

**DRAFT**

**NATIONAL WETLANDS INVENTORY**

**NOTES TO USERS**

**SOUTHWESTERN KANSAS**

**1:100,000 SCALE MAPS**

**SCOTT CITY SE**

NATIONAL WETLANDS INVENTORY  
1:100,000 MAP NARRATIVE

SCOTT CITY SE

INTRODUCTION:

The U.S. Fish 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 both map and computer forms for the entire country. The 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 September of 1985.

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 the 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 conditions 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 within 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 study is between 100° and 101°W longitude and 38° and 38°30'N latitude, roughly southwestern Kansas. Bailey's Ecoregion Classification (1980) identifies this area as 2533 in the eastern half (Humid Temperature Domain, Prairie Division, Tall-Grass Prairie Province, Bluestem-Gramma Prairie Section) and 3113 in the western half (Dry Domain, Steppe Division, Great Plains Shortgrass Prairie Province, Gramma-Buffalograss Section).

The eastern tall-grass prairie is characterized by flat and rolling plains with relief of less than 300 ft. The dominant natural vegetation includes many species of tall and mid grasses such as western wheatgrass, blue gramma, buffalograss, western ragweed, foxtail barley, switchgrass and sandgrass. Prickly pear and sand sage are also common in drier areas. Woody vegetation is rare except on the cottonwood floodplains. Very little of the natural vegetation remains as over 90% of the area is farmed, primarily for winter wheat, soybeans, and corn.

The western half of the study area, the short-grass prairie, is characterized by rolling plains and tablelands. The plains are flat with occasional valleys formed by dissecting streams. 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

In the eastern portion of the map the average annual rainfall is 20-24 inches, occurring predominately from April to September. Evaporation and precipitation almost balance on a yearly basis and is therefore considered a subhumid climate. However, this area approaches a situation where evaporation rates exceed precipitation. Annual temperatures can range from highs over 110°F to lows of -20°F.

In the western portion of the map, the evaporation rate exceeds precipitation and the area is considered to be a dry climate. Average annual rainfall is between 16-20 inches decreasing westward. Over 75% falls from April to September. Rainfall is described as scant and haphazard with heavy isolated thunderstorms. The temperature range is similar to the eastern portion, 110°F to -20°F.

#### WETLAND COMMUNITIES

Marine: Not present

Estuarine: Not present

#### Riverine:

Buckner Creek, which is springfed, is located in the southeastern corner of the map and is the only permanent stream located in this map area (R2UBH). Numerous impoundments can be found along Buckner Creek which help maintain its permanence.

Other smaller streams and creeks such as Pawnee River, Hackberry Creek and South Fork Walnut Creek have been characterized by marked reduction in stream flow. 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). Because of this, many have been reduced to an intermittent status (R4SBC, R4SBA). The flow is 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, drainageways are interrupted, segmented, or lost entirely.

The overall effect of the present agricultural practices in this part of Kansas has resulted in a dramatic reduction in the groundwater and surface recharge of the riverine systems. Small intermittent creeks have been disrupted or lost entirely to cropland. Additionally, the reduced flow has allowed for the establishment of plant communities, both woody and herbaceous, completely changing the characteristic of the riverine environment.

#### Palustrine:

Woody riparian communities have become established because of the reduced stream flows, where historically they did not exist. Forested stands of eastern cottonwood (Populus deltoides) and willows (Salix spp), are common along the present floodplains. Locust (Gleditsia spp), hackberry (Celtis occidentalis), mulberry (Morus rubra), American elm (Ulmus americana), and green ash (Fraxinus pennsylvanica) are associated with the upper terraces. Only those woody plants directly in or adjacent to the river beds are flooded on a yearly basis and considered wetlands (PFOA). Shrub communities of the dominant cottonwood, willow, and salt

cedar (Tamarix gallica), joined by the less common species of Russian olive (Elaeagnus angustifolia), indigo bush (Amorpha fruticosa), seep willow (Baccharis spp), and rough leaf dogwood (Cornus drummondii), are also prevalent along the rivers, especially on the flats (PSSA, PSSC).

Wetland emergent species have also established themselves in and along these creeks and rivers. The type of emergent and aquatic bed communities is dependent upon the availability of water and the general size of the tributary. Cattail (Typha latifolia), hardstem bullrush (Scirpus acutus), and arrowhead (Sagittaria sp.) along with the aquatic bed species of duckweed (Lemna sp.) and watermeal (Wolffia sp.) are especially common in the more semi-permanently flooded or impounded sections (PEM/ABF; PEM/ABFh). Rivers and streams with seasonal waterflow are vegetated by species of three square (Scirpus sp.), water parsnip (Sium sp.), horsetail (Equisetum sp.), spikerushes (Eleocharis spp.), and sedges (Carex spp, and Cyperus spp.) (PEMC). Foxtail barley (Hordeum jubatum), goldenrod (Solidago sp.), dock (Rumex sp.), lambsquarter (Chenopodium album), and smartweed (Polygonum sp.) are dominant in some of the more temporarily flooded areas or drier creeks. The smaller creeks and un-named water courses are often reduced to pockets or disconnected linear segments of emergents because of the agricultural practices. These emergent species are primarily foxtail barley, smartweed, and western wheatgrass (Agropyron smithii) that can adapt to the drier and more disturbed conditions (PEMA).

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, much of the natural diversity and variability of the habitat has been lost. The vast majority of the basins in this region contain 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 (Hordium pusillum), frogbite (Phyla cuneifolia), burr ragweed (Ambrosia grayii), smartweed, and spikerushes. Saltgrass (Distichlis spicata) is the predominant indicator for saline environments found throughout this map area.

Although scarce and generally confined to the more temperate eastern region of this 1:100,000 map seasonally flooded basins support a more diverse community of emergents. In addition to the temporary species found along the periphery, these basins will also support a central zone of smartweed, spikerush, three square, sedges, dock, and in rare instances, cattail or hardstems bullrush.

Thousands of small (less than 20 acres) palustrine wetlands have been created by 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), cocklebur (Xanthium strumarium), white clover (Melilotus albus), and common sunflower (Helianthus sp) are the most prevalent species. Because these plants are considered pioneering, these waterbodies will be classified entirely 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 species by the end of the growing season. Species such as duckweed and algae (Endomorpha sp) are expected in this situation (PABFh).

Pits and dugouts are considered to be unvegetated regardless 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

Two notable natural lacustrine environment occurs in this region. One a large shallow basin known as Lake Corrigan covers approximately one hundred acres north of Garden City in Finney County. Due to its saline nature and the manipulation of water levels for irrigation, the large flat becomes exposed late in the summer and is void of hydrophytic vegetation (L2USC). Large expanses of saltgrass, foxtail barely, and other salt tolerant species grow along its edges (PEMA). To the east where water levels are more stable and less salty, hardstem bullrush has taken hold (PEMF, PEM/ABF). Dry Lake, another natural lacustrine shallow basin (L2USA, L2USC), is a large depression located in Scott County and covers about 430 acres. Water from an area of several square miles drains into Dry Lake (Scott County).

## SOILS

Soil is an important indicator of hydric conditions and is one of the basic criteria used 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 soil surveys provide important collateral information which is important in understanding the general area including the specifics of land use.

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

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

Finney	Lane	Scott
Hodgeman	Ness	

## 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 ash (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 (Wolfia sp.) (OBL) (Wolfia)  
algae (Endomorpha sp.) (OBL)

#### PEMF

cattail (Typha latifolia) (OBL)  
arrowhead (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 acicularis) (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 pusillum) (FAC)  
burr ragweed (Ambrosia grayii) (FAC)  
yellow clover (Melilotus officinalis) (FACU-DRA)  
lambsquarter (Chenopodium album)

U

showy 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 (Agrophron smithii) (FAC-FACU)  
bull thistle (Cirsium sp) (FACU)  
common ragweed (Ambrosia artemisiifolia) (FACU-DRA)  
pigweed (Amaranthus retroflexus) (FACU)  
sand sage (Artemisia filifolia)  
poison ivy (Rhus 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 organic Vegetated: Pioneering species (non-emergent)
PFO	Palustrine - Forested	River forest Riparian River/Creek beds	Vegetated: Eastern Cottonwood ( <u>Populus deltoides</u> ) Green Ash ( <u>Fraxinus</u> <u>pennsylvanica</u> ) Hackberry ( <u>Celtis</u> <u>occidentalis</u> ) American Elm ( <u>Ulmus Americana</u> )
PSS	Palustrine - Scrub shrub	River shrubs, River banks	Willow ( <u>Salix</u> spp.) Salt Cedar ( <u>Tamarix gallica</u> ) Russian Olive ( <u>Elaeagnus</u> <u>angustifolia</u> )
PEM	Palustrine - Emergent	Marsh, Playa, Basin, Slowmoving or drying stream or river choked with emergents "wallow" "mudhole"	Three Square ( <u>Scirpus americanus</u> ) Smartweed ( <u>Polygonum</u> spp.) Foxtail Barley ( <u>Hordeum jubatum</u> ) Western Wheatgrass ( <u>Agropyron smithii</u> ) Spikerush ( <u>Eleocharis</u> sp.) Dock ( <u>Rumex</u> sp.) Water Parsnip ( <u>Sium</u> sp.) Cattail ( <u>Typha latifolia</u> )
PAB	Palustrine Aquatic Bed	Pond, Impoundment, Slow moving or drying stream or river choked with aquatics, Beaver dam	Duckweed ( <u>Lemna</u> sp.) Watermeal ( <u>Wolffia</u> sp.) Algae ( <u>Endomorpha</u> sp.)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
PUB	Palustrine - Unconsolidated Bottom	Resuse pit, Gravel pit	Unvegetated: Gravel, mud, sand  Vegetated: Pioneering species
PUS	Palustrine - Unconsolidated Shore	Impoundment Resuse pit	Unvegetated: Sand, mud, gravel  Vegetated: Pioneering species
L1UB	Lacustrine - Limnetic Unconsolidated Bottom	Lake, Reservoir Excavated pit Sand and gravel pit	Unvegetated: Sand, mud, gravel
L2US	Lacustrine - Littoral Unconsolidated Shore	Lake flat Drawdown Shallow lake	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 in or adjacent to the stream bed were found to be wetland and generally flooded for only brief periods (PFOA, PSSA).

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. Signatures on September photography were irrigation enhanced, and were the most easily identifiable. June and July photography had weaker signatures. Soil surveys, topographic information, and photo overlap comparison were used to determine the best classification.