

Floodplains: *Don't Mess with Mother Nature*

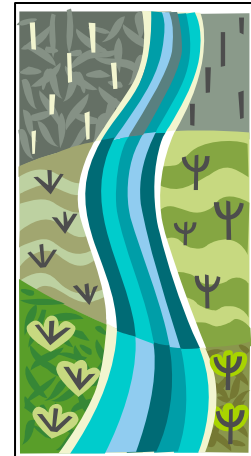
[Part 1](#)

By Gloria Bucco

With all the rain and flooding we've had this spring, the word "floodplain" might strike fear in the hearts of some. And so it should. Nowadays, areas along rivers, streams, lakes and oceans -- the land that once would have absorbed the brunt of rising waters -- have been drained, dredged, filled, paved and otherwise developed. We've built levees and dikes to channel water away from one town only to create more water for another to deal with farther down the river. We've interfered with the natural cycle of things and it's costing us dearly. A governmental agency has already tagged this spring's flooding at \$2 billion and climbing. Congress has authorized nearly \$2.7 billion for grants and loans. Already, 21,000 Iowa homeowners have filed claims.

Conservationists and even the Federal Emergency Management Agency are now saying it's time to strike a balance between development and nature. How about buying out homeowners and relocating them to higher and safer ground? How about restoring some wetlands and reclaiming some floodplains? If levees are rebuilt, how about setting them back from the river to allow more space for flood waters?

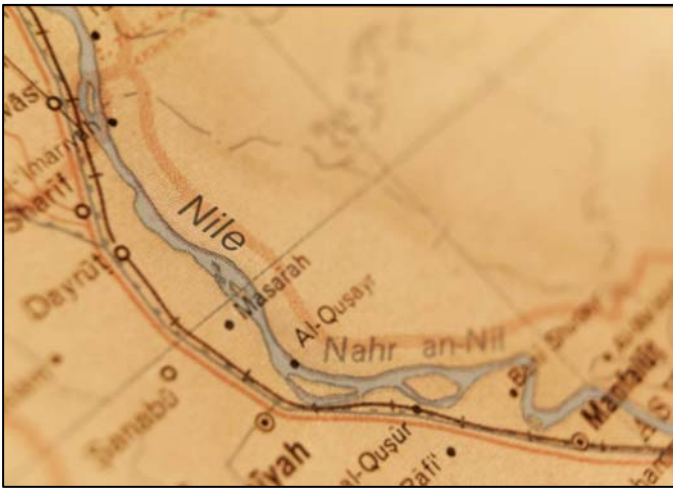
In light of the flooding taking place this spring, we thought an in-depth look at floodplains and their role in nature was appropriate. Read on for some interesting and surprising facts about floodplains, how we've treated them and how they should be treated.



River of Life

What we often don't realize is that floods are part of a river's natural cycle. Before levees and dams were built, rivers would spread out as far as they needed during a flood, spilling onto adjacent lowlands which we now call floodplains. There, the flood waters would settle and be absorbed. Flora and fauna would be refreshed and renewed, and the soil would be enriched.

In fact, a single acre of wetland can store 1 million to 1.5 million gallons of floodwater. Even having 4 percent to 5 percent wetland coverage in a watershed can reduce peak floods by 50 percent, according to Julie Rochman, president



and CEO of the Institute for Business and Home Safety, and Rebecca Wodder, president of American Rivers.

One remarkable example of this natural process is the floodplain that spans the Nile River in North Africa. The Nile

helped create an entire civilization. Without it, there would never have been a Cleopatra or King Tut. The ancient civilization that built the Pyramids and the Sphinx would never have come to pass. Then and now, the Nile and its floodplain allow agriculture to thrive, provide a thoroughfare for shipping and transportation, and supply “liquid gold” to the residents of what is otherwise the North African desert.

Nearly all the food produced in Egypt is watered by the Nile. Each year when the river overflowed its banks, floodwaters deposited fertile soil in which farmers could grow their crops. Called the “inundation,” this annual event was anxiously awaited and celebrated. The soil it deposited turned the color of the earth black, fertilized it, retained moisture and prevented soil degradation through salinization.

The ancient Egyptians knew when the flood would come, almost to the hour, but they never knew how much water it would bring to irrigate their fields. The Egyptians believed the Nile was the center of the world, and the source of the river was the source of life itself. And in a way it was because, without the Nile floods, agriculture wouldn’t have been possible in Egypt.

*Hail to thee, O Nile! Who manifests thyself over this land,
and comes to give life to Egypt!
- Hymn to the Nile*

But today, even the Nile’s flow has been altered. The Aswan High Dam now collects the Nile flood and releases its waters gradually to enable farmers to irrigate their crops year-round. This doesn’t sound too bad until you realize that the nutrient-rich sediments carried by the Nile collect behind the dam and no longer enrich the soil of the Nile valley and delta. The soil has become less fertile as a consequence, and farmers must now use expensive chemical fertilizers.

Results of Overdevelopment

Throughout much of American history, our rivers have been treated as problems waiting to be “solved,” according to Rochman and Wodder. Through large-scale engineering projects, waterways have been clogged with dams, straightened and channelized, cut off from their floodplains and even buried underground. Natural vegetation along rivers and streams has been removed, lowlands have been drain tiled, and streams channelized or straightened to provide more tillable land.

And why was this done? In preparation for development because people like living near rivers, lakes and oceans, and farmers like to increase their crop yield. All of this contributes to the 80,000 acres of wetlands that continue to be lost in the U.S. each year. And national flood losses continue to rise despite the billions of federal dollars spent over several decades on more and more levees and dams.

Many voices are being raised in a call to put a stop to floodplain development. Kamyar Enshayan, a college professor and City Council member in Cedar Falls, Iowa, suspects that this spring's floods weren't really a "natural disaster." He noted in the Washington Post that the heavy rains fell on a landscape radically reengineered by humans. Plowed fields have replaced tall grass prairies, and fields have been meticulously drained with underground pipes. Streams and creeks have been straightened. Most of the wetlands are gone. Floodplains have been filled and developed.

"We've done numerous things to the landscape that took away these water-absorbing functions," he explained.

Another voice is that of Robert E. Criss, Ph.D., a professor of earth sciences at Washington University in



People like living near rivers and lakes.

St. Louis, who told Science Daily.

"When people build commercial or residential real estate in floodplains, when they build on sink holes, when they build on fault lines, when they build on hillsides in L.A. that are going to burn, over and over again, they're ignoring geologic reality. They're asking for chronic problems. Flooding is what a river does . . . It's an obvious geologic mistake to build on a floodplain."

Jerry DeWitt, director of the Leopold Center for Sustainable Agriculture at Iowa State University, adds his voice: "I sense that the flooding (this year) is not the result of a 500-year event. We're farming closer to creeks, farming closer to rivers. Without adequate buffer strips, the water moves rapidly from the field directly to the surface water."

Even FEMA wants less development on floodplains. One of the primary objectives of FEMA's National Flood Insurance Program is to guide development away from high flood-risk areas.

Incentives Encourage Development

So why are we still building in the floodplain? The answer is simple: There are lots of incentives to keep things just the way they are. For example, as long as the Corps of Engineers can prove there is an economic benefit to developing a floodplain, and can persuade Congress to fund the project, developers who want to build in a flood zone can get:

1. A government-built levee protecting their investment.
2. The government's nearly total subsidy of repairs should floods damage it.
3. The right to offer property buyers guaranteed federally underwritten flood insurance policies through the National Flood Insurance Program.

Here are three examples of development trumping environment:

** Not too long ago, an 11,000-unit housing development was proposed for a flood-prone area south of Stockton, Calif. The state's top flood protection agency reversed course and awarded developers a permit over the objections of staff members. When the state Reclamation Board, which also had to approve the project, became increasingly skeptical of plans to build in flood zones, Gov. Arnold Schwarzenegger simply replaced the entire board. The new board didn't hesitate to give the project its stamp of approval.

** Between 2007 and 2008, farmers took 106,000 acres of Iowa land out of the Conservation Reserve Program, which pays farmers to keep farmland uncultivated, according to Lyle Asell, with the Iowa Department of Natural Resources. That land, if left untouched, probably would have been covered with perennial grasses with deep roots that help absorb water, Asell added.



** In the town of Arboga, in Yuba County, California, areas are being newly zoned for subdivisions on the very same land inundated by floods in early 1997. Currently 58,000 structures are being planned, according to Jeffrey Mount, a professor of geology at the University of California at Davis.

Floods happen, so why are we still building in the floodplain?

So while scientists, conservationists and FEMA are calling for less development on floodplains, the reality of the situation is very different. In the words of the legendary engineer Charles Ellet -- the water is supplied by nature, but the height is increased by man. Floods are natural events, but they are unnatural disasters.

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(This month we looked at the importance of floodplains and how we've treated them in the past and are still treating them. Visit us again next month when we continue this important story by turning to what can be done to save our floodplains and reduce the damage from 100- and 500-year flooding. We'll also take a look at Nebraska's floodplains, and see what other communities, states and countries are doing to save this precious resource.)

Gloria Bucco is a public information officer with the Nebraska Department of Natural Resources Floodplain Map Modernization Project.

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