

# Floodplain Management *Today*

November 2008



Nebraska Department of Natural Resources  
Floodplain Management Section  
402.471.2363 <http://dnr.ne.gov>

## **Schuyler Floodplain Maps Right On Target**

By Gloria Bucco

Public Information Officer

A great deal of effort goes into the making of flood maps. Specialists use high-accuracy digital elevation data, peak stream flow estimates, hydraulic models, contour intervals, flood



probability estimates and GIS mapping technology to determine what land is in a flood zone and what land is not. It's a complicated process and there is a degree of uncertainty.

So it's nice to know that all the hard work put into these maps by the specialists who create them and the communities that adopt and abide by them pays off during a flood event. That's exactly what happened in Schuyler this past spring when northeast sections of the city as well as portions of Colfax County were inundated with water from Shell Creek.

"The flooded areas corresponded to the same areas on the maps," explained Mary Peschel, Schuyler's city administrator, clerk, treasurer and floodplain administrator. "You could visibly see where the water stopped. It was almost identical with the maps."

Schuyler's Flood Insurance Rate Maps had been updated and reissued in August 2002. The city has been a member of the National Flood Insurance Program since 1990 – an important year for the community because Schuyler received its first floodplain maps in 1990, and a flood ravaged the area.

"In 1990, one or two basements collapsed," Peschel recalled. "I didn't hear of that happening this time."

But a majority of houses in Schuyler's floodplain were built before the 1990 maps were issued and

*Continued on p. 3*

### **Inside This Issue**

New Floodplain Chief	2
Ask Bill	2
On The Waterfront	4
Valley County Joins NFIP	5
Parent Rejoins Staff	6
Water Under the Bridge	7
City of Valley Attains CRS Class 8	9

## Zheng Is New Floodplain Management Chief



*Shuhai Zheng*

Shuhai Zheng, Ph.D., P.E., CFM, is the new chief of the Nebraska Department of Natural Resources' Floodplain Management section. Zheng takes over from Frank A. Aebly, Ph.D., who left the Department in mid-May for another position. During his 19 years with DNR, Zheng has worked on various studies, contributed to numerous agency reports and activities, and provided assistance to agency personnel and local governments. In particular, he has worked on floodplain mapping for the past 10 years. Zheng plans to continue mapping as many Nebraska counties as possible. "I would like to see more detailed hydrology and hydraulic studies to provide more accurate floodplain information to the state's cities, villages and counties," he said.



**Bill Jones**  
Floodplain Management Specialist

### Ask Bill... Floodplain Q&A

**Q.** Our village recently appointed a new person as Floodplain Administrator. Do we have to notify DNR or FEMA, or do anything else?

**A.** Your Floodplain Management Ordinance names your Floodplain Administrator so it is important to keep the ordinance up to date to ensure your community has the legal authority to enforce floodplain requirements and withstand legal challenges. If your designated Floodplain Administrator has changed or your maps have changed or even if the title of the designated Floodplain Administrator has changed, you should amend your ordinance to reflect these modifications. Copies of amendments to your Floodplain Management Ordinance, or Resolution in the case of counties, should be sent to FEMA's regional office to ensure it is aware of the changes. Proper administrator identification ensures correspondence is correctly directed. Misdirected mail can mean important information does not reach community officials in a timely manner. Also of importance, if a community annexes property that alters its corporate or extra-territorial jurisdiction and impacts special flood hazard areas, FEMA should be notified and provided copies of these updated boundaries. In addition, our Floodplain website now has a link to an **"Instant Floodplain Administrator Change Form"** where you can update information about your Floodplain Administrator immediately by filling in the blanks and clicking "Send." The web address is: <http://dnr.ne.gov/floodplain/floodplain.html>.

**“Schuyler” continued from p. 1**

therefore had not been constructed to meet FEMA elevation requirements. This caused about 100 homes to sustain basement flooding during this spring’s storms, Peschel said. Several businesses and agricultural lands were also damaged, she added.



These consequences put added emphasis on the city’s hazard mitigation planning process, initiated in 2007. In an effort to become eligible for certain FEMA grants, Schuyler retained the services of JEO Consulting Group, based in Wahoo. Working together, community members and John Callen of JEO completed an inventory of potential hazards and identified possible mitigation strategies. The mitigation plan addresses more than flooding, Callen noted. It includes the ramifications of all natural hazards including tornadoes, winter storms, wildfires and earthquakes even though flooding and tornadoes are some of the most common disasters affecting Nebraskans.

“Last July, we discussed and ranked mitigation projects but, in light of the spring floods, the community response was geared more toward flood control,” Callen explained. “Next we’ll coordinate with the community to finalize the list.”

Once this is complete, the mitigation plan will be sent to the Nebraska Emergency Management Agency and the Department of Natural Resources before it goes to FEMA for approval.

Potential future mitigation projects being considered for inclusion in the plan are:

- \* Property buyouts.
- \* Updating the Urban Stormwater Drainage Master Plan.
- \* Installing a dam on Shell Creek upstream of Schuyler.
- \* Developing a Master Plan for the Shell Creek watershed.
- \* Widening the opening for stream flow beneath the railroad bridge on Shell Creek.

“This is a huge, huge topic but it’s important for our community because it affects economic development,” Peschel said. “The public very much supports some type of mitigation because homeowners have a major investment. They want the city to alleviate flooding.”

Effective flood mitigation starts with the assumption that flood maps are accurate. Schuyler’s experience illustrates the fact that flood maps can accurately reflect a city’s flood risk.

### **Flood Maps Are Important**

Flood Insurance Rate Maps are critical to the management of floodplains. They serve as a key planning tool by:

- \* Demarcating areas subject to flooding.
- \* Providing the basis for determining the depth and velocity of the flood hazard for floodplain regulations.
- \* Identifying flood insurance rates.

## On The Waterfront: *Nebraska Mapping Outlook*

By Shuhai Zheng, Chief  
Floodplain Management

Since our May newsletter, the Floodplain Management Section has been busy mapping special flood hazard areas, attending meetings, presenting workshops, determining base flood elevations, and providing assistance to local communities and counties. A number of county maps have become effective and four preliminary county maps have been issued.



Flood Insurance Rate Maps (FIRMs) for another seven Nebraska counties are now effective, bringing the total to 37. Those counties are: Greeley, Hall, Loup, Polk, Sherman, Valley and Webster. Along with the Federal Emergency Management Agency, my staff and I attended two final map meetings for Merrick and Thurston counties. FIRMs for both of these counties are expected to become effective in 2009. Preliminary maps for Gage, Lancaster, Platte and Saunders counties have been issued, and meetings with these four counties will be occurring shortly.

With the addition of a new staff member (see related story on p. 6), the Floodplain Management Section's current mapping effort is focused on producing working maps for Dawes, Cedar and Dixon counties. Dawes County maps are expected to be completed and available to residents sometime in November. Maps for Cedar and Dixon counties should be ready in early 2009.

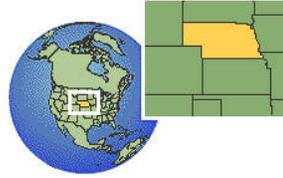
Using both LiDAR (Light Detection and Ranging) and GPS (Global Positioning System) technologies, elevation data is now being collected from Nebraska's western border with Colorado, to the western border of Gage County, north to the Platte River. As soon as we receive the elevation "points," DNR will process the information to generate more accurate topographic data for future mapping efforts.



## Check Out Our New Website!

When you have a minute, take a look at Floodplain Management's updated website: <http://dnr.ne.gov/floodplain/floodplain.html>. You'll find a bimonthly feature article; interesting weekly news briefs from Nebraska, the U.S. and around the world; a crawl promoting the latest workshops or conferences; links to all our educational pamphlets, flyers and DVDs; interactive floodplain maps; and general floodplain information. Visit us and come back often to stay up to date on all things floodplain related.

## **DFIRM's Are Now Effective for the Following Counties:**



Boyd  
Chase  
Dodge  
Douglas  
Dundy  
Fillmore  
Franklin  
Frontier  
Garden  
Garfield  
Gosper  
Greeley  
Hall

Hayes  
Hitchcock  
Howard  
Johnson  
Kearney  
Keith  
Knox  
Loup  
Madison  
Nance  
Nuckolls  
Otoe  
Pawnee

Perkins  
Phelps  
Polk  
Sarpy  
Sherman  
Stanton  
Thayer  
Valley  
Wayne  
Webster  
Wheeler

### ***Valley County Joins National Flood Insurance Program***

Valley County is Nebraska's newest member of FEMA's National Flood Insurance Program. The county's Board of Supervisors voted on July 29 to join the Federal Emergency Management Agency's program. The move allows residents to purchase flood insurance and increases the county's access to federal assistance in case of disaster.

The Board also appointed Zoning Administrator Nancy Glaubke as the county's Floodplain Administrator. In addition, Valley County's new FEMA flood maps became effective on Aug. 19, 2008.

County officials are confident joining the NFIP will benefit residents. "If the county did not adopt this policy," Board Supervisor George Baker explained, "people who might want to build in the floodplain could not get flood insurance. Now people will have access to this program."

Valley County is one of more than 20,000 communities across the United States and its territories participating in the NFIP. Communities adopt and enforce floodplain management ordinances to reduce flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters and business owners in these communities.

Valley County has residential structures in the floodplain which could be impacted. If property owners carry a mortgage on these homes, banks will now require flood insurance.

Nationwide, flood damage is reduced by nearly \$1 billion a year through communities implementing sound floodplain management requirements and property owners purchasing flood insurance. Additionally, buildings constructed in compliance with NFIP building standards suffer nearly 80 percent less damage annually than those not built in compliance. Community participation in the NFIP is voluntary.





*Staci Parent*

## Staci Parent Rejoins Floodplain Management Section Staff

The Floodplain Management section is pleased to welcome the return of one of its co-

workers – Staci Parent. Staci worked in the department from October 2005 until December 2007 as a contract employee. She returned to DNR as a full-time staff member last August after seven months at an Omaha company. “We’re very happy that Staci decided to return,” said Shuhai Zheng, Floodplain Management chief. “She’s an excellent mapping specialist and we are lucky to have her back.”

Staci has a Bachelor of Science degree in geography with a minor in math from University of Nebraska-Lincoln. Her main responsibilities include using GIS (Geographic Information Systems) software to complete mapping projects from FEMA. “When I first started here I didn’t know anything about floodplains,” she explained. “I learned the little things first and gradually took on new tasks. I’ve assisted with a

number of flood maps from start to finish, and currently I am preparing files that will go into the maps I will eventually make for Dawes County.”

Staci will also play a major role in the department’s use of new LiDAR (Light Detection and Ranging) technology. “I’ll be making ‘daughter’ products such as digital elevation models from the LiDAR elevation points we receive, but that will be down the road,” she added.

Pointing out that she “really likes” the Floodplain Management team, Staci noted she is “thrilled” to be back on a full-time basis. “It’s nice to come back to tasks and people I’m familiar with, and to feel confident about the work I’m doing,” she said. “I also like knowing that community members are going to be looking at our maps, and they’re going to have an important purpose in the floodplain management process to help protect people.”

### **Make Sure We Have Your Latest Information So We Can Send You Our Latest Information**



Has your address or phone extension changed? Does your community have a new Floodplain Administrator? If so, go to the Floodplain Management website: <http://dnr.ne.gov/floodplain/floodplain.html> and click on “Instant Floodplain Administrator Change Form.” Simply fill in the blanks and click “Send.” Your updated information will come straight to us, and we will immediately change our data bases. This will save time and postage, and you will avoid delays in receiving our latest announcements and messages. Thanks!



## Remembering the Flood of 1963

My parents and all four of my grandparents grew up in the Malmo and Wahoo area, and a long-time subject of family lore has been the major flooding of 1963. Although the flooding changed the course of families and entire towns, it is surprising that not a great deal has been published about the event. This is even more surprising since the flooding made the front page of newspapers in Des Moines, Chicago and even Canada. Since 2008 marks the flood's 45<sup>th</sup> anniversary, I set out to piece together what happened back in 1963.

### 16 Inches of Rain

Based on rainfall amounts, major flooding was localized in an area called the Bohemian Alps of Saunders and Butler counties. According to the Lower Platte North Natural Resources District, 8.5 inches of rain fell at Prague and 6.8 inches in Wahoo. Through additional research, I discovered rainfall amounts in and out of the flooded area were: 14 inches at David City and Garrison, 10 inches at Bruno, 6 inches north of Polk, and 4 inches at Aurora.

In addition to these eye-popping rainfall amounts, unofficial reports in the Bruno and Abie area were 11 inches found in livestock tanks, and a whopping 16 inches from a stock tank near Linwood. Since we know that water can only flow downhill, I checked gauges and historic records to see what stories the various streams emanating from Bohemian Alps would tell me.

### Skull Creek

Skull Creek flows north out of the Alps and empties into the Platte River near Linwood. Bruno and Abie are situated on a tributary of Skull Creek, and both communities recorded significant flood damage. On the morning of June 25, a truck from the Rural Electric Administration was dispatched from David City to Bruno. This specific truck was sent because it had extra large tires and was higher off the ground. At Bruno, the driver found people huddled in their attics, waiting to be rescued.



*Overtaken jeep in Bruno, Neb., 1963.*

Downstream of Abie, the tributary meets the main channel of Skull Creek. Although there is no stream gauge on the creek in this area, the volume of water coming out of the Skull Creek "chute" and into the Platte River valley toward Linwood would have been unimaginable. In Linwood there was one death, water was 8 feet deep in parts of town, and homes were pushed off their foundations. All told, 72 of its 77 homes were damaged with 65 of these listed as "major" damage. Rumor has it that one of the more popular post-flood attractions in Linwood was the car that had been "deposited" in a tree. Assistance was slow to reach Linwood because telephone lines had been destroyed – along with the

*Continued on p. 8*

*Continued from p. 7*

volunteer fire department building. Once organized, 25 prisoners from the Nebraska State Penitentiary in Lincoln helped with the clean-up.



*Homes moved from their foundations in Linwood, Neb., 1963.*

### Impact

Gov. Frank B. Morrison declared seven counties disaster areas on June 27, which opened up the possibility of low-interest federal Small Business Administration loans to flood victims. On July 18, President John F. Kennedy declared eight southeast Nebraska counties federal disaster areas with damage totals exceeding \$10 million (\$67.8 million in 2007 dollars) in private and

\$3 million (\$20.3 million in '07) in public losses. In the Wahoo Creek basin alone, private damage exceeded \$1.5 million (\$10.2 million). In Saunders County, 32 bridges were lost and 131 more needed repair. The Saunders County highway engineer estimated damage to be \$653,700 with an additional \$70,000 for new gravel. Also in Saunders County, 150 sections, or 96,000 acres, were flooded. In Butler County, 100 bridges were either damaged or destroyed. In Lancaster County, 8 to 10 bridges were lost with an estimated \$100,000 repair bill. In one reach, four bridges in a row were lost on Salt Creek near Kramer, but bridges were also lost from communities as far apart as Raymond, Agnew and Waverly. In Lincoln, the bridge on Cornhusker Highway crossing Dead Man's Run (east of 27<sup>th</sup> Street) was lost. All over the flooded region, there were reports of grain bins "popping" from having the wet grain inside them expand beyond the bins' capacity to hold it.

*This is only a small portion of Steve's much larger story that can be found on the Mitigation page of our website:  
<http://dnr.ne.gov/floodplain/mitigation/mitigation.html>.*

### **For More Information**



**Shuhai Zheng, Ph.D., P.E., CFM**, Floodplain Management Section Chief, 402.471.3936

**Bill Jones, CFM**, Floodplain Management Specialist, 402.471.3932

**Steve McMaster, CFM**, Natural Resources Planner/Coordinator, 402.471.3957

**Staci Parent**, Floodplain Mapping Specialist, 402.471.1737

**Andrew Christenson**, Natural Resources Specialist, 402.471.1223

-----

**Gloria Bucco, M.A.**, Public Information Officer, Newsletter Editor, 402.471.8608

## City of Valley Earns a CRS Class 8 Rating



Congratulations are in order for the City of Valley in Douglas County. Valley has been awarded a Class 8 rating from the National Flood Insurance Program's Community Rating System. Only two other Nebraska communities have CRS ratings.

"I am very proud of everyone who worked on this process," said Mary Caffey, mayor of Valley. "This is a very positive thing because flood insurance is a reality and this is very important to property owners. It would not have been possible without the support of our community members."

This was Valley's first attempt at a CRS rating. The city was able to accumulate 1,013 credit points which allowed it to receive the Class 8 rating. This means Valley homeowners with property in the floodplain who carry flood insurance will receive a 10 percent discount when they renew their policies this fall. There are some properties in Valley not in a floodplain, and property owners in these areas with an insurance policy will receive a 5 percent discount.

Caffey noted that Michael Burns, Valley's floodplain administrator, and Shawn Smith, deputy clerk, both worked "diligently" to learn the floodplain process and put together the proper paperwork necessary to receive the rating.

"Michael joined the city a little over a year ago and this was all new to him," Caffey recalled. "But he did a fantastic job. And Shawn, his cohort, just completed her Floodplain Manager certification."

Valley accumulated most points in the following areas:

- \* Higher Regulatory Standards
- \* Map Information Services
- \* Drainage System Maintenance

- \* Flood Data Maintenance
- \* Public Information and Outreach

"What the CRS recognizes is the proactive measures a city is taking to better protect and serve those in the floodplain," Caffey said. "This is just another indicator of the progressive city we have, and it shows the good side of the partnership among local, state and federal that people don't always see."

Steve McMaster, Nebraska's CRS point-of-contact from the Department of Natural Resources, agreed. "I have really enjoyed working with Valley's leadership over the years," he said. "It is great to see that the city's citizens will finally be rewarded for their hard work."

McMaster estimated Valley's Class 8 rating will reduce the cost of a flood insurance policy by \$71 each year with a combined savings of \$25,360 for all policies in Valley.

Other Nebraska cities that have attained CRS designations are:

Lincoln:	Class 7 (15% discount)
Fremont:	Class 8 (10% discount)

CRS is a program within FEMA's National Flood Insurance Program which rewards communities that go above and beyond minimum requirements. Communities accumulate points by completing activities. If a community is able to document that it is completing activities that reduce flood damage or increase education, it receives points. For every 500 points earned, the cost of the flood insurance premium for each property owner in the floodplain drops by 5 percent. For more information on CRS, contact Steve McMaster at 402.471.3957.

- Gloria Bucco

### **FEMA Management Bulletin on Historic Structures Now Available**

The purpose of this Floodplain Management Bulletin is to explain how the National Flood Insurance Program defines a historic structure and how it gives relief to historic structures from NFIP floodplain management requirements. This bulletin also provides guidance on mitigation measures that can be taken to minimize the devastating effects of flooding to historic structures. The Bulletin can be found and downloaded at:



<http://www.fema.gov/library/viewRecord.do?id=3282>

### **ASFPM Announces 2009 Conference and Call for Abstracts**

The Association of State Floodplain Managers has announced the location and theme of its 33<sup>rd</sup> Annual National Conference, to take place from June 7-12, 2009, at the Rosen Center in Orlando, FL. "Green Works to Reduce Flood Losses" will build on Green Works Orlando, an environmental action initiative designed to preserve natural resources, and encourage environmentally friendly lifestyles and business practices. The conference will examine challenges facing the nation as flood loss reduction experts share ideas and learn from one another.