0505 Becky

F I E L D S U M M A R Y R E P O R T

1:100,000: NEW ROCKFORD SW

Sept. 16,1979 to Sept. 30, 1979

QUADS (7.5') with check sites:

Horsehead Lake	Pearl Lake
Goldwin	Sykeston SE
Goldwin SE	Sykeston
Goldwin SW	Vashti
Melville	Hurdsfield NE
Woodworth	Hurdsfield SE
Carrington East	Bowden SW
Carrington West	
Carrington SW	
Robinson	

PERSONNEL: L. Vinzant - Martel Labs
I. Kenenski " "
K. Patterson " "
C. Elliott - USFWS

PHOTOGRAPHY: 1:65,000 Color infra-red taken May 16,1979

COLLATORAL DATA: USGS 1:24,000 Topographic maps

Stewart and Kantrud, 1971. "Classification of Natural Ponds and Lakes in the Glaciated Prairie Region".

Eisenlohr,et.al.1972. Hydrologic Investigations of Prairie Potholes in No. Dakota, 1959-1968.
SCS Soil Survey of Wells County, North Dakota

OVERVIEW

The new Rockford SW quadrangle lies in the north-central area of North Dakota. The southwestern two-thirds of this area is locally referred to as the Coteau du Missouri. This area is of glacial drift origin with little or no integrated drainage systems and, subsequently, virtually absent of permanent streams. Although this area receives only 17-18 inches of annual precipitation, spring melt water and isolated depressions that intercept the water table result in many "pothole" wetlands. Bailey categorizes this area:

Domain: Dry

Division: Semi-arid Steppe

Province: Great Plains-Short Grass Steppe

Section: Wheatgrass - Needlegrass

Physical Division: Interior

Subdivision: Western North-Central Lake Swamp Moraine Plains

Land Surface Form: Irregular Plains

Slope: 50-80% gently sloping

Relief: 100-300 feet

Profile: 50-75% of gentle slope in lowland

The northeastern third of this area is of similar origin as the southwestern two-thirds, however it is much more level and harbors the few integrated drainage systems (i.e. Pipestem River and tributaries)that exist in this locale. Bailley categorizes this portion of New Rockford SW as:

Domain: Humid Temperate

Division: Subhumid Prairie

Province: Tall Grass Prairie

Section: Wheatgrass-Bluestem-Needlegrass

Physical Division: Interior

Subdivision: Dakota-Minnesota Drift and Lake-bed Flats

Land Surface Form: Flat Plains

Biological Characteristics of Wetland Habitants

Marine: Not present

Estuarine: Not present

Riverine: Only one major natural drainage system, the Pipestem River and its associated tributaries, is present in this area. This river was found to be quite entrenched with commonly a 2-5 feet elevation to the first terrace; however, it does overflow with much of the flood plain temporarily inundated. In the deeper portions of the

channels, Typha spp. often invade after natural drawdown; therefore, few continuous riverine systems will be delineated. When delineated, the most common classification will be R40WF. Other natural streams that can be delineated will usually be classified as R4SBC. Due to annotation congestion, only very prominant drainage ditches will be delineated with most of these being classified R4SBCx or R40WEx.

Lacustrine: Many natural open water bodies larger than 20 acres exist in this area; however, very few are of a permanent nature with size being a major determinent in the permanence of water. Only Barnes Lake will be classified as a limnetic, permanent water body (L1OWH) since it was one of the few water bodies in North Dakota that retained water during the severe drought of the 1930's. Most other lakes will be indicated as either littoral, intermittently exposed (L20WG) or littoral, semi-permanently flooded (L2OWF).

The natural drawdown exposes considerable areas of lacustrine flats (L2FLC), often of an alkaline nature. Several of these were observed in the field; however, due to the early spring photography exhibiting highwater conditions, very few (if any) of these will be delineated.

PALUSTRINE: the vast majority of the wetlands in New Rockford SW will be classified as palustrine. Most of these wetlands support emergent vegetation with very few shrub,

forested, or open water wetlands present. Much of the wetland is tilled when possible, with major crops being wheat, flax and sunflowers. Areas that cannot be spring planted usually are hayed later in the season.

Semi-permanently flooded areas are dominated by Scirpus acutus and/or Typha spp. with Typha spp. being more widespread. Secondary species observed in these conditions include Scirpus paludosus (alkaline conditions) and Phragmites communis (fen areas).

Several species appeared to overlap semi-permanently to seasonally flooded conditions with Sparganium eurycarpum and Scirpus fluviatilis being examples.

Most emergent wetlands reflected seasonally flooded conditions with Carex atherodes, Spartina pectinata, Scolochloa festucacea and Eleocharis spp. often occurring monotypically. Other well represented species include:

Scirpus americanus

Eleocharis palustris

Calamagrostis canadensis

Rumex spp.

Alisma spp.

Phalaris arundinacea

Spartina spp.

Polygonum spp.

Echinocloa crusgalli

Agropyron repens

Distichlis stricta (alkaline conditions)

Suaeda depressa (alkaline conditions)

Secondary species include:

Hordeum jubatum

Aster spp.

Solidago sp.

Agropyron smithii

Juncus spp.

Phragmites communis

Equisetum sp.

Sonchus arvensis

Sium suave

Puccinella nuttalliana (alkaline conditions)

Many of these also are found in tilled areas; however, other species (i.e. Bechmannia syzigachne)often are more characteristic in these disturbed areas.

Temporarily flooded areas often are dominated by Hordeum jubatum or Spartina spp. Numerous other species are found and include:

Aster spp.

Calamagrostis inexpansa

Stachys palustris

Sonchus arvensis

Rosa arkansana (shrub)

Distichlis stricta (alkaline conditions)

Artemisia ludoviciana

Agropyron spp.

Muhlenbergia glomerata

Panicum virgatum

Carex spp.

Lactuca scariola

Helianthus rydbergi

Cirsium arvense

Polyganum spp.

Anemone canadensis

Bidens frondosa

For a more complete and detailed discussion of vegetation of the prairie pothole region, Stewart and Kantrud (1971) is recommended.

IMAGERY, PRELIMINERY DELINEATIONS & FIELD CHECKING

The photography utilized for this mapping project is of excellent quality and resolution, with the larger scale ameliorable to identification of wetlands considerably less than one acre. Congestion may become a problem due to this identification ability; however, to date, no areas have been found that all wetlands cannot be labelled.

Tones in the photography are somewhat monochromatic with various shades of blue being predominant; however, this is to be expected due to the lack of floral diversity and the intensive agriculture.

The season and climatic conditions create some problems in cover typing due to a wetter than normal spring and the fact that much of the land is devoid of vegetation. Some minor problems have been encountered with remnant snow. Most of this occurs in shaded drains and shelter-belts.

Most problems in mapping involve cover typing. Innundation obscurring vegetation, fall plowing, haying, burning, ditching, and grazing, all contribute to a lack of vegetational signatures at the time of photography. These make accurate cover typing of water regimes and farmed wetlands extremly difficult. Preliminary investigations indicate that farmed wetland cover typing probably is the more serious problem. This is further complicated by many wetlands being plowed in the fall of 1978, but not planted in the spring of 1979, or not plowed or planted in the spring of 1979, but fall plowed in the fall of 1979.

Other minor problems involve:

1. Confusion of very small basins with low shrub growth (buck-brush)
2. A white emergent signature that can represent either temporarily or seasonally flooded habitat.
3. Inability to discriminate low scattered shrub growth (Rosa sp)
4. Numerous ditches

SOLUTIONS TO PROBLEMS

Most basin wetland-upland boundaries are quite straightforward and little trouble should be encountered in their identification and delineation. Flood plain wetlands, however; are less definite. Photographic evidence, field investigations and a conversation with a local farmer revealed a very large flow of water in these flood plain areas. Subsequently, extensive delineation with a temporary water regime appears to be acceptable. Farmed wetlands can only be cover typed as such when photographic evidence, such as plow furrows, can be identified on the photography. This undoubtedly will lead to conservative delineations of farmed wetlands. The second major problem involving water regimes is being handled with a conventional approach.

These conventions include:

1. Using the open water cover type only where no vegetation is observed in the photography and USGS indicates perennial water. Depending on size, these will be cover typed POWF, L20WF, L20WG, or LI0WH (Barnes Lake).

2. Using the PEMF cover type only where the characteristic signature of Typha spp. or Scirpus spp is exhibited. This probably will underestimate the number of semi-permanently flooded wetlands.

3. Using the PEMC cover type on most other wetlands, except where a temporarily flooded condition is evident, even though open water is exhibited on the photography, comparisons with studies done at Northern Prairie Wildlife Research Center revealed excessive seasonal wetlands usually at the expense of temporary wetlands.

Solutions to the three minor problems indicated under "Imagery, Delineations and Field Checking" are:

1. Delineating only those small basins that exhibit flooded conditions and well defined wetland-upland boundaries while avoiding any questionable ones. This may result in omission of some small basins, however, this probably is more acceptable than inclusion of many small upland shrub areas.
2. Using a conservative water regime (A) on most of the emergents exhibiting a uniform white signature unless other information (i.e. proximity to a semi-permanently flooded wetland) indicates a seasonal condition.
3. Indicating shrub growth only where field investigations or photographic evidence justifies this cover type. Many of the flood plain areas where Rosa sp. occurs, although not as a sole dominant, may be classified only as emergent vegetation.
4. Only delineating very large ditches; however, utilizing the "d" modifier on affected wetlands.

SUMMARY --

The photography is of excellent quality with the wet conditions resulting in very accurate wetland-upland demarcations. Very few wetlands probably will be overlooked. The most serious problems are accurate cover typing of water regimes and farmed wetlands.