



Restore Ecosystems



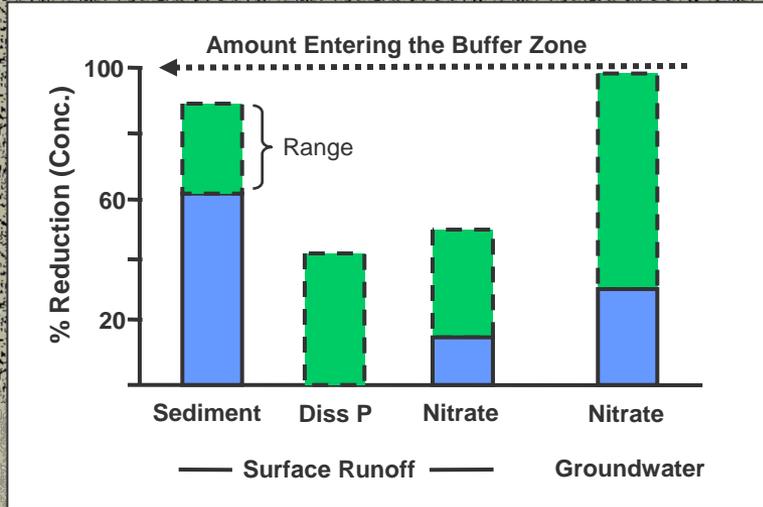


Restore Ecological Functions





Riparian Buffer





Design for Water Quality

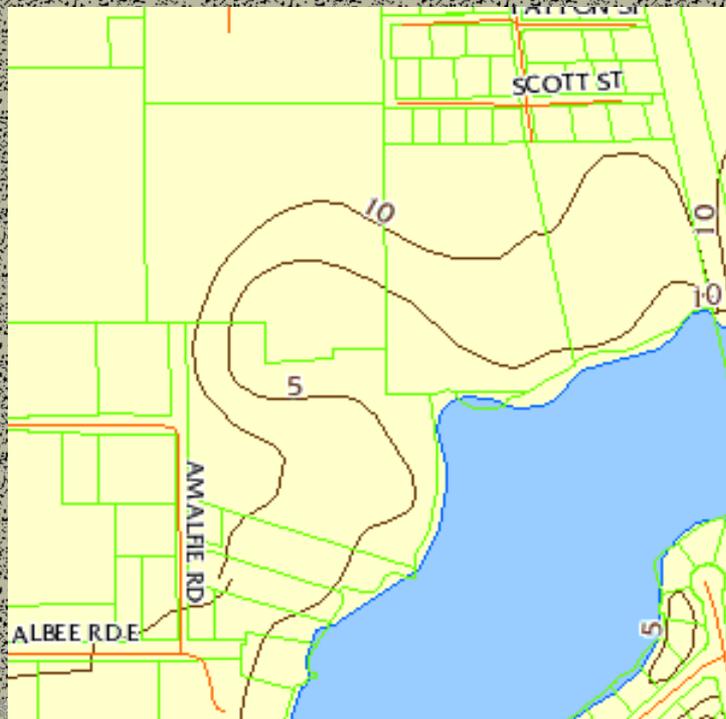


- Location
- Size
- Vegetation
- Management

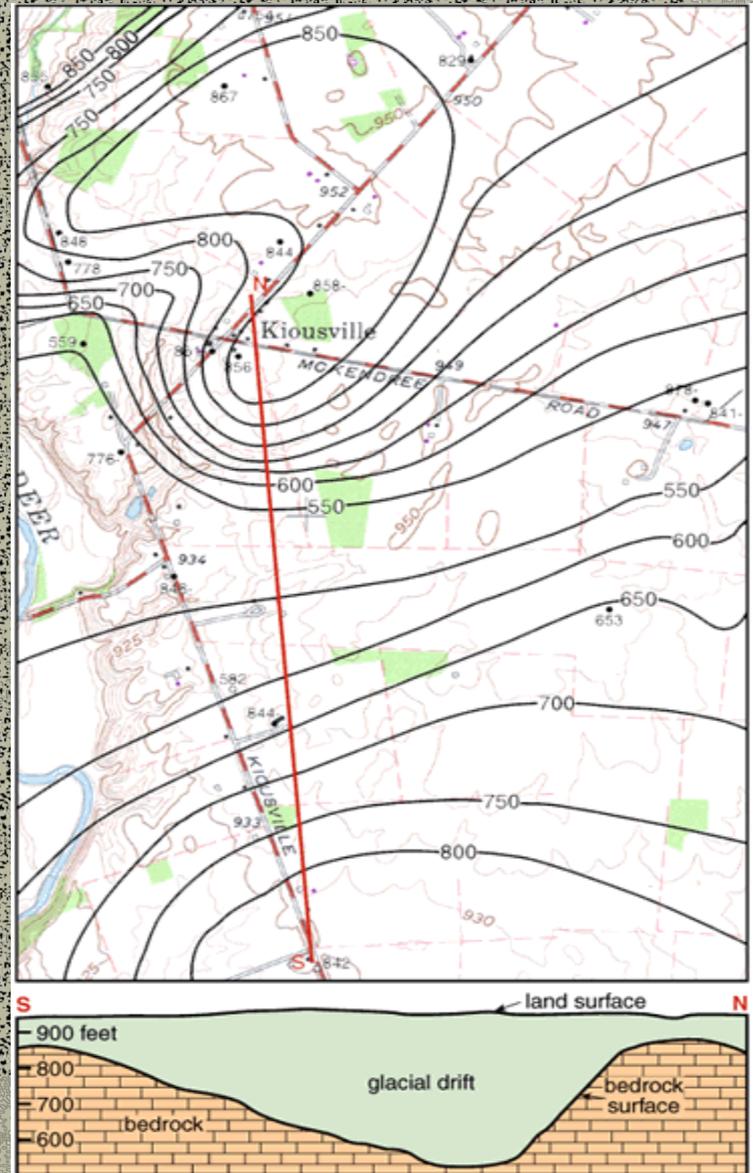


Location: Topography

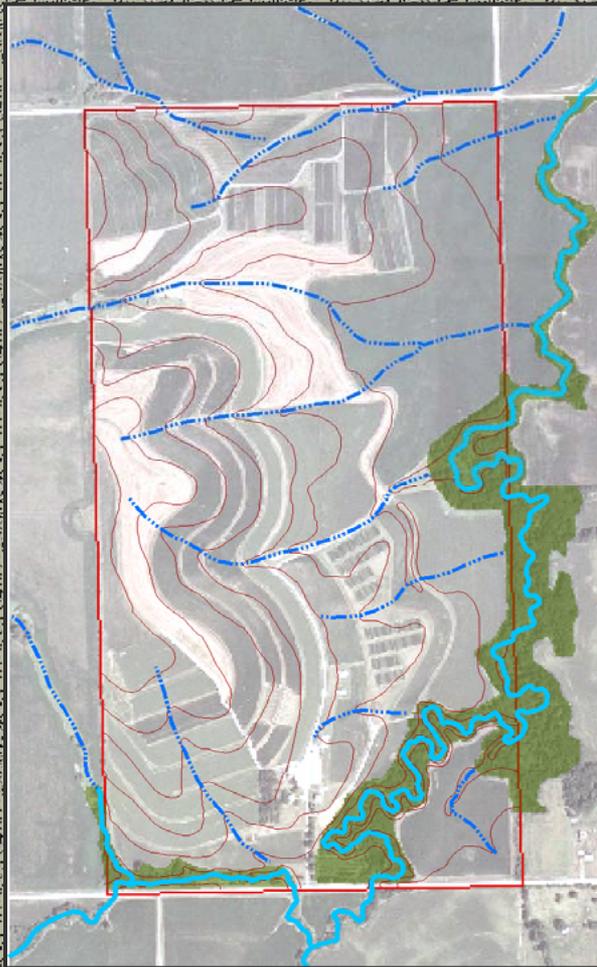
Surface



Bedrock

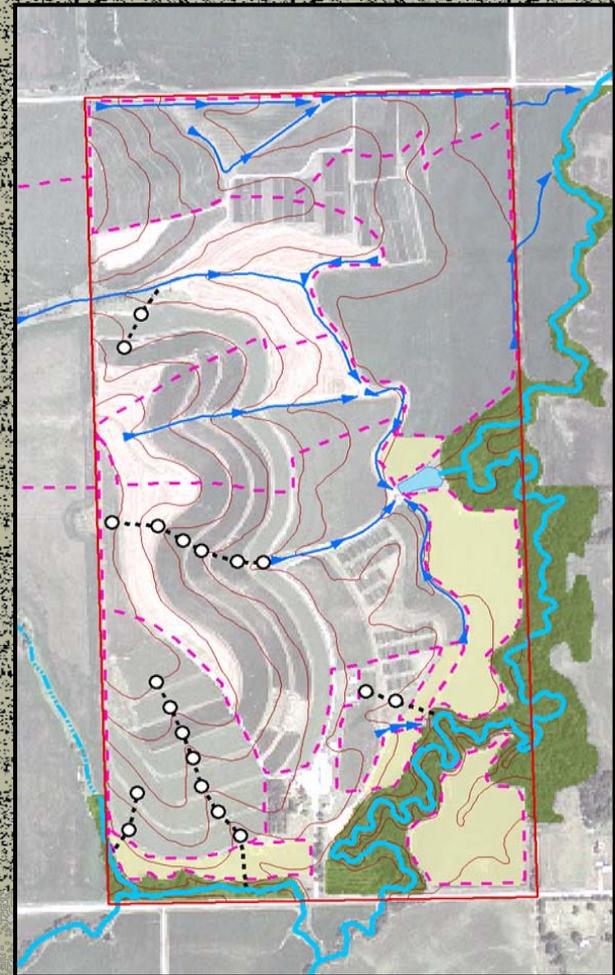


Natural Drainage



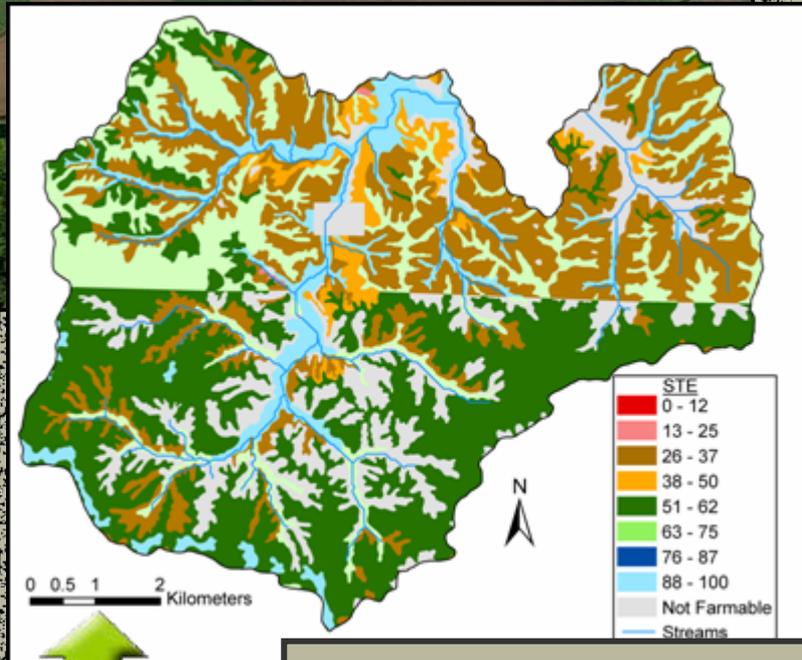
Artificial Drainage

Current Drainage



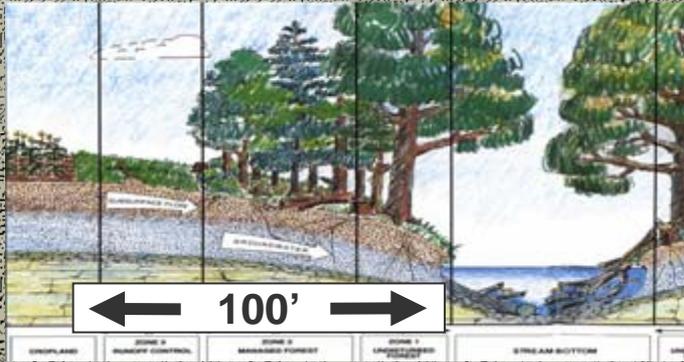
By-pass flow = 85%



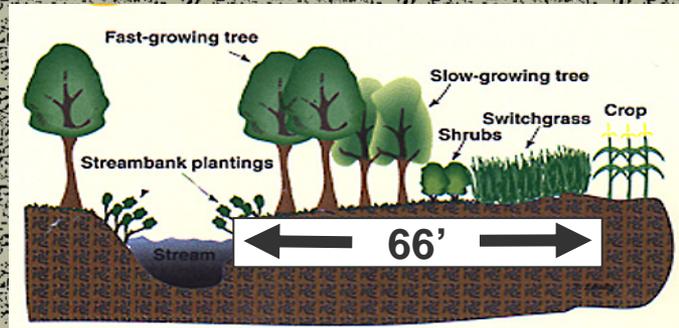


$$\text{Sediment Control} = D_{50} / \text{RKLS}$$

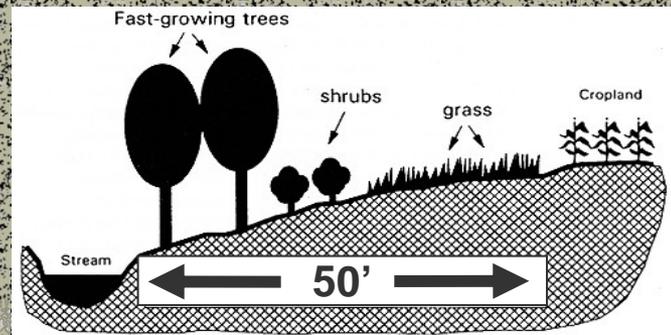
One-Size -Fits-All



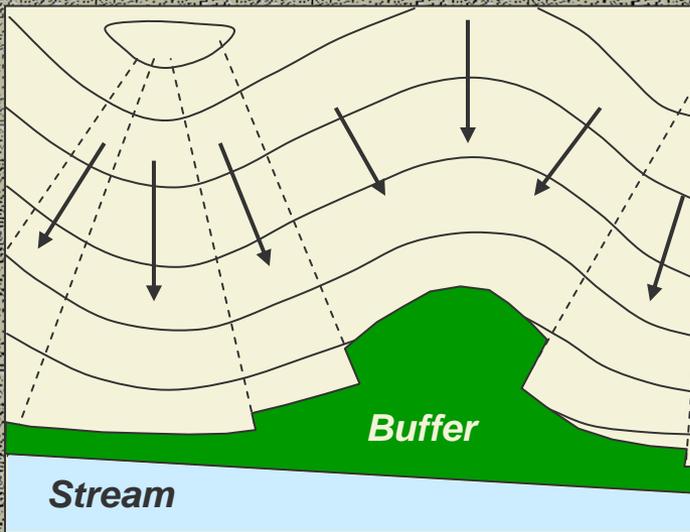
USFS, 1991



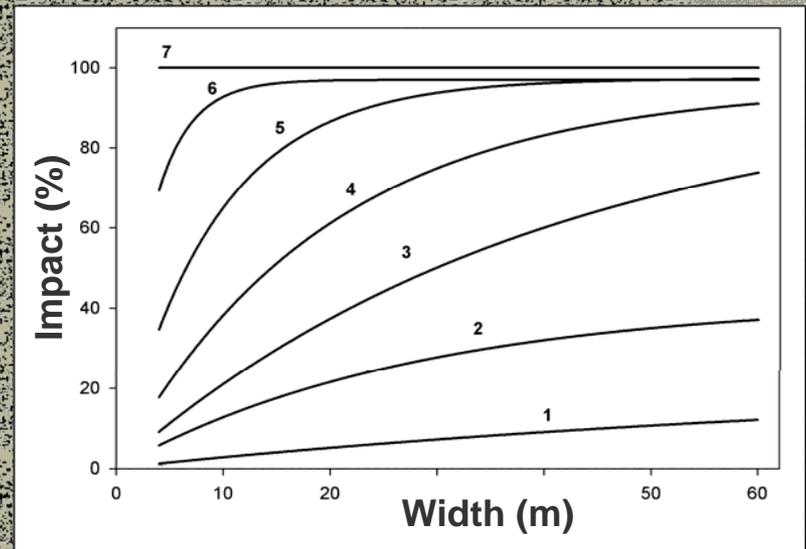
ISU, 1995



NAC, 1997



Variable Width

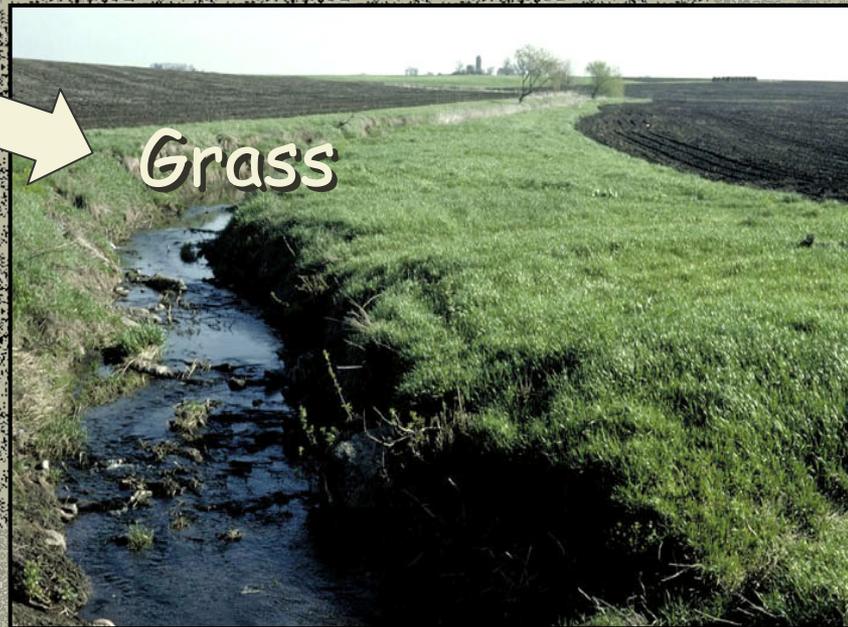


Dosskey et al (2008) J Soil Water Cons.

Vegetation

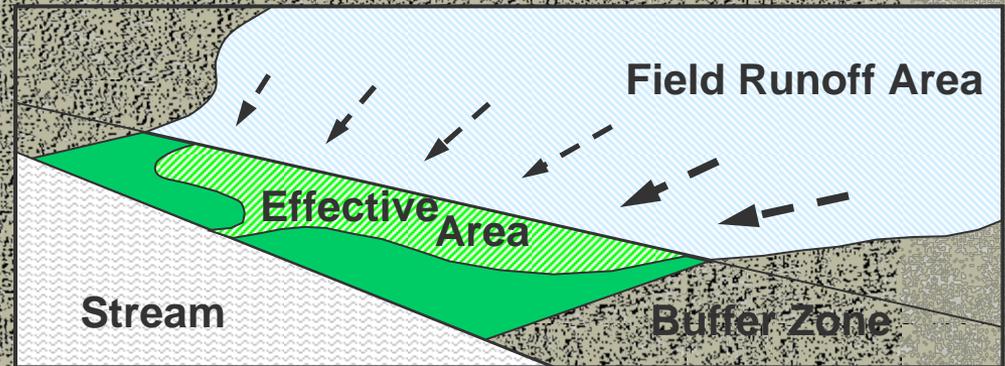


Forest



Grass

Management



Dosskey et al (2002) J Soil Water Cons.



- **Sediment build-up**
- **Gullies**
- **Nutrient build-up**
- **Vegetation change**

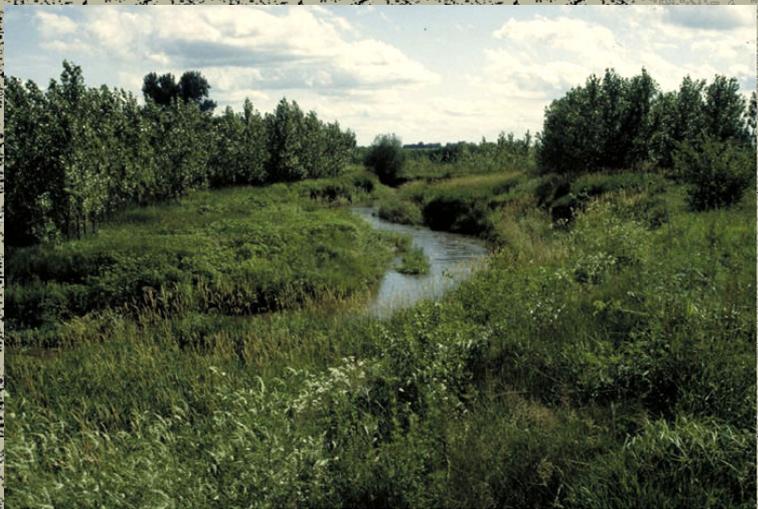
Design for Water Quality



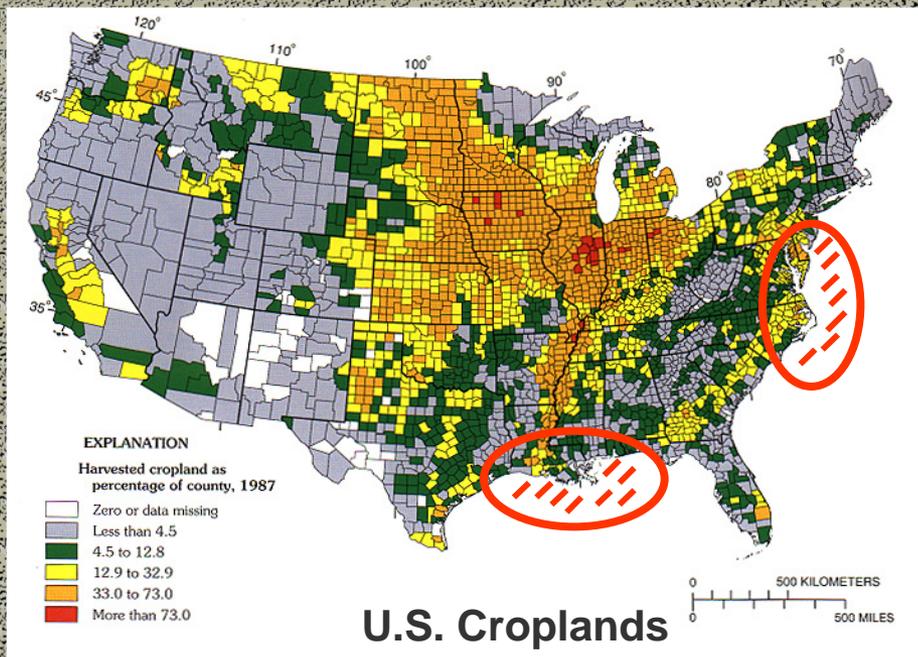
- **Location**
- **Size**
- **Vegetation**
- **Management**











Agriculture & Water Quality





**POLLUTED
WATER
NO SWIMMING
OR WADING**
NATIONAL PARK SERVICE

