South Dakota Wetland Inventory
U.S. Fish and Wildlife Service
1:100,000 Map Narrative Report
Sioux Falls NE

Map Preparation

Contractor for this wetland inventory was the South Dakota Cooperative Fish and Wildlife Research Unit, P.O. Box 2206, South Dakota State University, Brookings, South Dakota 57007. Photointerpreters were Howard Browers, Kris Sletten, and Peggy Year. Preparation of this narrative report was completed by Howard Browers and Kris Sletten. Regional Wetland Coordinator was Charles Elliot, U.S. Fish and Wildlife Service, Denver Federal Center, P.O. Box 25486, Denver, Colorado 80225.

Wetland delineation and classification for Sioux Falls NE 1:100,000 quadrangle was done on 1:65,000 color infrared aerial photographs taken 15 May 1983. Photography covered 99% of the quadrangle. Classification of wetlands was done according to Cowardin et al. (1979). National wetland mapping conventions were also used to assist in photointerpretation. Field checking for the quadrangle was done 7 and 21 May and 6 June 1985.

Special Mapping Problems

One of the main mapping problems was that of variable temporary signatures. Many exhibited a non-basinlike light gray signature in an area of avoidance. On previous maps, this signature probably would not be delineated as wetland. On this map, however, because of avoidance by the farmer and field verification that these areas were wet, the signature will be delineated as temporary. In many cases, only the darker central portion was delineated. Collateral data and land use patterns helped to determine the borders of these wetlands.

We found that some wetlands exhibited temporary signatures on the photos but were actually seasonal wetlands. Land use was used extensively to locate these wetlands. If the area had been avoided by the farmer, it was called a seasonal. If it had been plowed through, it was called a temporary.

Some parts of the area mapped have been quite heavily drained, causing a few problems in mapping. In these areas, it was sometimes difficult to distinguish between drained temporaries and historic wetlands. It was also difficult to distinguish between natural waterways and ditched waterways. Many waterways exhibited a red signature due to lateness of photography. Only those that had a water signature and were part of a natural drainage system were included as wetland.

Semipermanents also posed a problem in that good rainfall in years previous to the taking of the photography drowned out the cattail and the wetlands appeared as open water on the photos. Other clues were used to classify semipermanent wetlands with open-water signatures, such as any evidence of cattail clumping as well as information on topographic maps.

Some linear systems had purple signatures surrounding them and it was difficult to determine if these areas should be delineated as temporary. The signatures varied from a dark purple with a grainy texture to a reddish purple to a light purple. It was determined through field verification and soil surveys that the dark purple and only some of the reddish purple should be considered temporary. The light purple was determined to be upland.

WETLANDS

Lacustrine System

The lacustrine system was most commonly represented by the classification L2ABG. The classification L2ABF and L1UBG were used occasionally. Each of these lacustrine basins was generally characterized by an open water signature in a large, deep basin. Semipermanent vegetation often bordered these basins. In addition, these basins often had names and were characterized by permanent water on U.S.G.S. topographic maps.

Impoundments were classified as L2ABGh or L1UBGh. Depth data used to differentiate between L2 and L1 zones was found in Koth (1981).

Riverine System

The most common classification of riverine basins was R4SBF. These were represented by open water in well-defined channels on the photography and often by permanent water on U.S.G.S. topographic maps. Where water flow was sufficient according to Water Resources Data for South Dakota, Water Year 1980, an R2UBG classification was used. Unconsolidated shores were classified R2USC or R2USA. Excavated channels were classified R4SBFx or R2UBGx.

Palustrine System

There were several different palustrine emergent temporary (PEMA) signatures encountered on the Sioux Falls 1:250,000. The most common was dark gray in a well-defined basin; these were often in plowed fields. In the case of large non-basin temporary-like signatures, only the darker spots were delineated as temporary. Other temporary signatures included reddish-gray

and purple-gray; these were often adjacent to streams. Temporaries with open water signatures were delineated. Some temporaries exhibited blue and white streaked signatures; these were often drained basins.

Palustrine emergent seasonal basins (PEMC) exhibited several different photosignatures. The most common was a dark-blue, open-water signature. Some basins exhibited a smooth, even-textured, white, vegetative signature. Other signatures included red, grayish-red, or white. The absence of cultivation in a basin was often used as a clue in classifying seasonal basins.

Palustrine emergent semipermanent basins (PEMF) were clumped and rough-textured with a white to gray color. The vegetation was either within a blue, open-water signature or tightly packed in a basin with little or no discernible water. Basins that were mixed emergent and open water were classified PEM/ABF or PAB/EMF. Palustrine aquatic bed wetlands (PABF) were blue, open water areas less than 8 ha; this classification was used on basins with little clumping but collateral data indicated that they were semipermanent. The PABF classification was often used on oxbow lakes adjacent to rivers and streams.

Palustrine forested temporary (PFOA) wetlands were identified by a dark gray signature beneath trees. These were often located on the perimeter of emergent seasonal and emergent semipermanent basins. Seasonal forested (PFOC) wetlands exhibited dark blue or open water signatures beneath trees. Emergent and forested classes were mixed where appropriate. Scrub-shrub wetlands (PSSA, PSSC) were more rough-textured gray or blue signatures.

Road ditches with a light blue water signature were classified as PEMAx while those with darker water signatures were PEMCx. Forested or scrub-shrub ditches were also identified (PFOCx, PFOAx, PSSCx, PSSAx). Dugouts and sewage lagoons were classified as PABFx or PABGx. Gravel pits were classified as PUBFx or PUBGx or if they were vegetated PFOCx, PFO/EMCx, or PEM/FOCx. Impoundments were classified PABGx, PABFx, PAB/EMFx, PEMCh, PEMAh depending on the strength of the water signature, presence of vegetation, depth, and size for each impoundment.

Vegetation commonly found in emergent temporaries (PEMA) included bluegrass (Poa palustris), docks (Rumex spp.), and various sedges (Carex spp.) and rushes (Juncus spp.). Emergent seasonal basins (PEMC) commonly contained smartweeds (Polygonum spp.), spikerushes (Eleocharis spp.), and reed canary grass (Phalaris arundinaca). Typical vegetation found in emergent semipermanents (PEMF) basins included cattail (Typha spp.) and various bulrushes (Scirpus spp.). Aquatic bed semipermanent basins often contained duckweed (Lemna minor), pond weed (Potamogeton spp.), and various species of Ranunculus. Willows (Salix spp.) and cottonwood (Populus deltoides) were typical of palustrine forested (PFOC, PFOA) and scrub-shrub (PSSC, PSSA) wetlands. More detailed descriptions of wetland vegetation in the Dakota are provided in Stewart and Kantrud (1971, 1972), Fulton (1979), and Larson (1979).

Sioux Falls NE

The Sioux Falls NE contained photos with relatively high density of basins on the west half and drier photos dominated by linear wetlands on the east half. There has been quite a bit of wetland drainage in this area also. Consequently, emergent temporary and seasonal photosignatures were quite variable as already discussed. Some unusual classifications were used on several drained impoundments (PEMAdh, PEMCdh).

The Big Sioux River was classified as R4SBF above Dell Rapids, SD. Below the gauging station at Dell Rapids the classification was changed to R2UBG based on flow information from that station. The Big Sioux diversion channel in Sioux Falls was classified as R2UBGx. The falls of the Big Sioux River was classifed as R3UBG.

There was quite a bit of flooding along Skunk Creek, enough so that it was difficult to pick out the channel. Topographic maps had to be used to delineate the channel. The flooded areas surrounding the creek were classified as temporary. If oxbows could be seen through the floodwaters, they were classified as seasonal or semipermanent.

The lacustrine system was not well represented on the Sioux Falls NE. Most common was the L2ABG. The classification L1UBG was used on Lake Madison and Lake Brant in Lake County and Wall Lake in Minnehaha County.

References

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