



Association of State
Floodplain Managers



Importance of Wetlands in Floodplain Function and Ecosystem Services

David Fowler, CFM
April, 2020



ASFPM'S MISSION

Mitigate the losses, costs, and human suffering caused by flooding.

and...



Protect the natural and beneficial functions of floodplains.



CFM on the Job Training





Postcards From the Floodplain



Who Needs Wetlands?

Restoring America's Wetlands





Truth in Advertising



IT'S CALLED FLOOD
PLAIN BECAUSE IT
IS PLAIN THAT IT
FLOODS!!

REMEMBER "93"

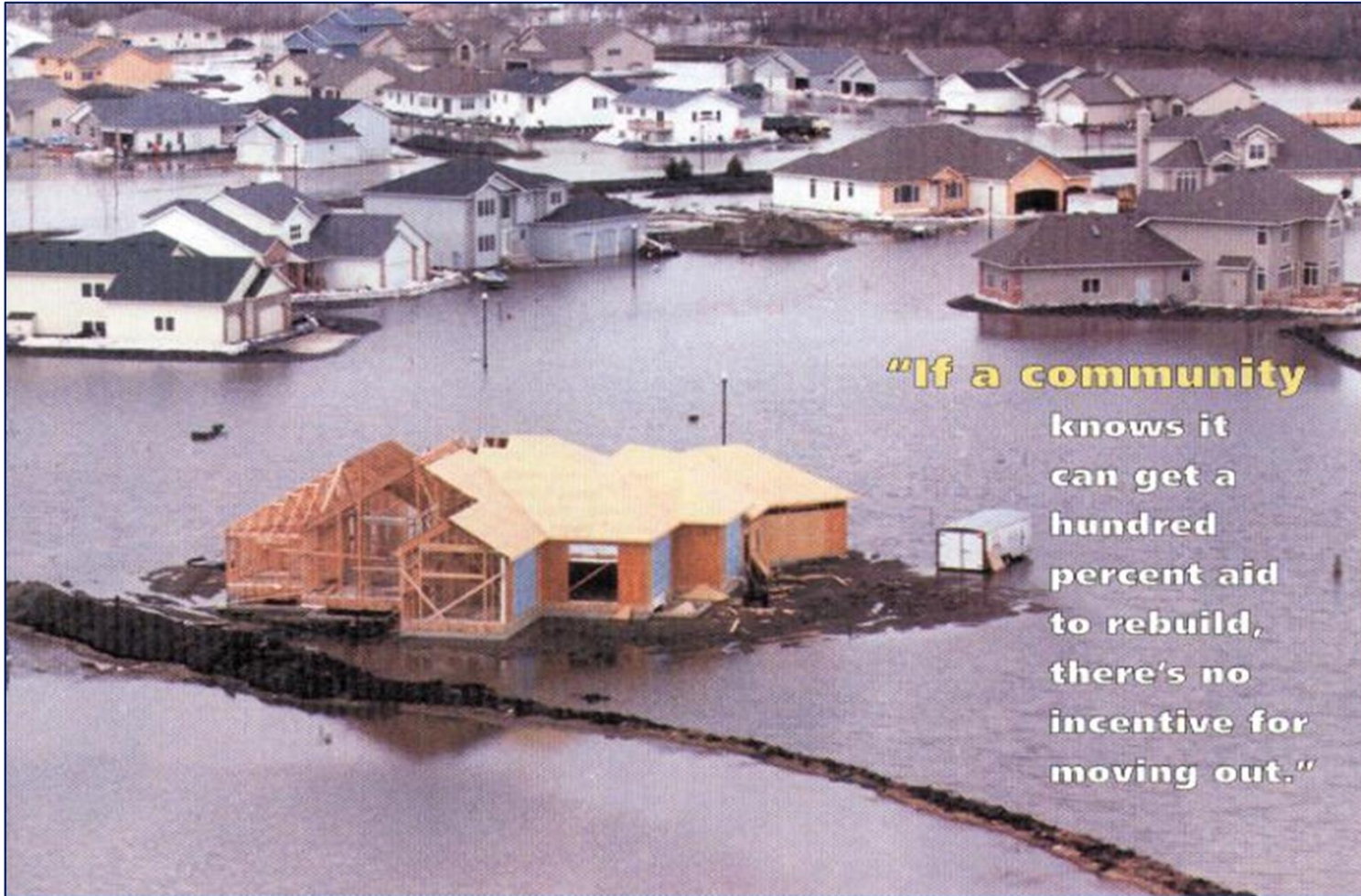
314-241-2122



GREAT RIVERS HABITAT ALLIANCE

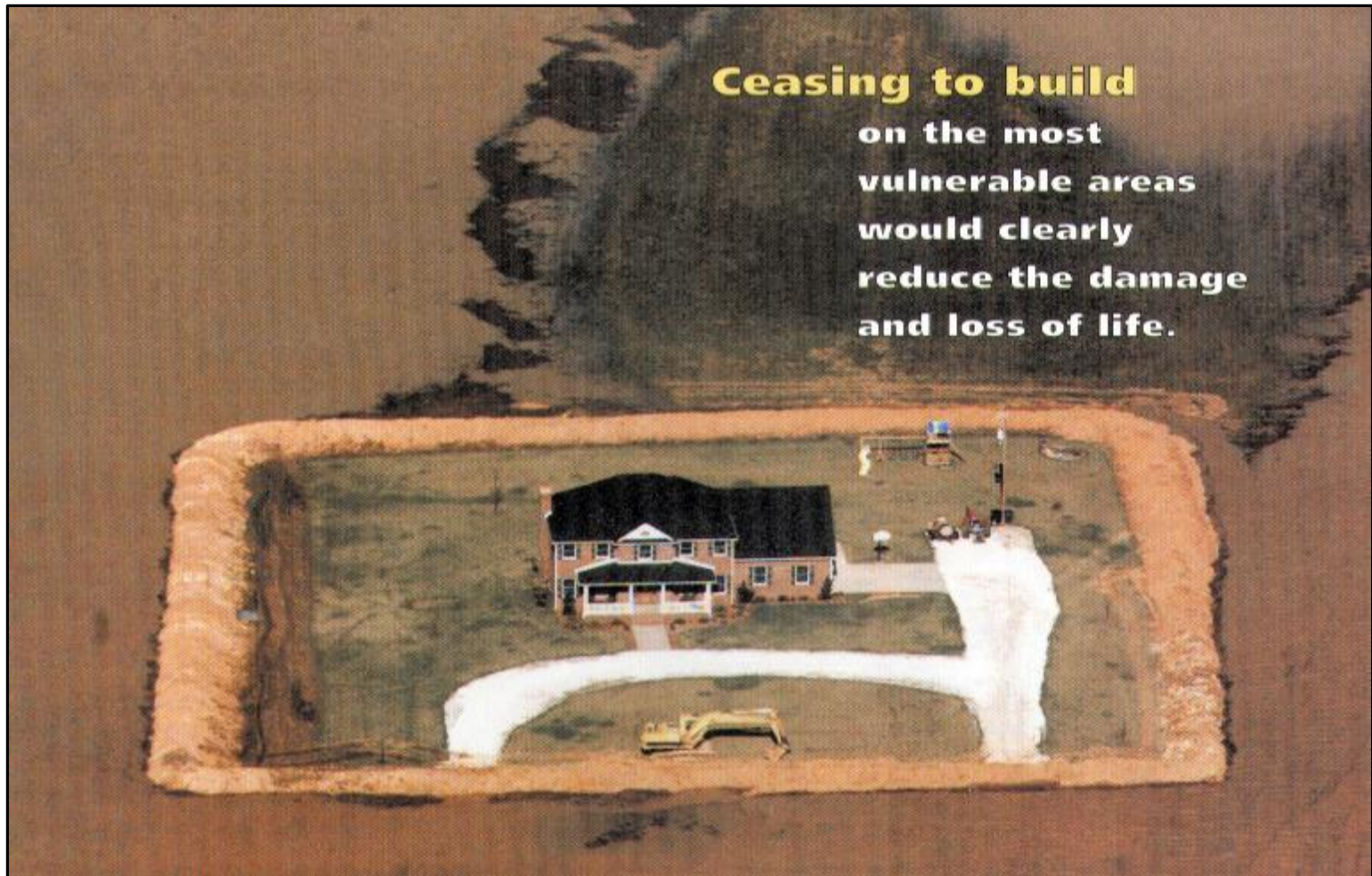


A lake view was not in the brochure





Reverse Swimming Pool Concept





We haven't found your cabin yet, but you still have nice river view.





“We ran into a small problem”





When Good Streams Go Bad: Story at 11

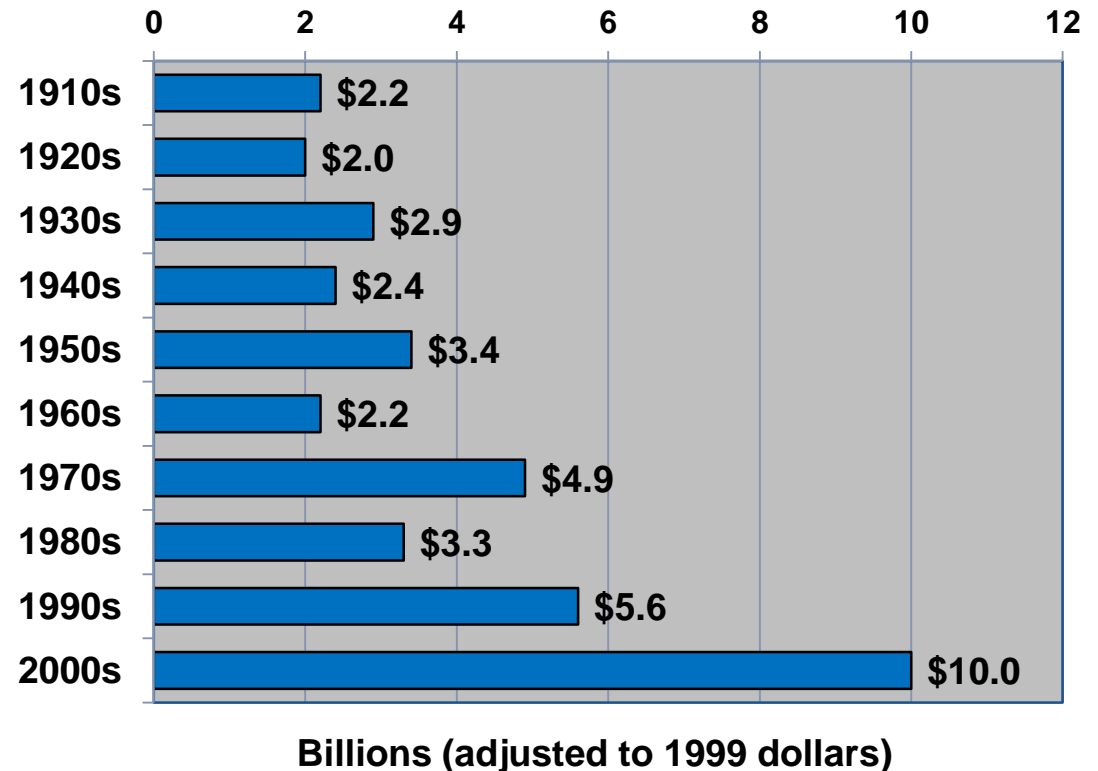




Flood Damages are Increasing

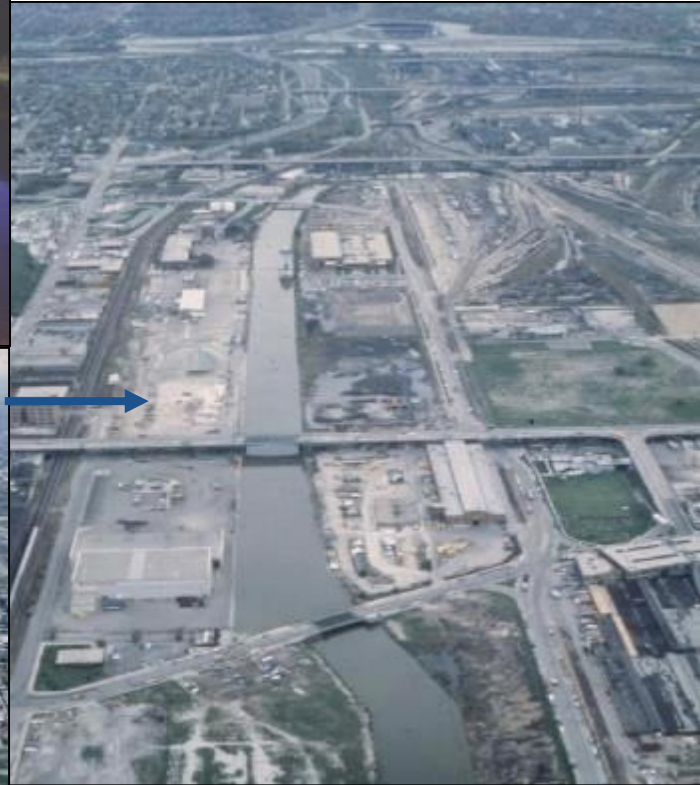
- Not getting better
- 2011 – 2020 more flood events annually result billion plus dollars in damage

Average Annual Flood Damages





Milwaukee River Watershed



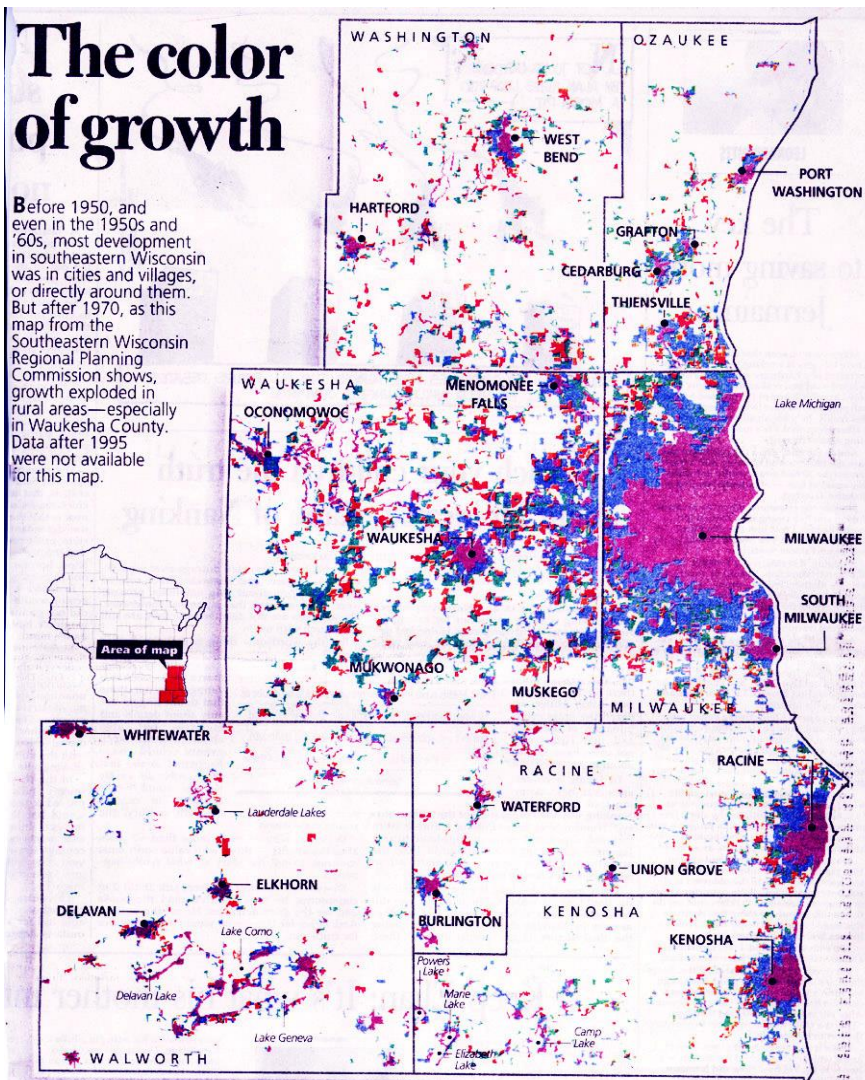
Ruralto..... Urban



Milwaukee River Watershed

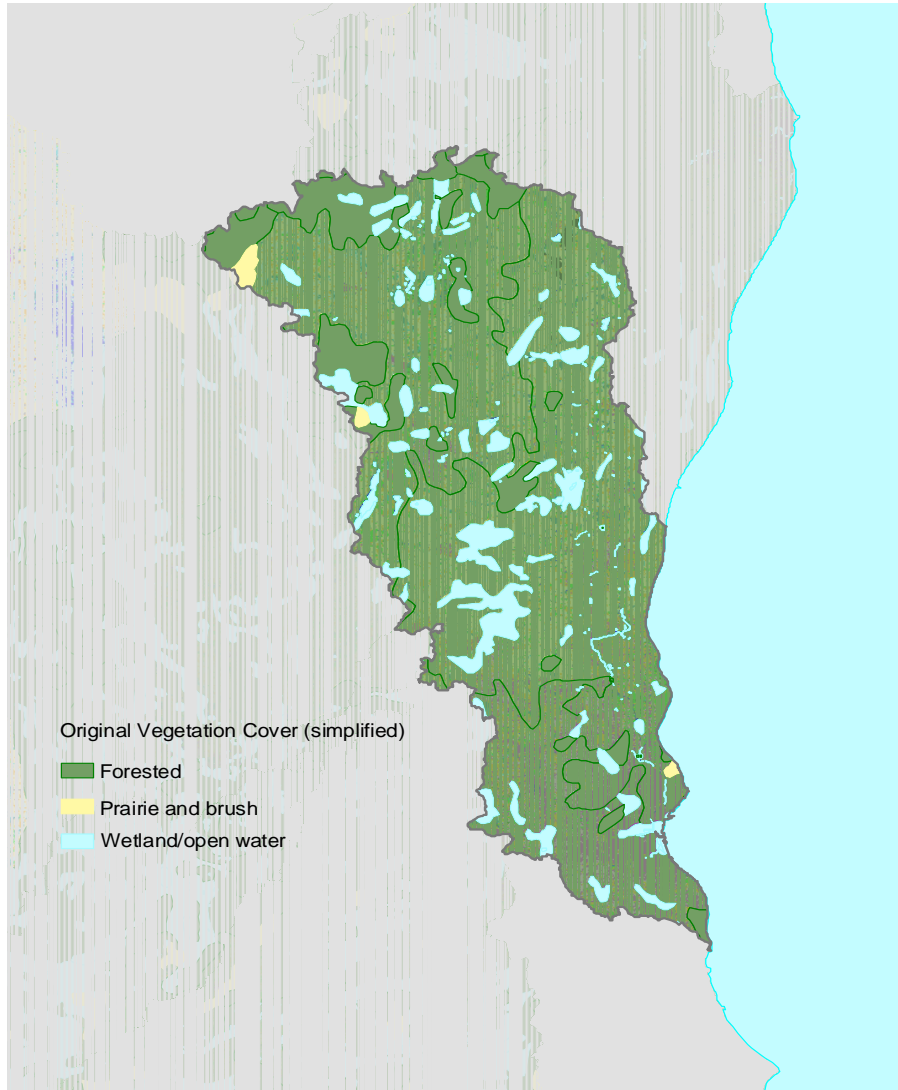
The color of growth

Before 1950, and even in the 1950s and '60s, most development in southeastern Wisconsin was in cities and villages, or directly around them. But after 1970, as this map from the Southeastern Wisconsin Regional Planning Commission shows, growth exploded in rural areas—especially in Waukesha County. Data after 1995 were not available for this map.





Milwaukee River Watershed



**Pre-agriculture
Land Cover**

Minus Beavers

**Still lots of
wetlands**



Milwaukee River Watershed

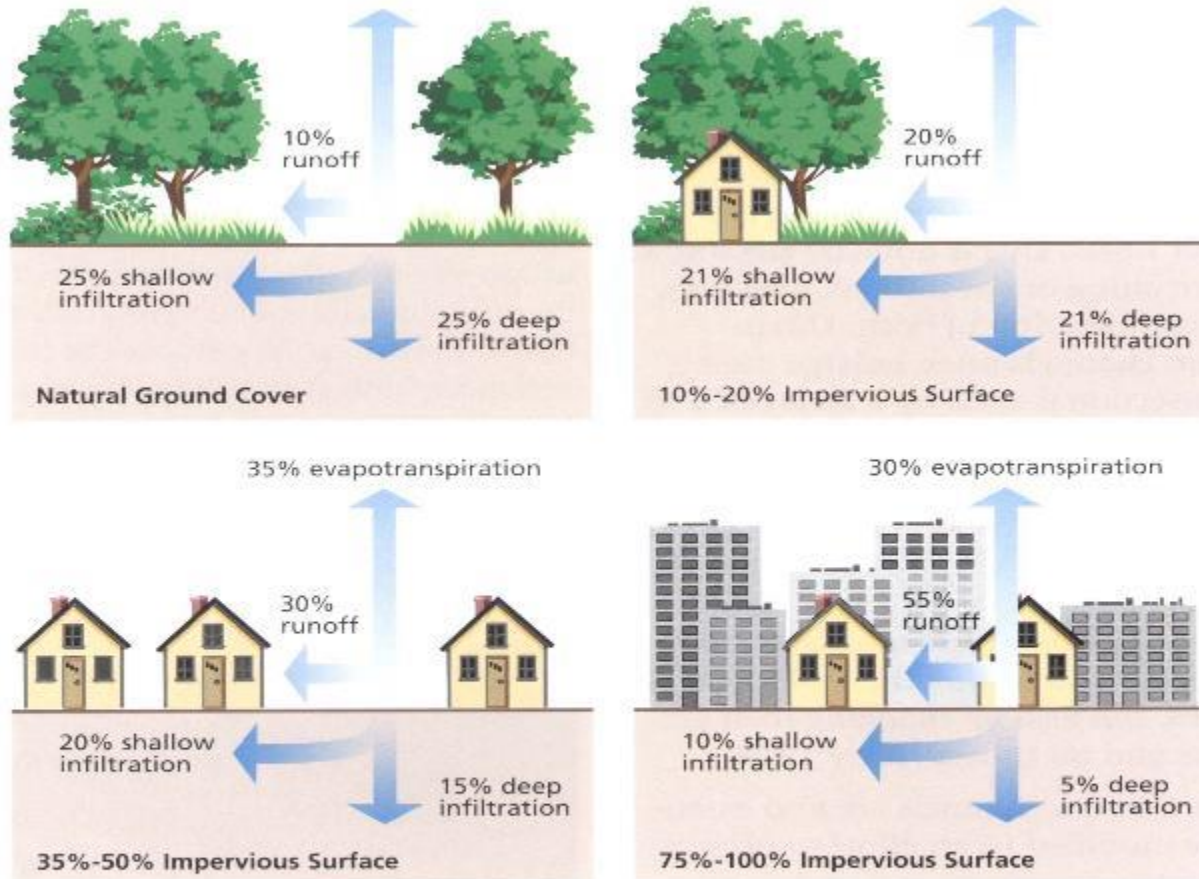
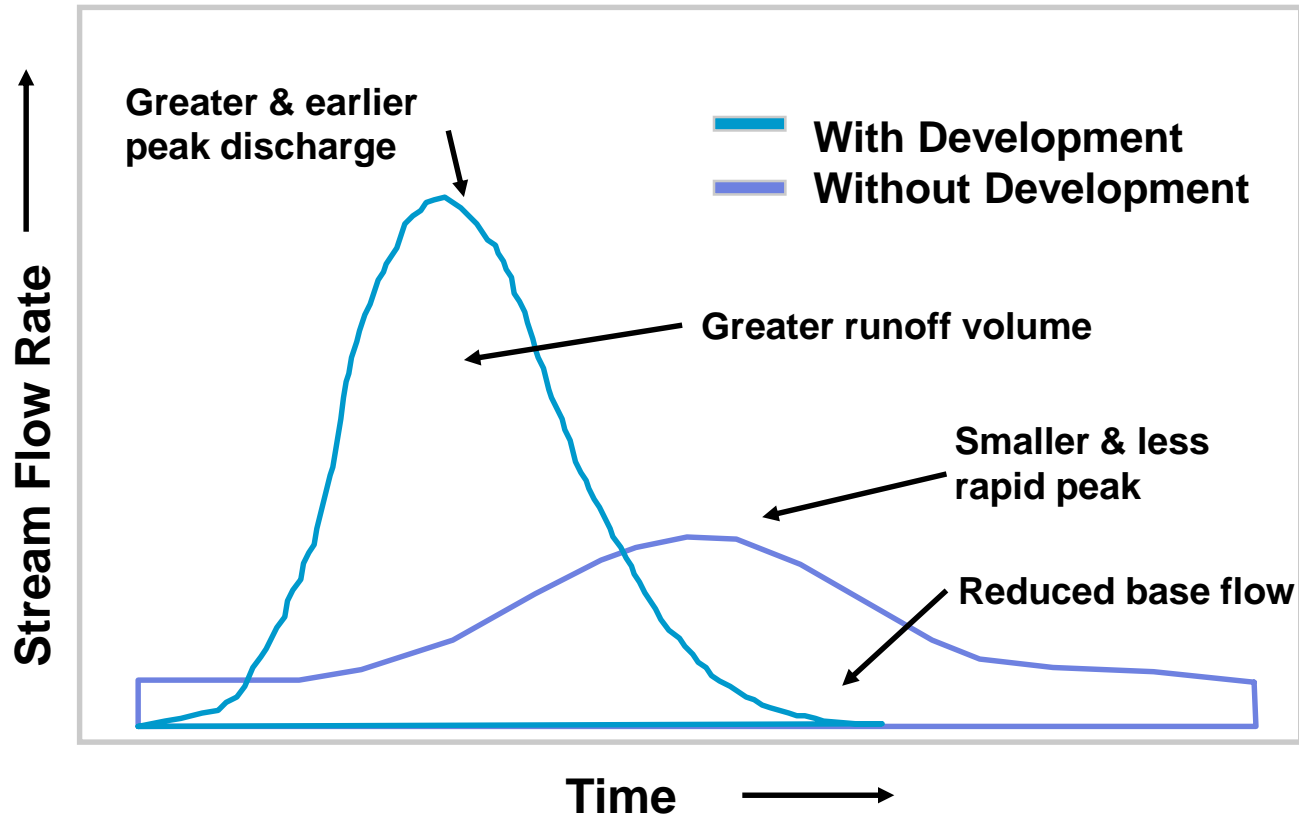


Figure 3.21: Relationship between impervious cover and surface runoff. Impervious cover in a watershed results in increased surface runoff. As little as 10 percent impervious cover in a watershed can result in stream degradation.



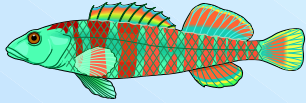
Milwaukee River Watershed



Impacts of Development on Stream Flow

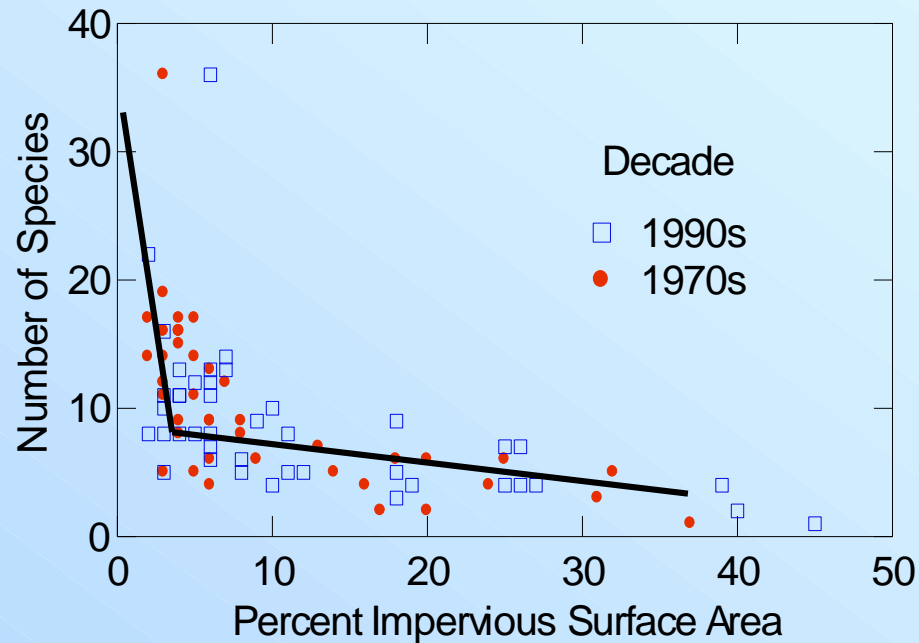


Milwaukee River Watershed

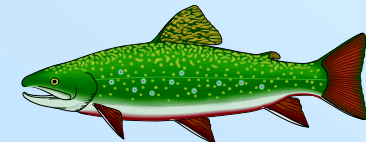


Urbanization and the Loss of Species

Southeastern Wisconsin



Wang et. al. 1998





Kinnickinnic River Milwaukee 1940





Kinnickinnic River Milwaukee 1960






Kinnickinnic River Milwaukee Future





Definitions

- **Preservation.** Protect “natural” areas before they are “altered”.
- **Restoration.** Return an altered system to a previous condition.
- **Naturalization.** Recover some of the desirable characteristics of a natural system, while maintaining commercial uses.

An aerial photograph capturing a massive, dark, and ominous storm system, known as a rain bomb, over Phoenix, Arizona. The storm's base is a thick, dark grey wall of clouds that stretches across the horizon, with several distinct vertical columns of rain falling from it. The sky above is a mix of deep blue and grey, with some lighter clouds catching the light. The ground below shows a sprawling urban and suburban landscape with buildings, roads, and green spaces. The overall atmosphere is one of intense power and potential danger.

Rain Bomb
Phoenix, AZ

Credit: Chopperguy Photographer Jerry Ferguson and Pilot Andrew Park



Thank You

The broad problem of flood-loss reduction is that the rate at which flood losses are being eliminated by construction of engineering or land-treatment works is of about the same magnitude as the rate at which new property is being subjected to damage. - GFW

Floods are “acts of God,” flood losses are largely acts of man. - GFW



www.floods.org