

ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT
FOR THE NORTHCENTRAL AND NORTHEAST REGIONAL SUPPLEMENT
TO THE 1987 WETLAND DELINEATION MANUAL

Purpose and Need

The purpose and need for this supplement to the 1987 Manual is to use the best available scientific and technical information for improving precision in delineating upland/wetland boundaries in the Northcentral and Northeast for purposes of Section 404 of the Clean Water Act and provide a procedure for continual future updates as more data are gathered and analyzed.

Background

The U.S. Army Corps of Engineers (Corps) Wetland Delineation Manual was published in 1987 (Environmental Laboratory, 1987) and identified a three-parameter approach to delineating wetlands – hydric soils, wetland hydrology and hydrophytic plants. Use of this manual for wetland delineation by Corps Districts has been mandatory since 1991.

Since the manual was first published, specific information in the document has changed, including a proposal in 1996 and a commitment in 2006 to update the 1988 National Plant List and the publication of newer versions of the “Hydric Soils of the United States” by the Natural Resources Conservation Service (NRCS). In addition, wetland science has advanced the understanding of the processes (e.g., biochemical) in these systems.

In 1993, the U.S. Congress requested that the Environmental Protection Agency (EPA) ask the National Academy of Sciences, National Research Council (NRC) to create a committee to study the scientific basis for the characterization of wetlands. The committee was asked to review and evaluate the consequences of alternative methods for wetland delineation and to summarize the scientific understanding of wetland functions (National Research Council, 1995).

One of the recommendations of this committee was to develop regional supplements to the 1987 Manual and that the regions should be defined on the basis of physiography, climate, vegetation and prevailing land use and should be used by all agencies for wetland characteristics.

The Corps of Engineers Research and Development Center (ERDC) was asked to identify and discuss the technical issues relevant to regionalization of the manual (Wakeley, 2002). The Corps, as the lead Federal agency and author of the 1987 Manual, invited the other three Federal agencies that assess wetlands (EPA, NRCS and FWS) to participate in the development of regional supplements, as recommended by the NRC. A National Advisory Team consisting of representatives of all four Federal agencies was created to oversee the regional supplements to provide quality control, consistency on national issues and decisions regarding the timing and defining of “regions”. This regional supplement was developed by a Regional Working Group consisting of experts from Federal/state/local agencies and academia. The availability of the draft supplement was announced through the Corps public notice process for public comment and field-testing, and underwent an independent peer review as discussed below. When finalized, the interim supplement will be implemented with additional field-testing for one year before a final version of the supplement is published by ERDC.

This document discusses the factors considered by the Corps during the development process for the Northcentral and Northeast Regional Supplement. This Environmental Assessment/Finding of No Significant Impact contains: (1) a discussion of the environmental consequences necessary to comply with the National Environmental Policy Act, and (2) creation of an independent peer review, their report and the Corps response to their comments as required by the Office of Management and Budget (2004).

Alternatives

We considered three alternative methods with respect to the 1987 Manual. The No Action Alternative would result in the continued use of 1987 Manual without scientific or technical changes. The preferred alternative would be to develop regional supplements that identify a regionally tailored list of indicators appropriate for that ecological region, include more helpful local photographs and descriptions and more detailed guidance on problem areas. The third alternative considered was to update and republish the 1987 Manual.

Affected Environment

This supplement is applicable to the Northcentral and Northeast Region, which consists of all or portions of fifteen states: Connecticut, Illinois, Indiana, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin. The region encompasses considerable topographic and climatic diversity, but is differentiated from surrounding regions mainly by the combination of a humid northern climate with cold snowy winters, short growing seasons, and seasonally frozen soils in many areas; glacially sculpted landscape; hardwood, conifer, mixed-forest, and hardwood-savanna natural vegetation; and the preponderance of forest, crop, pasture, and developed land uses (Bailey 1995, USDA Natural Resources Conservation Service 2006). The region is based on a combination of Land Resource Regions (LRR) K, L, and R, and Major Land Resource Area (MLRA) 149B in LRR S, as recognized by the U. S. Department of Agriculture (USDA Natural Resources Conservation Service 2006). Most of the wetland indicators presented in this supplement are applicable throughout the entire Northcentral and Northeast Region. However, some indicators are restricted to specific subregions (i.e., LRRs) or smaller areas (i.e., MLRAs).

Environmental Consequences

The No Action alternative would not achieve one of the goals of the Corps, which is to use the best scientific/technical information available in the Clean Water Act Section 404 program or the purpose and need of this project. The No Action alternative would result in continued heavy use of the "problem areas" section of the manual without additional science-based guidance. Although the 1987 Manual is updated to incorporate some other technical information such as use of updated National Plant Lists and the Natural Resources Conservation Service Field Indicators of Hydric Soils, newer information such as alternative procedures for calculating plant dominance may not be used consistently. Use of the 1987 Manual with no changes would result in continued confusion and lack of clarity, predictability, precision and consistency in the region. No changes to wetland delineation methods or boundary lines would occur with this alternative.

The preferred alternative, to develop regional supplements to the 1987 Manual using the best available scientific data, is expected to result in more consistent, science-based upland/wetland boundary determinations by Federal, tribal, state and local government delineators as well as private parties. Region-specific issues such as new hydric soils indicators, if they were

developed for specific technical problems, would be included in the appropriate regional supplement. Also, region-specific technical problems such as plant cover of halophytes or morphological adaptations of certain plant species can be described and photographs and guidance will be included in each regional supplement. This results in a more user friendly and region-specific document. Also, if changes in a particular region of the country need to be made, then the entire country does not need to change versions.

Changes to this supplement would be much easier than continuous changes to a national manual.

There will be some training requirements for both agency personnel and private companies as this supplement is finalized. A transition period of one year will occur when the interim document is published and additional data will be collected on perceived changes to upland/wetland boundaries based on the new supplement. Additional needed changes will be made prior to publishing a final document. It is not expected that the regional supplement will have the net effect of increasing or decreasing the total amount of wetlands in the Northcentral and Northeast Region, although site-specific boundary changes may occur. These changes may occur due to more refined plant indicators or the use of new soils or hydrology indicators. The testing period using the interim document will allow for further identification of the types and reasons that changes to wetland boundaries occur, prior to finalization of the document. If significant changes to wetland boundaries of specific types or in specific geographic locations occur, an analysis would be completed to determine the acreage of wetland affected and the indicator(s) responsible for the change. However, all areas must continue to have all three parameters – wetland hydrology, hydric soils and hydrophytic vegetation – in order to be determined to be a wetland that may be regulated under Section 404 of the Clean Water Act.

The third alternative would be to update and republish the 1987 Manual. Some overlap in supplements is expected as they are developed from west to east and common themes may eventually develop, resulting in changes and republication of the 1987 Manual for national issues such as changes to procedures for plant dominance calculations that may be identified. However, without identifying specific technical problems by developing regional supplements, it is difficult to articulate national issues. There would be a difficulty in answering problem area questions across the country without a systematic approach to identifying technical problems and solutions. This alternative would likely take an addition five to six years to identify all of the national technical problems and result in continued difficulty updating a single document.

Coordination with Others

Copies of the comments received during the public comment period are attached to this document. A 60-day comment period was announced by public notice by the New England, New York, Buffalo, Pittsburgh, Philadelphia, Chicago, St. Paul, Detroit and Huntington Corps Districts on or near July 22, 2008. (The date of the public notice may have varied slightly from district to district.) Comments were received from the following individuals and organizations:

Indiana Department of Transportation. IDoT identified the concern that the supplement would increase jurisdictional wetlands and identify floodplains as wetlands. In addition, a number of technical concerns were identified, including the elimination of the + and – modifiers from the indicator status of the plants.

The technical comments were addressed by the ERDC and the NAT and are included in the document which addresses public comments. Field testing of regional supplements across the country has shown that the elimination of the + and - modifier is not a significant concern. On 229 sites sampled to date across the country, only four had higher wetland boundaries due to changes in the treatment of FAC- plants (including zero of 35 sites in the Northcentral & Northeast region). Furthermore, the national panel for the wetland plant list recently concluded that "+" and "-" modifiers could not be supported with scientific data and would be dropped from future versions of the plant list. All FAC- plants are being re-evaluated by national and regional plant panels, and will eventually be assigned a FAC, FACU, or some other status. The concern that using the supplement will cause floodplains to be classified as jurisdictional wetlands is unclear. The supplement does not change the status of floodplains. Only those portions of a floodplain that meet all three criteria will be identified as wetlands.

Thomas A. Peragallo. This commenter suggested four changes to the data form.

Two of the recommendations were adopted (sample point and more room for soils descriptions) and two were not (soils horizon descriptions and grouping of hydrology indicators). The technical issues were addressed by ERDC and the NAT and are included in the responses to the peer review comments and the public comments and responses

Robert J. Pierce, Wetland Science Applications, Inc.. This commenter: (1) expressed a general concern that the supplements will increase wetland boundaries, (2) suggested re-issuing the 1987 manual instead of publishing regional supplements, (3) recommended that the supplement should include a section on identifying non-wetlands (uplands), (4) stated that the supplement allows for speculative interpretation of the three wetland criteria, (5) specifically expressed concern that the supplement will increase wetland boundaries by removing + and - modifiers from the indicator status of the plants, (6) indicated that the hydrology standard is incorrect and not scientifically supportable, (7) stated that floodplain forests will now be determined to be wetlands, (8) indicated that the National Advisory Team did not rigorously evaluate the data and specifically the hydrology standard, (9) is of the opinion that the supplement is contrary to guidance issued in 1991 and 1992, and (10) stated that Chapter 5 is fundamentally flawed and the supplements will not withstand legal challenges and must go through the Administrative Procedures Act requirements..

Most of the issues discussed in Dr. Pierce's comments and supplementary materials were addressed in the peer-review report and the responses to public comments drafted by the Corps and Northcentral/Northeast Working Group. Some other comments were of a philosophical nature and do not require a response. A number of policy concerns were beyond the scope of the Regional Supplement, which is intended as a technical document, but were considered by HQUSACE. HQUSACE believes that the decision to develop regional supplements is the appropriate format to allow for periodic updating as dictated by additional data collection. The reviewer's suggestion that the supplement abandons the Dominance Test for hydrophytic vegetation and substitutes the FAC-neutral test is incorrect. Many wetland plant communities would fail the FAC-neutral test; this is the reason that the FAC-neutral test was dropped as an optional hydrophytic vegetation indicator in a 1992 guidance memo from HQUSACE. The reviewer's concerns that hydrogen sulfide might be produced in volcanic fumaroles and other unusual situations does not negate its usefulness as a hydric soil indicator in typical wetland situations. The author's concerns about the source of material comprising fluvial deposits are well taken, but do not invalidate any proposed hydric soil indicators. Furthermore, the three-criteria approach involving indicators of hydrophytic vegetation and wetland hydrology, as well

as hydric soil, ensures that floodplain areas with relict hydric soil indicators are not identified as wetlands. In addition, a number of comments about proposed wetland hydrology indicators were addressed previously in the responses to the peer-review report, and some of the recommended changes in the wording of these indicators will be made. One of the reviewer's final comments that "The general flavor of the Supplement is 'when in doubt, call the area wetland'" is entirely untrue. The default position in the supplement and in the 1987 Manual, which the supplement does not replace, is that an area is nonwetland unless evidence of all three criteria is present. The only exceptions are for highly disturbed or problematic sites, and those procedures are described in the 1987 Manual. Data collected during the public comment period indicates the Regional Supplement does not expand jurisdiction. Guidance issued in 1991 and 1992 is no longer valid once the public notice indicating the use of the interim document is placed on the district websites.

Joseph M. McMullen, Terrestrial Environmental Specialist. This commenter indicated concerns that the three criteria were not given equal space in the supplement and that the criteria were not objective. He also raised a number of technical issues.

The technical issues were addressed by ERDC and the NAT and are included in the document which addresses public comments; a document separate from the independent peer report and responses document. The fact that the three criteria are addressed in chapters of various sizes is irrelevant.

Jim Turenne, Natural Resources Conservation Service. This commenter discussed the concept that the 1987 Manual allowed the use of "Field Indicators for Identifying Hydric Soils in New England" a document produced by the New England Hydric Soils Technical Committee (NEHSTC) and distributed by the New England Interstate Water Pollution Control Commission (NEIWPCC) to satisfy the hydric soil parameter. He also stated that the National Technical Committee for Hydric Soils does not include a representative from the northeast. A number of technical soils issues were raised.

A memo dated 17 September 1998 from John Studt, Chief of Regulatory for the US Army Corps of Engineers stated specifically that the National Technical Committee for Hydric Soils (NTCHS) "Field Indicators for Hydric Soils in the United States" could be used for problem soils and when correlated with existing 1987 Manual indicators. The 1998 memo also never mentioned "Field Indicators for Identifying Hydric Soils in New England." However, the New England District of the Corps has in the past supported the use of the New England Indicators. Throughout this project, the Corps of Engineers has worked closely with the NTCHS on the identification of hydric soil indicators for each supplement. The procedure for proposing new indicators and commenting on existing indicators has been published and in place for many years. We welcome the decision by the New England Hydric Soils Technical Committee to submit data to NTCHS in support of their proposals. Participation by the New England committee will likely have benefits beyond the borders of the New England states. The technical issues were addressed by ERDC and the NAT and are included in the document which addresses public comments.

Williams Creek Consulting, Inc. (Brian Catt). The commenter raised the concern of eliminating the + and – modifiers to the indicator status of the plants and that, using the supplement, the time required to complete wetland delineations would increase. The commenter also raises the concern that more agricultural land would be delineated as wetlands and farmers could lose farm subsidies. This commenter also raised several technical issues.

After users become familiar with the new indicators, procedures, and data requirements, the amount of time to complete a delineation should decline. However, one goal of the working group was to increase the rigor of data collection and reporting in an effort to improve the accuracy and defensibility of wetland determinations. Chapter 5 gives options for determining whether hydrophytic vegetation, hydric soils, and/or wetland hydrology are present on lands intensively managed for agriculture. It is consistent with the existing guidance given in the 1987 Manual for Atypical Situations. The Corps of Engineers wetland delineation manual and new Regional Supplements are for Clean Water Act applications. They do not affect farm subsidy programs. There has been no change in the wetland definition or basic three-criteria approach to determining wetland boundaries as described in the 1987 Manual. The supplement simply provides an updated and refined set of indicators for each factor based on more than 20 years of experience since the 1987 Manual was published. Field testing has indicated that the upland/wetland boundary in the majority of sites does not change under the new supplements but the wetland determinations are more objective and defensible. The authority to regulate farm subsidies is part of the Food Security Act and a separate issue from the Clean Water Act (CWA); subsidies are not affected by updates in the process of CWA wetland delineation. The technical issues were addressed by ERDC and the NAT and are included in the responses to public comments.

Aaron M. Keel, BL consultants. This commenter *noted* that the Supplement allows self-selected parties to self-interpret the regional supplement and return a questionnaire to the USACOE. He believes the regional supplement is too large and too complex to expect consistent, reproducible questionnaire results without providing a prior interpretive framework. He suggested regional workshops, open to the general public, advertised through public notice, where the USCOE presents unified interpretations of Supplement field implementation should be offered several weeks prior to closing the questionnaire response period. He also requested that the questionnaire include a section to identify Supplement training the respondents received (if any). He believes that only then can the Supplements be fairly evaluated, based on uniform interpretation and implementation to render valid findings, based on general public questionnaires.

The Corps believes that most users of the supplements are already familiar with the procedures in the 1987 Corps Wetland Delineation Manual and that these supplements clarify the scientific and technical data needed to make accurate and consistent delineations. Private firms exist which provide training in the Corps methodology. During the year-long implementation of the draft supplements, users may complete the questionnaire using both the 1987 manual and the supplement if they believe there is a significant difference in the upland/wetland line. This information will be evaluated prior to issuing the final supplement.

Independent Peer Review:

The purpose of the Office of Management and Budget Information Quality Guidelines (2004) is to enhance the quality and credibility of the government's scientific information, recognizing that different types of peer review are appropriate for different types of information. A copy may be obtained at http://www.whitehouse.gov/omb/info/peer2004/peer_bulletin.pdf. The Federal agencies were granted broad discretion to weigh the benefits and costs of using a particular peer review mechanism; however, agencies strive to ensure that their peer review practices are characterized by both scientific and process integrity. Peer review is one of the important procedures used to ensure that the quality of published information meets the standards of the

scientific and technical community and involves the review of a draft product for quality by specialists in the field who were not involved in producing the draft. The peer review report is an evaluation or critique that is used by the authors of draft information that contains important scientific determinations to improve the product. The selection of participants in a peer review is based on expertise, with due consideration of independence and conflict of interest. In some cases, reviewers might recommend major changes to the draft, such as refinement of hypotheses, modifications of data collection or analysis methods, or alternative conclusions. However, the peer review does not always lead to specific modifications in the draft product. In some cases, the authors do not concur with changes suggested by one or more reviewers.

A peer review is considered completed once the agency considers and addresses the reviewers' comments and incorporate where relevant and valid. In cases where there is a public panel, the agency publishes the peer review report(s) and the agency's response to the peer review comments. Agencies prepare a written response to the peer review report explaining: the agency's agreement or disagreement, the actions the agency has undertaken or will undertake in response to the report, and (if applicable) the reasons the agency believes those actions satisfy key concerns or recommendations in the report.

Finding of No Significant Impact:

In compliance with the National Environmental Policy Act (NEPA) and its implementing regulations at 40 CFR parts 1500 – 1508, an Environmental Assessment has been prepared for this supplement. The Corps prepares appropriate NEPA documentation, including Environmental Impact Statements when required, for all permit decisions. The environmental review process undertaken for this supplement has led me to conclude that the publication of this supplement will not have a significant effect on the human environment, and therefore an Environmental Impact Statement is not required by §102(2)(C) of NEPA or its implementing regulations. A copy of this Environmental Assessment with attachments is available from the U.S. Army Corps of Engineers, HQUSACE, Operations and Regulatory Community of Practice, 441 G Street, NW, Washington, DC, 20314-1000 and on the Regulatory Homepage at http://www.usace.army.mil/CECW/Pages/cecwo_reg.aspx.



Michael G. Enschede
Chief, Operations and Regulatory Community of Practice
Directorate of Civil Works

Literature Cited

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U.S. Army Corps of Engineers. "Clarification and Interpretation of the 1987 Manual," memorandum from Major General Arthur E. Williams dated 6 March 1992. USDA Natural Resources Conservation Service 2006. *Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin*. Agriculture Handbook 296. Washington, DC: U.S. Department of Agriculture. (<http://soils.usda.gov/survey/geography/mlra/index.html>)

Wakeley, J. S. (2002). "Developing a 'Regionalized' Version of the Corps of Engineers Wetlands Delineation Manual: Issues and Recommendations," ERDC/EL TR-02-20, U.S. Army Research and Development Center, Vicksburg, MS.



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Mitchell E. Daniels, Jr.,
Governor
Karl B. Browning, Commissioner

September 18, 2008

Ms. Jennifer McCarthy (CECW-CO)
U.S. Army Corps of Engineers
441 G. Street, NW
Washington D.C. 20314-1000

RE: DRAFT Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region. Comment Submittal.

Dear Ms. McCarthy,

The INDOT Office of Environmental Services is submitting comments regarding the *DRAFT Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* per the Public Notice dated July 22, 2008. Enclosed please find the document containing the comments for your consideration. Should you have any questions, I can be reached at 317-232-0240.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nathan Saxe'.

Nathan Saxe, Administrator
Ecology and Waterways Permitting Section
Office of Environmental Services

Enclosure: NS/jam

**COMMENTS REGARDING
DRAFT INTERIM REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND
DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION
FROM THE INDIANA DEPARTMENT OF TRANSPORTATION OFFICE OF ENVIRONMENTAL SERVICES**

Regarding the map on Pg. 4

It is difficult to determine whether the Central Great Lakes Forests are under the Northcentral or the Northeast Region or whether those two are one unit.

Regarding the omission of +/- of the indicator status of vegetation

By not using the +/- aren't you increasing significantly what is called wetland by vegetative type?

Regarding Guidance on Vegetation Sampling and Analysis

The statement is made in paragraph two that "Near the wetland boundary, it may be necessary to adjust plot size or shape to avoid overlapping the boundary and extending into an adjacent community having different vegetation, soils, or hydrologic conditions." Perhaps this should be reworded to state that near the vegetated community boundary rather than wetland boundary since the boundary of the wetland will not be entirely known at this point because the delineation has not been completed.

Regarding Seasonal Considerations and Cautions

This section differs from the Midwest version which essentially states that delineation should be conducted during the growing season. It is understandable that there are variations of climate between two regions but this does not seem to state clearly when delineations should be conducted. The way this section is worded lends to subjectivity and haggling with consultants during the report review process.

Regarding Hydric Soil Indicators

In paragraph two of the Introduction it is stated that, "a soil that meets the definition of hydric soil is hydric whether or not it exhibits indicators." This section does not seem to indicate whether the fact that a particular soil occurs in the Soil Survey as a hydric soil is enough to indicate that the definition of hydric soils applies to a particular site or if the definition is strictly that which was determined by the National Technical Committee for Hydric Soils. If the Soil Surveys are not to be used in defining a soil hydric, then may include some language to that effect in this section.

Regarding hydrology Indicators

Several of the Hydrology Indicators included in this supplement, both primary and secondary, should not be used as absolute decision makers. Granted, they are all important to consider in the evaluation of wetland hydrology, but not all of them act independently as indicators that hydrology is present of the sufficient duration and intensity to be considered wetland hydrology. Using these indicators as a means to make a decision based on the presence of one of these, or two of those does not seem a very scientific means of making the decision that wetland hydrology is present. Many of them are important to consider, but in the context of recent climatic events and in

context with the surrounding landscape. Overall, it is felt that by elevating many of these items to Primary and Secondary indicators of wetland hydrology, the Corps of Engineers is vastly expanding its interpretation of what is a wetland and there seems to be a very conservative plan to include a lot of additional areas as wetlands just by indicators and not by field identification of site specific items.

Following is a list of specific wetland hydrology indicators that we feel should be tools but not indicators used individually to make a decision and comments regarding our reasoning:

1. Group B, Indicators B1, B2, and B3 all indicate to “use caution with water marks that may have been caused by extreme, infrequent, or very brief flooding events, or by flooding that occurred outside the growing season.” These types of indicators only seem to be able to be verified by documenting microclimate, climate, rain and stream gauge data within the region. However, this data is frequently not available adjacent to the potential wetland site and thus seems to not be a reliable “primary” indicator of recent, sufficient, inundation/saturation during the growing season. It seems as though if you can’t verify the timing or frequency of the inundation from the indicator itself, you can’t verify that sufficient hydrology exists for wetlands. Indicators such as these should not even be secondary indicators unless accompanied by documentation verifying the frequency or timing of the inundation. I know of multiple instances where these indicators have been used to confirm hydrology in places where discrete hydrologic events occurred.
2. B-1 and B-16 Water Marks and Moss lines-These occur in some uplands after rainfall and remain in non-wetland trees for extended periods of time.
3. B-2 Sediment deposits- These occur as a result of rainfall in non wetland areas as well as rain with high winds.
4. B-3 Drift deposits- These indicate the presence of water (flood water-maximum) but not the duration of water standing. We also have wind/water drift lines forming in parking lots. A drift line or deposits can occur from one storm on one day and be present for months or years-they do not necessarily indicate sufficient hydrology to call an area a wetland.
5. B-4 Algal mat or crust- Comment similar to B-3.
6. B-10 Drainage patterns can result from high water in many cases that are not necessarily events of a permanent time frame. They may indicate a wetland area but more times just water’s route. It is virtually impossible to have a Drainage pattern without some form of a drift line or deposits. Therefore, you automatically have wetland hydrology. You will also find sediment deposits in all drift deposits and Drainage patterns. Is not this identifying the same object by different names? The movement of water causes sediment deposits, drift deposits, as well as Drainage patterns.
7. B-16 Previously discussed under B-1.
8. Items in the Group C list. Item C2 and C9 should not be considered Secondary indicators. Granted they have a potential relationship with being associated with the presence of hydrology. They also have association with other items that are not related to hydrology and its level in the ground.

- a. C2 Dry-season water table-how is the leap from a water table that is 24 inches below the surface during a dry season equal to one that is less than 12" during normal years? Sometimes not all water tables are effected similarly during dry seasons. A water table that is 24" below the surface may always be 24" below the surface, just as if it were 14" below the surface. How do you determine how dry is dry enough to get the additional 2"?
- b. C-9 Again these are indicators of concentrated water-moving water not wetland hydrology. Sometimes plant disease patterns are interrupted as flow patterns. Then again hill tops are identified as wetlands on the NWI maps. This item should not be a decision making item but an item that needs field verification.
- c. D-1. This item should not be a secondary decision making tool but one that indicates a site visit is mandatory.

Regarding the procedure for wetlands that periodically lack indicators of wetland hydrology.

Why is there only a condition for Drought years and not one for "Overly wet years"? Both of these are cyclic in nature and they cause opposite effects.

Regarding the Data Form

Are all the regions going to have different data forms?

General Comments

It appears that these supplements may change the jurisdictional status of "floodplains", from non-jurisdictional to jurisdictional waters, above and beyond those areas that are presently classified as jurisdictional waters according to the 1987 Corps manual that are found in floodplains.

Tom Peragallo comments NC-NE

From: McCarthy, Jennifer HQ02
Sent: Friday, September 26, 2008 3:07 PM
To: Wakeley, James S ERDC-EL-MS
Subject: FW: Comments Regional Manual Draft

-----Original Message-----

From: Tom Peragallo [mailto:peragallo@localnet.com]
Sent: wednesday, September 24, 2008 10:01 AM
To: 1987Manual
Subject: Comments Regional Manual Draft

Comments of Data Collection Form:

1. The Sample ID should be in a conspicuous place on the form for quick reference. This will avoid confusion when organizing or reviewing several data sheets. How about a block in the top right corner?
2. There is no place on the form for the soil horizon designation (A-B-C, etc). This should be the first entry in the soil description.
3. In my opinion there is insufficient room for redox data entry (this is one of the most important entries).
4. Under hydrology, I would recommend that the two aerial interpretation methods be listed together at the end of the list. They are closely related and would require additional (not a direct field observation) project research.

From:

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**Comments on the DRAFT Interim Regional Supplement to the Corps of Engineers
Wetland Delineation Manual: Northcentral and Northeast**

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1. General: The “supplements” that have been drafted so far are more similar than dissimilar. The Corps should at least be honest with the public and not call them “supplements.” Table 1 in every one of the “supplements” identifies that all the key elements (vegetation, hydrology, soils, growing season and difficult situations) of the delineation process are “replaced.” If all of the changes proposed are adopted, then what is called wetlands will greatly expand as a result of the supplements.
2. General: The largest difference between regions is in the soils, which essentially uses (and defensibly only would use) the regional indicators for soils that NRCS has developed and finally adopted. Rather than having states with three or four different supplements that may apply, the COE should go through an Administrative Procedures Act (APA) revision of the 1987 Manual and simply produce one document that incorporates by reference the latest regional soils indicators and contains the other minor differences (that are legitimate) within a unified document. Both COE staff and consultants often work in several regions routinely. Having to refer to different supplements is an unnecessary complexity. The new manual should contain the procedure for doing a complete delineation including non-wetland waters of the U.S. No one can simply submit a delineation of wetlands for jurisdictional purposes. All of the ecological information on regions and wetlands within regions is the same now as it was when the 1987 Manual was published. The natural environment has not changed. All such introductory material can be placed in a separate reference volume that would be companion to a delineation volume. The comments that follow are from the subject Draft, however, many are the same as I submitted for the Arid West Draft and the Atlantic and Gulf Coast and would be the same for the other regional drafts that have been promulgated.
3. The formulation of the Draft in general and the "Difficult Wetlands" Section in particular is ill conceived. The foundation of the 1987 Manual is the requirement for three independently derived confirmations that a landscape feature is sufficiently wet before it is determined to be a wetland and thus, regulated by the federal government. Independence has been lost in the Draft. More importantly, the Draft never actually indicates that the user can ever confidently determine that a landscape feature is NOT a wetland. At most after working through 140 pages of supplement, the user reaches such inconclusive statements as "the area is probably non-wetland" (p. 116) or "is likely non-wetland" (p. 107). This is a disservice to both the landowner and the regulator. Neither can have any certainty. This cavalier attitude towards the potential regulation of private land is especially egregious post Rapanos. Rather than requiring a certainty of the presence of each parameter before concluding that a feature is

wetland, the Draft allows the user to build speculation upon speculation. For example (p. 107, para. 1.), the user is told that the feature is "...likely non-wetland unless soil and/or hydrology are also disturbed or problematic." While a human-disturbed system may have several parameters that need to be assessed and "reconstructed" after the fact, the "problematic" wetlands are naturally occurring systems. In such an instance, the Draft is condoning the use of speculative field indicators of vegetation because the field indicators of soil and/or hydrology are also speculative. This acceptance of speculation is advocated for each of the three parameters in turn in Chapter 5. The Draft deviates from both the 1987 Manual fundamental premise as well as the NRC (1995) recommendations. Both require stronger evidence of the remaining two metrics when one is weak. The Draft ignores weaknesses and plows full steam ahead to capture landscapes as wetlands. Thus, the regulator must now determine whether the nexus to TNW is significant based upon a speculatively determined wetland in question as well as all the speculatively determined wetlands along a reach of stream. The emphasis of the Draft is when in doubt call it a wetland, when it should be if there is not sufficient evidence that the feature is a WATER of the U.S. conclude it is not. The Rapanos decision makes it clear that speculation is not a valid method of regulation.

4. p.1. The Draft cannot help but change boundaries if implemented as written. While no one really cares about the "+" or "-" for the FACW or FACU species, deleting the minus on FAC vegetation indicators will immediately affect large areas. As a member of the National Plant List Panel and the NE Panel back in the 80s, I know that plants that were rated FAC- where not considered hydrophytic by some members of the panels and were given the "-" designation so that they would not be considered such in the application of the 1987 Manual. The "FAC-" designation was not reached lightly. There were many discussions, species-by-species, region-by-region, about the appropriateness of including those species as hydrophytes. Deciding that a plant such as *Lonicera japonica* has equal probability of occurring in a wetland and non-wetland over its entire range of occurrence in a region is absurd. More importantly, no technical, data-supported justification is given in the draft for making FAC- plants count as wetland vegetation for purposes of Section 404 delineation. Not even the March 3, 1997 proposed modification to the list changed its status. As drafted, the change is arbitrary and capricious and, I believe, would not withstand a DQA or legal challenge. My suggestion is that if you intend to summarily dismiss the pluses and minuses, that all FAC- plants automatically become FACU plants for purposes of Section 404 delineation since FAC- plants were treated as such since 1987. For example, *L. japonica* in the north central region (the only one actually based on real data thanks to Dr. Gerry Wilhelm, Morton Arboretum) remains FACU on the 1997 draft revision to the list.
5. p.1 There has always been a disconnect between the definition of "wetlands" and the use of the plant list. FAC plants cannot be said to be adapted for life in saturated soils – they are adapted to live in mesic conditions whether saturated or not. This is the fundamental reason why use of the more than 50% rule has made vegetation an insensitive indicator. Dropping the minus from FAC species will make it even more worthless as a determinant. The biggest problem with application of the >50% rule now is that the vegetation on both sides of the delineation line usually qualify as

wetland vegetation – it is an insensitive metric. This is true in the Northcentral and Northeast Region as it is in the Atlantic and Gulf Coastal Plain. FAC-neutral is a much more technically defensible metric. On April 12, 2007, I sent an email to Katherine Trott at COE headquarters identifying inconsistencies in the FONSI for the Arid West Supplement. That email stated in part:

On page 12 there is a summary response to my comments. ... I would like you to consider the following:

It states that abandoning [the dominance test for] the FAC-N test is unworkable because many wetlands would fail it. I challenge you to look at real data (such as I provided to you). The failed wetlands will invariably not have wetland hydrology. If you have real data on hydrology that counters this on a regular basis, I would sure like to see it. I have data from hundreds of ground-water monitoring wells from many places around the country that shows just the opposite. Steve Martin at NAO presented a paper at a SWS meeting in Norfolk some years back as did Peter Veneman that shows the opposite. Furthermore, the statement that the FAC-N test was dropped as a vegetation test in the March 6 1992 Qs & As is patently false. Read para 2.e. of that document. The only thing that the Qs and As did was add it as a hydrology secondary indicator, they did not remove it as a vegetation test.

FAC-neutral is much more consistent with hydrology data collected in the field. There is technical support for its adoption and should be the vegetation indicator of choice replacing the > 50% rule which is essentially meaningless and will be more so if all FAC- plants become FAC.

6. Adopting the Prevalence Index with a 3.0 break perpetuates this insensitivity and is inconsistent with Wentworth, et al. (1988) and Wakely and Lichvar (1997) – especially since the supplement drops the minus on FAC species. No data results are referenced in the supplement supporting that 3.0 is the appropriate threshold for hydrophytic versus mesic vegetation. To the contrary the only referenced documents addressing indicate that there are problems with the weighted average approach when the Index value is between 2.5 and 3.5 and that strong indications of hydric soils and wetland hydrology are necessary. It is especially inappropriate to rely on a 3.0 prevalence index break when either soils or hydrology are questionable (Wentworth, et al. 1988, Wakely and Lichvar 1997). I do not believe that adopting this process with a 3.0 break will withstand a Data Quality Act (DQA) or legal challenge, especially not as used when either soils or hydrology are “problematic.”
7. p. 2. The existence of a National Advisory Team to review rigorously developed data means that this supplement should be based upon rigorously developed data. None are referenced in support of the changes made. Where are these data? I do not believe that this supplement would withstand a DQA challenge. For example, the hydrology “standard” is a corruption of both policy and science. From a policy standpoint, it never went through APA process and, thus, has no policy legitimacy. It was

“promulgated” through a Technical Note.¹ Standards need to be promulgated through the APA process. The EPA put the following technical procedures thru APA rulemaking the:

1. Sec. 403 Ocean Discharge Guidelines through APA rulemaking (45 FR 65952-65954, October 3, 1980);
2. 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (45 FR 85336 – 85357, Dec 24, 1980);
3. 404(b)(1) Testing Requirements for the Specification of Disposal Sites for Dredged or Fill Material (45 FR 85360 – 85367, Dec 24, 1980);
4. Criteria for the Evaluation of Permit Applications for Ocean Dumping of Materials (40 CFR Chp. 1 Part 227);
5. *1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands; Proposed Revisions* (56 FR 40446-40479, August 14, 1991) discussed above; and
6. Look at the 402 Program and RCRA, CERCLA to see what technical standards go thru rulemaking. For example:

[Federal Register: February 3, 2004 (Volume 69, Number 22)]
[Rules and Regulations]
[Page 5038-5087]
ENVIRONMENTAL PROTECTION AGENCY
40 CFR Part 63
[OAR-2003-0138, FRL-7551-6]
RIN 2060-AE79
National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline)
AGENCY: Environmental Protection Agency (EPA).
ACTION: Final rule.

The Department of Agriculture has subjected the following technical procedures to APA rulemaking and its wetland procedures are all codified:

- 1.7 CFR Part 12 Highly erodible land and Wetland Conservation; Final Rule and Notice of Finding of No Significant Impact (52 FR 35194 – 35208, 17 September 1987)

¹ U. S. Army Corps of Engineers. 2005. Technical Standard for Water-Table Monitoring of Potential Wetland Sites. Technical Note ERDC TN-WRAP-05-02, U. S. Army Engineer Research and Development Center, Vicksburg, MS.

2. Title 7: Agriculture
Part 12—Highly Erodible Land And Wetland Conservation Subpart C—Wetland Conservation

The Department of Energy uses the APA for promulgation of standards. For example:

Federal Register: August 27, 2003 (Volume 68, Number 166)
[Rules and Regulations]
[Page 51429-51436]
DEPARTMENT OF ENERGY
10 CFR Parts 1021 and 1022
RIN 1901-AA94
Compliance With Floodplain and Wetland Environmental Review Requirements
AGENCY: Department of Energy.
ACTION: Final rule.

These citations could go on forever. I think it is safe to say that 404 wetland procedures and “standards” appear to be the only program in the federal government that regulates private property and private activities that hasn’t gone thru APA rulemaking.

The hydrology “standard” is very different from the hydrology requirement of the 1987 Manual. Furthermore, it is an absurdity to say that a “standard” is secondary to field indicators. Standards need to be primary and directly related to the primary regulation that they are intended to support – in this case the Clean **WATER** Act (CWA). The purpose of the hydrology standard should be to determine what landscapes can be reasonably called navigable waters. Water no closer to the surface than 12 inches below it does not constitute navigable waters within the context of the CWA. It is strictly ground water and as such should be regulated by the Safe Drinking Water Act. That is the reason that the 1987 Manual indicates at para. 46 that water must be “to the surface.” That is why the phrase “to the surface” occurs five times in the one paragraph answering question 8 in the October 7, 1991 Qs and As and twice in para.3.a. in the March 6, 1992 Guidance. Field indicators should be secondary to the standard, based upon satisfying the standard and be subservient to the standard (i.e., measurement of the actual level of water).

Finally, the “standard” is not technically defensible. I know of no natural, unaltered landscape in the Coastal Plain or elsewhere in the United States that the presence of a water table for **only** 2 weeks at 12 inches every other year would produce hydric soils or a hydrophytic plant community. If this is the national “standard,” then the COE should produce conclusive data that demonstrates that areas that just satisfy the standard would be recognized as such by wetland scientists. The Draft references no such data supporting the “standard” nor does the Technical Note – other than a citation to the National Research Council’s (NRC) 1995 study of wetlands. In that respect, the “standard” does not even follow the NRC recommendation. Furthermore,

in the last 12 years since the NRC made its recommendation, data should have been evaluated to see if it was valid. Where are the data? It appears that the COE simply waited a decade and then established a "standard" without technical support or rulemaking.

8. p. 4 to 10. All of this information as well as similar information for other regions belong in a companion volume to the delineation manual. Then there could be a single, updated manual that recognizes regional soil differences and any other minor differences from region-to-region in one text that would simplify the process.
9. p.8, first para. The formulation of this paragraph suggests, that many landscape features that will NOT qualify as wetlands are wetlands. It suggests that floodplains forests are wetlands. Only some areas of floodplains will qualify as wetlands. One of the major problems with the HGM literature is that the authors often include these broad categories of landscape features as wetlands even though many of them will not have hydric soils nor the duration or frequency of hydrology necessary to constitute 404 wetlands. This para. either is an intentional effort to expand what constitutes 404 wetlands or it is an inadvertent slip into the functional assessment concept of wetlands.
10. p.11, para.1, penultimate sentence. This sentence is contrary to the 404 definition of wetlands and mischaracterizes what is being identified by the Draft as wetland hydrology. The definition calls for species "typically adapted for life in saturated soils" - not "tolerate" inundation or saturation. To characterize a water table at 12 inches for 14 days every other year as "prolonged" saturation is ludicrous - especially when the water table meets these conditions only at the end of winter/beginning of spring when plant metabolism is low. Many species will not be growing early in the spring and are not stressed. Many species will have more than 50% of their roots (if not essentially all of their roots) above the water table at 12 inches and are not stressed.
11. p. 11, last para, last full sentence. Such shifts can occur in non-wetlands as well. This sentence simply adds another level of confusion to the process. Where are the citations for this phenomenon and specifically what types of wetlands are referred to? A condition with FAC, FACU and UPL species is likely to be found on drained hydric soils. The fact is that these plant communities may not be wetlands. The provision on p. 112 (a) *FACU species commonly found in wetlands* essentially dismisses the concept of drained wetlands. All FACU species are known to occur in and sometimes dominate wetlands. If they didn't, they would be rated UPL. To summarily dismiss these species because they are growing on hydric soils is technically indefensible. According to the Department of the Interior, Over have the wetlands in the conterminous U.S. have been lost since European settlement. That means there are over 100 million acres of hydric soils on the landscape that are no longer wetlands. In the Northcentral/Northeast Regions, those areas will often have the species identified at p. 112 (a). Since they typically will occur in landscape positions that are conducive to wetlands (otherwise there would not be hydric soils in the first place), will immediately have at least one secondary hydrology indicator. Many of the other secondary hydrology indicators are so weak that they can be found commonly on landscapes without hydric soils. You might as well simplify the process

and identify as wetlands all landscapes that have hydric soils. That is what this supplement does so save the public time and money and cut out all the complexity, if that is the intent.

12. p. 17, 2nd para. See Comment 5 on the inappropriateness of making FAC-species FAC. If you are dropping the “+” and “-”, then ALL FAC- species should become FACU, because they have always been treated as functional equivalents (that is not hydrophytic vegetation) for purposes of the 1987 Manual. Penultimate sentence: the wording of this makes the process wide open to subjective abuse.
13. p. 17, last para. Not only “most wetlands” but also many non-wetlands in the Northcentral/Northeast will pass the dominance test. That is why the dominance test is insensitive and should be replaced by the FAC-neutral test. “Some wetland plant communities may fail a test based only on dominant species.” The converse is equally true. It is very common in the Northcentral/Northeast for the dominants to be FAC. Examination of the non-dominants often reveals that the plant community is not hydrophytic. This entire paragraph shows a bias towards calling areas wetlands that are not.
14. p. 19, 2.b. “and/or” another example of never reaching a conclusion. The landscape can fail the plant dominance test and hydrology and still be considered a wetland because it is “problematic.”
15. p.21. Using a break point of PI 3.0 or less is not supported by any technical data provided and is not consistent with Wentworth, et al. It is especially inappropriate for problematic situations where it is most likely to be used. I do not believe that using a breakpoint of 3.0 will withstand a DQA or legal challenge.
16. p. 21. The PI as developed by NRCS used frequency data. Where are the technical data confirming that a PI using absolute cover is valid? There are no data provided to validate the technique when different size plots are used for different strata. For example, herbs are often very patchy. Combining cover for trees in a 30-ft radius plot and herbs from a 5-ft radius plot may be inappropriate. Where are the studies to confirm that the technique is appropriate? PI from NRCS uses frequency along transects – not cover.
17. p. 31, 2nd full para under “Observe...” If the Draft is going to suggest photographs of soils, then it should suggest that a neutral-gray card be inserted into the photo so that color can be adjusted correctly. It is possible to make an image of soil either hydric or nonhydric depending upon filters used during printing.
18. p.33, 1st full para. Give the source of the data supporting the statement about the wettest interior lacking indicators and the frequency of occurrence on the landscape. Frankly, aside from the fact that there is an exception to every rule, my experience is that it is rare that the wettest part of natural wetlands do not have hydric soils.
19. p. 34-64. It does not appear that the latest version of *Field Indicators of Hydric Soils in the United States* was used in the Draft. They should be. In fact, all of the regional supplements should use the latest NRCS *Field Indicators* and not adopt ones unless they are officially approved. To do otherwise, especially based upon the lack of supporting data is arbitrary and capricious and not consistent with good technical practice. In this regard it is inappropriate to adopt Indicator TF2 since it has not been sufficiently tested to convince the NTCHS that it is correct.

20. p.66, 1st para. The “technical standard” is fundamentally flawed as discussed above and the NRC said more than 50% probability.
21. p.66, 1. The two-plant requirement should be based upon dominants and preferably native species located in the wetland – not in the nonwetland. Observations in and out of the wetland may differ dramatically.
22. p.66, 1. f. If the emergence or opening of flowers occurs before green leaves are present it is not the start of the growing season. Growth in plants is the increase in mass or storage of high caloric molecules (lipids). It can only occur through photosynthesis. Plants that flower before leaf out are alive but are not growing. They are actually using energy stored during the last growing season – just as they survive the winter on the same energy. During the fall such plants produce a primordial flower bud, which over-winters and opens based upon a combination of genetics and climate. Red maples in Maryland may blossom during the end of January, long before the start of the growing season. Peaches in Georgia, etc. may blossom and be destroyed by frost. Although fruit may not set that year, it is only if a hard frost hits after the plant leaves have swelled and burst that the plant itself is in jeopardy. Indictors “a”-“e” are good; “f” should be dropped as technically inappropriate. The end of the growing season should be based upon the period when the majority of leaves have changed color (senescence since the chloroplasts are one of the first organelles to degrade) – not when leaves fall (abscission). The various regional manuals are all over the board on this concept and many are technically indefensible. There is no more growth once chlorophyll has been degraded – only energy storage from leaves to roots.
23. p. 67. There is no technical support provided for changing the depth of temperature analyses from 50 cm as determined by NRCS and the 1987 Manual to 30 cm. The change is arbitrary and capricious and I do not think that it would survive a DQA or legal challenge. Furthermore, the closer to the surface of the land at which the temperature is read, the more diurnal fluctuations will occur. Frequently, temperatures at –30 cm and even –50 cm in aerated soils can fluctuate above and below 5C in a 24-hour period during winter months.
24. p. 67, last para. The long-term average should never be used when actual hydrology data are collected. You need to determine independently the beginning of the growing season because of the potential large annual variability. WETS table data are not sufficient.
25. p.69, Table 10. many of the C and D Group indictors are directly contrary to both the 1987 Manual and the October 7, 1991 and March 6, 1992 guidance documents.
26. p. 71. A2. There should be a strong caution of “water seeping into the pit” after rainfall events not necessarily representing wetland hydrology. There are many systems where the “water table” will remain in the top 12 inches or puddle on the surface during the non-growing season and be totally lost almost immediately upon leaf-out. These are not wetlands but this language makes it easy to call them such.
27. p. 77, B5. I believe that the film or sheen on the water surface is a biofilm (polysaccharide) produced by iron-oxidizing bacteria and not actually oxidized iron. The orange flocculent under the sheen on the sediment is oxidized iron mixed with bacteria and organic compounds.

28. p. 78, B7. This should not be a primary indicator – especially if it is based only upon one aerial photograph. This should not be a secondary indicator either – only supporting information. Surface water during the non-growing season can be easily misinterpreted and is a seductive indicator for those anxious to find wetlands.
29. p.80, B9. Water-stained leaves should not be a primary indicator. They can form very quickly entirely during the non-growing season and may indicate non-growing season puddling – not wetland hydrology. Where are the data supporting this as primary indicator?
30. p.84, B6. This should not be a secondary or primary indicator – only supporting information. The fine-grained sediment might be deposited from very short-duration events, over a long period of time or on extraordinary event in the distant past. There is no way to know if the deposit is recent. Furthermore, you can get cracking on slopes when fine-grained soils are eroded from above and wash down the hill.
31. p.85, B10. This indicator shouldn't be limited to flow patterns – that is flowing water. A depression by its very nature is a drainage pattern. Bent vegetation says nothing about wetland hydrology and should not be an indicator.
32. p.87, B16. Get rid of this. This should not be a secondary or primary indicator – only supporting information. The draft doesn't specify which mosses count and which don't, when the result is from an infrequent event as opposed to a frequent one of long duration. The citation is from Florida and there are no data presented as to the reliability anywhere else. It doesn't account for ice-rings causing such lines during the non-growing season in the north.
33. p.88. This should not be a primary hydrology indicator. Based upon the chemistry of H_2S , it cannot exist in the presence of oxygen. Therefore, anytime the H_2S is present, the soils actually have to be saturated and the investigator can use saturation as the indicator. A lot of people mistake other odors for hydrogen sulfide. It may be difficult to determine whether the odor is from above the 12-inch break or below it. Finally, 12-inches is not a valid break point for wetland hydrology. It needs to be to the surface.
34. p.89. C3. This should not be a primary indicator or a secondary indicator – only supporting information. There is too much we don't know about it. Where are the technical data supporting it as a primary indicator along the entire Northcentral/Northeast Region? There have been documented instances of these forming in non-wet, pastures and feedlots rich in N compounds. They can form very rapidly in saline soils. They are often misidentified as discussed in the Draft as well as by roots growing through redox concentrations that are not pore-linings. I do not believe that it is valid to say that the iron may simply be on the root and not in the soil adjacent to the root. The mechanism of development is that water with reduced iron is being sucked thru the soil to the root. If that is the case, then the iron must be in the soil pore lining as well as on the root. Same concept as diffuse vs. distinct boundaries on concretions and nodules.
35. p. 91, C4. Alpha, alpha'-dipyridyl can give false positive readings in direct sunlight as well as if the solution is old.
36. p. 92, C6. This should not be a primary or secondary – only supporting information. Where are the technical data supporting this as a hydrology indicator? How do you tell if the soil has been tilled in the last two years? How do you know if your are

looking at freshly-formed, redox concentrations or relict features that have not been destroyed? There are too many uncertainties regarding soil-forming features to use this as a primary indicator. The presence of redox features alone is not even adequate to demonstrate aquic conditions for soils (Vepraskas 1995) let alone use it as a hydrology indicator.

37. p. 93, C7. This should not be a secondary or primary indicator – only supporting information. Where are the technical data supporting this indicator along the entire Atlantic and Gulf Coasts? How do you know whether the organic layer had been thick but has been oxidizing and is now 1-inch thick after being dewatered?
38. p.94, C2. This should not be a secondary or primary indicator – only supporting information. The user needs to be cautioned about natural subirrigation.
39. p. 95, C8. This is acceptable as a secondary indicator, however, the caution on vegetation should be strong, i.e., the vegetation should be dominated by FACW and OBL plants, primarily. Many areas will have FAC vegetation especially if FAC-plants become FAC. Crayfish can burrow to 3 meters or deeper (Pennack 1978. Freshwater Invertebrates of the U.S.) My first exposure to crayfish chimneys as a teen was on nonwetland lawns on Vine Street in Eastlake Ohio. Many situations where these are found are not wetlands.
40. p.96, C9. This should not be a secondary or primary indicator – only supporting information. You cannot see soil saturation on an aerial photograph – only darker soils that may or may not be saturated. Moist soils have a lower value than dry soils. It is too easily confused, and most practitioners will not bother to field verify. Simply verifying the presence of hydric soils with a photograph that has darker signatures where the hydric soils exist, says nothing about whether actual saturation is present or not. The wording of the last sentence of this indicator is very telling. It equates the presence of hydric soils with seasonal high water table even though there is no necessity that the presence of such soil indicators is determinant of contemporaneous wetland hydrology.
41. p. 99, D2. This should not be a secondary or primary indicator – only supporting information. Your example of the edge of a lake is stupid. Some edges of lakes have wetlands and some don't. At least use a toe of slope if you keep this.
42. p.100, D3. This should not be a secondary or primary indicator – only supporting information.
43. p. 101, D4. Explain what flark-and-strang topography is for us ignorant peasants.
44. p. 98, D5. This should not be a secondary or primary indicator – only supporting information.
45. After producing a litany of hydrology indicators, many of which are totally unsupported by technical data, there is still no acknowledgement of negative indicators – indicators, which demonstrate a lack of wetland hydrology. For example, deciduous trees typically have shallow roots when a high water table exists during the growing season. Deciduous trees with deep penetrating roots (deeper than 12 inches) are a bioassay indicative that the plants are not stressed by high ground water during the growing season. Obviously, the deeper the penetration of the roots, the deeper the stress from ground water or the absence water stress. This is a powerful indicator in drained hydric soils. If the presence of crayfish chimneys is a hydrology indicator, the presence of burrows of non-water species such as gophers, ground squirrels,

groundhogs, skunks, foxes, coyotes, etc are indicative that a shallow water table is not present. Even if the soils are hydric and the vegetation is all FAC. We have data to support these negative indicators.

46. Chapter 5. As discussed at the beginning of these comments, the entire premise for this section is fatally flawed. It needs to be totally rewritten with the exclusion of all the speculative and unsubstantial language that is present in it. The fundamental premise should be when the indicators for one "parameter" are weak, the indicators for the other two need to be stronger. When in doubt, the benefit should be given to the property owner, not the federal government. If it is not clearly a "water," it should not be labeled as one by application of tenuous, speculative, insubstantial, or technically unsupported indicators. Break out the data for all of this. The public is entitled under the DQA to know what this is based on.

**A Critique of the Draft Interim Regional Supplement to the Corps of Engineers
Wetlands Delineation Manual: Northcentral and Northeast Region**

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The U.S. Army Corps of Engineer's (Corps) proposed Draft Interim Regional Supplement to their wetland delineation manual was unveiled in July 2008. After testing and review, it is intended to eventually supplement the 1987 wetlands delineation manual for our region. The July 9, 2008 Public Notice announcing the availability of the manual and testing protocol can be found on the New York Corps District web site at <http://www.man.usace.army.mil/>. The draft manual is available at http://www.usace.army.mil/cw/cecwo/reg/reg_supp.htm.

I was struck by the photograph on the front cover of the proposed Draft Regional Supplement. In the foreground of this pretty color photograph is a very showy scarlet red-leaved shrub. I recognize this shrub; it is poison sumac (*Rhus vernix*), a poisonous species that causes a severe allergic reaction to most people that touch it. I am not sure what the inclusion of this poisonous plant on the cover photograph portends. My thoughts ranged from: there is something in this manual that is going to make my skin crawl, to: wetlands are a beautiful thing if they are never touched.

The Corps is striving to supplement their original 1987 wetlands delineation manual (Environmental Laboratory 1987) with regional supplements under the guise that regional supplements would be more reflective of the local conditions. The process is explained in Wakeley (2002). In the introduction to the Regional Supplement they state.

"This Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Northcentral and Northeast Region. This regional Supplement is part of a nationwide effort to address regional wetland characteristics and improve accuracy and efficiency of wetland-delineation procedures."

I wholeheartedly support this approach, but it has to be an objective evaluation of indicators for a definitive ecoregion. The proposed northcentral to northeast regional supplement includes all or portions of the following fifteen states: Connecticut, Illinois, Indiana, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin. All of New York is included, but the geographical range of the supplement covers a broad range of ecosystems from the prairies of Indiana, to the New York and New Hampshire high peaks, to coastal areas from New Jersey to Maine. It includes an elevation range from sea level to 6,288 feet. Not necessarily an area of uniform ecological conditions, especially for plants.

The Draft Regional Supplement is intended to be used in concert with the 1987 manual. Where differences in the two documents occur, the Regional Supplement is to take precedence. The Supplement discusses and addresses each of the three parameters used to define wetlands, which are vegetation, soils, and hydrology.

As reflective of the attention that has been given to the three parameters since the 1987 manual was published, the Regional Supplement does not address the parameters equally. Vegetation is given 14 pages, soils 40 pages, and hydrology 38 pages in the Supplement. There is nothing new in the vegetation parameter section, except for the elimination of + and – indicator status categories for all FAC groups for no apparent reason. No revision or review of the antiquated plant indicator status categories assigned over 20 years ago is proposed. Soils are given extensive press and the new method of evaluating hydric soils is presented. Unlike vegetation and hydrology, soils is the one wetland parameter that has actually been studied and modified over the years. Hydrology parameters are also very different in the Regional Supplement when compared to the 1987 Manual. Many ambiguous and unexplained changes are proposed that will add further confusion to defining wetland hydrology.

One of my complaints with the original 1987 manual and the Regional Supplement is that they do not provide an objective method of determining the edge of the wetland. Wetland delineations involve accurately establishing that edge, but the manuals focus on how you define wetlands, not how you define their limits. A true wetland delineation manual should provide objective criteria to help users delineate the boundary of a wetland. That is what wetland delineation is all about. The wetland/upland interface is where we spend our time, and that is where a good manual should concentrate its efforts.

My biggest complaint, however, is the lack of objectivity. An unbiased evaluation of each parameter to defining wetlands and uplands is lacking in the Regional Supplement, especially for vegetation. Why, for example, have FAC plant species, which are those that by definition occur equally in wetlands and uplands, always been considered wetland species under the vegetation parameter rule? That is not objective. Why are the + and – indicator modifiers eliminated in the proposed Regional Supplement, which means that all FAC- species are added to the list of wetland plants? I would recommend making all FAC- species FACU. The Regional Supplement bends over backwards to spell out all the exceptions to defining wetlands in the difficult wetlands section (Chapter 5), but tells us nothing about all the exceptions to defining uplands.

VEGETATION

Chapter 2 of the Regional Supplement addresses the vegetation parameter. A lot of the introduction is interesting, but superfluous. The portion on Guidance on Vegetation Sampling and Analysis offers nothing new. There is a statement on page 15 of this section that says “*In this supplement, absolute percent cover is the preferred abundance measure for all species.*” I’m not sure why this is so stated, since relative percent cover is used in the 1987 Manual and the Regional Supplement to determine dominant plant species and these dominants are treated equally regardless of absolute cover values for determining whether hydrophytic vegetation is present. Maybe nothing is meant by the inclusion of the word absolute.

On page 16, the section on “Seasonal Conditions and Cautions” states that *“the hydrophytic vegetation decision should be based on the plant community that is normally present during the wet portion of the growing season.”* Obviously, not a very objective recommendation. Don’t plants present during the rest of the growing season tell us something about a wetland/upland edge? The next paragraph discussed the impractical evaluation of vegetation due to snow or ice. Wetland evaluations are not acceptable under these conditions, so what is the point?

One major change in the Regional Supplement is the elimination of the plus (+) and minus (-) modifiers to the plant status indicators, which is addressed on page 17. There is no explanation for the change; it is just stated that *“Plus (+) and minus (-) modifiers are not used...”* What this means is that additional plant species will be considered indicators of hydrophytic vegetation for no apparent reason other than it has been so decreed.

The Prevalence Index method of determining hydrophytic vegetation presented in the Regional Supplement is the same as in the 1987 Manual. Meaning it is the same erroneous arithmetic nightmare. My son, who teaches mathematics on a college level, would have a field day criticizing this methodology. This method assigns numbers one unit apart (e.g. 1, 2, 3) to indicator status categories like they are equally different, when in fact they represent a broad range of fidelity percentages. Then, these number categories are presented in a formula to arrive at a value below which the vegetation is considered hydrophytic. It is at best a tainted system of evaluation. Fortunately, no one uses it.

Of major concern for the vegetation parameter is the accuracy of the indicator status category applied to each plant. The original indicator status list (Reed 1988) has never been formally changed, although the attempt made in the early 1990s by Ralph Tiner and others was published in the Federal Register (USFWS 1997) and underwent significant review, but its formal acceptance fell apart. It is not even acknowledged in the Regional Supplement. We have learned a lot about the fidelity of plants to wetland or upland conditions over the last 20 years and the entire list should be revised to reflect this knowledge.

SOILS

Chapter 3 of the Regional Supplement addresses the soil parameter. I like the thought stated in the Introduction on page 25:

“Indicators are not intended to replace or relieve the requirements contained in the definition of a hydric soil. Therefore, a soil that meets the definition of a hydric soil is hydric whether or not it exhibits indicators.”

This statement is something that I have always lived by in delineating wetlands. What it means is that we have a definition of each parameter, and we have field indicators of each parameter, but the definition always rules. If you don’t meet the field indicators but you meet the definition, then you satisfy that indicator. When I have trouble with field indicators, I go back to the definition. For the definitions, you need to go back to the 1987 manual; they are not presented in the Regional Supplement.

Hydric soil indicators are totally revised in the Regional Supplement, with indicators based on "*Field Indicators of Hydric Soils in the Mid Atlantic United States*," which can be obtained from <http://www.epa.gov/reg3esdl/hydricsoils/book.htm>.

Contrary to my prior criticism that the manual does not focus on wetland edges, the soil indicators are reported to be developed for wetland delineation purposes. Throughout the discussion of indicators the wetland/upland edge is referenced.

Under the new method for determining hydric soils, indicators are presented in three groups: A (All Soils), F (Loamy and Clayey Soils), and S (Sandy Soils). There are specific requirements for depth, thickness, and colors for each of the indicators. Combining indicators is permitted under certain conditions if all requirements of the indicators are met except thickness.

Many of the indicators are also specific to Land Resource Regions (LRR). Most of New York is in regions R (Northeast) and L (Lake States), with Long Island in S (North Atlantic Slope). Specific regions can be located at <http://www.cei.psu.edu/mlra/>.

Fran Reese, a Wetlands Forum Board member, suggests that individuals get training to recognize the revised hydric soil indicators. Fran coordinated the Hydric Soils Workshop sponsored by the Forum last year.

I have spent little time comparing the revised hydric soil indicators to the indicators used in the 1987 manual, so I am not sure what the changes mean. Christine Delorier of the NY District Corps, who is on the Regional Supplement committee, indicated to me that the indicators work out fairly well, although there were some problems with soils in red parent material.

HYDROLOGY

Wetland hydrology indicators are covered in Chapter 4 of the Draft Regional Supplement. The use of hydrology indicators in conjunction with vegetation and soil indicators is recommended. There are major changes to hydrology indicators proposed in the Draft Regional Supplement; these include changes to the definition of growing season and changes to which indicators are primary or secondary. There does not appear to be any basis for making these changes, other than to expand the wetland hydrology definition. I do not see the changes as helping to accurately define wetland hydrology. It only makes this somewhat difficult parameter more confusing and nebulous and opens the door for dispute.

For the wetland hydrology indicators more cautions should be stated. Reference back to the original manual and the wetland definition relative to *the presence of hydrology for a specified duration during the growing season* should be explicit. This is how wetland hydrology is defined for all areas, not just "disturbed or problematic sites" as inferred on page 66 of the Regional Supplement.

Growing season is redefined in the Regional Supplement using plant activity and soil temperature indicators. Several plant activity indicators are provided to reflect the start of the growing season. The problem is that the Regional Supplement proposes to use these plant

activity indicators in the wetland or “surrounding areas.” In our northeast region, plant activity in wetlands lags behind adjacent uplands because of the presence of water in wetlands, which takes on heat very slowly. Use of plant activity in surrounding uplands to indicate the beginning of the growing season in wetlands is not proper.

Soil temperature is also used to indicate the duration of the growing season as it was in the 1987 Manual, but the depth at which the soil must be above 5°C (41°F) was changed from 20 inches in the 1987 Manual to 12 inches in the Regional Supplement. There is no explanation of why this expansion of the growing season is appropriate. One last comment on growing season, the use of air temperature tables (found in soil surveys) to approximate the growing season is restated.

Specific wetland hydrology indicators are presented in the following four groups.

Group A – Direct observation of surface water or groundwater

Group B – Evidence of flooding or ponding

Group C – Evidence of recent soil saturation

Group D – Landscape, soil and vegetation features that indicate wet conditions

For each of these groups there are primary and secondary indicators of hydrology. One primary or two secondary indicators are needed to meet the wetland hydrology parameter. This approach is similar to the 1987 manual, but several hydrology parameters that were originally considered secondary have been changed to primary. The reasons for the changes are not specified. Why is water-stained leaves now a primary indicator?

There are not enough precautions or warnings about the use of the hydrology indicators, especially for the less experienced delineator. In Group B, the evidence of recent inundation by water marks, sediment deposits, or drift deposits must be carefully used, because these indicators may not be present for the proper duration or the proper time of the year to meet the wetland hydrology definition.

Inundation visible on aerial imaging is a very questionable newly proposed primary indicator of hydrology. In our region, most aerial photographs are taken during leaf-off conditions in late fall/early winter or late winter/early spring periods. Areas that show evidence of inundation at those times outside of the growing season, especially after snow melt in spring, are not reflective of wetland hydrology. Using aerial photographs to show areas of inundation is a helpful tool, but it should not be a positive primary indicator.

Surface soil cracks, although secondary, is another poor indicator. Such cracks are very common in upland areas in silt/clay soil where water pools for short durations.

Overall, I think the hydrology indicators should be reassessed, reasons for changes identified, timing and duration requirements clearly stated, and adequate precautions discussed. With the present indicators, the hydrology parameter is ill-defined and will result in many subjective evaluations that are not likely to truly reflect wetland conditions.

DIFFICULT WETLAND SITUATIONS

The last main section of the Regional Supplement is Chapter 5, which addresses difficult wetland situations. This section, in particular the vegetation portion, is a very biased, one-sided view of the wetland parameters. It is very misleading.

The bias starts in the first paragraph of the Introduction, with the first sentence stating *“Some wetlands can be difficult to identify because wetland indicators may be missing due to natural processes or recent disturbance.”* It would be nice if there was a second sentence that read, *“Conversely, certain uplands can be difficult to identify because upland indicators may be missing due to natural processes or recent disturbance.”*

Later in the first paragraph it states that *“Problem area wetlands are naturally occurring wetland types that lack indicators of hydrophytic vegetation, hydric soil, or wetland hydrology periodically due to normal seasonal or annual variability, or permanently due to the nature of the soils or plant species on the site.”*

It should be acknowledged that the converse is true and would be stated: *“Problem area uplands are naturally occurring upland types that lack indicators of upland vegetation, upland soil, or upland hydrology periodically due to normal seasonal or annual variability, or permanently due to the nature of the soils or plant species on the site.”* Sections addressing the latter situations are missing from the Regional Supplement and should be added.

There is some balance in the soils portion of Section 5. A paragraph on relict hydric soil indicators that may not reflect current conditions is included, as well as an appropriate discussion under the heading “Non-Hydric Soils that may be Misinterpreted as Hydric.”

However, the vegetation portion of Section 5 is a one-sided morass, with no attempt at balance. This section proposes to circumvent the basic premise of defining wetlands using the three-parameter approach by inferring hydrophytic vegetation or ignoring upland plants in several situations. It reminds me of the attempt made in the proposed 1989 USEPA-sponsored wetland delineation manual to infer wetland hydrology. Under extensive criticism, that manual was rejected.

All of the subsections under “4. Specific Problematic Vegetation Situations,” starting on page 107, have problems that contravene the basic three-parameter approach of defining wetlands. These sections should be eliminated or revised.

I was surprised by the wording under “5. General Approaches to Problematic Hydrophytic Vegetation” starting on the bottom of page 111. Part a. of that subsection is entitled “FACU species commonly found in wetlands.” This subsection lists a number of FACU species that may be found in wetlands. This should not be unusual, since FACU species are defined as those that may be found in wetlands up to one-third of the time. The list of these FACU species includes common buckthorn, which is listed as UPL (upland) in Reed (1988). The procedure for dealing with areas where we find these species is to: “drop any FACU species listed above from the vegetation data, and compile the species list and coverage data for the remaining species in

the community.” Such a procedure expands the limits of the jurisdictional wetland area and is contradictory to the three-parameter approach used to define wetlands.

If such a procedure was instituted, then it should be recognized that there is a large group of FACW species that frequently occur in uplands. Common reed grass (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), lady’s thumb (*Polygonum persicaria*), and a host of others come to mind. So, can we apply a similar procedure to these, like “*drop all FACW species listed above from the vegetation data, and compile the species list and coverage data for the remaining species in the community?*” This Part a. section should be eliminated or revised.

In conclusion, I support the concept of a regional supplement to the Corps manual, but it must be developed for a common ecological unit to be meaningful, especially for plants. Also, it must be objective and unbiased in its presentation. The proposed Regional Supplement is neither.

I have worked in environmental consulting for over 34 years and I have studied wetlands and performed wetland delineations since the beginning. I am constantly searching for measures that help to truly define the wetland edge. Unfortunately, after reviewing the Regional Supplement, I am still searching for these true measures.

REFERENCES

- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.
- Reed, P. B. Jr. 1988. National List of Plant Species that Occur in Wetlands: Northeast (Region 1). U.S. Fish and Wildlife Service, Biological Report 88 (26.1). St. Petersburg, FL.
- USFWS. January 17, 1997. Notice of Availability and Requests for Comments: Revision of the National List of Plant Species that Occur in Wetlands. Federal Register 62(12): 2680-2681.
- Wakeley, J.S. August 2002. Developing a “Regionalized” Version of the Corps of Engineers Wetlands Delineation Manual: Issues and Recommendations. U.S. Army Corps of Engineers, Environmental Laboratory, Vicksburg, MS. ERDC/EC TR-02-20.



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Helping People Help the Land...

September 15, 2008

To: Ms. Jennifer McCarthy (CECW-CO)
U.S. Army Corps of Engineers
441 G, Street, NW
Washington, DC. 20314-1000

Subject: Draft Northeast Regional Supplement for 1987 CORPS Wetland Delineation Manual.

Background:

The following are comments on the draft northeast regional supplement for the 1987 Wetland delineation manual. My field of expertise is primarily in soil science (soil survey) with the NRCS. I also serve as a Regulatory IV Instructor for the past 15 years with the New England District of the COE and EPA, Co-chair of the Northeast National Cooperative Soil Survey Hydric Soils Committee, and a member of the New England Hydric Soils Technical Committee. I spent the week of September 8-11, 2008 reviewing the supplement in Massachusetts and Rhode Island with experts from the COE, EPA, NRCS, Private sector, and Universities. Results of the field testing will be submitted by the lead COE staff.

Comment 1:

The 1987 Manual allowed the use of "Field Indicators for Identifying Hydric Soils in New England" a document produced by the New England Hydric Soils Technical Committee (NEHSTC) and distributed by the New England Interstate Water Pollution Control Commission (NEIWPCC) to satisfy the hydric soil parameter. This document is the result of over 16 years of work by the NEHSTC, a group of Federal, State, University, and Private Sector soil and wetland scientists that have focused their expertise to the New England Region to develop the indicators to result in a hydric soil boundary based on wetland science and in conjunction with plants and hydrology. The regional supplement should allow the use of the New England Field Indicators (current version) for areas that are meeting the plant and hydrology indicators but are not meeting the National Hydric Soils indicators. This could be simply added under the Hydric Soil Indicators for Problem Soils section starting on page 60. This section could limit the use of the New England guide to the New England region only rather than trying to define an MLRA boundary (which is not an exact line on the ground).

Although the NEHSTC has been trying to propose some of the indicators contained in the New England guide the process is very complex and time consuming. While the National soils guide captures many of the soil conditions it was not developed with representation from anyone from the Northeast and there are currently no members from the Northeast on the NTCHS. We have some unique soils and geology and also land-use demands that often require a precise boundary to be flagged and allowing the use the New England guide will help better define the wetland edge for the Northeast.

Comment 2:

Page 30: Observe and Document the Soil – there needs to be more information to the use of the process of describing and documenting soil morphology. Reference to Chapter 3 of the Soil Survey Manual (http://soils.usda.gov/technical/manual/contents/chapter3_index.html) that provides detailed procedure for describing soils should be added along with the Field Book for Describing Soils (<http://soils.usda.gov/technical/fieldbook/>), another excellent guide is the NEIPCC supplement for Version 3 (http://www.neiwpc.org/neiwpc_docs/V3_Supplement.pdf). The section should cover soil textural determination and how to describe the layers (what soil scientists call soil horizons). More on the description sheet section.

Comment 3: Figure 9 photo on page 37 is not a Histic Epipedon but from a poorly drained Raynham Soil (I have direct knowledge of this). A better photo should be selected.

Comment 4:

Page 43 – I know it is not possible to change the National indicator through this comment but the requirement of a 6 inch layer to make depleted is too thick for soils in the Northeast. Most of our soils with depleted have a 2-4 inch depleted zone under the dark surface as this is the zone of high microbial demand and thus depletion of oxygen. Many of our soils actually brighten up below the depleted layer. Indicator VI or VII in the New England version 3 should be listed in the user notes if the area meets hydric plants and hydrology.

Comment 5:

Page 50 Indicator S6 – Although this indicator has a long history of being poorly written, difficult to interpret, etc. and has been voted by the Northeast NCSS Hydric soils committee I think it need to be moved to the problem soils section if the other two parameters are met (veg, hydro). Currently there is problems with the National Hydric soils addressing spodosols in the northeast, the NEHSTC has a proposed mesic spodic indicator (can be sent upon request) that was developed by a sub-committee by reviewing over 35 pedons with hydro data and veg. Without this indicator many of our poorly drained hydric soils will not meet a National. Morphology associated with these soils is complex and they tend to occur on the line.

Comment 6:

Page 51 Indicator S7 – A map of 149B should be added as the boundary extends into SE Plymouth County and the south shore of RI. S7 also applies to region R in Version 6 so that needs to be changed in the “Applicable sub region” section. Also the user notes say it is applicable to interdunal swales – this indicator occurs in outwash areas and can be found throughout the region.

Comment 7:

Hydric Soil Indicators for Problem Soils section – F20 – Anomalous bright loamy indicator should be extended to New England within 200 m from estuary. I have seen this morphology in my mapping along the coastal zone.

Comment 8:

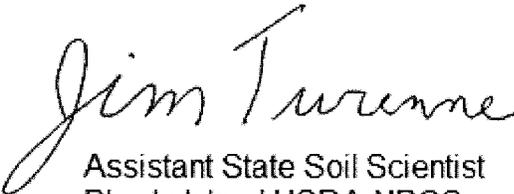
Wetland Hydrology Indicators – Indicator C4- reduced iron user notes could add or use IRIS tubes if monitoring is an option, removal of iron from the tube remaining for 1 month or more within 12 inches should make this indicator.

Indicator D6 needs to be added for soil survey and wetland mapping (NWI and State wetland maps) as a secondary indicator. This was part of the 1987 manual and needs to be added. These maps are records of what or how someone (a qualified soil or wetland scientist) interpreted the area as part of the resource inventory mapping process.

Comment 9:

Appendix C Data Form – Soil profile description form needs to be a whole page as keying out the soils involves doing a detailed description of the upper 20-24 inches, as currently designed it will be difficult to fill out neatly and be able to read. A column for (interpreted) soil horizon is needed – although the national does not use horizons for some reason it is still needed for the describer to document what they interpret to be occurring in the soil – is the layer a Bg (gray colors due to wetness) or a Bw (gray colors are lithochromic as in dark parent material) – is it a E horizon and thus redox concentrations needed for depleted (which we do not find redox concentrations in our Eg horizons). Depths need to be in cm not inches.

Please consider these comments, overall the document looks good just a few tweaks on the soils needed in my opinion.


Assistant State Soil Scientist
Rhode Island USDA-NRCS

Cc: Eric Scherer, State Resource Conservationist, RI NRCS.
Kip Kolesinskas, State Soil Scientist RI/CT NRCS



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September 19, 2008

Ms. Jennifer McCarthy
U.S. Army Corps of Engineers
441 G. Street, NW
Washington DC 20314-1000

Re: 1987 Manual Regional Supplements
Midwest, Northeast & Northcentral Regions
Comments

Dear Ms. McCarthy:

Hydrophytic Vegetation Indicators

1. The proposed combination of all Facultative species (FAC+, FAC, & FAC-) into one category of FAC, will effectively include all FAC- species as wetland plants, when evaluating the hydrophytic vegetation criterion. This change is particularly worrisome for the regulated public since the potential for meeting the hydrophytic vegetation criterion at any given sampling area is greatly increased via inclusion of numerous additional "wetland" species subject to the dominance test. In many cases, the presence of FAC- species tips the balance in the dominance test. Inclusion of these species as wetland indicators will result in the designation of greater amounts of hydrophytic communities, and therefore, result in greater amounts of wetland determinations.

FAC- species are typically associated with transitional areas and are extremely common in fence-rows, disturbed woods, riparian areas, and urban/developed areas. Oftentimes, these settings contain unreliable soil and hydrological indicators due to recent or past disturbance or modification.

According to the *National List of Plant Species that Occur in Wetlands* (Region 3), the following is a sample of several ubiquitous, often weedy, FAC- species commonly present in transitional areas:

Common Blue violet
Alsike Clover
Bur Oak
Common Purslane
Annual Bluegrass
Common Pokeweed
Virginia Creeper
Spring Avens
Red Fescue
Fleabane
Strawberry Bush

Viola sororia
Trifolium hybridum
Quercas macrocarpa
Portulaca oleracea
Poa annua
Phytolacca americana
Parthenocissus quinquefolia
Geum vernum
Festuca rubra
Erigeron annuus
Euonymus americanus

Horseweed
Hackberry

Conyza canadensis
Celtis occidentalis

If all facultative species are to be considered "wetland", as part of the hydrophytic vegetation criterion, then we believe a reconsideration of indicator status of many transitional species in the *National List of Plant Species that Occur in Wetlands* is warranted. If the regional supplements are truly intended to represent regional variations in wetland characteristics, then it seems logical to concurrently publish a revised *National List of Plant Species that Occur in Wetlands*, which considers species distribution and occurrence, appropriate for each supplement region.

2. We anticipate that the additional documentation and quantification required by the Regional Supplement (particularly with the hydrophytic vegetation parameter) will require approximately 30%-80% more time (particularly in the difficult areas) to complete the field and paperwork associated with each data collection point. This will result in the cost of a typical wetland delineation to increase significantly. This is a noteworthy economic consideration, particularly with the recent cost increase of a wetland delineation/jurisdictional determination associated with the additional burden of *Rapanos* related documentation, which is typically passed from the Corps District to the applicant (via the consultant).

This estimated cost increase does not reflect additional costs associated with training, learning/familiarity, administrative (data forms and report templates), and potential delays to projects during agency reviews (associated with Project Manager inexperience/unfamiliarity with new procedure).

Hydrology Indicators:

1. Determination of primary hydrology indicators through use of aerial photography will likely lead to misrepresentation of hydrological conditions. Most aerial photography is collected during leaf-off conditions in order to achieve greater accuracy of surface conditions. This would lead to interpretation of hydrological conditions outside the growing season. If the supplement manual is going to require that wetland delineations be performed during the growing season, it would be inappropriate to utilize hydrological data based determined outside the growing season. We do, however, recognize that aerial photography review for evidence of inundation is valuable for identifying locations of potential wetlands. We recommend that "inundation visible on aerial" be included as a secondary indicator.

2. Several primary and secondary hydrology indicators effectively use hydric soil indicators as a surrogate for wetland hydrology indicators. This places a disproportionate amount of reliance on the hydric soils parameter and weakens the concept of a *three* parameter test. Examples of these indicators include:

- Hydrogen sulfide odor
- Recent iron reduction in tilled soils
- Thin muck surface
- Geomorphic position

3. Secondary indicators of "saturation visible on aerial" and "geomorphic position" are nearly always mutual, resulting in the application of two secondary indicators (and consequently meeting the wetland hydrology test). This concept does not allow for consideration of drainage when evaluating the potential presence of wetland hydrology, which is often present in agricultural situations. Relic vs. recent hydric soil features (particularly dark surface coloration) are impossible to distinguish from aerial photos.

Difficult Wetland Situations - Agricultural Difficult Situations:

1. The manual description of difficult situations regarding agricultural land is too liberal, which may result in substantial amounts of current agricultural land designated as jurisdictional wetlands.
2. The section relies too much on soils parameter, which are often disturbed in agricultural settings.
3. The manual does not provide detail on determination of relic or recent hydric features. Additional training would be necessary in order to accurately determine these conditions. We request that proper recommended training courses be established prior to preparation of the supplement manual.
4. We recommend not using aerial photo as a primary indicator of wetland hydrology, since there is no way to determine duration of inundation from photo. Example exercises resulted in numerous acres of developed agricultural land considered wetland. This conclusion may result in loss of income to farms as a result of lost government subsidies for farmers removing wetlands for farm production.
5. We recommend clarification on the preferred soil survey resource (on-line vs. NRCS Soil Survey) is preferred when evaluating soils. Due to changes in nomenclature, discrepancies in soil types have been encountered. In addition, the on-line soil survey does not currently provide soil profile information in order to accurately confirm soil types identified on the survey.

Supplement Regions:

Review of the regional maps has led to a significant potential for confusion or use of the wrong supplement by both applicants and permit regulatory agencies. There does not appear to be a detailed discussion of how these regions were derived. We recommend evaluating determination of the regions by watershed or District boundary lines to ensure consistency and proper applicability.

We also recommend development of a more accurate map of regions. The preferred resource would consist of a GIS layer in order for the consultants and agencies to accurately determine the correct supplement manual.

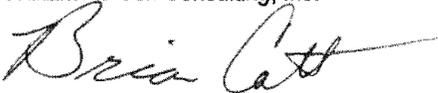
General Comments:

The concepts presented in the Regional Supplement, particularly the "Difficult Wetland Situations" section, appear to greatly expand the definition of wetlands. It appears that with these new procedures, the burden of proof is shifted from demonstrating that an area meets the three parameter test, and is therefore a wetland, to proving that an area is not a wetland.

The areas in which there is the greatest potential for expansion of wetland acreage seem to be in agricultural areas and in floodplain areas. As discussed above, this could potentially result in loss of revenue for farmers from the Farm Service Administration.

We appreciate the opportunity to provide comments. We may be contacted if there are any questions.

Best regards,
Williams Creek Consulting, Inc.



Brian Catt
Project Manager

James, William L LRN

From: Keel, Aaron [AKeel@blcompanies.com]

Sent: Monday, July 14, 2008 9:28 AM

To: 1987Manual

Subject: Comments on proposed Northeast Regional Supplement to the 1987 Wetland Delineation manual

To Ms. Jennifer McCarthy, US Army Corps of Engineers (USACOE),
The proposed process for evaluating the Regional Supplement to the USACOE Wetland Delineation manual is flawed.

The Interim Regional Supplement for the Atlantic and Gulf Coastal Plain Region is over 135 pages in length. The current approach to evaluate the Supplement allows self-selected parties to self-interpret the regional supplement and return a questionnaire to the USACOE.

The regional supplement is too large and too complex to expect consistent, reproducible questionnaire results without providing a prior interpretive framework.

Regional workshops, open to the general public, advertised through public notice, where the USCOE presents unified interpretations of Regional Supplement field implementation should be offered several weeks prior to closing the questionnaire response period.

The questionnaire should include a section to identify Regional Supplement training the respondents received (if any).

Then Regional Supplements can be fairly evaluated, based on uniform interpretation and implementation to render valid findings, based on general public questionnaires.

Aaron M. Keel, AICP

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