NATIONAL WETLANDS INVENTORY

NOTES TO USERS

SOUTHWESTERN KANSAS

1:100,000 SCALE MAP

DODGE CITY NW

NATIONAL WETLANDS INVENTORY
1:100,000 MAP NARRATIVE

DODGE CITY NW

INTRODUCTION

The U.S. Fisn and Wildlife Service, Division of Habitat Resources is conducting an inventory of the wetlands of the United States. The National Wetlands Inventory (NWI) is establishing a wetland data base in botn map and computer forms for the entire country. Tne NWI information will serve to identify the current status of U.S. wetlands and can be used as a reference point from which future changes in wetlands can be evaluated.

PURPOSE

The purpose of Notes to Users is to provide general information regarding the production of NWI maps and wetlands found within the same physiographic area. Notes to Users are not intended to include a complete description of all wetlands found in the area nor provide complete plant species information.

MAP PRODUCTION

The wetland classifications that appear on these National Wetland Inventory Base Maps are in accordance with Cowardin, et. al. (1977). The delineations were produced through stereoscopic interpretation of 1:58,000 scale color infrared photographs taken on various dates from June to November of 1985. These delineations were enlarged using a zoom transfer scope to overlays of 1:24,000 scale.

Limited initial field checking and ground truthing was conducted in June, 1986 to determine the general biologic and hydrologic systems of the area, and the degree of accuracy that could be portrayed by tne condition and date of photography relative to those observed at that time.

The user of the map is cautioned that, due to the limitations of mapping primarily through aerial photointerpretation, a small percentage of wetlands may have gone unidentified. Changes in landscape could have occurred since the time of photography; therefore, some discrepancies between map and current field conditons may exist. Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any federal, state, or local government or to establish the geographical scope of regulatory programs of government agencies. Persons intending to engage in activities involving modifications witnin or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specific

agency regulatory programs and proprietary jurisdictions that may affect such activities. Any discrepancies encountered in the use of the maps should be brought to the attention of Regional Wetlands Coordinator; U.S. Fish and Wildlife Service, Region 6, P.O. Box 24586, Denver, Colorado, 80225. Aerial photointerpretation was completed by Martel Laboratories, Inc., St. Petersburg, Florida.

GEOGRAPHY

The area covered by this report is between 101° and 102° W longitude and 37°30' and 38°N latitude, roughly southwestern Kansas. Bailey's Ecoregion Classification (1980) identifies this area as Dry Domain, Steppe Division, Great Plains Shortgrass Prairie Province, Gramma-Buffalograss Section (3113).

This area is characterized by rolling plains and tablelands. The plains are flat with occasional valleys formed by disecting streams. Here the evaporation exceeds precipitation and the area is considered to be a dry climate. The native vegetation of the area was primarily short grasses, typically buffalograss and many species of brome. Currently however, the majority of the land is planted in winter wheat. Woody vegetation is restricted to the floodplains.

CLIMATE

This area has the dry air and the marked changes in temperature typical of a well-defined continental climate. Average annual rainfall is between 16-20 inches decreasing westward and over 75% falls from April to September. Rainfall is described as scant and haphazard with heavy isolated thunderstorms. The best chance of receiving rainfall is in the first two weeks of June followed by the first week of August. Extremes in temperature are in a range approximately 110°F to -20°F.

WETLAND COMMUNITIES

Marine: Not Present

Estuarine: Not Present

Riverine

The major drainage system in Dodge City NW is the Arkansas River. Historically, this river provided permanent year round-flow recharged by rainfall and snowmelt from the Rocky Mountains. But, in recent years, expanded use of pivot irrigation has caused the Ogallala aquifer to be depleted 10 to 14 times faster than it can be recharged (Wolfe, 1986). Upstream impoundments and water

diversions in Colorado withdraw flow otherwise sent downstream. Consequently, the reduction in surface flow and drastic drop in the groundwater table has reduced this river to an intermittent stream. As the Arkansas continues its course eastward and is fed by tributaries, the flow increases and can last into or through the summer months (R4SBC). Localized conditions such as irrigation usage, rainfall amounts, impoundments, and beaver activity have a direct and very pronounced impact on the amount of water present in the river.

Bear Creek, North Bear Creek, Little Bear Creek, and other smaller rivers, streams, and creeks of this area have also been characterized by marked reduction in stream flow. Except for rare instances where a stream is still fed by an active spring or purposely fed, all have been reduced to intermittent status (R4SBC, R4SBA). The life of the flow is again dependent on local activity, water usage, and manipulations. Commonly, smaller streams will be impounded or diverted into irrigation ditches (R4SBCx-R4SBAx) to be used for crop or livestock watering. When possible, the streambed will be filled and plowed to increase agricultural efficiency and productivity. As a result, drainage-ways are interrrupted, segmented, or lost entirely.

In conclusion, the overall effect of the present agricultural practices in this part of Kansas has been a dramatic reduction in the groundwater and surface recharge of the riverine systems. Few permanent perennial rivers still exist or are confined to small segments. Small intermittent creeks have been disrupted or lost to crop land. Additionally, the reduced flow has allowed for the establishment of plant communities, both woody and herbaceous, which changed some of the characteristics of the riverine environment.

Palustrine

Woody riparian communities have become established along the Arkansas River because of the reduced stream flows, where historically they did not exist. Large forested and shrub stands of eastern cottonwood (Populus deltoides), willows (Salix spp) and salt cedar (Tamarix gallica) are common along the present floodplains and upper terraces of the Arkansas river. However, because of the drastic drop in the water levels over the last 15 years, the upper terraces are no longer flooded on a yearly basis. Dead or dying cottonwood is a common sight on the upper terraces as the water table continues to drop below their root zone.

As a result, only those woody plants directly in or adjacent to the river beds are flooded on a yearly basis and considered wetland by the NWI classification (PSSA, PFOA). These wetlands are predominantly the shrub communities of the dominant cottonwood, willow, and salt cedar, joined by the less common species of Russian olive (Elaeagnus augustifolia), indigo bush (Amorph fruticosa), seep willow (Baccharis sp), and rough leaf dogwood (Cornus drummondii), as water conditions permit (PSSA, PSSC).

Wetland emergent species have also established themselves in and along this major river. Cattail (Typha latifolia), hardstem bullrush (Scirpus acutus), and arrowhead (Saggitarria sp) can become established upstream or in impounded sections of the rivers. The hardstem bullrush community is joined by other species of three square (Scirpus sp), water parsnip (Sium sp), horsetail (Equisetum sp), spikerushes (Eleocharis spp), and sedges (Carex spp, Cyperus sp) in drier sections (PEMC). Foxtail barley (Hordeum jubatum), goldenrod (Solidago sp), dock (Rumex sp), lambsquarter (Chenopodium album), and smartweed (Polygonum sp), are the dominant species found on the river flats and as the understory in the willow-saltcedar-cottonwood wetland associations (PEMA, PSS/EMA).

The other smaller rivers and streams of the study area such as Bear Creek, Sand Creek, and Arroyo Creek also become vegetated by emergent wetland riparian communities. These emergent species are primarily foxtail barley, smartweed, and western wheatgrass (Agropyron smithii) that can adapt to the drier and more disturbed conditions (PEMA). The smaller creeks and un-named water courses are often reduced to pockets or disconnected linear segments of emergents bacause of the agricultural practices.

Playa wetlands comprise a major source of wildlife habitat in Southwestern Kansas. State officials estimate, however, that over 90% of the basins present at the turn of the century have been actively altered or completely drained. In addition, the severe depletion of groundwater sources has cut off the natural recharge. Less than 30% of the original basins are still hydrologically active.

As a result, the natural diversity and variability of the habitat has been lost. The vast majority of the basins observed during field reconnaissance had surface water lasting only brief periods, generally after heavy rains or early in the spring; only enough to delay tillage a few weeks (PEMA). Common species for these wetland basins include foxtail barley, little barley (Hordeum pusillium), frogbite (Phyla cuneifolia), burr ragweed (Ambrosia grayii), smartweed, and spikerushes. Saltgrass (Distichlis spicata) was the predominant indicator for saline environments.

Thousands of small (less than 20 acres) palustrine wetlands have been created through impoundments and excavations. The degree of flooding of these wetlands is a function of size and depth and the amount of surface drainage. Because of the nature of the water levels, drawdown and pioneering plants are the most effective invaders of the exposed flats of these small impoundments. Fireweed (Kochia sp), cocklbur (Xanthium strumarium), white clover (Melilotus albus), and common sunflower (Helianthus sp) are the most prevalent species. Therefore, because these plants are not considered hydrophytes these waterbodies will be classified as unconsolidated shore when seasonally or temporarily flooded (PUSCh, PUSAh). Semipermanently flooded impoundments, on the other hand, are considered to be stable enough to support aquatic bed species by the end of the growing season. Although not documentable during ground truthing, species such as duckweed and algae (Endomorpha sp) are expected in this situation (PABFh).

Palustrine wetlands associated with the shores and flats of larger impounded reservoirs (greater than 20 acres) such as Lake McKinney were found to be associated with more persistant hydrophytic wetland vegetation. The water supply lends itself to the establishment of species such as smartweed, dock, cattail, hardstem bullrush, three-square, and small cottonwood and willow saplings. The flat or shoreline are classified according to vegetated signature and water levels on the photography (PEMFh, PEMCh, PEMAh, PSSCh, PSSAh, PFOAh).

Pits and dugouts are considered to be unvegetated reardless of their size and permanence. The steep sides, rocky walls, and sterile bottoms offer little support to wetland plant growth. In addition, they are often poor in organic nutrients needed to support aquatic plant and animal life (PUBFx, PUSCx, PUSAx).

Lacustrine:

Lacustrine water bodies (greater than 20 acres) have been formed by adding impoundment structures to the larger streams and creeks, or through larger excavation operations along the rivers. Lake McKinney, located northeast of Lakin in Kearny County, was built for controlled irrigation use and is dry after the growing season in most years. This reservoir is half the size today than when originally constructed due to the decline of available water (L2ABFh).

SOILS

Soil is an important indicator of hydric conditions and is one of the basic criteria in the definition of wetland as defined by Cowardin et al. (1979). The Soil Conservation Service (SCS) has published soil surveys that cover the study area. These surveys provide collateral information which is important in understanding the general area including the specifics of land use.

Soils listed by the SCS as having hydric characteristics include Randall soil which was found to support basin related hydric vegetation. Lofton Series, although not on the 1985 SCS Hydric Soils List, was found to have wetland characteristics. This soil is found in upland depressions with surface runoff ponded long enough to delay planting and harvesting and sometimes even drowning crops.

Soil surveys used for this study area are from the following counties:

Finney	Haskell
Grant	Kearny
Hamilton	Stanton

PLANT LIST

(species listed as most commonly observed)

WOODY

PSSC

indigo bush (Amorpha fruticosa) (OBL)
rough leaf dogwood (Corus drummondii) (FAC)
seep willow (Baccharis salicina) (FAC)

PSSA

willow (Salix spp) (FAC-OBL)
salt cedar (Tamarix gallica) (FACW)
russian olive (Elaeagnus angustifolia) (FAC)

PFOA

eastern cottonwood (Populus deltoides) (FAC-DRA)
green asn (Fraxinus pennsylvanica) (FACW)

U

American elm (Ulmus americana) (FAC)
locust (Gleditsia sp) (FAC)
catalpa (Catalpa speciosa) (FACU)
hackberry (Celtis occidentalis) (FACU)
mulberry (Morus rubra) (FACU)
walnut (Juglans sp) (FACU)

HERBACEOUS

PABF

duckweed (Lemna minor) (OBL)
watermeal (Wolffia sp) (OBL)
algae (Endomorpha sp) (OBL)

PEMF

cattail (Typna latifolia) (OBL)
arrownead (Sagittaria sp) (OBL)
hardstem bullrush (Scirpus acutus) (OBL)

PEMB

three square (Scirpus americanus) (OBL)

PEMC

three square (Scirpus americanus) (OBL)
fox sedge (Carex vulpinoidea) (OBL)
water parsnip (Sium sp) (OBL)
sedge (Carex sp) (Cyperus sp) (FACW-OBL)
dock (Rumex sp) (FAC-OBL)
horsetail (Equisetum, sp) (FACW)

PEMA

needle spikerush (Eleocharis acicularus) (OBL)
smartweed (Polygonum spp) (FACU-OBL)
foxtail barley (Hordeum jubatum) (FACW)
saltgrass (Distichlis spicata) (FACW)
barnyard grass (Echinochola crusgalli) (FACW-DRA)
goldenrod (Solidago sp.) (FACU-FACW)
marsh elder (Iva sp) (FAC)
frogbite (Phyla cuneifolia) (FAC) (AKA: Lippia cuniata)
little barley (Hordeum pusillium) (FAC)
burr ragweed (Ambrosia grayii) (FAC)
yellow clover (Melilotus officinalis)(FACU-DRA)
lambsquarter (Chenopodium album)

U

snowy milkweed (Asclepias speciosa) (FAC)
fireweed (Kochia sp) (FACU)
cocklebur (Xanthium strumarium)
sand verbenia (Abronia fragrans)
japanese brome (Bromus japonicus) (FACU)
downy brome (Bromus tectorum)
buffalo grass (Buchloe dactyloides) (FACU)
western wheatgrass (Agropnron smitnii) (FAC-FACU)
bull thistle (Cirsium sp) (FACU)
common ragweed (Ambrosia artemsiifolia) (FACU-DRA)
pigweed (Amaranthus retroflexus) (FACU)
sand sage (Artemisia filifolia)
poison ivy (Rnus radicans)
Schenardus paniculatus
Festuca oxtifloria
Haplopappus ciliatus
common sunflower (Helianthus sp)
primrose (Oenothera grandous)
wild plum (Prunus americana)
bedstraw (Gallium sp)
prickly poppy (Argemone sp)
white clover (Melilotus albus)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
R4SB	Riverine - Intermittent Stream Bed	Creek, Stream, Canal	Unvegetated: Sand, mud, gravel Vegetated: Pioneering species (non-emergent)
PFO	Palustrine - Forested	River forest Riparian River/Creek bed	Vegetated: Eastern Cottonwood (Populus deltoides) Green Ash (Fraxinus pennsylvanica) Hackberry (Celtis occidentalis) American Elm (Ulmus americana)
PSS	Palustrine - Scrub shrub	River shrub, River banks	Willow (Salix spp) Salt Cedar (Tamarix galica) Russian Olive (Elaeagnus angustifolia)
PEM	Palustrine - Emergent	Marsh, Playa, Basin, Slowmoving or drying stream or river choked with emergents "wallows" "mudhole"	Three Square (Scirpus americanus) Smartweed (Polygonum spp) Foxtail Barley (Hordeum jubatum) Western Wheatgrass (Agropyron smithii) Spikerush (Eleocharis sp) Dock (Rumex sp) Water Parsnip (Sium sp) Cattail (Typha latifolia)
PAB	Palustrine Aquatic Bed	Pond, Impoundment, Slow moving or drying stream or river choked with aquatics, Beaver dam	Duckweed (Lemna sp) Watermeal (Wolffia sp) Algae (Endomorpha sp)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
PUB	Palustrine - Unconsolidated Bottom	Reuse pit, Gravel or sand pit	Unvegetated: Gravel mud, sand Vegetated: Pioneering species
PUS	Palustrine - Unconsolidated Shore	Impoundment Reuse pit	Unvegetated: Sand, mud, gravel Vegetated: Pioneering species
L2AB	Lacustrine - Littoral Aquatic Bed	Shallow lake Large impoundment	Unvegetated: Duckweed (Lemna sp) Watermeal (Wolffia sp) Algae (Endomorpha sp)
L2US	Lacustrine - Littoral Unconsolidated Shore	Lake Flats Drawdown	Unvegetated: Sand, mud, gravel Vegetated: Pioneering Species

COLLATERAL DATA

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SPECIAL INTERPRETATION CONSIDERATIONS

Many photo signatures expected to represent wetland communities, especially along streams and rivers, were determined to be upland through ground truthing. Only those found directly in or immediately adjacent to the stream bed were classified as temporary (PFOA, PSSA).

One area field checked on the Arkansas revealed seasonally flooded woody vegetation, which is not indicative of the area. June photography of the Arkansas shows the river at a high water stage, giving the flood plain a seasonal look. However, overlapping comparison of photography of different dates and information gathered in the field suggest a temporary classification of this area is more appropriate. Interpretation on these photos was conservative.

Temporary wetlands on July and September photography of Arkansas River were obscured due to river draw down and lateness in growing season. Again, collateral data was studied and interpretation was more aggresive on this photography.

Lake McKinney is used for controlled irrigation only and will be dry after growing season in most years. Therefore, it was delineated as semipermanent. Lake McKinney is usually no deeper than 6 feet and was interpreted as littoral. A white scoured signature around the lake is thought to be upland as it is outside pool elevation on topo and rather steep. The reservoir appears to be full at time of photography.

Wetland basin signatures not readily identifiable on the photography were discovered in the fields. These range from slight changes in soil tones to very distinct colors and textures. Soil surveys, topographic information, and photo overlap comparison were used to determine the best classification.