Illinois River Floodplain Forests
Past, Present and Future

13th Biennial Governor's Conference on the Management of the Illinois River System

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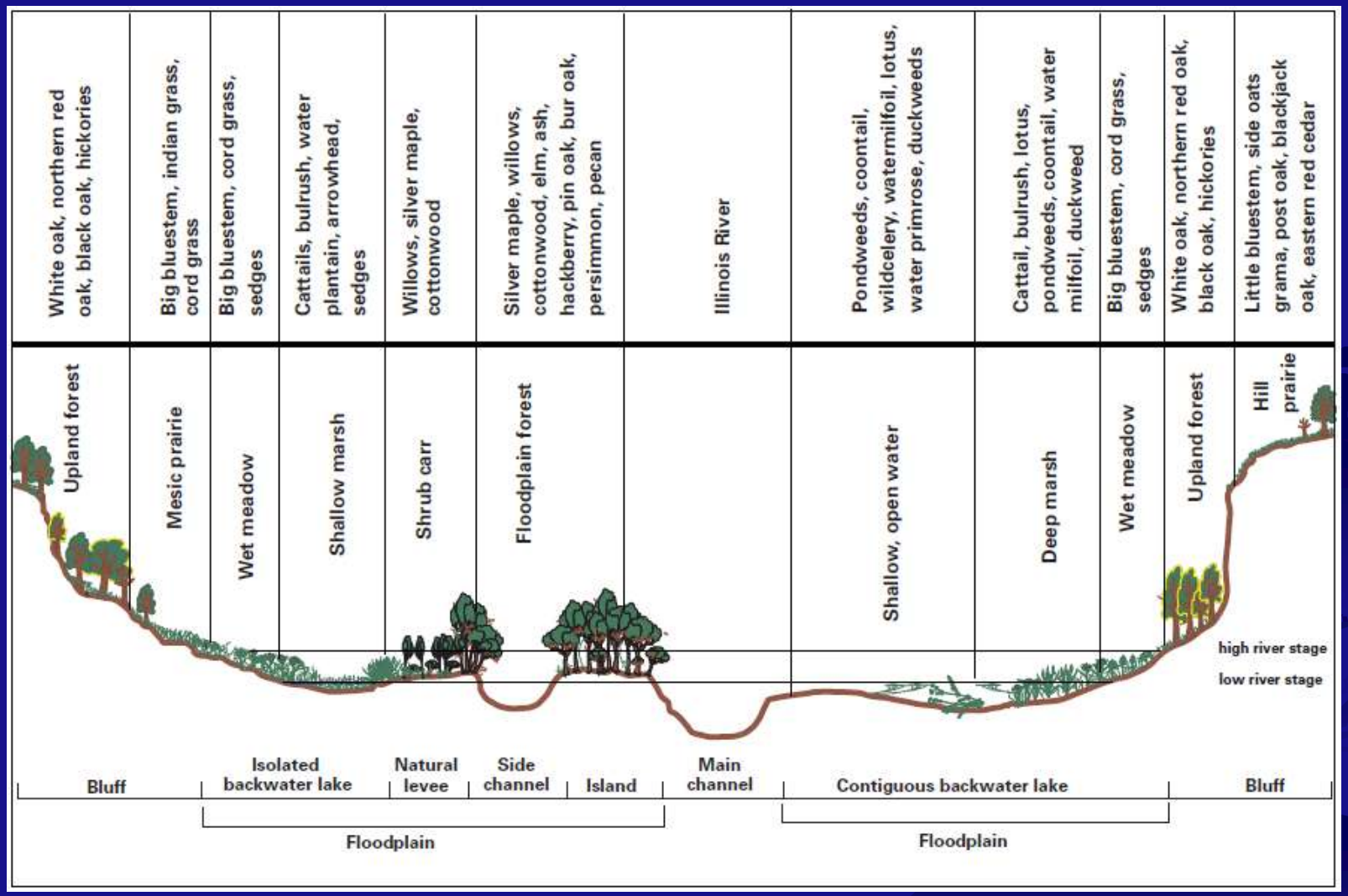
National Great Rivers Research & Education Center

Illinois River Floodplain Ecosystems



USGS (1999)

Illinois River Floodplain Ecosystems

Historical trends

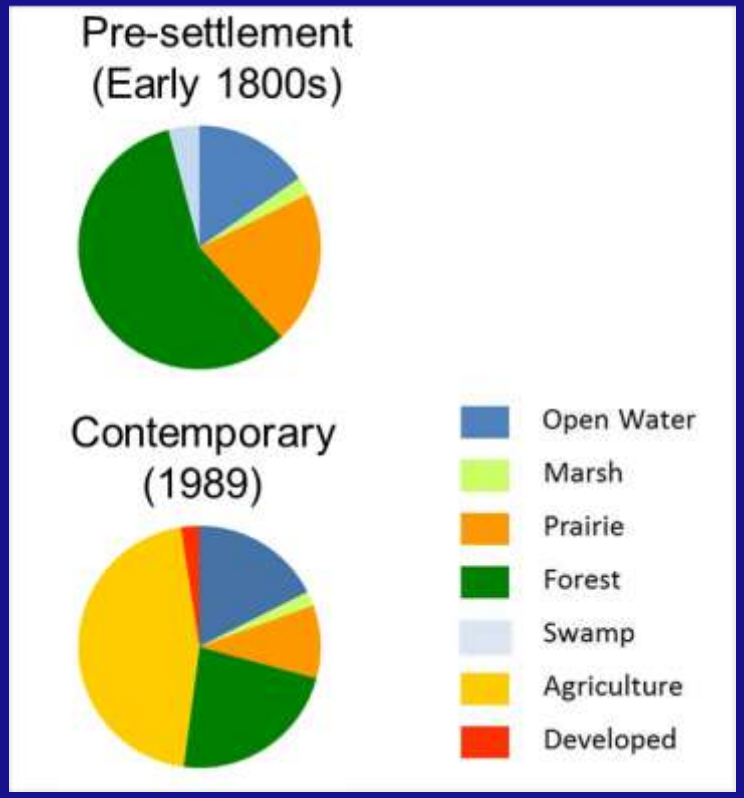
- Land conversion
- Changes to hydrology
  - Chicago River
  - Levees
  - Impoundment
- Disturbances
  - 1993 flood
- Invasive species

Fig. 7.—Diameter of tree or shrub had little effect on survival after flooding except in semi-aquatic species and in reproduction sizes. In the area pictured above, all trees of 3 to 30 inches (larger trees in background) had succumbed by October, 1946, in 8 years of permanent flooding.

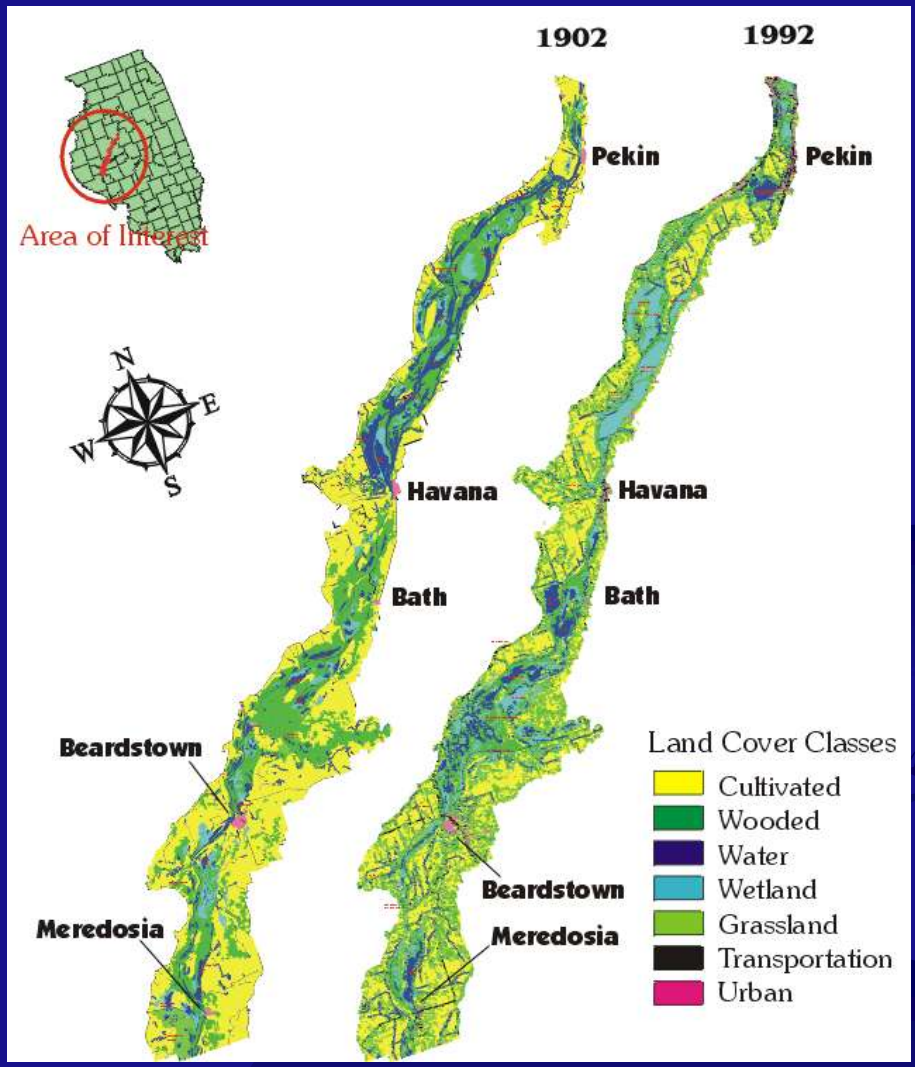
Yeager (1949)

Historical Trends

La Grange Reach

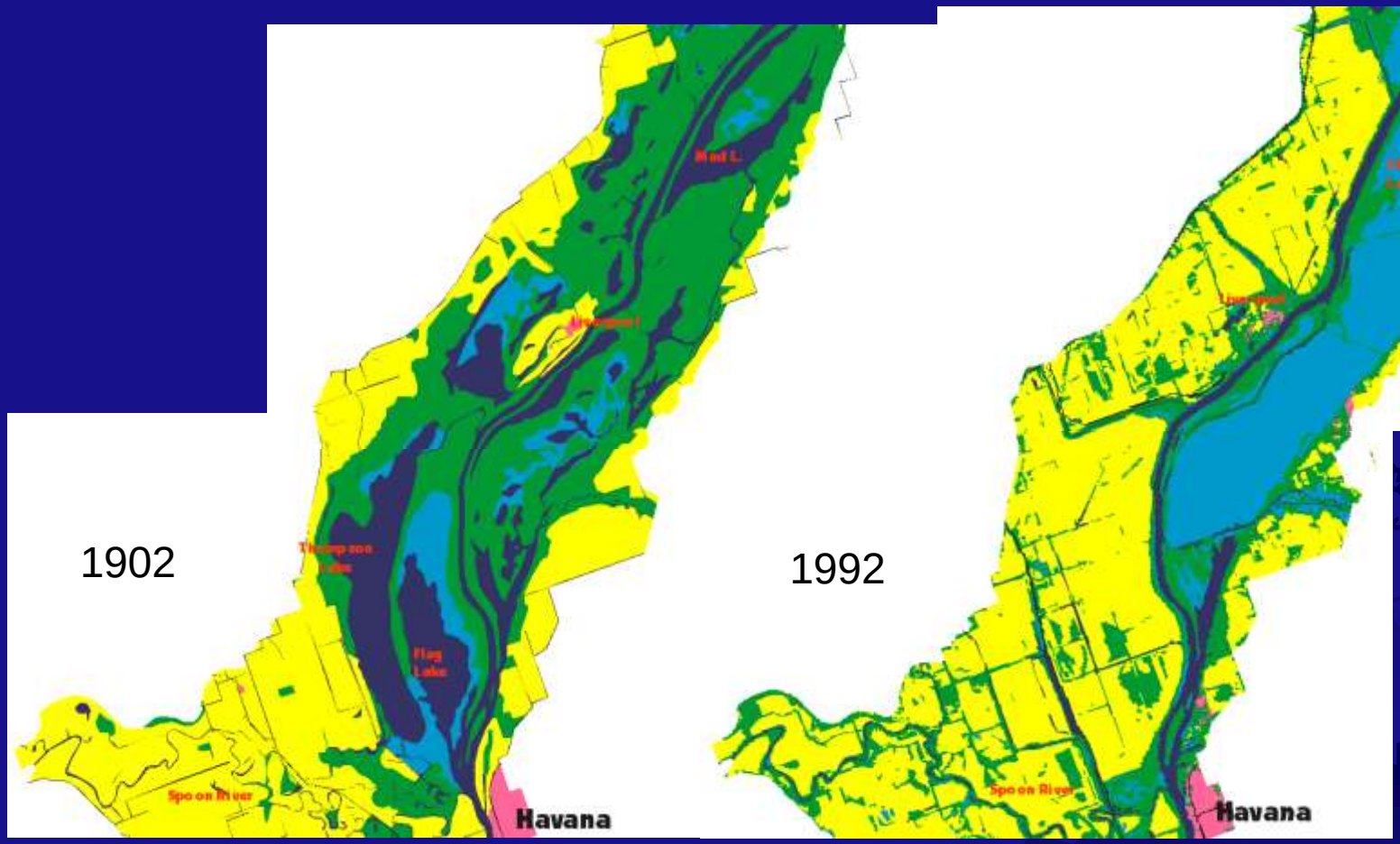


Theiling et al. (2000)



(Illinois State Water Survey)

Historical Trends



(Illinois State Water Survey)

Historical Trends

Emiquon

(Illinois State Water Survey)

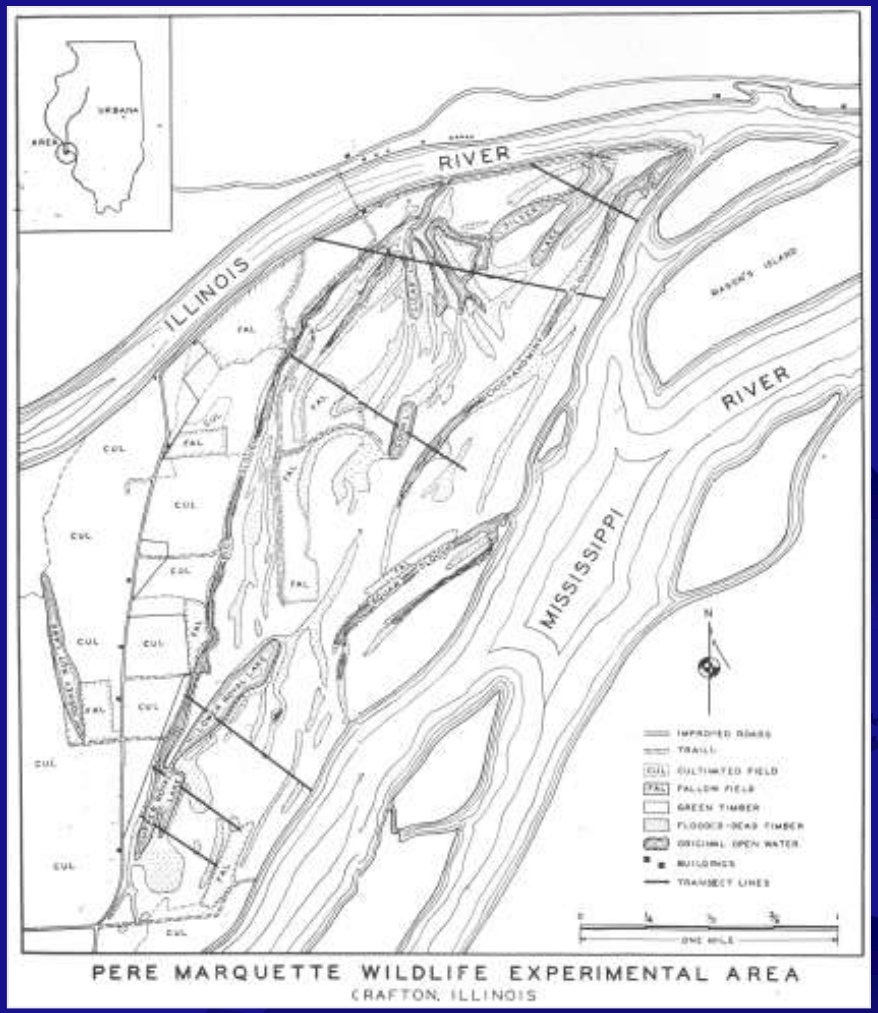
Historical Trends

Emiquon

(Illinois State Water Survey)

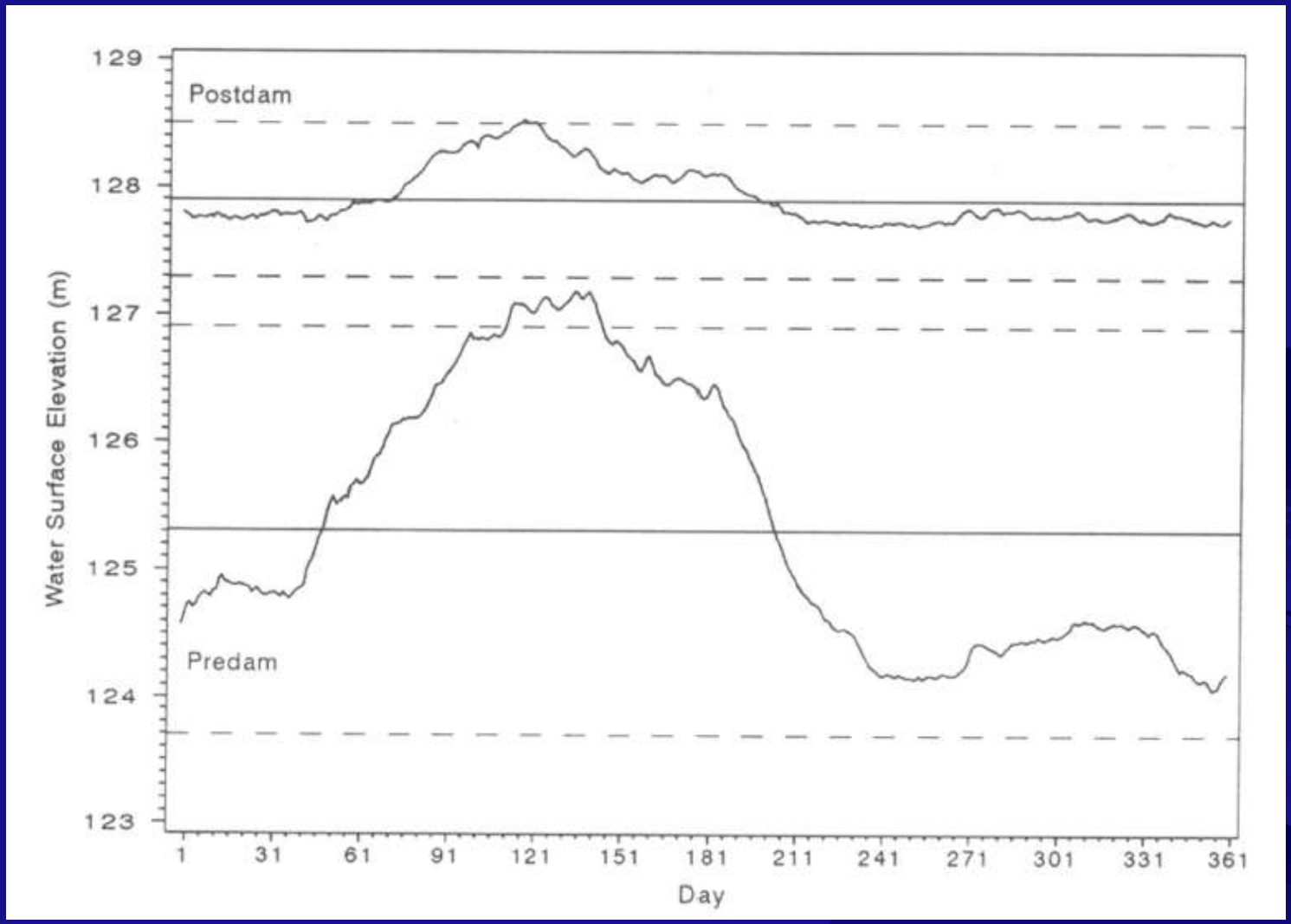
Historical Data

(Google Earth)



Yeager (1949)

River Hydrograph at Grafton, IL



Nelson, Redmond and Sparks (1994)

Impacts of Hydrologic Changes

In the Calhoun County, Illinois, study area, permanently flooded in 1938, pin oaks and other tree species having durable heartwood characteristically lost their branches and later their sapwood, leaving standing skeletons of heartwood.

Yeager (1949)

Impacts of Hydrologic Changes

Fig. 20.—Willow, cottonwood, elm, and silver maple reproduction on mud flat following death of most of the original stand as a result of flooding that raised the permanent water level nearly to the ground surface. A luxuriant stand of rice cutgrass grew between the bare mud flat and the forest zone in October, 1946.

Yeager (1949)

Tree Mortality Post-Flooding

2 years — 1940
Pin oak

3 years — 1941
Bur oak
Hackberry
Persimmon
River birch

4 years — 1942
Hawthorn
Cottonwood
Holly

5 years — 1943
Silver maple
American elm

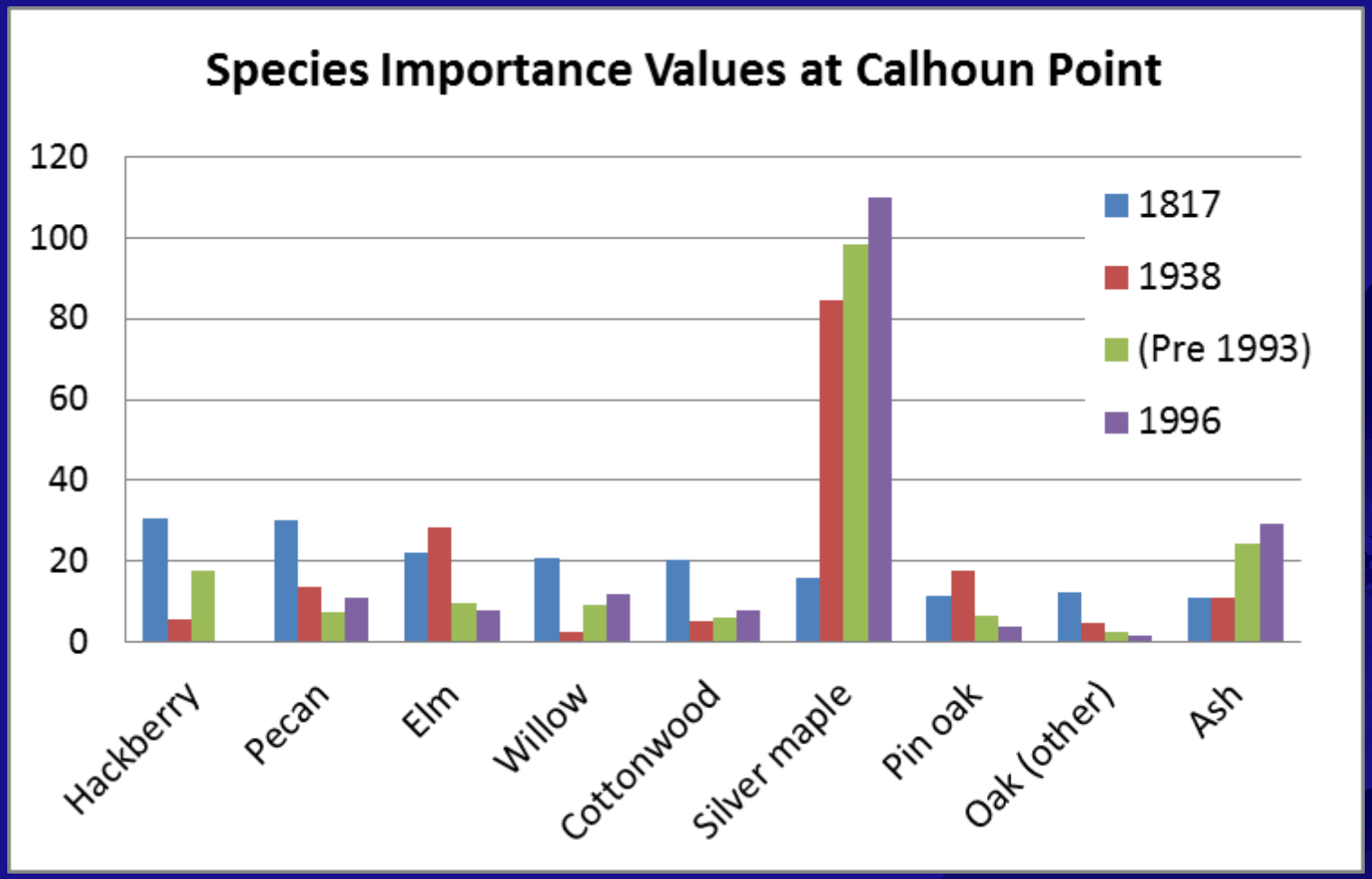
6 years — 1944
Pecan

7 years — 1945
Waterlocust

8 years — 1946
White ash
Buttonbush
Waterprivet
Black willow

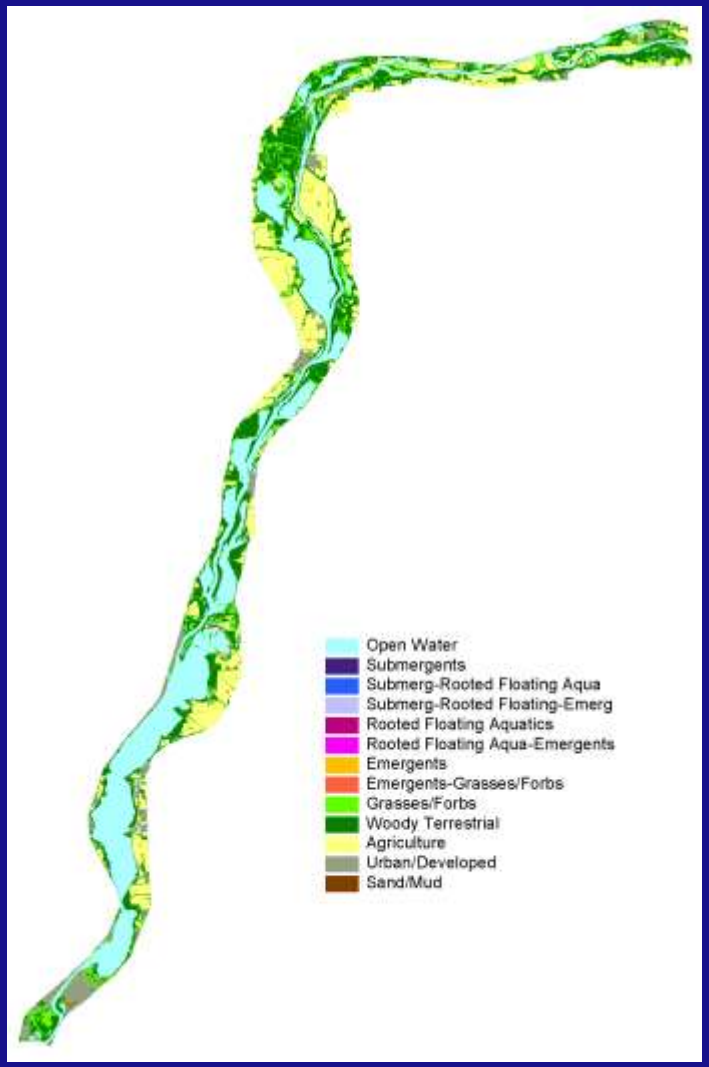
Yeager (1949); R. Sparks

Historical Trends

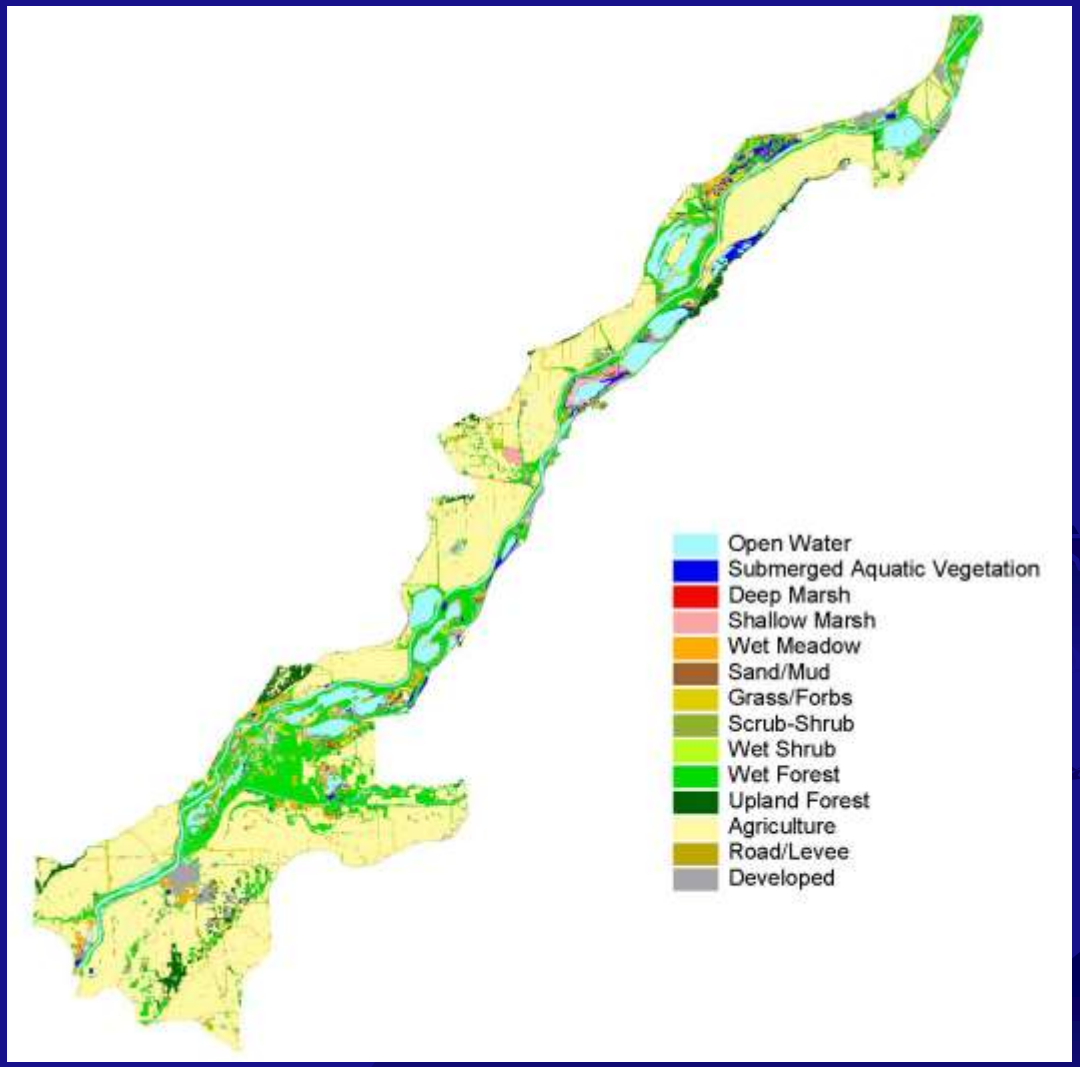


Nelson and Sparks (1998)

Contemporary Illinois River Floodplain



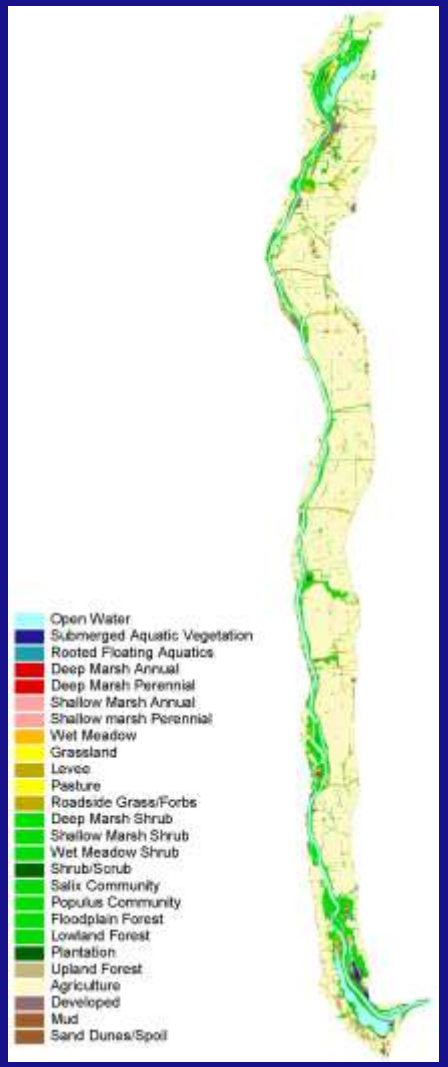
Peoria Reach

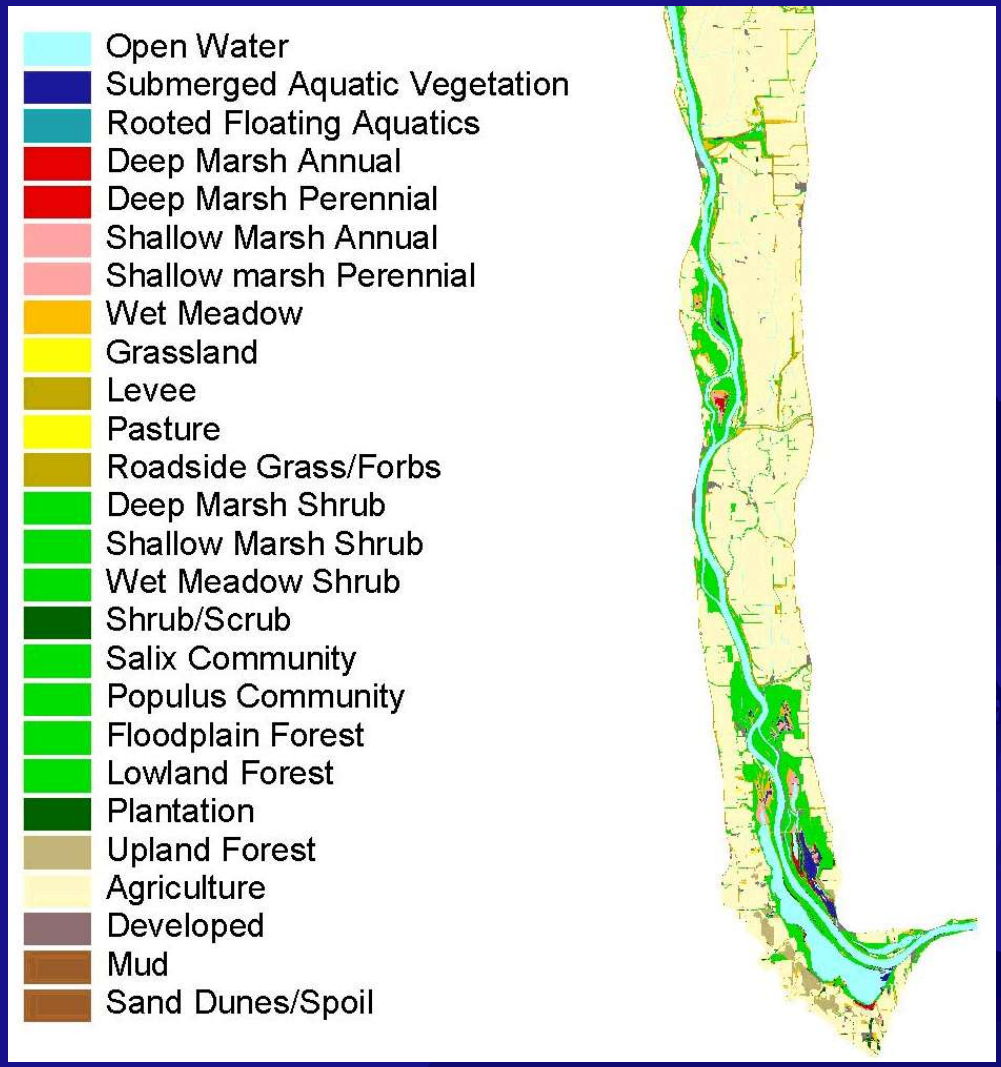


LaGrange Reach

(EMP LTRMP)

Contemporary Illinois River Floodplain

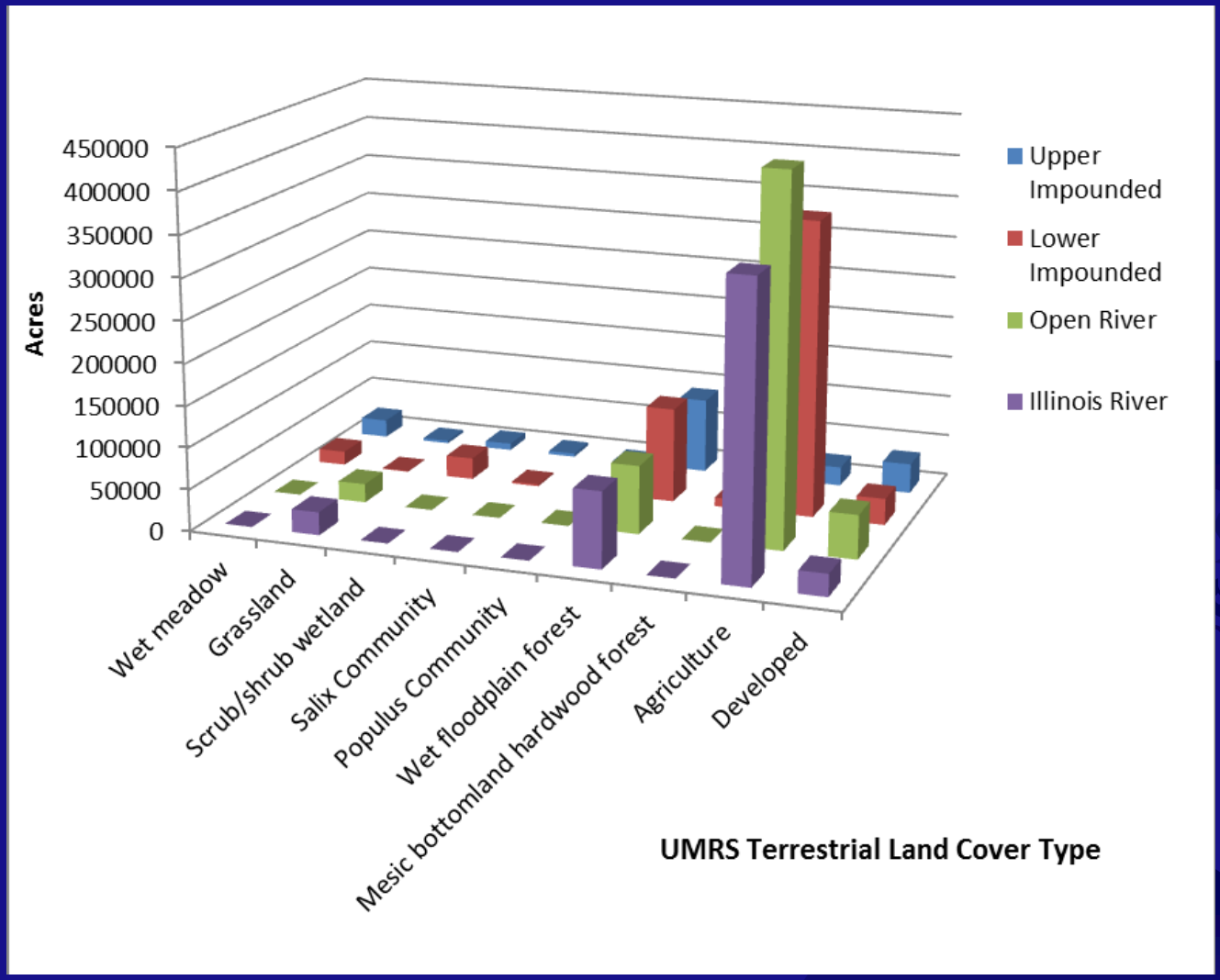




Alton Reach

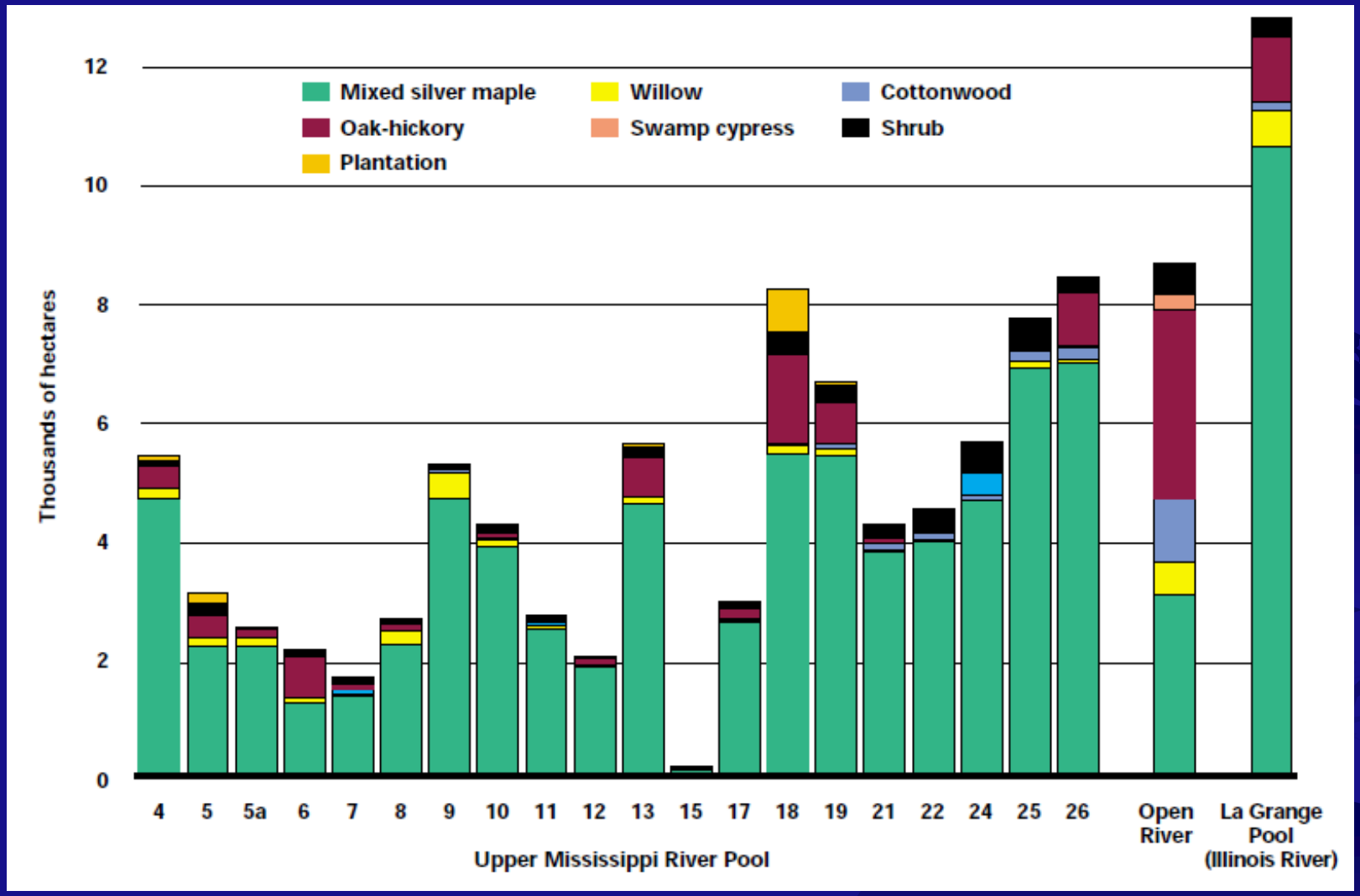
(EMP LTRMP)

Illinois River Floodplain Ecosystems



Theiling et al. (2000)

UMRS Floodplain Forests



USGS (1999)

Forest Resource Data

Pool 26 – Forest Resource Survey (2010)

Scope of Work:

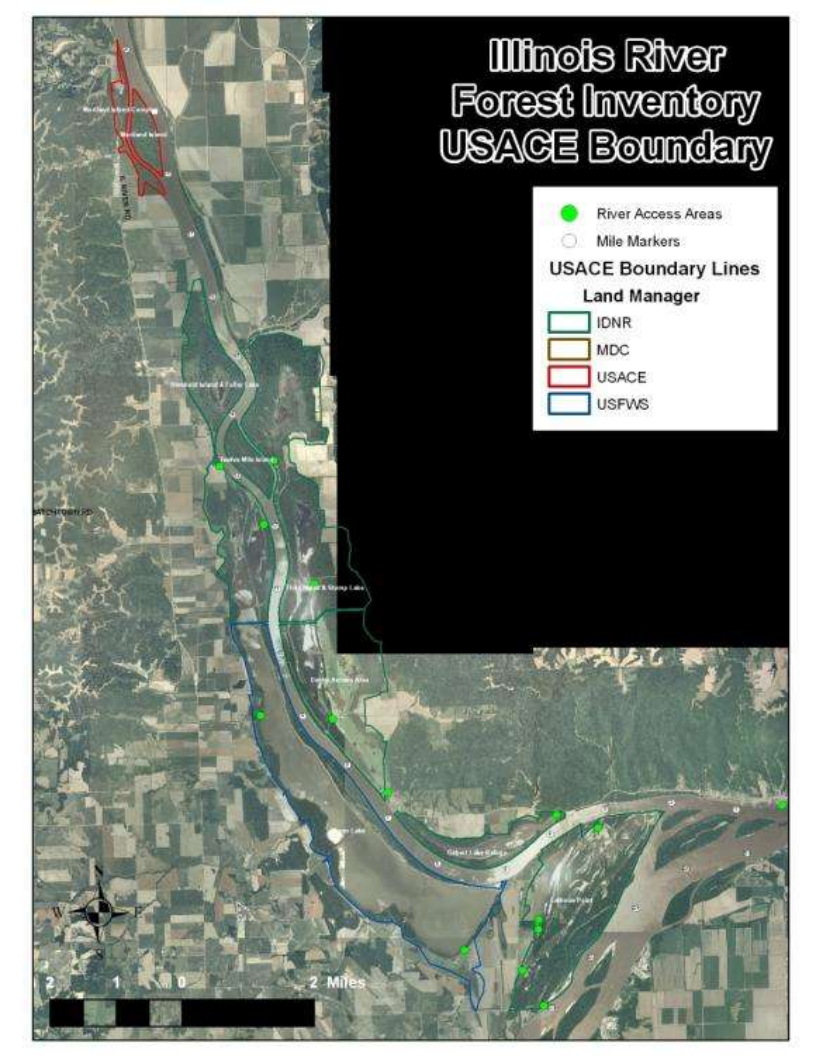
A comprehensive forest resource survey for all of the U.S. Army Corps of Engineers St. Louis District Rivers Project Office (RPO) fee title lands

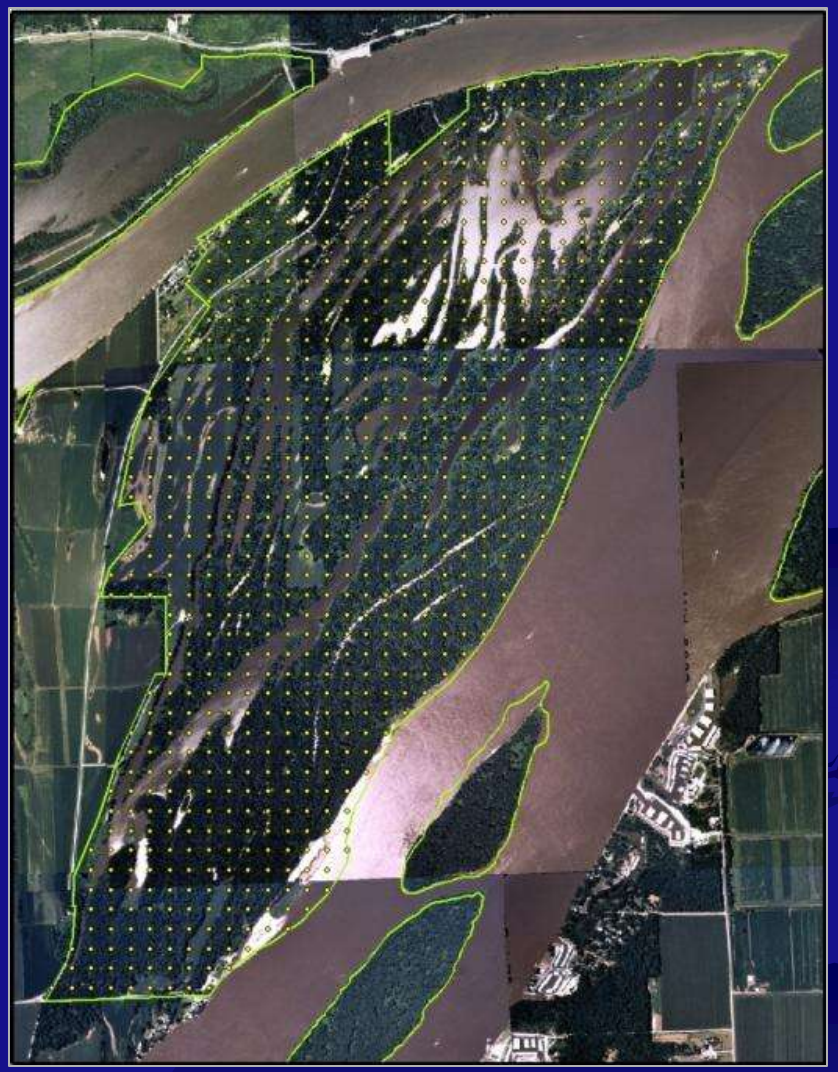
Purpose:

Obtain forest resource information on approximately 23,000 acres of land on the lower Illinois River and Pool 26 of the Upper Mississippi River

(USACE; SUBR; NGRREC)

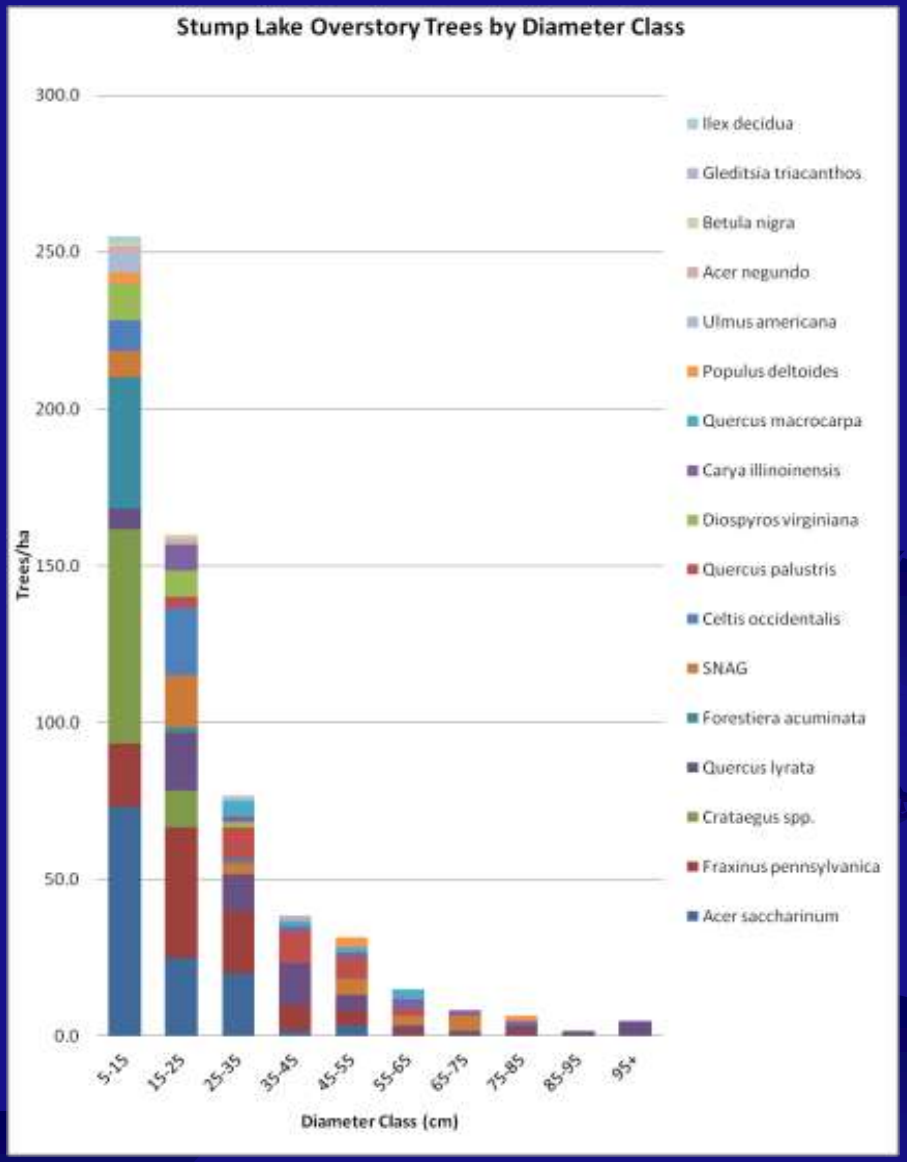
Pool 26 – Forest Resource Survey





Calhoun Point (1105 acres)

Local Studies – Stump Lake

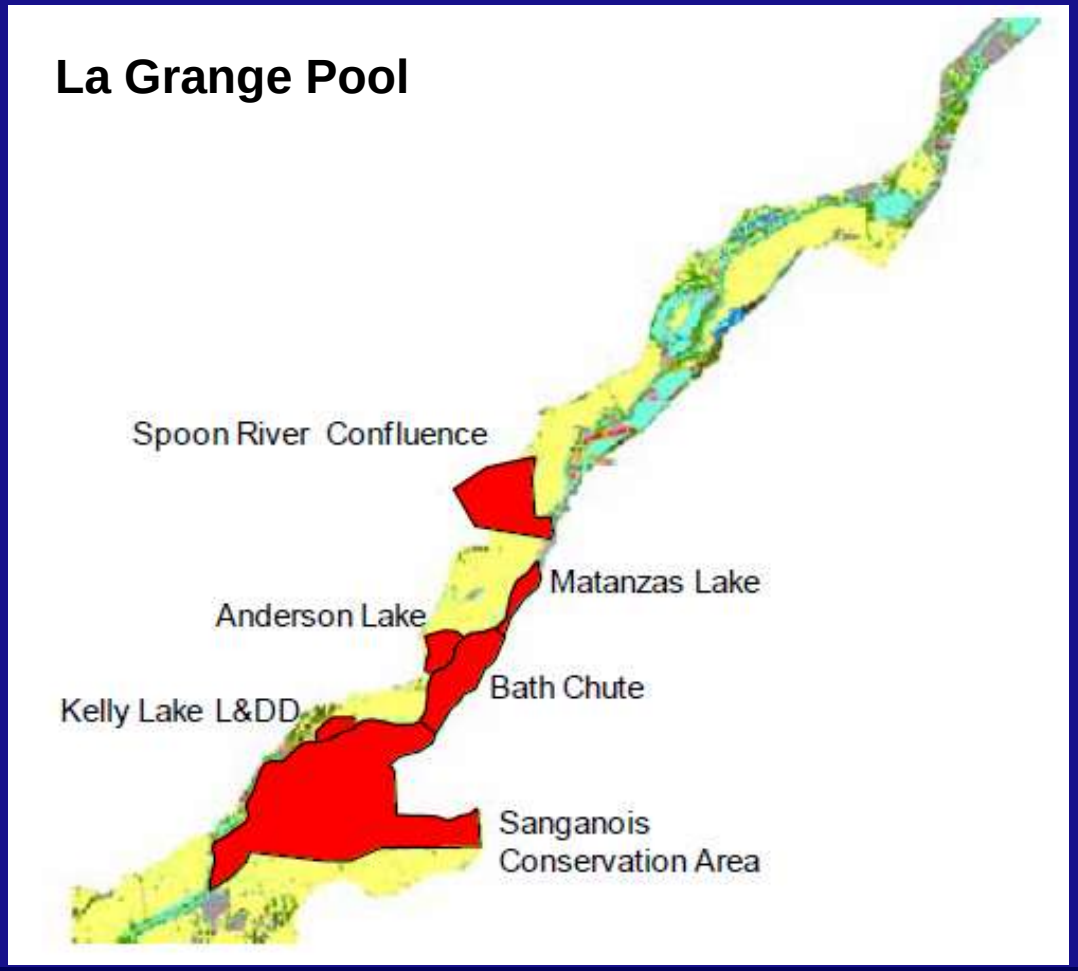


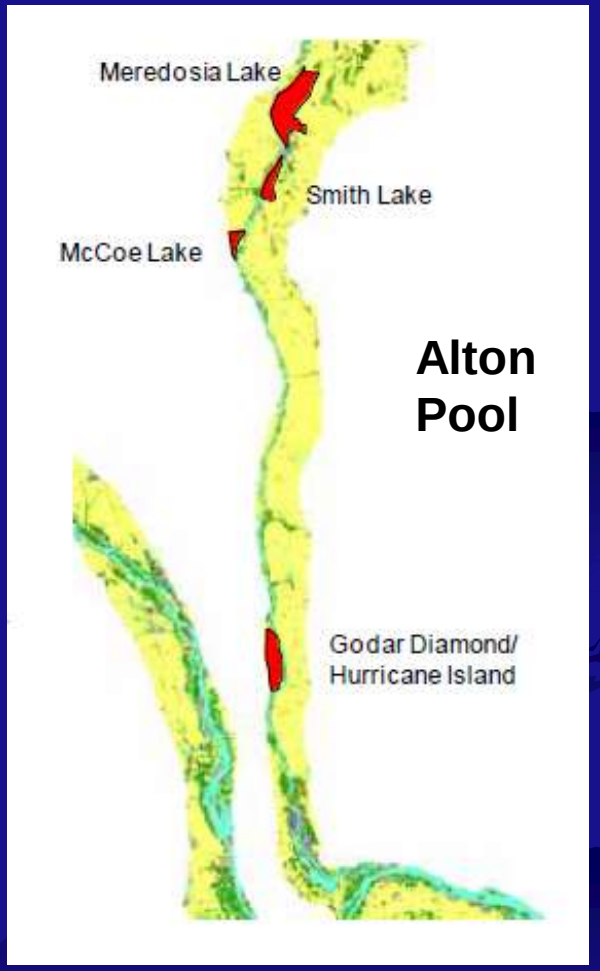
Illinois River Floodplain Forests – Management & Planning

- Integrated Management Plan for the Illinois River Watershed
- Illinois River Basin Restoration Program
- USACE Upper Mississippi River Ecosystem Restoration Objectives - Illinois River Reach Plan
- USACE Upper Mississippi River Systemic Forest Management Plan
- USFWS Comprehensive Conservation Plans (CCPs) and Habitat Management Plans (HMPs)

Management & Planning

- **Illinois River Reach – High Priority Subareas**



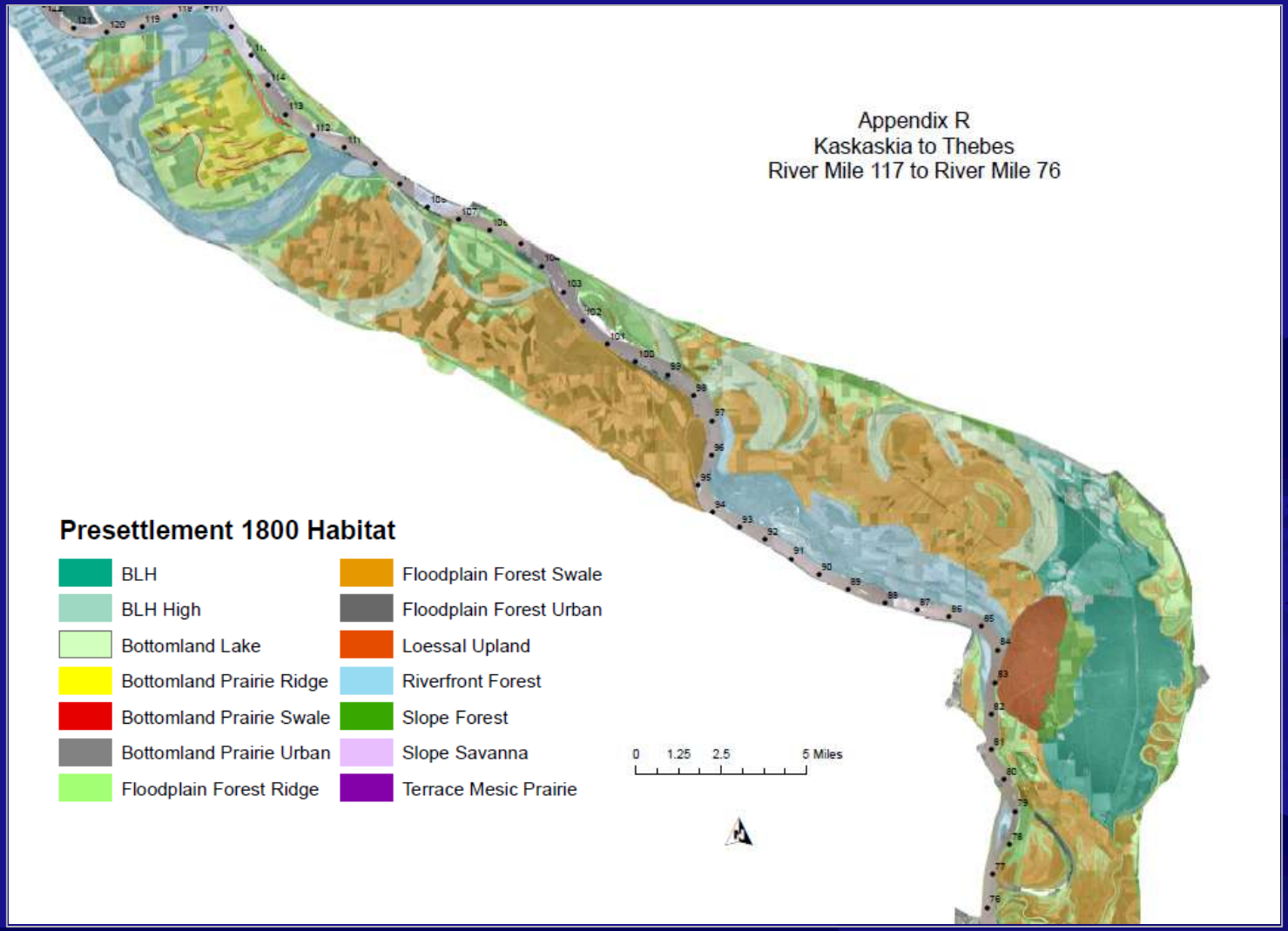


(UMR Ecosystem Restoration Objectives)

Management & Planning

- UMR Systemic Forest Management Plan
  - USACE – St. Paul, Rock Island & St. Louis Districts
- Purpose
  - Provide a framework for coordinated management at a system level to ensure the long-term sustainability of the terrestrial communities of the UMRS floodplain
- Goals & Objectives
  - Restoration, sustainable ecosystems, wildlife…
- Priority Actions
  - Baseline data acquisition, LIDAR, Hydrogeomorphic Modeling (HGM)…

HGM Classification for the Middle Mississippi River Regional Corridor



Heitmeyer (2008)

HGM Classification at Two Rivers NWR

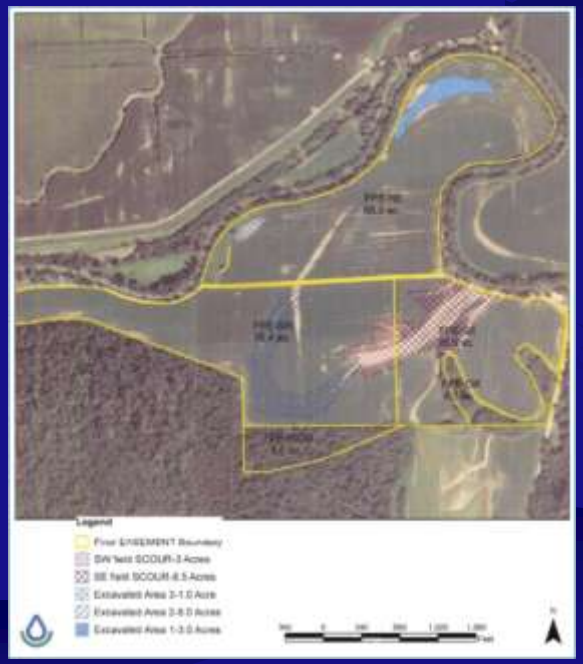
Habitat type	Elevation	Primary Soil types	Geomorphic Surface
Open water	410-412	Beaucoup and Quiver silt loam	Abandoned channel
Seasonal herbaceous/ emergent wetland	412-414	Beaucoup silty clay loam; Quiver silt loam	Abandoned channel, Type B floodplain, point-bar swales
Shrub/scrub	413-415	Beaucoup silty clay loam; Blyton silt loam	Abandoned channel, Type B,C floodplain, point-bar swale
Bottomland forest	414-421[1]	Beaucoup silty clay loam; Wakeland, Quiver, and Blyton silt loam	Type B,C floodplain, natural levees
Bottomland prairie	417-422[2]	Tice, Worthen, and Littleton silt loam	Type B,C floodplain, point-bar ridges
Savanna	417-422	Beaucoup silty clay Loam; Worthen, Littleton, and Tice silt loam	Type B,C floodplain, beach and point-bar ridges
Mesic prairie	422-435	Tice, Worthen, Littleton silt loams; Oakville sandy loam	Floodplain terrace and beach ridge
Upland forest	> 435	Okaw silt loam	Loess hill, bluffs, terrace ridges

Heitmeyer and Westphall (2007)

Floodplain Forest Restoration

Natural Resources Conservation Service

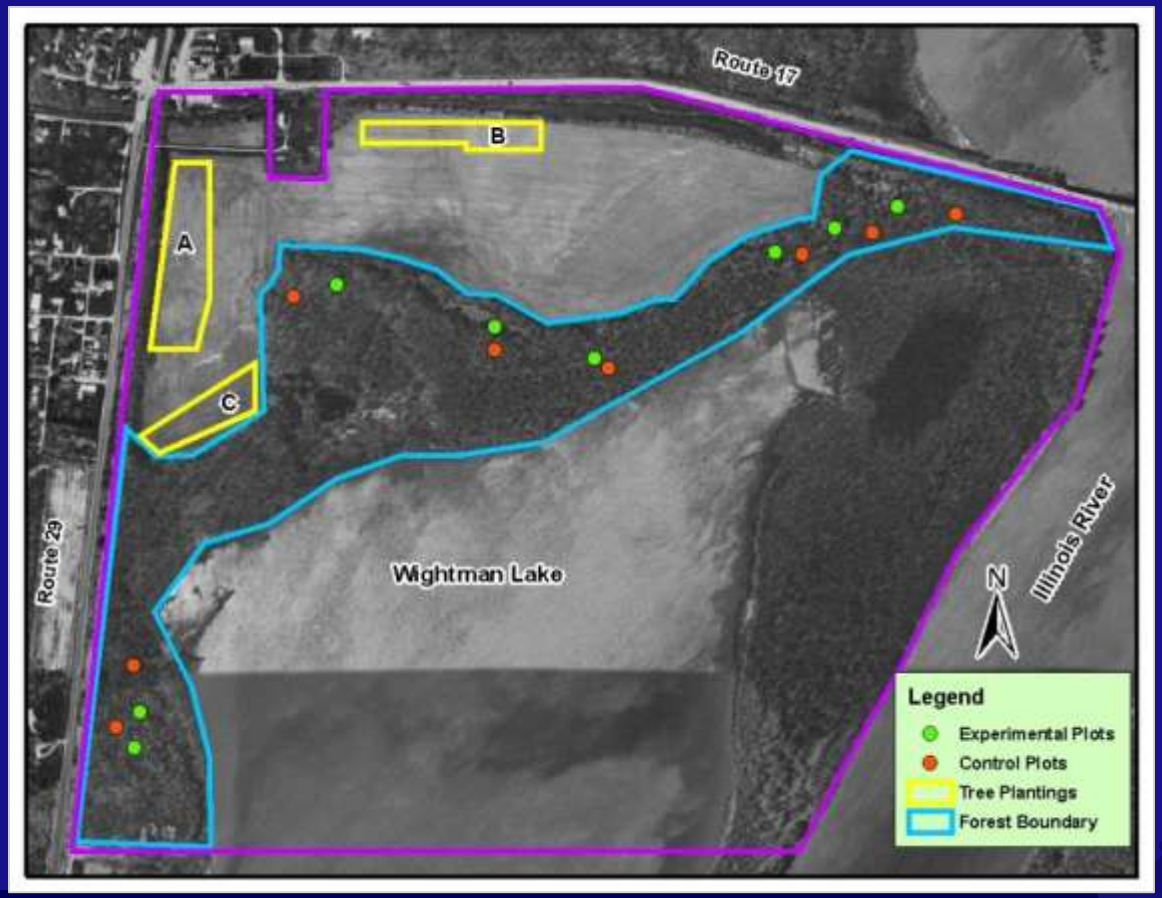
- Vegetative Restoration Programs
  - Floodplain Easements
  - Wetland Reserve Program (WRP)
  - Emergency Watershed Protection Program (EWP)
- Technical practices
  - Tree plantings
  - Conservation cover
  - Native prairie planting



(NRCS)

Floodplain Forest Restoration

Illinois River Wetland and Bottomland Forest Demonstration and Coordination Project



(Ducks Unlimited)