

An Introduction to the NWI+ Web Mapper (November 25, 2013)

Introduction

The NWI+ web mapper is an online mapping tool that allows users to display a collection of special National Wetlands Inventory (NWI) project wetland data on different types of base maps. The mapper is an ESRI product while the wetlands data are produced by the U.S. Fish and Wildlife Service and its cooperators. The mapper was developed by Virginia Tech's Conservation Management Institute (CMI, Blacksburg, VA) to make available special project data that it was mainly producing for the Northeast Region of the U.S. Fish and Wildlife Service, NWI Program. Besides showing wetland types classified according to the Cowardin et al. (1979) classification system which is the Service's standard classification, the data include hydrogeomorphic classification as recommended by the Federal Geographic Data Committee (LLWW descriptors – landscape position, landform, water flow path, and waterbody type) and a preliminary assessment of wetland functions at the landscape-level (up to 11 functions), while for some projects, the location and type of potential wetland restoration sites and potential wetland areas (e.g., undeveloped hydric soils that were not mapped as NWI wetlands due to a lack of a recognizable wetland photo-signature) may be displayed.

Format of the Mapper

The mapper will open to a map of the United States with project areas outlined in red. Above the map is a tool bar that includes several icons from left to right (each icon is described in the next section): “Browse”, “Remove Layer”, “Choose Basemap”, “Show NWI+ Bookmarks”, “Map Contents”, “Show Legend”, “Search”, “Measure”, and “Print”. To the right of these icons is a list of topics that will take you to various websites such as the Service's NWI (national website), Region 5's NWI website, and Virginia Tech's CMI website.

What the Icons Do

“Browse” – allows you to add other geospatial data to the mapper. For example you could add other base maps and imagery from a pre-chosen list or add geospatial data from a website.

“Remove Layer” – remove a layer that you've added.

“Choose Basemap” – select the type of basemap you'd like to display the data on – maps or imagery.

“Show NWI+ Bookmarks” – provides a list of the project names where NWI+ data are available.

“Map Contents” – perhaps the most important icon – clicking on this will produce a table of contents on the right side of the map. Boxes are located to the left of each data layer. Two boxes are marked as default (“NWI+ Footprints” shows the project areas while the “NWI+ Landscape” shows wetlands classified by landscape position). To view other data layers, click off the “NWI+ Landscape” checkmark, then click on the box of the topic of interest. A summary of each of the NWI+ data layers is in the next section.

“Show Legend” – displays a series of legends related to the layers in map contents.

“Search” – allows you to zoom into a particular address by clicking on “Place” and then typing the address in the box, or to search the web to find geospatial data to add to the mapper. For example, NWI data for the entire country can be added by clicking on “The Web” then typing in “national wetlands inventory” then click on the magnifying glass on the right... the FWS wetlands web mapping service will be listed, then simply click on “Add” and the FWS NWI data will be added to the mapper for this session. The NWI data will be the first layer on the list and all its contents (data layers) will be active. The first NWI layer is “Wetlands Data” that will show the location/type of wetlands and deepwater habitats for the entire country, but you’ll need to zoom in to see the data. The default at the national level will show the status of the NWI; I’d suggest clicking off all the other NWI data layers until you are interested in viewing them. Throughout this mapper, the first box checked will take precedence over others checked. In other words, that data will overlie other data that are checked, so you’ll have to uncheck the boxes for data layers that are not of interest...that will remove them from view.

“Measure” – allows you to measure length and area on the map (use the freehand polygon to draw an irregularly shaped polygon).

“Print” – allows you to prepare a map of the data in view and either send it to your printer or to produce a pdf image for storing on your computer. You can also use the “Print Screen” key on your keyboard to do the same. This will allow you to print the legend alongside of the map just as the image you are viewing.

The NWI+ Data Layers

Some of the following layers have legends showing the variety of categories within the layer. To view the legend simply click on the name of the layer, and then on the word “legend” that will appear. A colored coded legend will then come into view.

“NWI+ Footprints” – shows project areas where NWI+ data are available.

“Wetland Codes” – places dots on the wetlands so that user can click on the dot to get the wetland classification by NWI type and by LLWW type.

“NWI Types” – shows mapped wetlands and deepwater habitats by Cowardin et al. types (color-coded types – legend can be viewed by clicking on “NWI Types” then on “Legend”).

“NWI+ Landscape” – shows mapped wetlands classified by landscape position (color-coded types – view legend as described above)

“NWI+ Landform” – shows mapped wetlands classified by landform (color-coded types – view legend as described above)

“NWI+ WaterFlowPath” - shows mapped wetlands classified by water flow path (color-coded types – view legend as described above)

“NWI+ Rest Type 1 Soil Codes” – should be viewed with “NWI+ Restoration Type1” – shows dots that when clicked on identify the soil type for this former wetland site (hydric soil but not wetland today??).

“NWI+ Restoration Type1” – shows former wetlands (based on hydric soils data) that have been developed but are in a land use that may be suitable for restoration; many are drained hydric soils that are now in agricultural use. A legend lists the major types of these former wetlands (color-coded to type).

“NWI+ Restoration Type2” – shows existing wetlands that have been altered in some way that has affected their natural functions. A legend indicates the nature of the restoration type. To view their classification and the nature of the alteration, check the box for “Wetland Codes” and then on the dot in the wetland of interest. The alterations include ditched (d), diking/impoundment (h), excavation (x) and farmed wetlands (f). Many are partly drained wetlands, while others are ponds created by excavating former vegetated wetlands or diking vegetated wetlands to create open water habitat and altering the hydrology of remaining marshes and swamps.

“NWI+ P-WetArea Codes” – should be viewed with “NWI+ P-WetAreas” – shows dots that when clicked on identify the soil type for these hydric soil areas that may support wetlands.

“NWI+ P-WetAreas” – shows hydric soil areas (mapped by USDA Natural Resources Conservation Service) that are in “natural vegetation” but lacked an identifiable wetland photo-signature and were not mapped as wetlands by the NWI; given that they have not been developed it is quite possible that they may support wetlands to some degree.

“_____ Function” shows wetlands predicted to perform specific functions at significant levels (e.g., high or moderate): “BSS” (bank and shoreline stabilization), “CAR” (carbon sequestration), “CSS” (coastal storm surge detention), “FAIH” (fish and aquatic invertebrate habitat), NT (nutrient transformation), OWH (other wildlife habitat), SM (streamflow maintenance), SR (sediment and other particulate retention), SWD (surface water detention – for freshwater wetlands only), UWPC (uncommon or highly diverse wetland plant communities – based on NWI codes only), and WBIRD (waterfowl and waterbird habitat).

Adding Other Data Layers to the Web Mapper

To increase the functionality of the NWI+ Web Mapper, you can add other GIS data to the mapper. For this use the “Search” tool (magnifying glass) on the tool bar at the top of the mapper. Before using this tool, you may want to check off any marked box (NWI+ data layer) that can be seen when viewing “Map Contents.” By doing this only the base map or image will be visible on the mapper (i.e., all the NWI+ data layers are turned off). To obtain another GIS data layers simply click on the “Search” tool (the magnifying glass) on the tool bar above the map, then click on the ESRI online tab (middle tab) and type the name of a layer you wish to view in the space provided (e.g., NHD data, NWI wetlands, Presence of hydric soils), then click on the magnifying glass to the right of the line. This will produce a list of data sets related to that topic. Scroll down the list and choose the one you are interested in, then add it to the NWI+ web mapper by simply clicking on the word “Add” just to the right of the layer name. The layer will appear in the Map Contents window at the top of the list (i.e., when “Map Contents” is open), but the data may not be visible because of scale-dependency. Zoom in as necessary to view the data. A scale bar on the bottom of the map identifies the relative scale (linear dimensions). To view the legend, double-click on the name of the layer in “Map Contents” and on any other name that opens up below the layer name. To remove the layer, use the “Remove” icon on the toolbar.