



**CARBONDALE  
WETLAND COMPENSATION SITE**

**ISGS #65**

FAP 322

Sequence #9780

Jackson County, near Carbondale, Illinois

**Primary Project Manager: Geoffrey E. Pociask**

**Secondary Project Manager: Gregory A. Shofner**

**SITE HISTORY**

- March 2002: ISGS was tasked by IDOT to monitor wetland hydrology for this compensation site.
- April 2002: ISGS initiated water-level monitoring activities.

**WETLAND HYDROLOGY CALCULATION FOR 2005**

We estimate that 0.3 ha (0.6 ac) out of a total of 4.0 ha (9.9 ac) satisfied wetland hydrology criteria (Environmental Laboratory 1987) for greater than 5% of the growing season in 2005, whereas 0.2 ha (0.5 ac) satisfied wetland hydrology for greater than 12.5% of the growing season. These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins in Carbondale, Illinois, is April 4 and the season lasts 203 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.
- Total precipitation for the reporting period from September 2004 through August 2005 was 85% of normal. Drier than normal conditions prevailed in September and December 2004 and in February through June and August 2005, with precipitation in February through June 2005 at only 52% of normal precipitation. Precipitation was at or above normal in October and November 2004 and in January and July 2005.
- In 2005, monitoring wells 2S, 4S, 5S, and 8S satisfied the wetland hydrology criteria for greater than 5% of the growing season. Furthermore, these wells also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.
- The water levels recorded at data loggers RDS 1 and Gauge A show that flood events from Piles Fork supply surface water to the created wetland areas. The area in the basin surrounding RDS 1 below approximately 123.2 m (403.8 ft) was inundated for greater than 5% of the growing season and therefore satisfied wetland hydrology criteria. An unmeasured small area below approximately 123.0 m (404.2 ft) was inundated for greater than 12.5% of the growing season.
- Limitations of the wetland hydrology determination are as follows:
  - The wetland hydrology estimate includes the entire IDOT parcel. Therefore, areas planned for wetland preservation and enhancement are included in the wetland hydrology acreage estimate.
  - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour

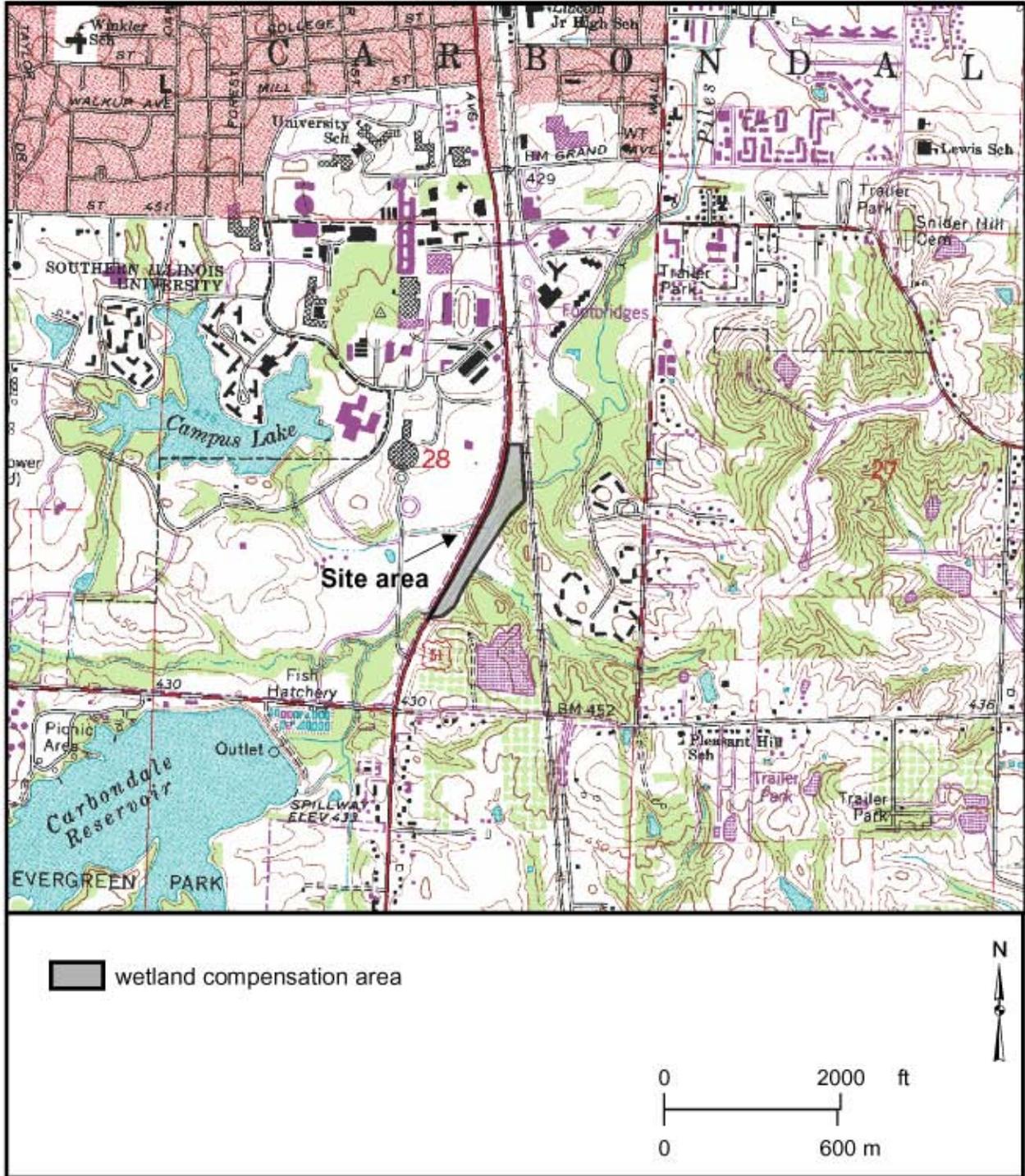
interval) rectified to GPS positions of water-level instruments and point features identifiable from digital orthophotography.

#### PLANNED FUTURE ACTIVITIES

- Water-level monitoring activities will continue through 2007 or until no longer required by IDOT.

**Carbondale Wetland Compensation Site  
(FAP 322)  
Site and Vicinity**

from the USGS Topographic Series, Carbondale, IL 7.5-minute Quadrangle  
(USGS 1966; photorevised 1990)  
contour interval is 10 feet

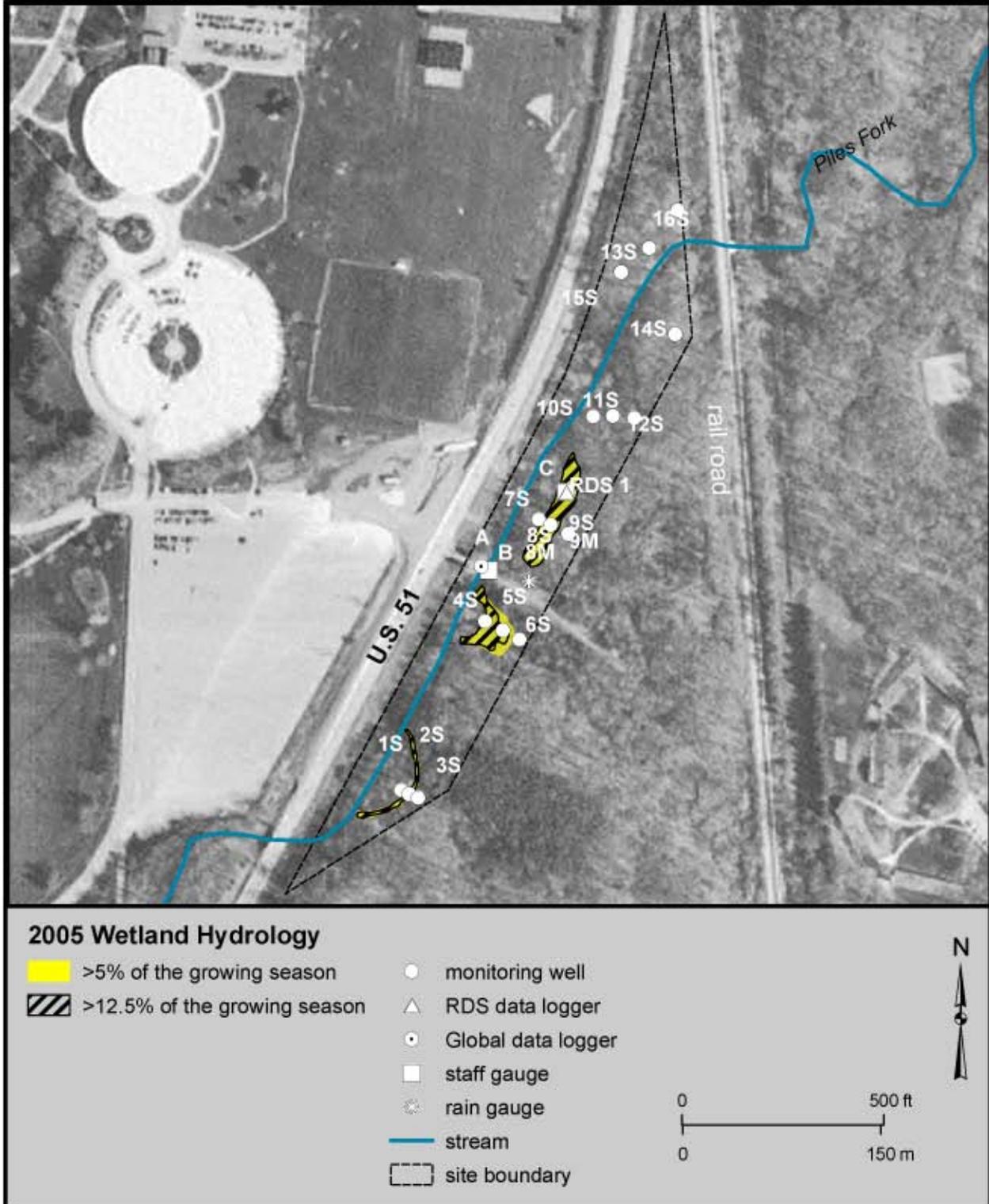


# Carbondale Wetland Compensation Site (FAP 322)

## Estimated Areal Extent of 2005 Wetland Hydrology

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

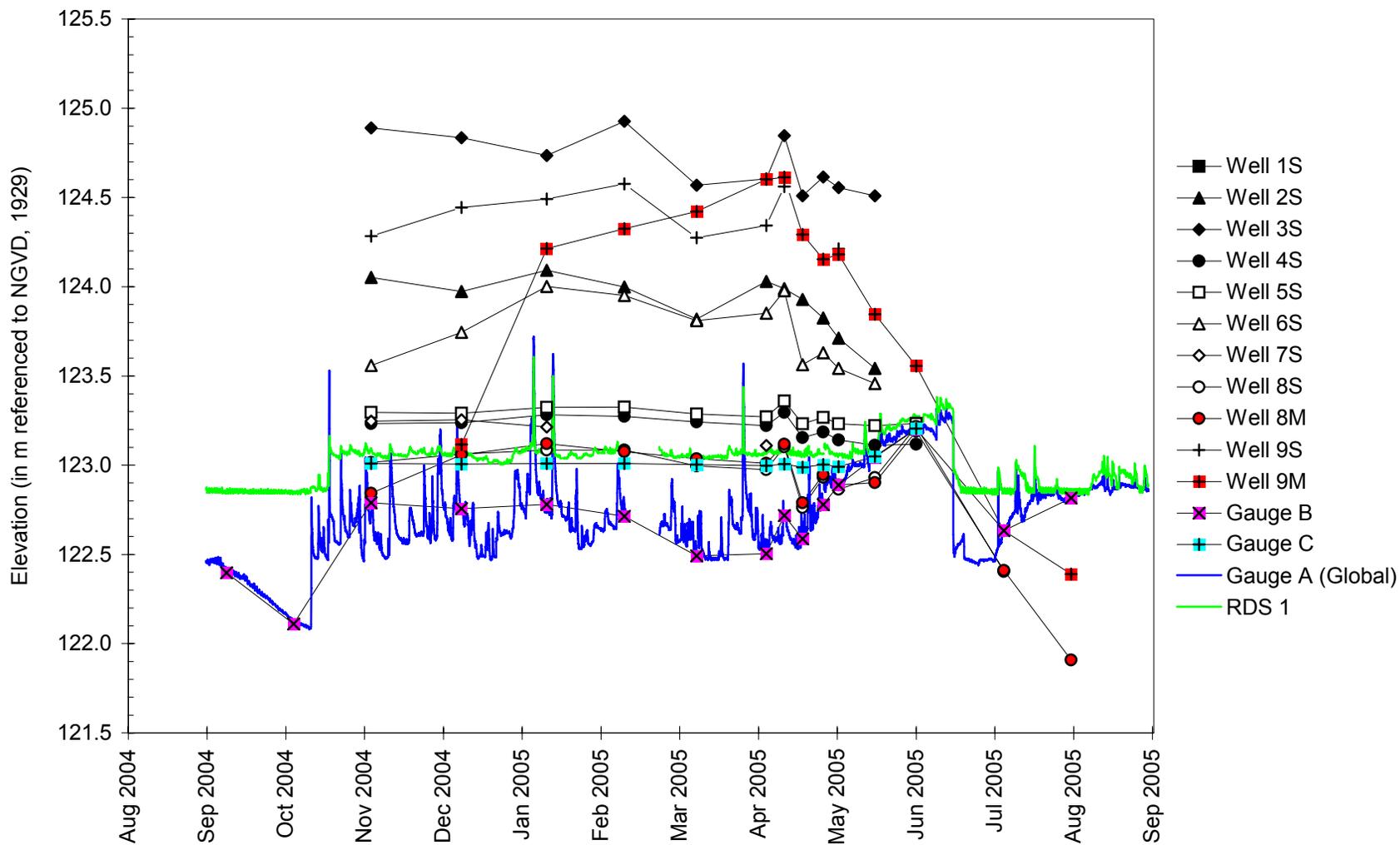
Map based on IDOT mitigation design plan rectified to USGS digital orthophotograph  
Carbondale NW quarter quadrangle from 04/06/1998 aerial photography (ISGS 2002)



# Carbondale Wetland Compensation Site

September 1, 2004 to September 1, 2005

## Water-Level Elevations in Selected Monitoring Wells, on the Stage Gauge, and at the Data Loggers

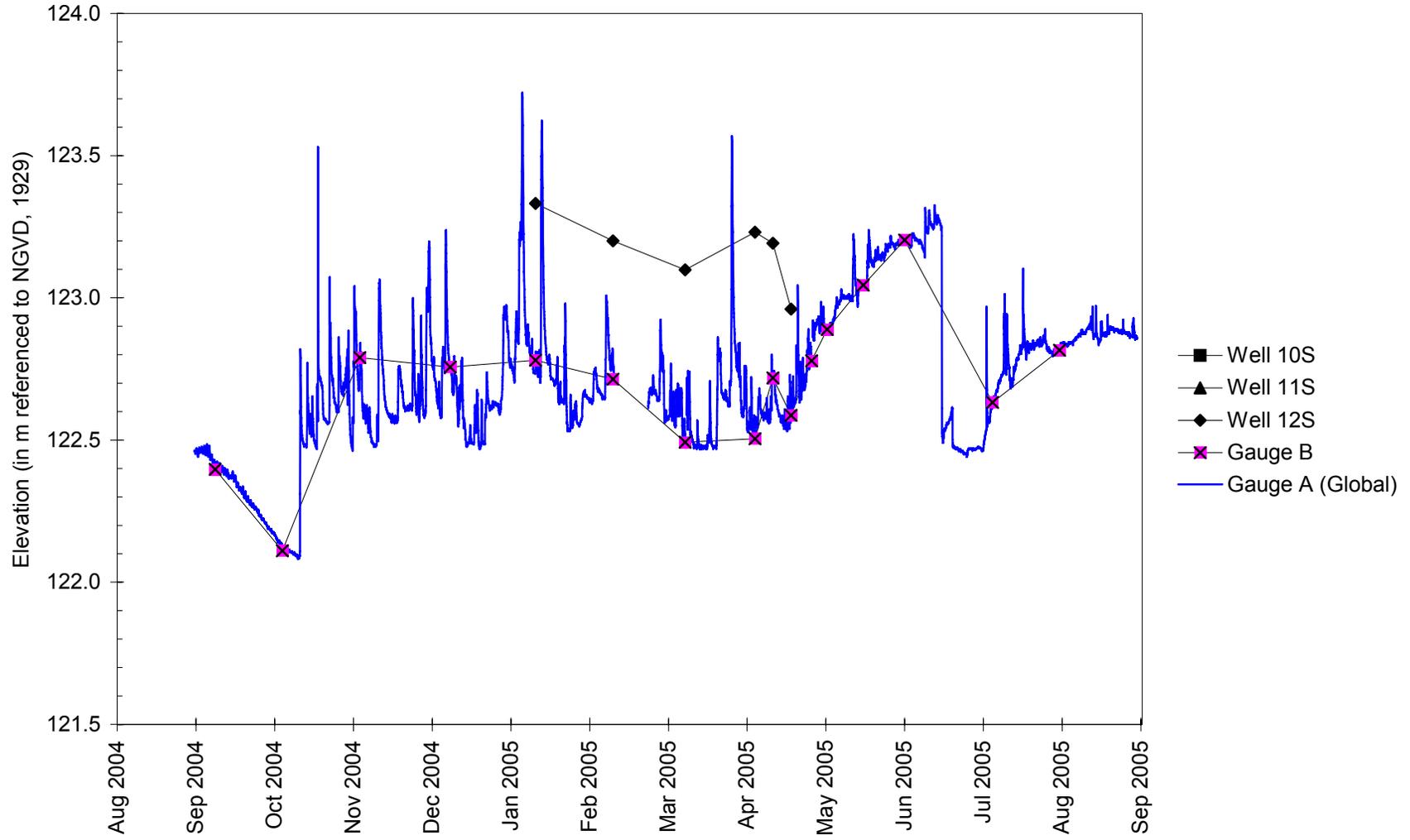




# Carbondale Wetland Compensation Site

September 1, 2004 to September 1, 2005

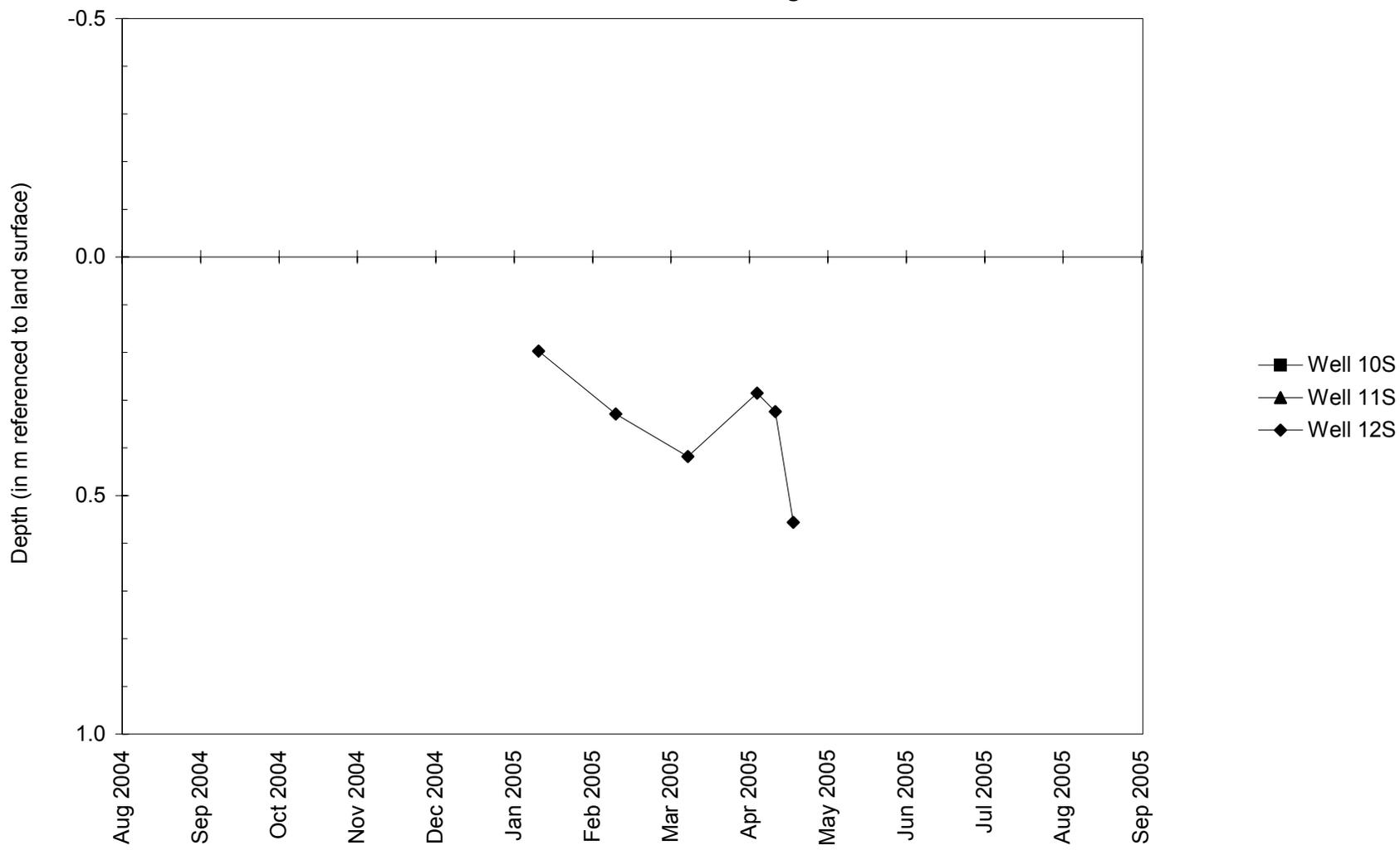
## Water-Level Elevations in Selected Monitoring Wells, on the Stage Gauge, and at the Global Data Logger



# Carbondale Wetland Compensation Site

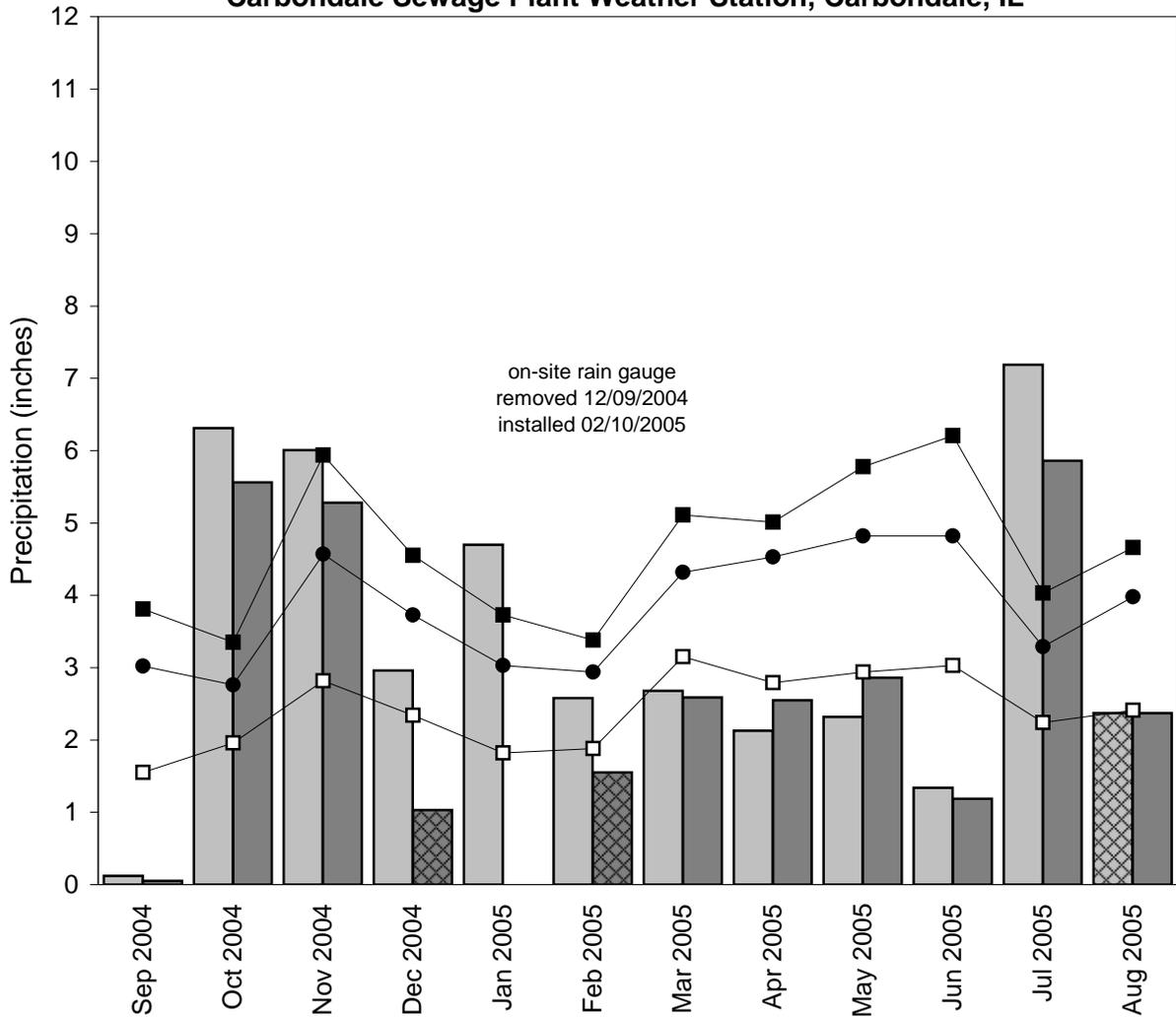
September 1, 2004 to September 1, 2005

## Depth to Water in Selected Monitoring Wells



## Carbondale Wetland Compensation Site September 2004 through August 2005

**Total Monthly Precipitation Recorded On Site and at the  
Carbondale Sewage Plant Weather Station, Carbondale, IL**



- 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