



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

**ISGS #50**

FAP 310

Mercer County, near Boden, Illinois

**Primary Project Manager: Kelli D. Weaver**

**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.
- Spring 2001: One RDS surface-water data logger, one stage gauge, and three very shallow (VS) soil-zone wells were added to the wetland basin.
- April 2002: Three soil-zone monitoring wells were added along the base of the US Route 67 embankment to better delineate wetland hydrology along the western site margin.

**WETLAND HYDROLOGY CALCULATION FOR 2004**

We estimate that the total area that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the growing season was 0.93 ac (0.38 ha). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 0.88 ac (0.36 ha). These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in 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 from September 2003 to August 2004 was 104% of normal. Despite the very dry growing season conditions during the months of April, June, and July 2004, the higher-than-normal precipitation totals during the months of March, May, and August 2004 led to slightly wetter than normal conditions during the 2004 monitoring period. Additionally, precipitation levels were below normal for the months of October 2003, and January and February 2004, and were above normal in September, November and December 2003.
- In 2004, water levels measured in wells 3S, 3VS, 5VS, 6S, 7S, 8VS, 9S, and 11S satisfied wetland hydrology criteria for greater than 5% of the growing season. Wells 3S, 3VS, 8VS, 9S, and 11S also satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season.
- The elevation and duration of surface-water flooding events were recorded both in the Edwards River channel and in the wetland basin. Since the beginning of the 2004 growing season, flood water input into the basin was limited to three separate events with a total duration of approximately five days, a period of time insufficient to satisfy wetland hydrology criteria. In all events, the hydroperiod within the excavated basin virtually mimics that of the

river. As in previous years, flood waters in 2004 only stayed in the basin for a period of hours after the river stage had dropped below the site inlet.

#### ADDITIONAL INFORMATION

- Once a year, the sediment is removed from 11 sediment traps and is quantified in an ISGS laboratory. From April 15, 2003, to April 14, 2004, the traps on the site accumulated between 1.1 and 3.5 cm of sediment. The sediment traps located near the perimeter of the excavated basin, T1, T2, T3, and T4, and on top of the natural levee, T8 and T9, accumulated the smallest amounts of sediment, 1.1 to 1.8 cm. The greatest thicknesses of sediment, 2.9 to 3.5 cm, were trapped within the excavated wetland basin. The maximum amount of sediment, 3.5 cm, was collected from T7, which is at the lowest elevation on the site. Calculations for sediment thickness are based on personal communication with Richard Cahill, ISGS Sediment Geochemist.
- We have determined that the site is being drained too efficiently through the inlet/outlet in the northwest corner of the site. Raising the elevation of this inlet/outlet to approximately 194.20 m (637.14 ft) will cause longer-term retention of surface water in the excavated basin. Additionally, the berm might also enhance sediment deposition due to the longer flood-water residence time.
- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was measured planimetrically using a digitally produced ISGS topographic map with 0.20-meter (0.66-ft) contour intervals. The acreage polygon generated from this topographic map was then superimposed upon the digital topographic map used for the figure in this report.

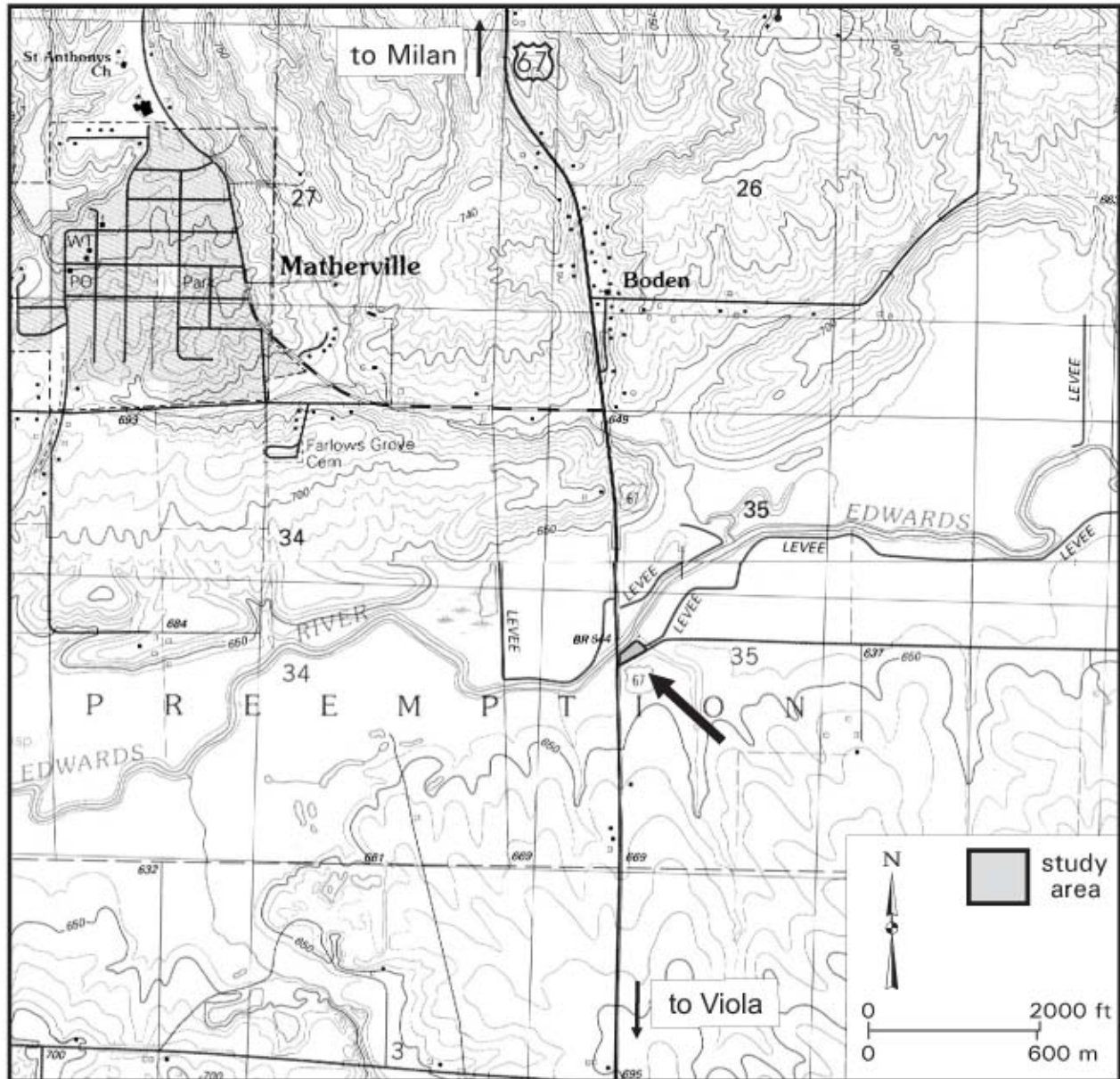
#### PLANNED FUTURE ACTIVITIES

- Additional shallow-water monitoring wells will be added to further delineate wetland hydrology.
- Monitoring of hydrology and sediment deposition will continue until no longer required by IDOT.

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

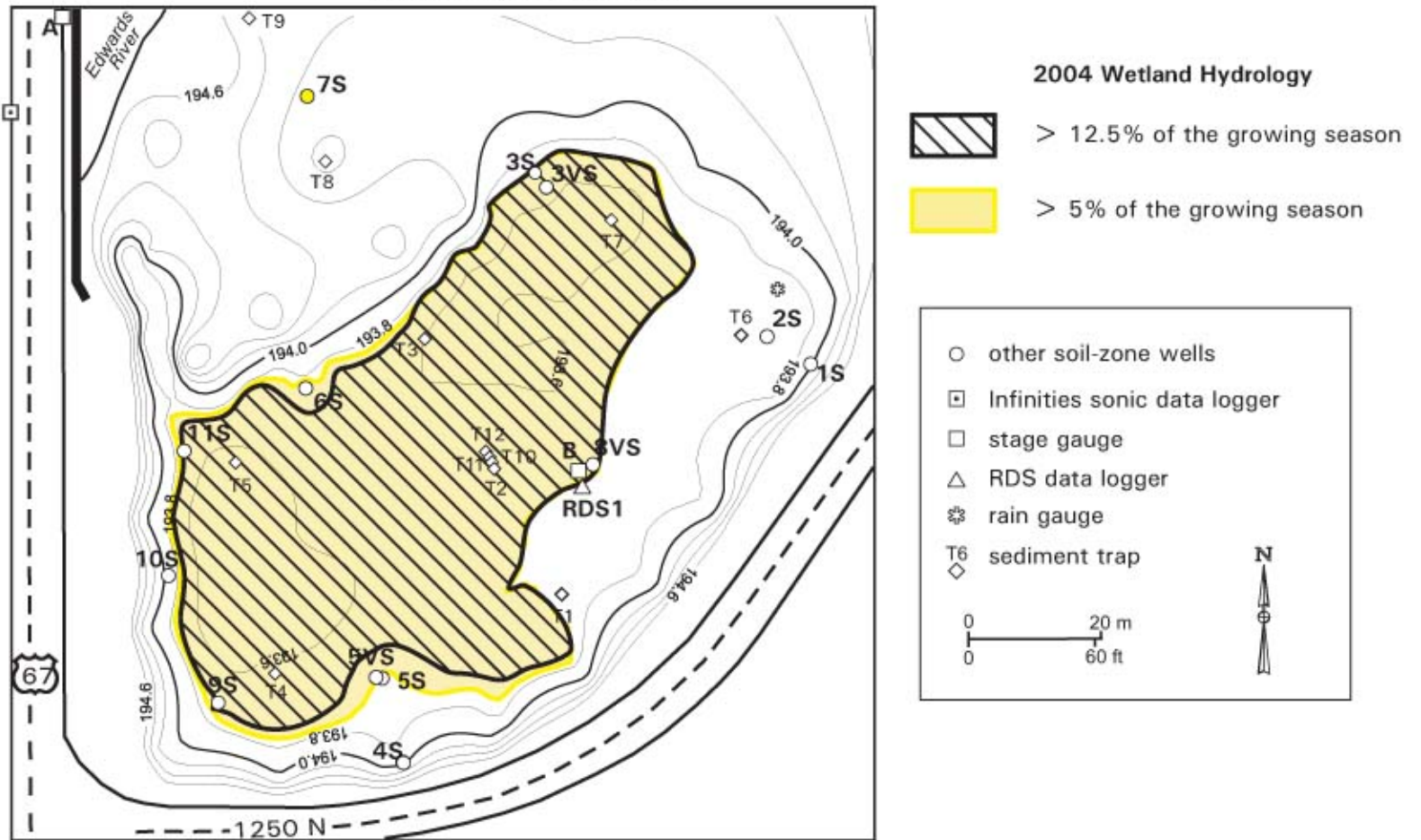
## General Study Area and Vicinity

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



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

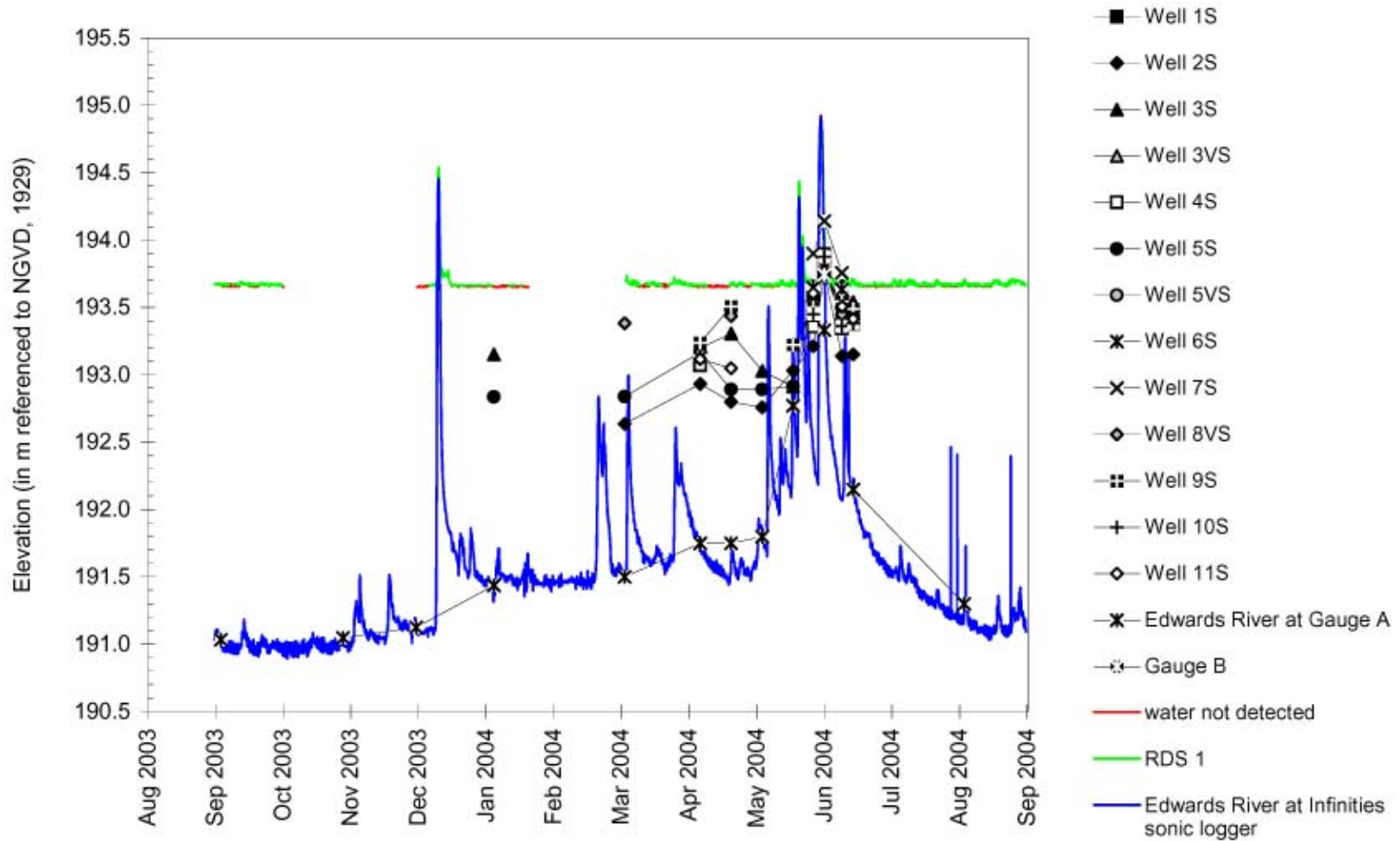
**Estimated Areal Extent of 2004 Wetland Hydrology**  
 based on data collected between September 1, 2003 and September 1, 2004  
 map based on 2002 ISGS elevation survey referenced to NGVD, 1929  
 contour interval is 0.2 meters





## Edwards River, Mercer County Wetland Compensation Site September 1, 2003 to September 1, 2004

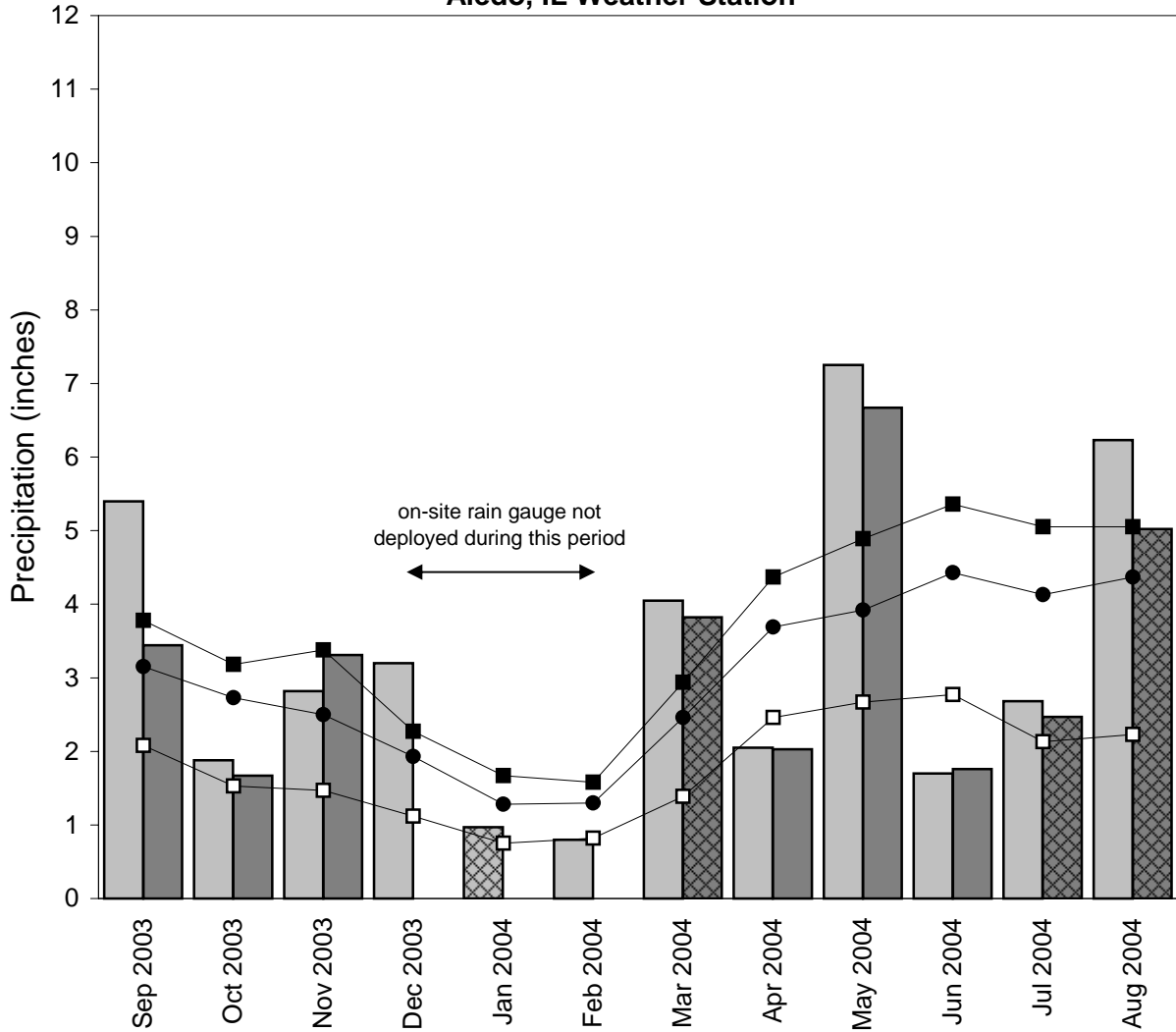
### Water-Level Elevations





# Edwards River, Mercer County Wetland Compensation Site September 2003 through August 2004

**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

Graph last updated October 1, 2004