

**Nebraska City NW
Iowa-Missouri
Field Trip Summary Report**

I. Introduction

- A. Map Name: Nebraska City NW
- B. 7.5' quads visited: Rock Bluff*, McPaul*, Nebraska City*, Nebraska City NW, Sidney, Hamburg*, McElroy, Westboro, Blanchard*, Clearmont, Clarinda*, Coin, Bingham*, Shenandoah, Coburg*, Imogene, Shenandoah West*, Farragut*, Riverton, Randolph*, Tabor SW
 - * Maps with check sites
- C. Report prepared by: Kevin D. Hop
- D. Personnel:
 - Howard Browsers, Research Associate, SDSU
 - Brian Smith, Resource Specialist, SDSU
 - Ross Blank-Libra, Resource Specialist, SDSU
 - Kevin Hop, Lab Technician, SDSU
- E. Dates of Field Trip: 6, 7, 10 and 11 June 1988.
- F. Available Photography: NHAP (CIR-1:58,000)
- G. Collateral Data:
 - 1. USGS topographic maps
 - 2. USDA-SCS Soil Surveys of Fremont, Page, Mills
 - 3. USGS Water Resources Data for Iowa and Missouri

II. Overview

The Nebraska City NW 1:100,000 quadrangle is located within 40°30' to 41°00' N latitude and 95°00' to 96°00' W longitude. The map is located mostly in Southwestern Iowa with the remaining six miles of the southern part of the quad located in Northwest Missouri. Iowa counties located on this map include Mills, Montgomery, Fremont and Page, and Missouri Counties include Atchison and Nodaway. The Missouri River runs the entire width of the quad located mostly in the seventh strip. West of the Missouri River is the state of Nebraska which is not included in this report. Two ecoregions characterize this quad. According to Bailey (1980) in his "Descriptions of the Ecoregions of the United States," the Missouri River floodplain is described as Bluestem Prairie (2531) while the upland watershed is described as Oak-Hickory-Bluestem Parkland (2511).

The Missouri River floodplain is typically flat with elevations ranging from 900 feet located in the southern portion of the floodplain to 955 feet located in the northern portion. The highest elevation is located in the rolling uplands with an elevation of 1,280 feet near Stanton, Iowa. One other distinct topographic area present on this quad is the steep bluffs along the Missouri River bottomlands.

Climate is characterized by cold winters and hot summers with temperature extremes ranging from -22° to 107°F. The average temperature ranges from 35°F during the winter to 88°F during the summer. The total

annual precipitation averages about 32 inches in which 70 percent falls during the growing season, April through September.

The floodplain soils are well suited for cultivated crops and are planted with corn and soybeans. Many wetlands in this area have been drained for use of these crops. Hay and pasture, along with corn and soybeans, are common farming practices on the rolling uplands. Beef cattle and hogs are the principal livestock.

The major drainages flowing into the Missouri River are the Nishnabotna River, the West Nishnabotna River, and the East Nishnabotna River. The Tarkio River, West Tarkio River and West Nodaway River are other major rivers which eventually flow into the Missouri River, but not on this map. Water resources data will be used when classifying the water regime of these rivers. Several smaller streams flow into the Missouri River and its tributaries.

III. Biological Characteristics of Wetland Habitats

- A. Marine: Not present.
- B. Estuarine: Not present.
- C. Lacustrine:

The Lacustrine system is not well represented on the Nebraska City NW. Most lakes are a result of being impounded and will be classified as L1UBHh. Other artificial lakes have been created from road construction borrow pits down in the bottom lands. Borrow pits seen on this trip were classified as L2ABGx with L2USC_x, and L1UBH_x. The only natural lacustrine wetlands are cut off oxbows as a result of river channelization. One example is Forney's Lake State Game Management Area near Thurman which will be classified as L2UBG on the open water and L2EM2G on the non-persistent vegetation (*Sagittaria* spp.) along with a semipermanent palustrine border. Any excavated lacustrine sewage ponds will be classified as L1UBK_x.

D. Riverine:

The Missouri River will be classified as R2UBH. Many perennial rivers flow into the Missouri River and will be classified as R2UBH or R2UBG with the use of Water Resources Data of Iowa and Missouri as collateral data. Many of these rivers have been channelized. In such cases, the x modifier will be used.

Smaller intermittent streams will be classified as R4SBF unless the stream is dominated by persistent vegetation in which it would then be classified as palustrine. The x modifier will be used on channelized streams.

Perennial and intermittent streams will coincide strongly with the topographic maps. Some R2UBG streams may appear dry on the photography, which is possible within the intermittently exposed (G) water regime definition and the dry conditions presented on the

photography and in the field.

E. Palustrine:

Many temporary and seasonal palustrine wetlands have been extensively drained within the Missouri River floodplain. These areas have been put into crops of corn and soybeans.

Emergent temporary and seasonal wetlands were difficult to find both on the 1982 April photography and during field verification because of extreme dry field conditions. Corn and soybeans planted in these wetlands showed little or no stress. It is believed that the 1982 April photography may show dryer conditions than the already dry field conditions during the field trip. Some wetlands seen in the field were not present on the photo. For example, one seasonal wetland seen in the field showed no signature on the photo.

Palustrine emergent temporary wetlands (PEMA) usually exhibited a light grey to a white washed out photosignature. Sometimes this signature was found to be upland in the field. Hopefully, this problem can be resolved under the stereoscope and using topographic maps and soil surveys. Palustrine emergent seasonal wetlands (PEMC) often exhibited a darker photosignature than temporary wetlands. Sometimes seasonals expressed a lighter signature resembling temporary, but these basins usually were more distinguished. The d modifier will be used on wetlands being drained.

Other palustrine wetlands within the bottom lands consisted of forested and scrub-shrub. These wetlands were often seen along the Missouri River and its tributaries and within oxbows which have been cut off from channelization. Classification will consist of PFO1A, PFO1C, PSS1A, PSS1C, or a mixture of trees and shrubs. Wet trees and shrubs found in ditches, borrow pits, etc. will have the x modifier added to its classification.

Some unconsolidated bottom wetlands were seen on this quad, many of which were natural oxbows and others which were excavated. Similar situations occurred with semipermanent emergent wetlands. These wetlands will be classified as PUBG, PUBF, and PEMF using the x modifier when appropriate. The aquatic bed class will only be used on wetlands sighted in the field as such.

Many impounded wetlands were seen in the upland watershed. Most of these wetlands will be classified as PUBGh and PUBFh, although several impoundments also had emergents, shrubs, and trees ranging from temporarily to semipermanently flooded.

Numerous temporary and seasonal wetlands are present on the river floodplains in the uplands. Many of these are oxbows and are being drained.

Numerous forested and occasional scrub-shrub and emergent linears

will be pulled as temporary or seasonal wetlands. Saturated areas were seen along hillsides and exhibited a reddish and sometimes a mottled white signature. Saturated areas were commonly found below impoundments caused from seepage. Emergent saturated wetlands will be classified as PFMB.

The Riverton State Game Management Area contains many wetlands that are affected by flood-control gates and pumping. The K water regime along with the normal water regime will be used in classifying the area affected by this pumping. Hunting clubs, which farm an area, flood it in fall for hunting, and then drain it after the hunting season is finished, will be classified using just the K water regime. Also, sewage ponds will be classified using just the K water regime.

Plants commonly associated with palustrine wetlands and their water regime:

Temporary

Boxelder	<u>Acer negundo</u>
Silver maple	<u>Acer saccharinum</u>
Green ash	<u>Fraxinus pennsylvanica</u>
American elm	<u>Ulmus americana</u>
Spike rushes	<u>Eleocharis</u> spp.
Ragweed	<u>Ambrosia</u> spp.
Mulberry	<u>Morus</u> spp.
Shagbark hickory	<u>Carya ovata</u>
Sycamore	<u>Platanus occidentalis</u>
Sedges	<u>Carex</u> spp.
Dock	<u>Rumex</u> spp.
Nettle	<u>Stachys</u> spp.
Rushes	<u>Juncus</u> spp.
Horsetail	<u>Equisetum fluviatile</u>
Willow	<u>Salix</u> spp.

Saturated

Reeds	<u>Phragmites</u> spp.
Sedges	<u>Carex</u> spp.
Cattail	<u>Typha</u> spp.
Willow	<u>Salix</u> spp.
Boneset	<u>Eupatorium perfoliatum</u>
Bulrushes	<u>Scirpus</u> spp.

Seasonal

Smartweed	<u>Polygonum</u> spp.
Sedges	<u>Carex</u> spp.
Reed canary grass	<u>Phalaris arundinacea</u>
Sycamore	<u>Platanus occidentalis</u>
Willow	<u>Salix</u> spp.
Silver maple	<u>Acer saccharinum</u>
Mulberry	<u>Morus</u> spp.

Box elder	<u>Acer nequundo</u>
Rushes	<u>Juncus</u> spp.
Cattail	<u>Typha</u> spp.
Bulrushes	<u>Scirpus</u> spp.

Semi-permanent

Cattail	<u>Typha</u> spp.
Bulrush	<u>Scirpus</u> spp.
	<u>Algae</u> spp.
Duckweed	<u>Lemna</u> spp.

Intermittently Exposed

	<u>Algae</u> spp.
Duckweed	<u>Lemna</u> spp.
Pondweed	<u>Potamogeton</u> spp.
Coontail	<u>Ceratophyllum demersum</u>

IV. Imagery, Preliminary Delineations (Expected Types), Field Checking

A. Considerations of Imagery

1. Quality

The photography appeared to be of acceptable quality in terms of emulsion and clarity.

2. Season of photography

One-hundred percent of the imagery was photographed during the spring. Two dates of photography are available, 17 April 1982 and 23 April 1982. Since these two dates of photography were taken close together, little change in water condition has occurred between the two dates of photography.

3. Climatic conditions at time of photography

The climatic conditions at the time of this photography was one of drought (from 1978-1983). Use of collateral data (i.e. soil surveys and topographic maps) will be used extensively during photointerpretation. Climatic conditions at the time of field checking were also dry, resembling the field conditions on the photography.

B. Expectations versus ground verification

Field conditions were extremely dry both during the date of photography and the date of field verification. The photography showed dryer conditions than the field conditions. There were some problems with finding wetlands in the field which exhibited a signature on the photo. It is highly possible that because of the dry conditions during the time of photography and during the time of field checking, legitimate wetlands present during normal

water conditions were missed in the field and could be missed during photointerpretation. Wetlands which have the highest chance of being missed both during the field verification trip and during photointerpretation are FEMA's and C's in the floodplains. Some seasonal wetlands may be misclassified as temporaries.

V. Solutions to problems

Photointerpreting wetlands on the 1982 photography will involve delineating wetlands aggressively, particularly in the floodplains. Some photosignatures in the Missouri River floodplain which proved temporary in the field resembled closely other photosignatures found to be upland. Interpretation will rely heavily on studying these photosignatures of different field checks and collateral data such as soil surveys and topographic maps.

Replacement photography with more normal water conditions will be looked into. If other photography is available, photosignatures will be compared to field verification. If there are no major conflicts, another field verification trip will not be needed.

VI. Summary

The photography is clear and precise in imagery, but the dry field conditions during the time of photography may inhibit photointerpretation of some wetlands which would be present during normal water conditions. Other photography will be looked into. If other photography is not available, pulling wetlands will be aggressive relying heavily on collateral data.