

Wetland Inventory and Functions

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Abstract: This inventory and analysis is intended to provide an overview of existing wetlands and historic wetlands. It was developed by using remote sensing techniques with field verification. It is not intended to be accurate on a site-specific (ownership) basis.

Introduction

Since the mid-1850's, wetlands in the Illinois River Watershed have been modified primarily in support for the mining, timber and agricultural industries. Minerals have been extracted, timber has been harvested, lands have been cleared and drained, and crops have been grown on wetland sites.

Wetlands occur naturally on the landscape in a variety of hydrologic conditions in a zone between the terrestrial (upland) and aquatic (deep-water) systems. Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Riverine and Slope wetlands are the most dominant types of wetlands occurring in the Illinois River Watershed.

Summary of Concerns

Since 1850, 47 percent of the wetlands in the Illinois River area have been converted to other uses. These altered and or converted wetlands have changed the hydrological functions in the Illinois River Watershed. Replacing lost wetland functions may be desirable to improve watershed health.

Scope and Objectives

Riverine wetlands consist of sites occurring in topographic valleys, such as floodplains and riparian corridors. They are always in association with channels of streams and rivers. These wetlands are sustained primarily by direct inflow of surface water, which may be permanent or seasonal. Some receive water directly from precipitation, overland flow from adjacent uplands, groundwater, but mostly from uni-directional channel flow.

Riverine sites lose surface water by flow returning to the channel after flooding and saturation flow to the channel during prolonged rain or snow melt. They lose subsurface water by evapotranspiration, surface or subsurface discharge to the channel, or movement to deeper groundwater.

Commonly recognized functions of Riverine wetlands in the Illinois River Watershed are:

- Short-term surface water storage
- Storage of water in subsurface sediments
- Moderation of groundwater flow or discharge
- Velocity reduction of water
- Cycling of nutrients
- Removal of nutrients, contaminants or other elements and compounds on a short-term or long-term basis through burial, incorporation into biomass, or biochemical reactions
- Retention of organic and inorganic particulate on a short-term or long-term basis through physical process
- Export of dissolved or particulate carbon by water, biota or other means
- Provides plant and animal habitat, recreation, aesthetics, education opportunities

Slope wetlands consist of sites whose hydrology is dominated by groundwater inputs. They may receive water from overland flow (runoff) and direct precipitation. They lose water through evapotranspiration, surface outflows and subsurface interflow.

Slope wetlands are situated on sloping land and have only an outlet channel, which may be ephemeral (water outflowing seasonally almost every year) or perennial. Locations generally are in drainageways and on alluvial fans.

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- Retention of organic and inorganic particulate on a short-term or long-term basis through physical processes
- Export of dissolved or particulate carbon by water, biota or other means
- Provides plant and animal habitat, recreation, aesthetics, educational opportunities

Within the Riverine and Slope wetland types, many variations occur, primarily due to man's influences. Variations are reflected in the vegetation, hydrology and soils. In many areas, the hydrology has been modified from "Historic" (presettlement) conditions, mostly by reducing or eliminating water inflow to the wetland. Hydrophytic plant communities have been highly modified and in many instances completely eliminated. Hydric soils have been modified or removed throughout the watershed. Significant beneficial functions provided by naturally occurring wetlands have been reduced or

eliminated due to these activities. Hydrology is probably the single most important determinant of the establishment and maintenance of specific types of wetlands and wetland processes.

The naturally occurring wetlands in the Illinois River Watershed have been categorized into map units and are identified on the *Wetlands Inventory Map of the Illinois Valley* (Appendix A, Map 15).

Each map unit on the inventory map represents an area on the landscape and consists of one or more wetlands for which the unit is named. All of the map units are made up of one or more major wetlands type. The map units include areas of wetlands and uplands other than those for which the map unit is named.

Wetland Acres

<u>Name</u>	<u>Symbol</u>	<u>Acreage</u>
Existing:		
Riverine Wetland	WR	294
Slope Wetland	WS	129
Riparian/Wetland Complex	RWC	<u>1,751</u>
Subtotal Existing		2,174
Historic (lost):		
Historic Riverine Wetland	HWR	480
Historic Slope Wetland	HWS	<u>353</u>
Subtotal Historic		833
Total Wetland Acres		3,007

Map Unit Descriptions

WR – Riverine Wetland. This unit is comprised of wetlands that are predominantly Cove and Wapato soils. Flooding is frequent to occasional for brief periods. A high water table is at the surface to one foot in the winter and spring. The vegetation is dominated by the Ash/Willow/Spirea-Ninebark/Sedge and Ash-Cottonwood/Hawthorn/Sedge plant associations.

WS – Slope Wetland. This unit is comprised of wetlands that are predominantly Copsey soils. A high water table is six inches to a-foot and a half below the surface in the winter and spring. The vegetation is dominated by the Mixed Oak-Douglas fir-Pine/Serviceberry plant association.

RWC – Riparian and Wetland Complex. This unit is comprised of riverwash, riparian areas and Riverine wetlands. Flooding is frequent for brief-to-long periods. A high water table fluctuates with river and stream flows. Riverwash is typically void of vegetation. The natural vegetation of the riparian areas is dominated by Cottonwood-Ash/Willow, P. Pine-Mixed Oak-Incense Cedar/Myrtle/Snowberry and Douglas-fir-

Madrone-Incense Cedar-P. Pine/Snowberry plant associations. Riverine wetlands are dominated by Ash/Willow/Spirea-Ninebark/Sedge and Ash-Cottonwood/Hawthorn/Sedge plant associations. Most areas are in natural conditions; however, many locations have been altered by human activities.

HWR – Historic Riverine Wetland. This unit is comprised of historic wetlands that are predominantly Cove and Wapato soils. Dikes, ditches and subsurface drains have altered the frequency and duration of flooding and depth and period of saturation by water. The natural vegetation has been removed and replaced with cropland, pastureland or urban lands.

HWS – Historic Slope Wetland. This unit is comprised of historic wetlands that are predominantly Copsey soils. Ditches and subsurface drains have altered the depth and period of saturation by water. The natural vegetation has been removed and replaced with cropland, pastureland or urban lands.

Results and Discussion

In the Illinois River area (see extent in Wetlands Inventory Map, Appendix A), there were approximately 1,781 acres of wetlands prior to settlement in the 1850's. Since that time, approximately 833 acres or 47 percent of wetlands have been converted to other uses.

All watershed alterations, not only conversion of wetlands to other uses, have changed hydrologic functions in the Illinois River Watershed. Functions for both the Riverine and Slope wetlands have been lost or reduced on 35 percent of original existing wetlands.

Replacing lost wetlands functions may be desirable to improve watershed health. Opportunities exist for restoring lost wetlands or enhancing existing wetlands. Existing and desired future conditions will provide a basis for determining wetland functions that may be replaced, enhanced or created.

References

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