

## Waverly Paha

Riders will have the opportunity to see several excellent examples of paha on Day 6 of RAGBRAI. Paha, a Dakota Sioux word meaning hill or ridge, is an erosional remnant left behind following the erosion associated with the formation of the Iowan Surface between approximately 16,500 and 21,000 years ago. These elongated ridges are oriented northwest to southeast and are most commonly found near the boundary with the Southern Iowa Drift Plain to the south, but are also located in northeastern Iowa near major river valleys. Cores have been collected on numerous paha on the Iowan Surface. Stratigraphically, these ridges consist of a thick mantle of loess (wind-blown silt) over glacial till with an intervening paleosol.

As riders leave Waverly, they will have the opportunity to view two pahas. On the east side of the Cedar River, a large ridge will be visible, and after riders cross the river they will ride over a paha. A core collected on the 'Waverly paha' revealed 23 feet of loess overlying a paleosol formed in Pre-Illinoian glacial till.

## USGS Streamgages

Since the late 1890s, the USGS has been measuring streamflow across the county and providing that information not only to water resource managers but the public as well. With over 9,600 sites nationwide (over 180 in Iowa), the USGS is able to study this valuable resource. Most USGS streamgages consist of a structure in which instruments used to measure, store, and transmit the stream-stage information are housed. Stage, sometimes called gage height, is recorded every 15 minutes and goes through a stringent quality assurance review. Although stage is valuable information for some purposes, most users of streamgage data are interested in streamflow or discharge—the amount of water flowing in the stream or river, commonly expressed in cubic feet per second or gallons per day. This information is of particular interest to the National Weather Service as they develop flood stage criteria to assist in forecasting flooding events.

USGS Streamgages



<http://water.usgs.gov/nsip/>



# RAGBRAI

## Day 6

### 2014

Friday, July 25

Learn About the Land

## Marsh plants





## Sweet Marsh

Sweet Marsh Wildlife Management Area is a 3,157 acre public hunting area located near Tripoli. Many people come to Sweet Marsh each year for bird watching, photography, and to enjoy wildlife in their natural habitat. Thousands of ducks and geese can be seen on Sweet Marsh during the peak spring and fall migration periods. Sandhill Cranes have nested on Sweet Marsh yearly since 1995. Sweet Marsh is also one of the few known homes for the rare and endangered Massasauga Rattlesnake. A small sand prairie remnant, which contains many native grasses and flowers like Big Bluestem, Black-eyed Susan, and Prairie Blazing Star, can also be found at Sweet Marsh.

For more information about Sweet Marsh contact the Wildlife Biologist Jason Auel at 319-213-2815.

### Iowa Rocks!!

*If it can't be grown it has to be mined*



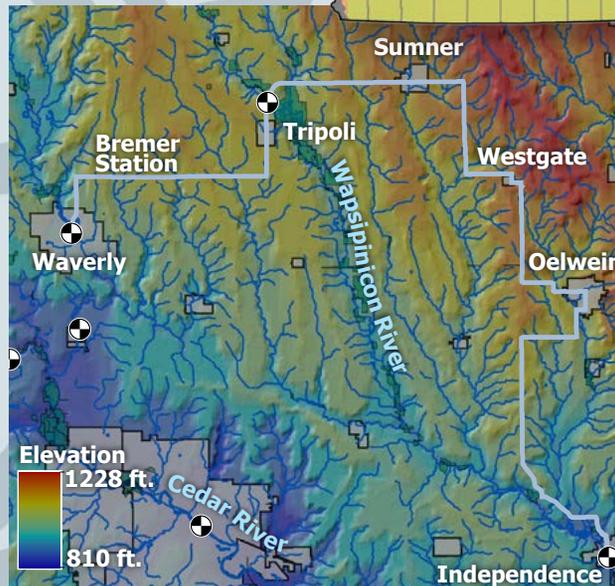
*Everything we have and everything we use comes from our natural resources*



### IFIS Waverly Map

<http://ifis.iowa-floodcenter.org/ifis/main/?m=WAVERLY>

-  USGS streamflow station
-  Parks and preserves
-  Cities and towns



## New Flood Inundation Maps Available for Waverly

The IFC at the University of Iowa recently released updated flood inundation maps for the community of Waverly. Perched on the banks of the Cedar River, Waverly is prone to seasonal flooding. In 2008, Waverly experienced severe flooding that inundated the downtown.

The new maps are accessible on the Internet through the Iowa Flood Information System (IFIS), an interactive online application. The maps are used by local authorities for planning and flood mitigation, but are also available for homeowners, business owners, and others.

A wet spring in 2013 brought additional flooding to Waverly and reinforced the community's need for such tools. Waverly also recently installed an inflatable dam, which can be adjusted to regulate flow. The most recent revisions to the maps more accurately reflect the relationship between flow and inundation extent.

The IFC team has created a library of inundation maps for 12 Iowa communities and continues to improve these maps.

## Littleton Dam

Numerous problems, such as safety concerns and financial issues, are causing towns across Iowa to evaluate options for aging low-head dams. Changes to two low-head dams in Buchanan County will change the Wapsipinicon River. A low-head dam at Quasqueton was recently replaced with rock arch rapids. A similar project is planned in the near future for the low-head dam at Littleton. These changes will result in more recreational and fishing opportunities, while eliminating a safety hazard along the Wapsipinicon River.

