Wetland Names Working Group

March 28, 2012

Jane Awl
Join WNWG

If you are interested in joining the Wetland Names Working Group (WNWG) or being notified of our future activities, please send an email to wetlandmappingconsortium@gmail.com with the subject line "Join WNWG".

If you are not already a member of the Wetland Mapping Consortium (WMC) please register first (for registration information see http://clic.cses.vt.edu/WMC/WMC_Organizers.htm).
WNWG Members as of 03-28-2012

ORGANIZERS:
Jane Awl
John Galbraith

SUPPORTING:
Barbara Scott
Robb Macleod
Denise Clearwater
Megan Lang
Laura Burchill

JOINED:
Marianne Giolitto
Angela Loudbear
Greg Hellyer
Aissa Feldman
Richard Emerson
Carol Murphy
Nick Murray
Robert Gilmore
Ken Edwardson
PROJECT:
DRAFT Technical Guidance
on Developing a National System of
Site Names and Codes
for Use in
Mapping and Monitoring Wetlands
NSDI CAP 2011 Project Description


Wetland Mapping Standard Implementation, Outreach and Training Materials

Award Number G11AC20060, Category 2: FGDC-endorsed Standards Implementation Training and Outreach

The purpose of this project is to facilitate implementation of an FGDC-endorsed standard in user communities by 1) developing technical guidance for carrying out key recommendations included within the FGDC Wetland Mapping Standard for handling and tracking wetland unique identifiers, and in the Implementation Plan to track polygon lineage and change, and 2) producing implementation recommendations and resulting training materials. Virginia Tech's
Partner Organizations

• FGDC Wetlands Subcommittee including:
  o U.S. Fish and Wildlife Service
  o U.S. Environmental Protection Agency
  o U.S. Army Corps of Engineers
  o U.S. Geological Survey

• National Wetlands Monitoring and Assessment Working Group (NWMAWG)

• Association of State Wetland Managers (ASWM)

• Wetlands Mapping Consortium (WMC)

• Ducks Unlimited (DU)

• Kentucky Division of Water
Wetland Names Working Group (WNWG)

WMC Scholar Group set-up in progress

Future WNWG Conference Calls are scheduled on Wednesdays at 3:00pm ET/2:00pm CT/1:00pm MT/Noon PT on the following 2012 dates:

• April 11 and 25,
• May 9 and 23,
• June 13 and 27.
Next Steps

2012

– Wetland Names Working Group (WNWG) conference calls and document reviews (ongoing)
– National Water Quality Monitoring Council Meeting, April 30 – May 4, Portland, Oregon
– INTECOL/SWS combined Meeting, June 3-8, Orlando, FL
– Draft Review, July 2012
Problem to be Addressed

Currently there are no nationally-accepted standards, conventions, protocols, or tools for creating wetland site names and other stable (not likely to change within a defined set) unique identifiers to allow individual wetland sites and corresponding geographic features (e.g., points, polygons) to be effectively tracked, monitored and reported on over time, and to enhance system interoperability between federal agencies, states, tribes, and contracted partners, to facilitate data sharing at a national scale.
Outcomes

• The development of nationally-applicable technical guidance on stable unique identifiers for wetlands may enhance capabilities for associating wetland mapping data with other data sets (such as water quality and monitoring data) expanding the possibilities for analysis.

• Increased availability of such wetland information could better aid in identifying solutions for management, conservation and protection issues for wetlands and other water resources.
Types of Existing Wetland Names

• Historic
  – Mapper/Surveyor (e.g., Everglades, Great Dismal Swamp)
  – Associated People and Stories (e.g., Tate’s Hell, Purgatory Swamp)
  – Native (e.g., Okefenokee from Okefenoka, meaning “Land of the Trembling Earth”, Congaree, Cheyenne Bottoms & Quivira)
  – Landowner Names (e.g., Gowing’s Swamp) – they change over time.

• Natural Features
  – Hydrologic Features (e.g., Great Kankakee Swamp for the Kankakee River, Beaver Creek Marsh)
  – Landscape features (e.g., Cheyenne Bottoms, Prairie Potholes)
  – Biologic features (e.g., Cranberry Glades)

• Landmarks
  – Geo-Political (e.g., Boundary Waters Canoe Area, Arcata Marsh for the City Arcata, CA)
Options

Unique (Non-Repeated) Site Names

• Feature Extent? (resolution, lumping vs. splitting)
  – Minimum size ?(Wetland Mapping Standard uses 0.5 acre)
  – Whole or Continuous wetland
  – NWI polygons
  – Monitoring Sites
  – Monitoring Points
  – Other?

• Site Name Type?
  – Common (e.g., Historic, Tract, Owner, Geographic Features)--prevention of redundancy?
  – Scientific/Taxonomic--avoid including information that may change over time like community type? (e.g. “Latin Names”)
  – Systematic
Options - Codes

**TYPE?**

- **Stable Sequential** [10000001, 10000002...] (currently polygon identifiers are Dynamic — not stable, they are regenerated and change with data versions)
  - Management to prevent duplication?
  - Fixed Length? Or Variable Length as more polygons are added/updated?
- **Hierarchical (Levels? Key to generate code?)**
  - Fixed Length? Or Variable Length to reflect changes over time (parent-child relation of polygons)?
- **Information-rich** Political Boundaries (State, County, Local)
  - Hydrologic Unit Codes (HUC) - length/digits?
  - NHD/Streams
  - Grid
  - Geographic Coordinates (Of what point? Centroid? Consider variation in polygon extent and shape?)
  - Other
Implementation
for Stable Wetland Unique Identifiers

HOW?

• Database Modification (e.g. add fields, relational tables, etc.)
  • NSDI, State, Project, other?
  • Why not just put it in the existing NWI database? – Too Much Information!

• New Database – who will manage, maintain and update?
  • NSDI, NWI, State, or by Project?

• Generation of code on the fly (by applications or tools)
  – Who will develop, manage and maintain?

• Other?
DU added 11 attributes to the NWI attributes.

- The NWI Key is a unique number for each wetland.
- The Parent Key keeps track of wetlands that changes over time.
- The Status attribute allow us to query active wetlands from inactive (converted) wetlands.
- Conversion type allow us to identify how it was converted (urban, Ag, etc.). Partial identifies wetlands that were only partially converted (part of the wetlands is still active).

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJECTID</td>
<td>ID (4)</td>
</tr>
<tr>
<td>ATTRIBUTE</td>
<td>STRING (20)</td>
</tr>
<tr>
<td>HGM_CODE</td>
<td>STRING (19)</td>
</tr>
<tr>
<td>QAQC_CODE</td>
<td>STRING (9)</td>
</tr>
<tr>
<td>WETLAND_TYPE</td>
<td>STRING (50)</td>
</tr>
<tr>
<td>ACRES</td>
<td>DOUBLE (8)</td>
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<tr>
<td>DECODE</td>
<td>STRING (40)</td>
</tr>
<tr>
<td>NWI_KEY</td>
<td>LONG INTEGER</td>
</tr>
<tr>
<td>PARENT KEY</td>
<td>LONG INTEGER</td>
</tr>
<tr>
<td>STATUS</td>
<td>SHORT INTEGER</td>
</tr>
<tr>
<td>CONVERSION_TYPE</td>
<td>STRING (1)</td>
</tr>
<tr>
<td>PARTIAL</td>
<td>STRING (1)</td>
</tr>
<tr>
<td>IMAGE_DATE</td>
<td>STRING (15)</td>
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<tr>
<td>INACTIVE_DATE</td>
<td>STRING (15)</td>
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<tr>
<td>FIELD_VERIFIED</td>
<td>STRING (1)</td>
</tr>
<tr>
<td>COMMENTS</td>
<td>STRING (255)</td>
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<tr>
<td>UPDATES_OPERATOR</td>
<td>STRING (50)</td>
</tr>
<tr>
<td>UPDATE_DATE</td>
<td>DATE</td>
</tr>
</tbody>
</table>
In the case where part of the original wetland is converted, the original wetland is copied and pasted, the new polygon is reshaped. The original polygon in inactivated with a conversion type (A – Agriculture) and the partial attribute is Yes. The new polygon has a new NWI Key and Parent Key that equals the NWI key of the original. This allows us to summarize the changes in class and links the original with the changed wetland.

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Other
Project Examples?
Case Studies?
Types of Stable Unique Codes

- **Information-based** – watershed/HUC, NHD/streams, geographic coordinates, grid, temporal stamp, etc.

- **Hierarchical** -- Systematic

- **Assigned** – Sequential, Random, Systematic.

- **Combination** – Maintain in separate fields and merge to create the Unique Identifier code at different scales
  - Area Code (e.g., 11 or 12 digit HUC)
  - Local Code (e.g., NHD/streams, grid, geographic coordinates, etc.)
  - Site Code (assigned sequential or systematic)
  - Time Stamp (e.g., for product versions and updates, parent/child polygon relations and tracking)
Hydrologic Unit Codes (HUC)

8-digit, 10-digit, and 12-digit Codes
Key Issues

• Codes need to reflect **wetland site dynamics** over time (fragmentation, expansion/contraction, disappearance/reappearance, hydrologic connection/disconnection) and parent-child relationships.

• Rules must be developed to deal with wetlands which **cross HUC boundaries**, or cover more than one HUC.

• Codes must function within a **relational database context** to support robust analysis. The national level is a missing link to putting state and regional databases together for analysis.

• Will there be a target mapping unit (**TMU**) [minimum and/or maximum wetland size for coding]? The National Wetland Mapping Standard specifies a minimum TMU of 0.5 acres. Some smaller wetlands have significant biological functions which there may be need to monitor.

• Length of code may become unwieldy.
  – Alpha-numeric code packs more info in field space.
  – Multiple fields may be required to store components of code and to aid in analysis.
DRAFT Recommendations:

- Use of only these codes and names would not be mandated, states and others would still be free to use their own systems. The intent is to build methods that will solve fundamental problems and be so useful that everybody will want to use it as a complement to their data set.

- Utilize multiple approaches and relational tables for robust usage possibilities. Code(s) should be robust enough to allow for multiple levels of aggregation and splitting.

- The names and codes should remain separate from any wetland/upland determination (even currently drained wetlands or planned/future wetlands could be issued national wetland names and identifier codes.

- Develop a new NSDI standard and National Coverage for Wetland Names and Stable Unique Identifier Codes (work towards grants and funding to develop)

- Stable Unique Identifier Code assignment by online web-based tool and database lookup.

- Develop a regional pilot project.
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CMI - Wetland Site Names and Stable Unique Identifier Codes

For more information please contact:

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