



**EDWARDS RIVER, MERCER COUNTY
WETLAND COMPENSATION SITE**

ISGS #50

FAP 310

Mercer County, near Boden, Illinois

Primary Project Manager: Steven E. Benton

Secondary Project Manager: Keith W. Carr

SITE HISTORY

- May 1996: ISGS submitted an Initial Site Evaluation Report to IDOT.
- Spring 1999: ISGS began monitoring ground- and surface-water levels, and in Fall 1999, a total of 11 sediment traps were added to the site.
- April 2005: A berm was constructed at the northwest corner of the site by IDOT in order to increase the amount of water retention.

WETLAND HYDROLOGY CALCULATION FOR 2005

We estimate that the total area that satisfied wetland hydrology criteria (Environmental Laboratory 1987) for greater than 5% of the growing season was 0.0 ha (0.0 ac). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2005 was 0.0 ha (0.0 ac). These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Aledo, Illinois, is April 11 and the season lasts 195 days; 5% of the growing season is 10 days and 12.5% of the growing season is 24 days.
- Total precipitation for the monitoring period was 30.54 inches, which was 85% of normal. Precipitation in October 2004, November 2004, January 2005, and February 2005 was at or above normal, although precipitation from March 2005 to August 2005 was only 61% of normal.
- In 2005, water levels measured in the monitoring wells did not satisfy wetland hydrology criteria for either 5% or 12.5% of the growing season.
- Inundation on the site occurred for only an insufficient period at the start of the growing season. Data collected by RDS 2 reveal that surface water was present on the site from April 12 to April 15. Also, stage data collected from Edwards River reveal that the river did not rise enough at any time during the growing season to flood the site.

ADDITIONAL INFORMATION

- Once a year, the sediment is removed from 12 sediment traps (T1 through T12) and is quantified in an ISGS laboratory. From May 6, 2004 to March 29, 2005, the traps on the site accumulated an average thickness of 0.70 cm (0.27 inches) of sediment, which was less than half the average thickness of 1.80 cm (0.70 inches) that accumulated the previous year. The traps that accumulated the greatest thickness of sediment were T7 with 1.35 cm (0.53 inches) and T12 with 1.67 cm (0.65 inches), located in the lower parts of the site. The traps that accumulated the least thickness of sediment were T1 with 0.22 cm

(0.09 inches) and T4 with 0.20 cm (0.08 inches), located on the higher portions of the site, and T8 with 0.33 cm (0.13 inches), located on the natural levee between the site and Edwards River. Calculations for sediment thickness are based on personal communication with Richard Cahill, ISGS Sediment Geochemist.

- A berm was constructed in April 2005 in order to increase the duration of surface-water retention on the site, and thereby increase the area satisfying wetland hydrology criteria. However, the lack of a flood event on Edwards River during the 2005 growing season made it impossible to determine the effect of the berm on the hydrology of the site.

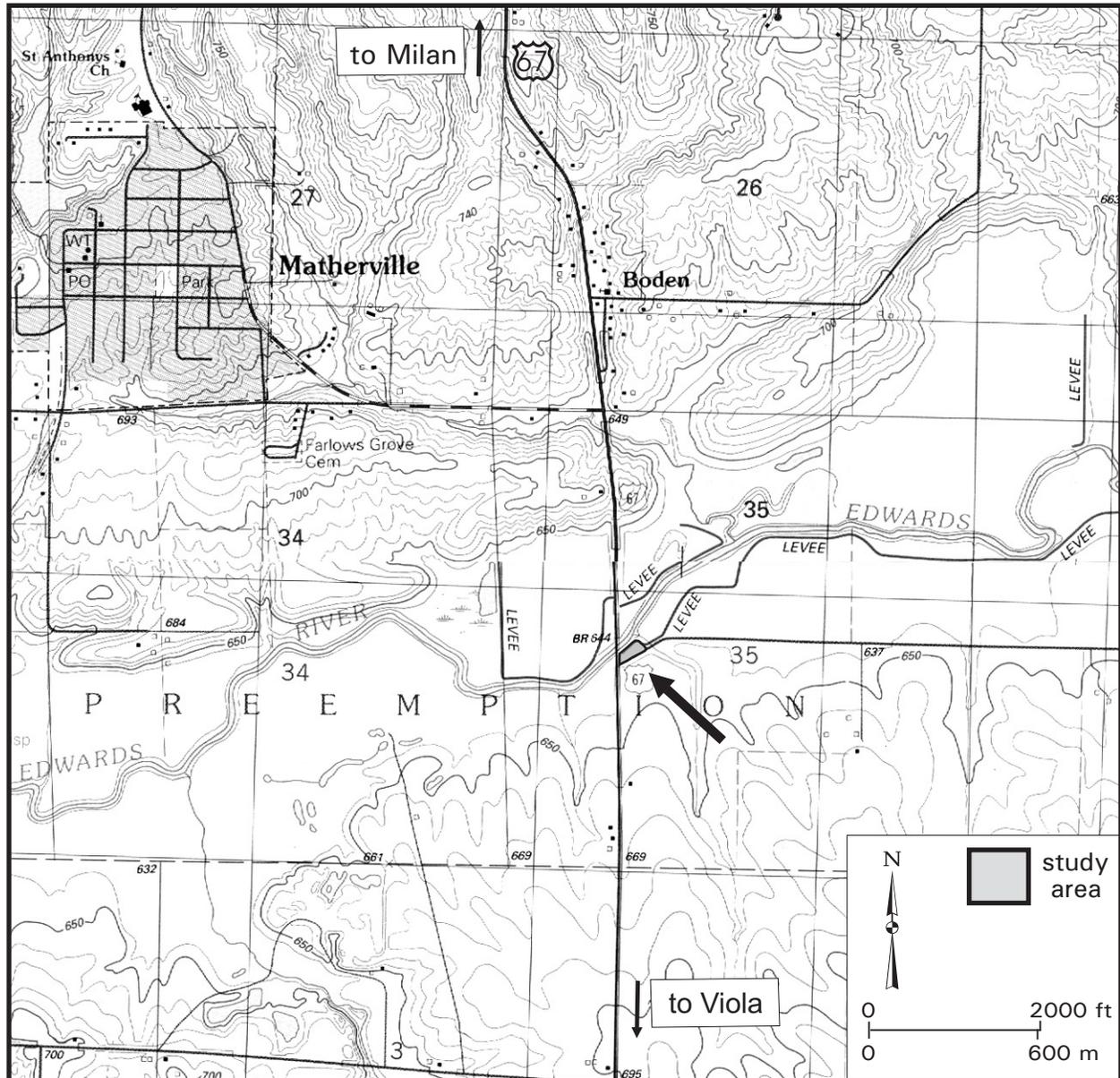
PLANNED FUTURE ACTIVITIES

- Monitoring of hydrology and sediment deposition will continue until no longer required by IDOT.

Edwards River, Mercer County Wetland Compensation Site (FAP 310)

General Study Area and Vicinity

from the USGS Topographic Series, Viola, IL (USGS 1992) and
Matherville, IL (USGS 1991) 7.5-minute Quadrangles
contour interval is 10 ft



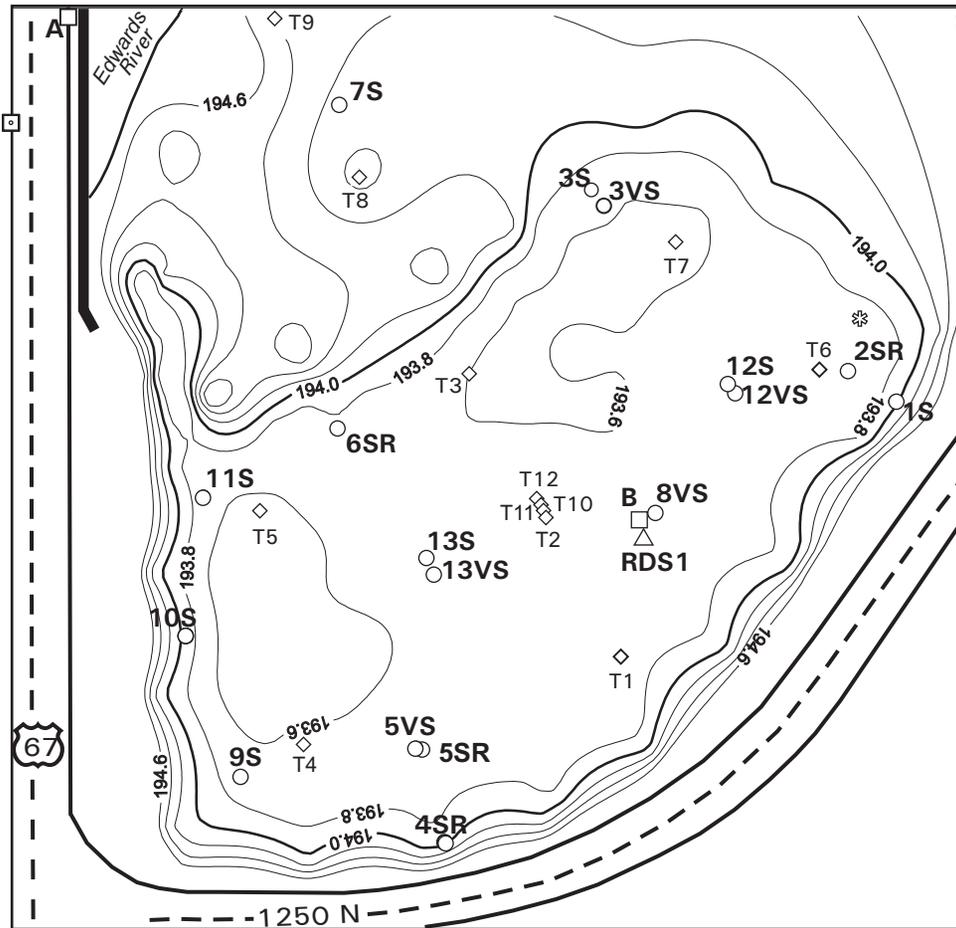
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Estimated Areal Extent of 2005 Wetland Hydrology

based on data collected between September 1, 2004 and September 1, 2005

Map based on 2002 ISGS elevation survey referenced to NGVD, 1929

contour interval is 0.2 meters



2005 Wetland Hydrology



> 12.5% of the growing season



> 5% of the growing season

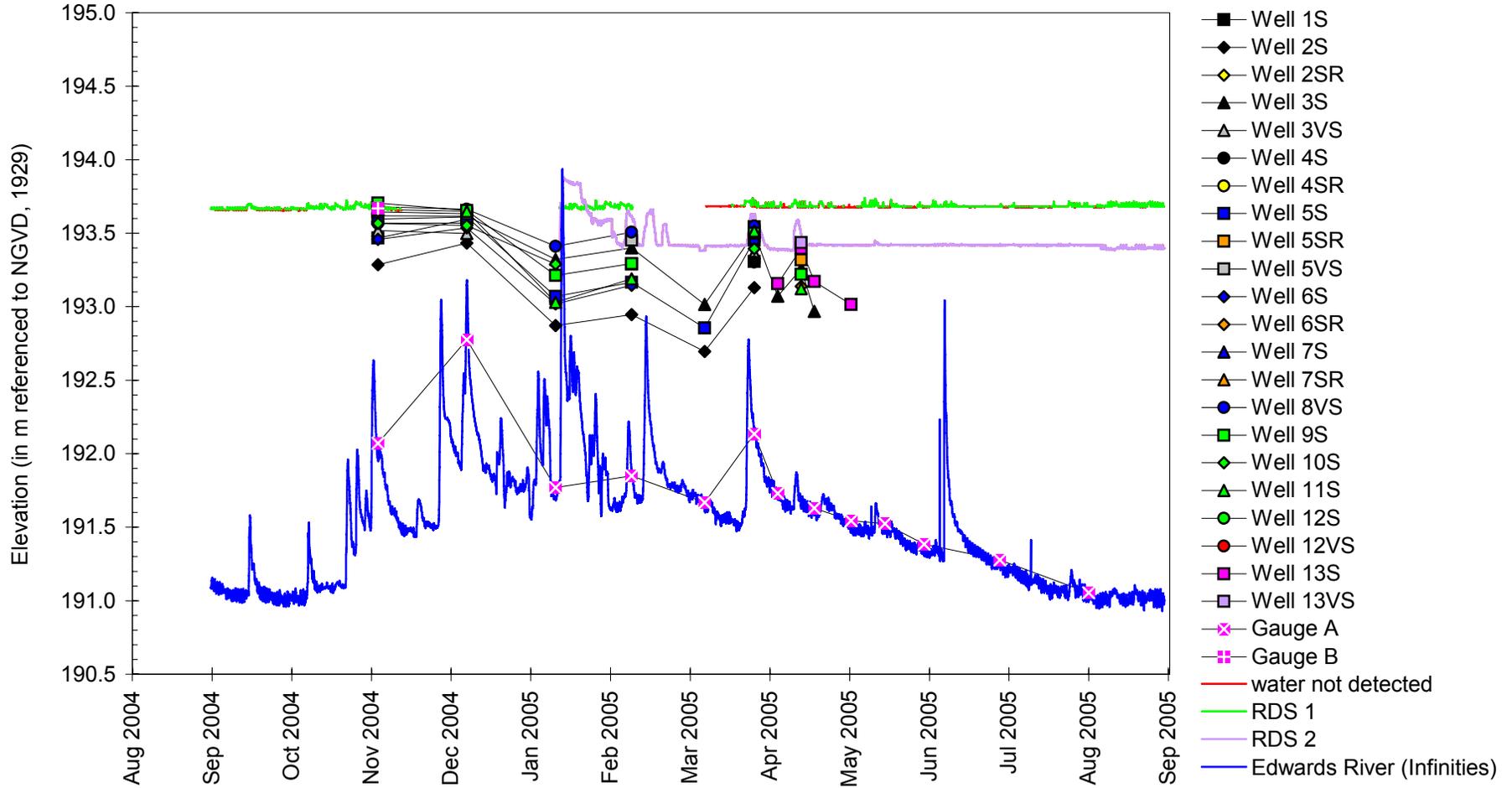
- other soil-zone wells
- ◻ Infinities sonic data logger
- ◻ stage gauge
- △ RDS data logger
- ✱ rain gauge
- ◇ sediment trap



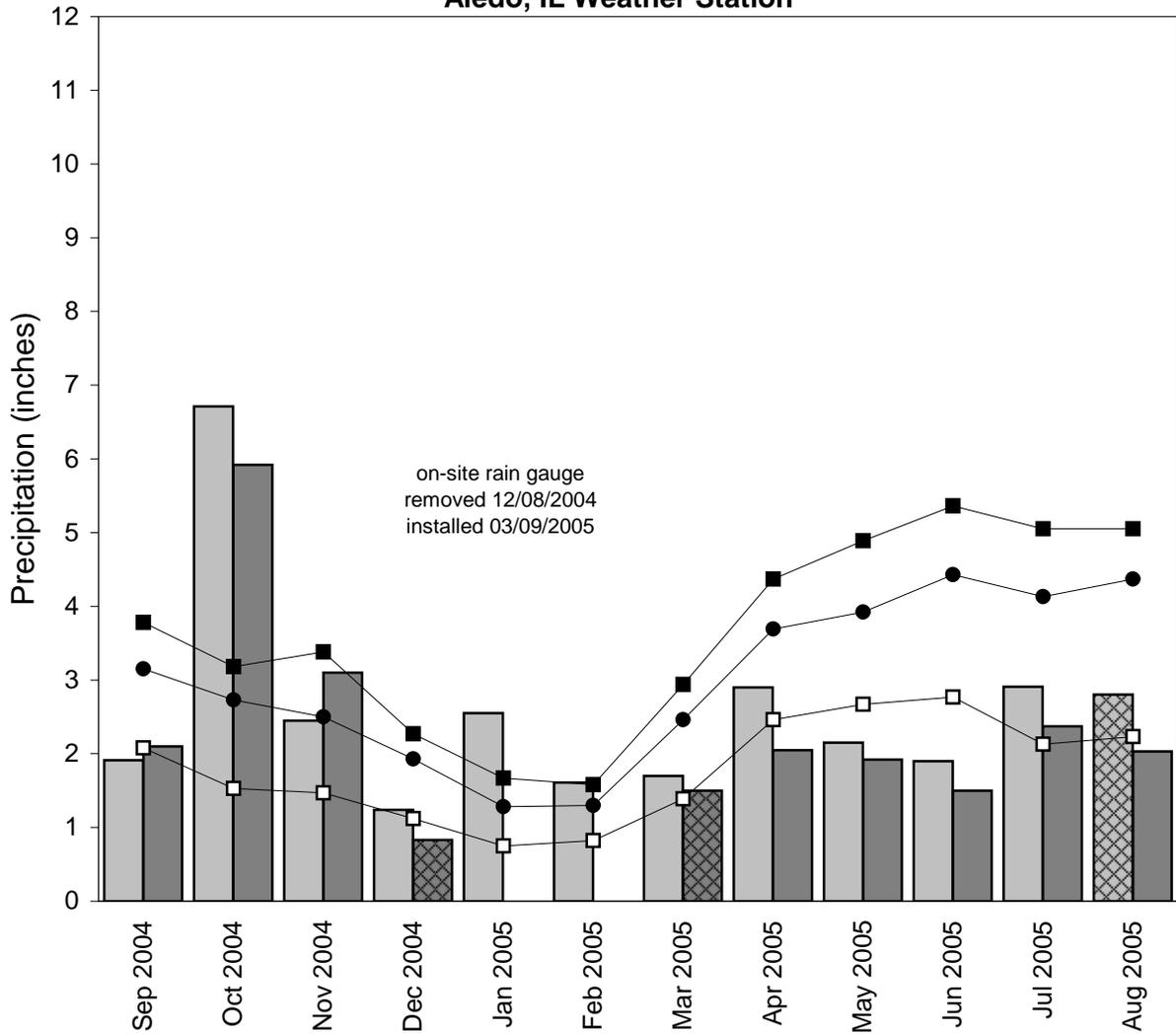
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September 1, 2004 to September 1, 2005

Water-Level Elevations



**Edwards River, Mercer County
Wetland Compensation Site
September 2004 through August 2005
Total Monthly Precipitation Recorded On Site and at the
Aledo, IL Weather Station**



- monthly precipitation recorded at weather station (Midwestern Regional Climate Center)
- monthly precipitation recorded on site by ISGS
- 1971-2000 monthly average precipitation (National Water and Climate Center)
- 1971-2000 monthly 30% above average threshold (National Water and Climate Center)
- 1971-2000 monthly 30% below average threshold (National Water and Climate Center)
- data incomplete