

NJDEP Cross Acceptance Data Layers

Landscape Project Endangered Species Habitat, Ranks 3,4,5, Cross Acceptance (LS345_CA):

The Landscape Project (Version 2), and the process of generating the critical habitat rankings, is discussed at: <http://www.nj.gov/dep/fgw/ensp/landscape/index.htm>.

The landscape data used in the creation of the LS345_CA layer are based on the latest version of the Landscape Project habitat models, which utilize polygons from the NJDEP 1995/97 Land Use/Land Cover (LU/LC) data layer. In this process, appropriate LU/LC polygons were placed into one of the five basic habitat types modeled in the Landscape Project-- Beach, Emergent, Forest, Wetland Forests, and Grasslands--and the landscape models were run to identify critical habitat areas. Each polygon in each habitat layer is given a rank of from 1 to 5, which reflects the critical nature of that habitat. Areas with Ranks 3,4,5 are considered most critical since they represent habitat areas utilized by species on the State Threatened, State Endangered, and Federal Threatened and Endangered Species lists, respectively. In addition to the five habitat types, the latest Landscape Project data also includes separate layers for wood turtle habit and bald eagle foraging habitats. All areas in the wood turtle layer are given a Rank of 3, and all areas in the eagle foraging layer are given a Rank of 5, reflective of the endangered status of these two species. Personnel of the NJDEP Endangered and Non-Game Species Program developed all initial habitat layers.

All areas ranked 3, 4, or 5 in any of the five basic habitat types, and all areas mapped in the wood turtle and eagle foraging layers, are considered environmentally significant in all portions of the state by the NJDEP. The initial step in creating the LS345_CA layer, therefore, included selecting all areas with Rank 3, 4 or 5 in the five habitat types and merging these together, along with the wood turtle and eagle foraging habitat areas, into one statewide layer. An item (LS345) was added to the .PAT of the coverage of merged habitat layers, and all polygons with a Rank code of 3, 4 or 5 were given a LS345 Code of 'Y'. The final LS345_CA layer was created by dissolving the merged habitat layer on the LS345 field, and selecting from the dissolved layer only those polygons that had a LS345 value of 'Y'.

Landscape Project Endangered Species Habitat, Rank 2, Cross Acceptance (LS2_CA)

The Landscape Project (Version 2), and the process of generating the critical habitat rankings, is discussed at: <http://www.nj.gov/dep/fgw/ensp/landscape/index.htm>.

The landscape data used in the creation of the LS2_CA layer are based on the latest version of the Landscape Project habitat models, which utilize polygons from the NJDEP 1995/97 Land Use/Land Cover (LU/LC) data layer. In this process, appropriate LU/LC polygons were placed into one of the five basic habitat types modeled in the Landscape Project-- Beach, Emergent, Forest, Wetland Forests, and Grasslands--and the landscape models were run to identify critical habitat areas. Each polygon in each habitat layer is given a rank of from 1 to 5, which reflects the critical nature of that habitat. Habitat areas with Rank 2 are considered habitats of Special Concern by the Endangered Species Program.

The initial step in creating the LS2_CA layer involved selecting all areas with Rank 2 in the five habitat types and merging these together into one statewide layer. An item (LS2) was added to the .PAT of the coverage of merged habitat layers, and all polygons with a Rank code of 2 were given a LS2 Code of 'Y'. The final LS2_CA layer was created by dissolving the merged habitat layer on the LS2 field, and selecting from the dissolved layer only those polygons that had a LS2 value of 'Y'.

Wetlands, Cross Acceptance (WETLANDS_CA)

The WETLANDS_CA layer has been extracted from the 1995/97 LU/LC layer. All polygons with a TYPE95 code of WETLANDS in that layer were extracted from a statewide LU/LC data set, and placed in a separate layer. This included both tidal and non-tidal wetlands, and natural and modified wetlands as mapped in the LU/LC project. Descriptions of the specific wetland categories mapped in the LU/LC data set are given in: <http://www.state.nj.us/dep/gis/digidownload/metadata/lulc95/anderson.html>.

To simplify the wetlands layer for use in the Cross Acceptance process, an additional attribute (WETLANDS) was added to the .PAT of the wetlands coverage. All valid wetlands polygons were given a WETLANDS code of 'Y'. The full wetlands layer was then dissolved on the WETLANDS attribute to produce the final WETLANDS_CA layer.

Natural Heritage Program Priority Sites, Cross Acceptance (PRISITE_CA)

The original Priority Sites layer was created by the Natural Heritage Program to identify the best habitats for rare plant and animal species and natural communities through analysis of information in the NJ Natural Heritage Database. A full description of the Priority Sites can be found at: <http://www.nj.gov/dep/gis/stateshp2.html#PRIORITY>.

For Cross Acceptance purposes, the original Priority Sites layer underwent additional analysis to identify those areas within the boundaries of the Priority Sites that were already developed. The developed areas within the Priority Sites were identified by merging the Priority Site layer with a layer of developed lands selected from the 1995/97 LU/LC data set. Categories of developed lands mapped in the LU/LC data set are described in:

<http://www.state.nj.us/dep/gis/digidownload/metadata/lulc95/anderson.html>. Once

merged, the developed lands within the boundaries could be identified and removed from the Priority Sites dataset. The remaining layer included all undeveloped lands within the boundaries of the Priority Sites as mapped by the Natural Heritage Program.

To simplify this layer for use in the Cross Acceptance process, an additional attribute field (PRISITE) was added to the reselected sites layer described above. All undeveloped polygons within the boundaries of the Priority sites were given a PRISITE code of 'Y'. The final layer was created by dissolving on the PRISITE attribute, with all resultant polygons with a PRISITE code of 'Y' selected.

Dedicated Open Space, Cross Acceptance (OPENS_PCE_CA):

The Dedicated Open Space layer for Cross Acceptance is based on several open space data sets maintained by the Green Acres Program (GA) of NJDEP. The program maintains separate data sets for state owned properties, as well as for federal and utility owned properties, and for properties owned by counties, municipalities, and non-profit organizations. All of these data sets, mapped as of 1/01/04, were made available for use in creating this open space layer.

While some military owned properties are used as recreational lands, it was decided that since these properties may be diverted from recreational uses, military properties would not be included in the dedicated open space category. The first step, therefore, was to select only the non-military parcels from the federal/utility layer maintained by the GA Program, and place these in a separate layer. This non-military federal/utility layer was merged with the state open space layer, and this combined layer then was merged with the county/local layers and non-profit layers in turn. The resultant open space layer included all polygons identified as dedicated open space in any of the individual contributing layers.

To simplify the open space layer for use in Cross Acceptance, an additional attribute (OPENS_PCE) was added to the .PAT of the merged open space coverage. All valid open space polygons were given an OPENS_PCE code of 'Y'. The merged open space layer described above was dissolved on the attribute OPENS_PCE, and all resultant polygons with an OPENS_PCE code of 'Y' were selected for inclusion in the OPENS_PCE_CA layer.

Beaches, Cross Acceptance (BEACH_CA)

The NJDEP considers all beach areas to be environmentally significant, and has included them in a separate layer to be used in the Cross Acceptance process. Beaches were mapped as part of the 1995/97 LU/LC dataset. Descriptions of the specific beach categories mapped are given in:

<http://www.state.nj.us/dep/gis/digidownload/metadata/lulc95/anderson.html>.

All polygons given a TYPE95 code of BEACHES in that 1995/97 LU/LC were selected and put in a separate data layer. To simplify this layer for use in Cross Acceptance, and

additional attribute (BEACH) was added to the .PAT of the beach coverage. All valid beach polygons were given a BEACH code of 'Y'. The beach layer was dissolved on the BEACH code, and all resultant polygons with a BEACH code of 'Y' selected for inclusion in the BEACH_CA layer.

Ground Water Recharge Areas, Cross Acceptance (GWR3_CA)

The NJDEP Geological Survey (NJGS) developed the original ground water recharge data sets. NJGS personnel used several data factors, such as land use patterns, impervious surface amounts, soil types, precipitation, and evaporation rates, among others, to calculate the amount of water each area of the state normally contributes to the underlying aquifers. The data are reported and mapped in several standard categories, in units of inches per year. Original data were generated both for each county and for each watershed management area (WMA). Documentation for the original data sets can be found at <http://www.nj.gov/dep/njgs/>.

For the Cross Acceptance process, the original ground water recharge data, calculated for each WMA, were first converted from an inches-per-year rating to a volume-based rating. The volume data were then grouped into three classes to simplify further analysis, based on the percent contribution to the total recharge amounts. Once grouped into the three classes, the individual volume-based data were merged into a single statewide layer. From this layer, only the polygons contributing the highest one-third of the recharge volume in each WMA were selected for further processing.

The final step in creating this recharge layer was to remove areas within the ground water recharge polygons which were developed or built-up. This was accomplished by merging the selected recharge polygons described above, with the developed areas mapped as part of the 1995/97 Land Use/Land Cover Mapping project. Those portions of the recharge polygons that were also developed were eliminated from the final recharge layer. The final Ground Water Recharge (Cross Acceptance) layer, therefore, includes all polygons within the state that were identified as contributing the highest one-third of the recharge volume in the appropriate WMA, and which were not developed in the 1995/97 LU/LC layer. To simplify this layer for use in the Cross Acceptance process, an additional attribute, GWR3' was added to the .PAT of the above layer. All valid recharge polygons were given a GWR3 code of 'Y'. The GWR3 layer was dissolved on the GWR3 code , and all polygons with a GWR3 code of 'Y' were selected for inclusion in the GWR3_CA layer.

Critical Sub-Watersheds, Cross Acceptance (CRITH14_CA)

Sub-watersheds for use in the Cross Acceptance process are based on the NJDEP HUC14 data set. A description of this data set can be found at: <http://www.state.nj.us/dep/gis/stateshp2.html#HUC14>.

The first step in creating the cross acceptance layer was to code the HUC14 sub-watershed polygons with some additional attributes. The HUC14 layer was merged with the 1995/97 LU/LC layer so that the mean impervious surface percent of each HUC14 basin could be calculated. The LU/LC layer includes an estimate of the impervious surface percentage of each polygon mapped in that layer. Using this value, a mean impervious surface percentage could be calculated for each sub-watershed mapped in the HUC14 layer. Once the mean value was calculated, all HUC14 basins with a value of less than 10%, could be identified, and coded as such.

HUC14 basins were also analyzed to identify those that drained to water supply intake points, those that contained existing C1 water features and those that were identified as providing natural drainage to selected water supply reservoirs. For the first, an existing NJDEP data layer showing water supply intakes was merged with the above HUC14 layer, and all sub-watersheds draining to a subset of mapped surface water intake points were identified and coded. The intakes subset included those intakes that supplied water from natural drainage only. It is to be noted that all HUC14 sub-watersheds above the location of the selected intake points, i.e., all upstream watersheds, were identified as a water supply watershed.

To identify sub-watersheds containing Category One (C1) waters, a NJDEP layer with existing C1 waters was merged with the sub-watershed layer from the above analysis. This C1 layer is described at: <http://www.nj.gov/dep/cleanwater/c1.html>. Sub-watersheds containing a C1 water feature were identified and coded as such. For C1 coding, note that only the sub-watershed containing the C1 feature was coded for C1 status.

Those sub-watersheds containing natural drainage to selected reservoirs were also identified and coded. The natural drainage layer was created by NJDEP to supplement the C1 and water intake layers. Although a separate attribute, all watersheds coded as having natural drainage for the selected reservoirs also are, in fact, coded for the water supply intake or C1 attributes. The sub-watersheds with the natural reservoir drainage were identified in a process similar to that described above for the other watershed attributes.

Sub-watersheds that had either an impervious surface less than 10%, that drained to water supply intake points, that contained C1 waters, or had natural drainage to selected reservoirs, or any combination of these factors, are considered critical sub-watersheds. A particular basin may have more than one of the above characteristics, but only needed a positive in one of the four categories to be considered for further analysis. Sub-watersheds without any of these characteristics were not included in any further analysis.

Once the sub-watershed layer was coded, and all critical sub-watersheds identified, the layer underwent an additional analysis step. The critical sub-watersheds identified in the above steps were merged with the developed lands layer selected from the 1995/97 LU/LC dataset. All those portions of the critical sub-watersheds that were undeveloped could then be identified, and selected for inclusion in the final layer. Those watershed portions that were developed, or built up, were eliminated from further consideration.

To simplify the sub-watershed layer for use in the Cross Acceptance process, an additional code, CRITHUC, was added to the .PAT of the sub watershed layer. Any sub-watershed possessing any of the attributes listed above was given a CRITHUC code of 'Y'.

Water Bodies, Cross Acceptance (WATER_CA)

This data layer contains open water areas for NJ. Included are lakes, ponds, enclosed tidal bays, and major rivers, reselected from the 1995/97 Land Use/Land Cover (LU/LC) data set. Some of these water features were originally mapped by the USGS, while others were mapped by NJDEP as part of the Fresh Water Wetlands Program and the 1986 and 1995 LU/LC projects.

All water features were extracted from 1995/97 LU/LC dataset. Descriptions of the specific water categories mapped in that layer are given in:

<http://www.state.nj.us/dep/gis/digidownload/metadata/lulc95/anderson.html>.

All polygons given a TYPE95 code of WATER in that 1995/97 LU/LC were selected and put in a separate data layer. To simplify this layer for use in Cross Acceptance, an additional attribute (WATER) was added to the .PAT of the water coverage. All valid water polygons were given a WATER code of 'Y'. The beach layer was dissolved on the WATER code, and all resultant polygons with a WATER code of 'Y' selected for inclusion in the WATER_CA layer.

Sewer Service Status, Cross Acceptance (SEWER_CA):

This layer was created by combining the 'Approved Sewer Service Area' layer created by NJDEP, with a state boundary layer. The sewer service status of all areas of the state can, therefore, be determined from this combined layer.

For Cross Acceptance purposes, the NJDEP considers all areas not within the boundaries of an approved sewer service area, as non-sewer service areas. It also considers those sewer service areas that are approved for discharges of less than 20,000 gallons per day (GPD), as well as those areas having holding tanks, or non-discharge areas, as non-sewer service areas.

To identify areas meeting the above criteria, an additional code, STATUS, was added to the combined layer described above. All areas of the state outside the boundaries of approved sewer service areas, as well as those areas within the boundaries of the service areas with discharges of less than 20,000 gpd, or with holding tanks or non-discharge areas, were identified from the TYPE field, and given a STATUS code of 'Non-Service Area'. All other areas of the state were given a STATUS code of 'Service Area'.

