecological Receptor Layers.

- Calculation Method:
  - All cells that are within the ground water Extent Area are summed.

Landscape Layer

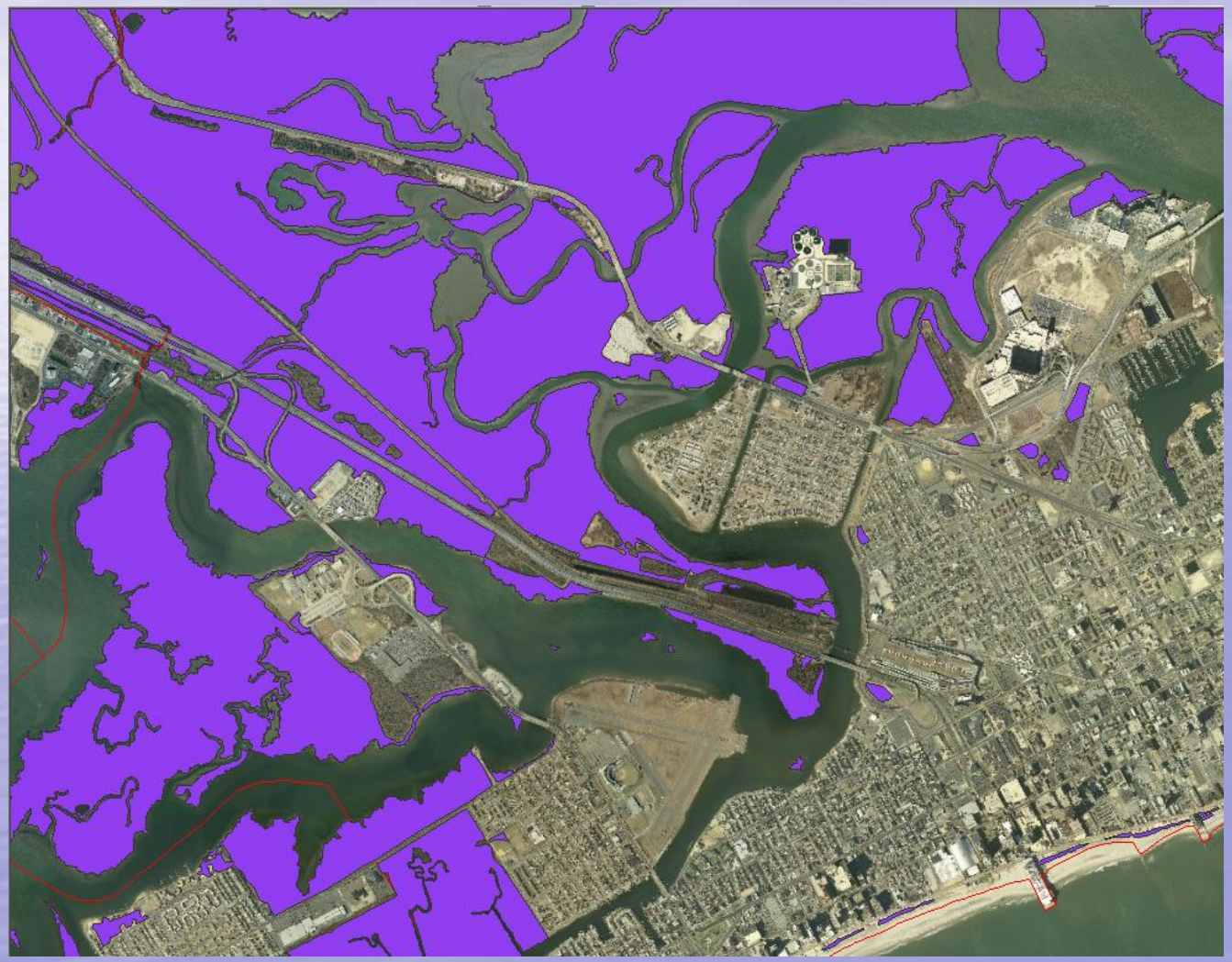
- The following is the method used to create the Landscape GIS layer

Landscape Layer

Creating the Landscape Layer

Landscape Layer

Creating the Landscape Layer



Emergent Wetlands Habitat

Landscape Project 2.1 - Emergent Wetlands	
RANK	Score
Suitable Habitat	1
Special Concern	2
State Threatened	3
State Endangered	4
Federal T _E	5

Landscape Layer

Creating the Landscape Layer

Beach Habitat

Landscape Project 2.1 - Beach	
Suitable Habitat	1
Special Concern	2
State Threatened	3
State Endangered	4
Federal T _E	5

Landscape Layer

Creating the Landscape Layer

Forested Wetlands Habitat

Landscape Project 2.1 - Forested Wetlands	
RANK	Score
Suitable Habitat	1
Special Concern	2
State Threatened	3
State Endangered	4
Federal T+E	5

Landscape Layer

Creating the Landscape Layer

Grassland Habitat

Landscape Project 2.1 - Grassland	
RANK	Score
Suitable Habitat	1
Special Concern	2
State Threatened	3
State Endangered	4
Federal T+ E	5

Landscape Layer

Creating the Landscape Layer

Forest Habitat

Landscape Project 2.1 - Forest	
RANK	Score
Suitable Habitat	1
Special Concern	2
State Threatened	3
State Endangered	4
Federal T _E	5

Landscape Layer

Creating the Landscape Layer

Urban Peregrine Layer

Landscape Project 2.1 - Urban Peregrine
Score = 3

Landscape Layer

Creating the Landscape Layer

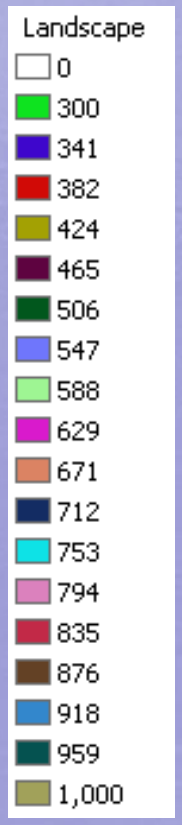
- There is No **Wood Duck habitat** in site area
- There is No **Bald Eagle Foraging habitat** in site area

- Final Landscape Layer
  1. The eight proceeding layers are converted into a raster file (Not shown)
  2. The eight layers are stacked and then summed to attain one resultant value for each cell. (Not shown)
  3. The summed cell values calculated in step 2 are converted into the final cell values based on the Table 1.

Landscape Layer

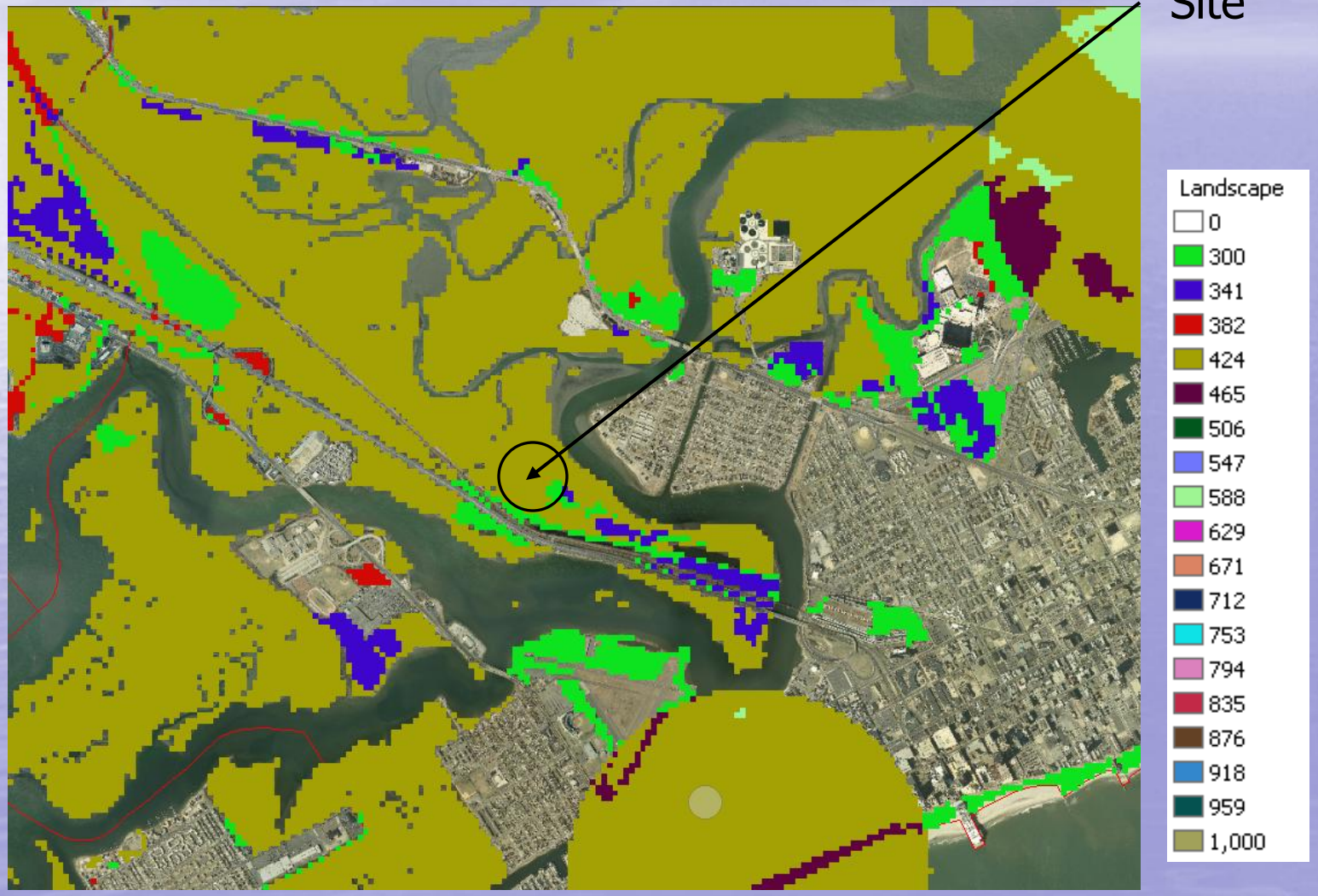
Creating the Landscape Layer

Final rasterized Landscape Layer



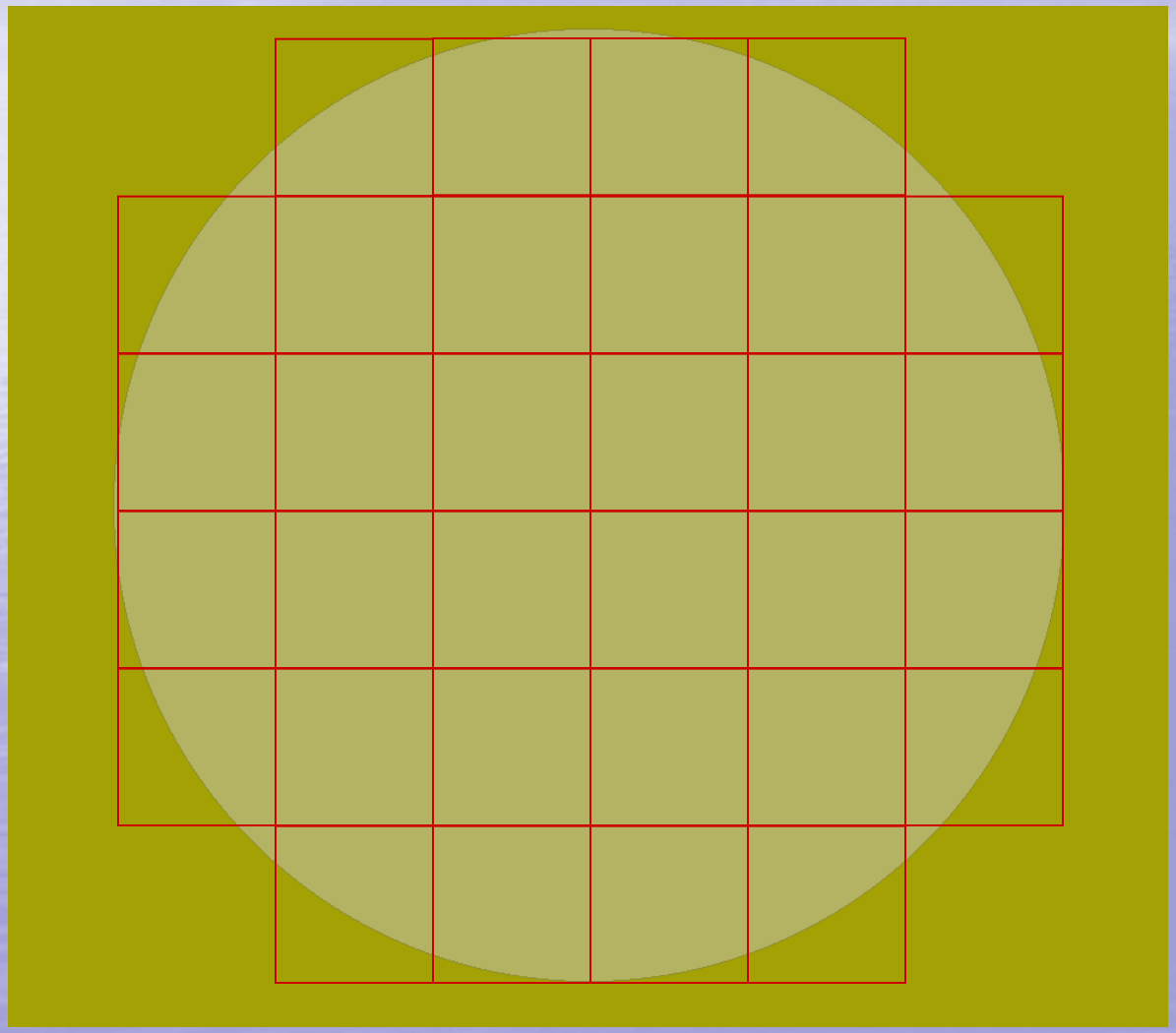
Landscape Layer

Creating the Landscape Layer



Landscape Layer

Creating the Landscape Layer



Zoom in

Sum up all cell values that are within the Extent Area

cell value = 424

Cells within area = 32

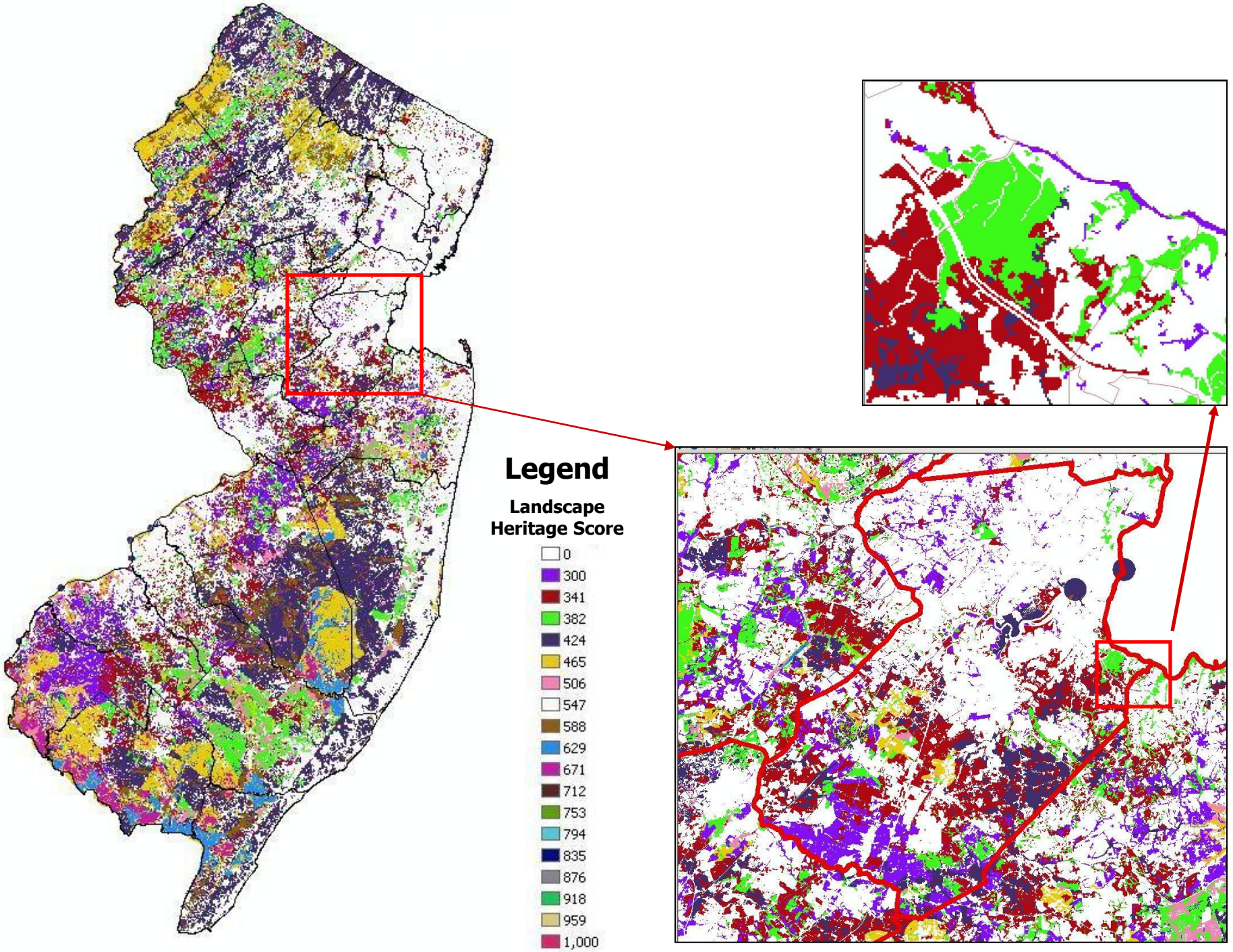
Final Score = 13,568

Landscape

424

- A Landscape Layer is created for the entire state.

- The following is the layer used to calculate the Landscape Receptor Layer Score.


Legend
Landscape Heritage Score
0
300
341
382
424
465
506
547
588
629
671
712
753
794
835
876
918
959
1,000