Riparian Forest Buffers in the Developed Landscape

Seminar by:
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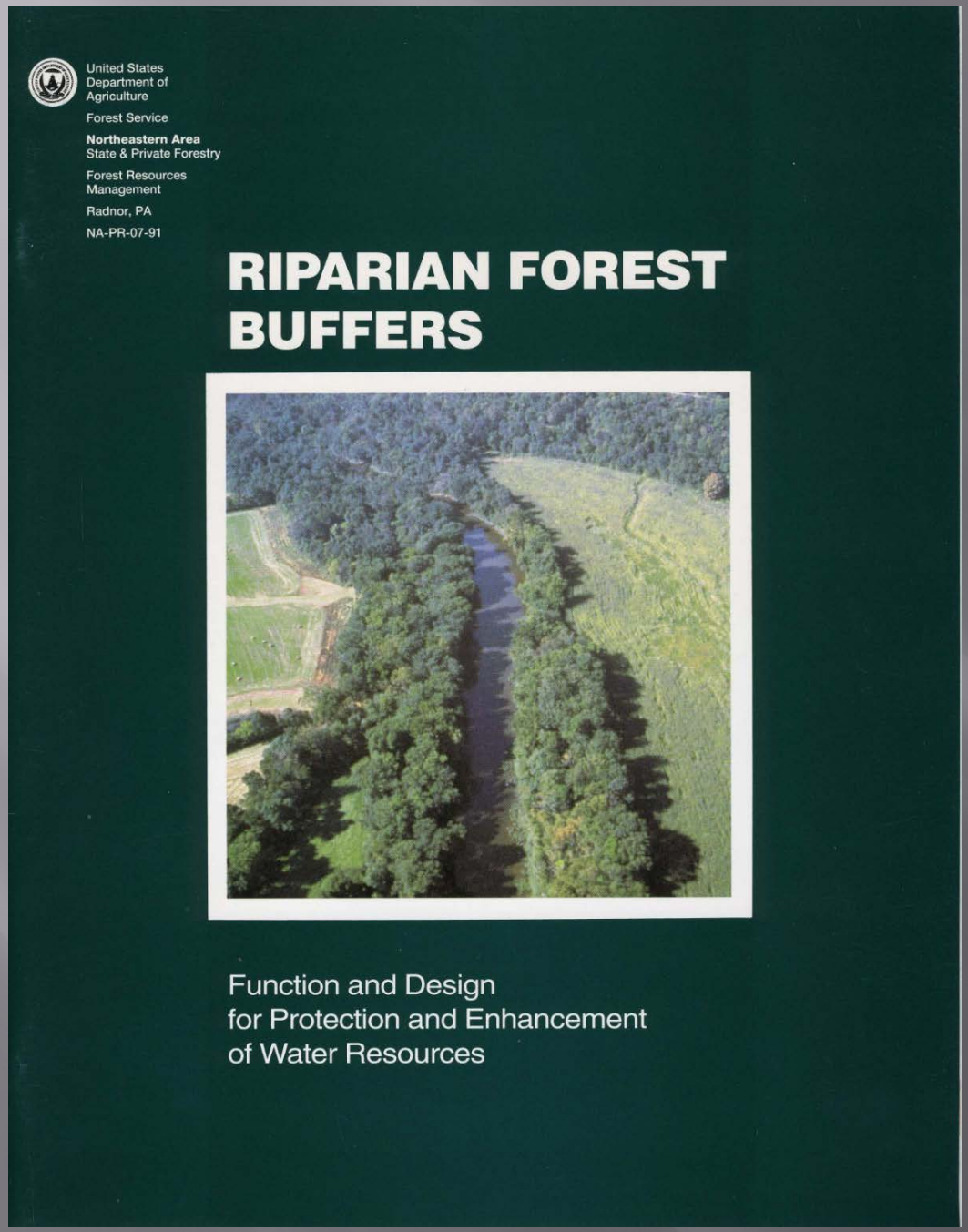
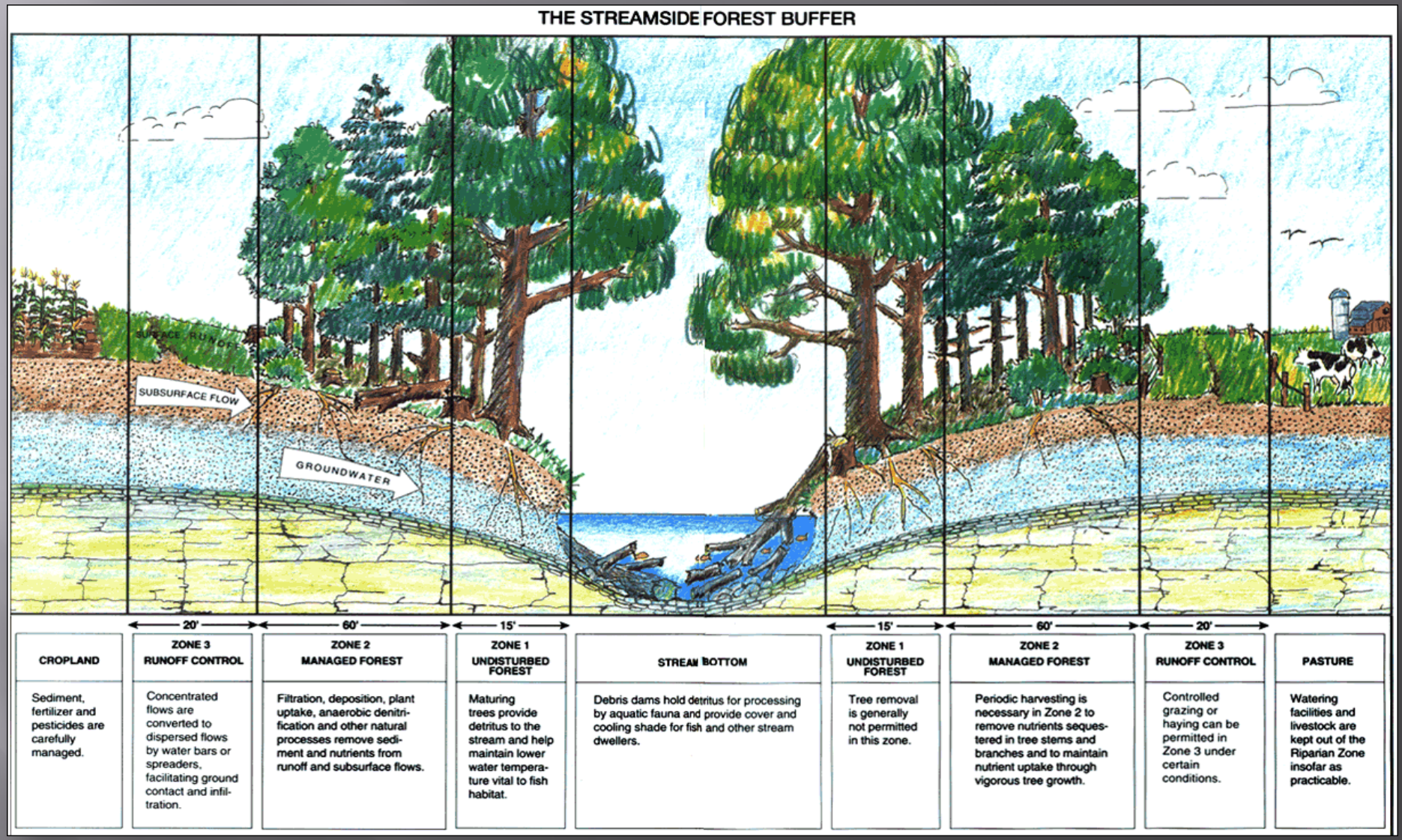
USDA NATIONAL AGROFORESTRY CENTER

A partnership of USFS NRCS

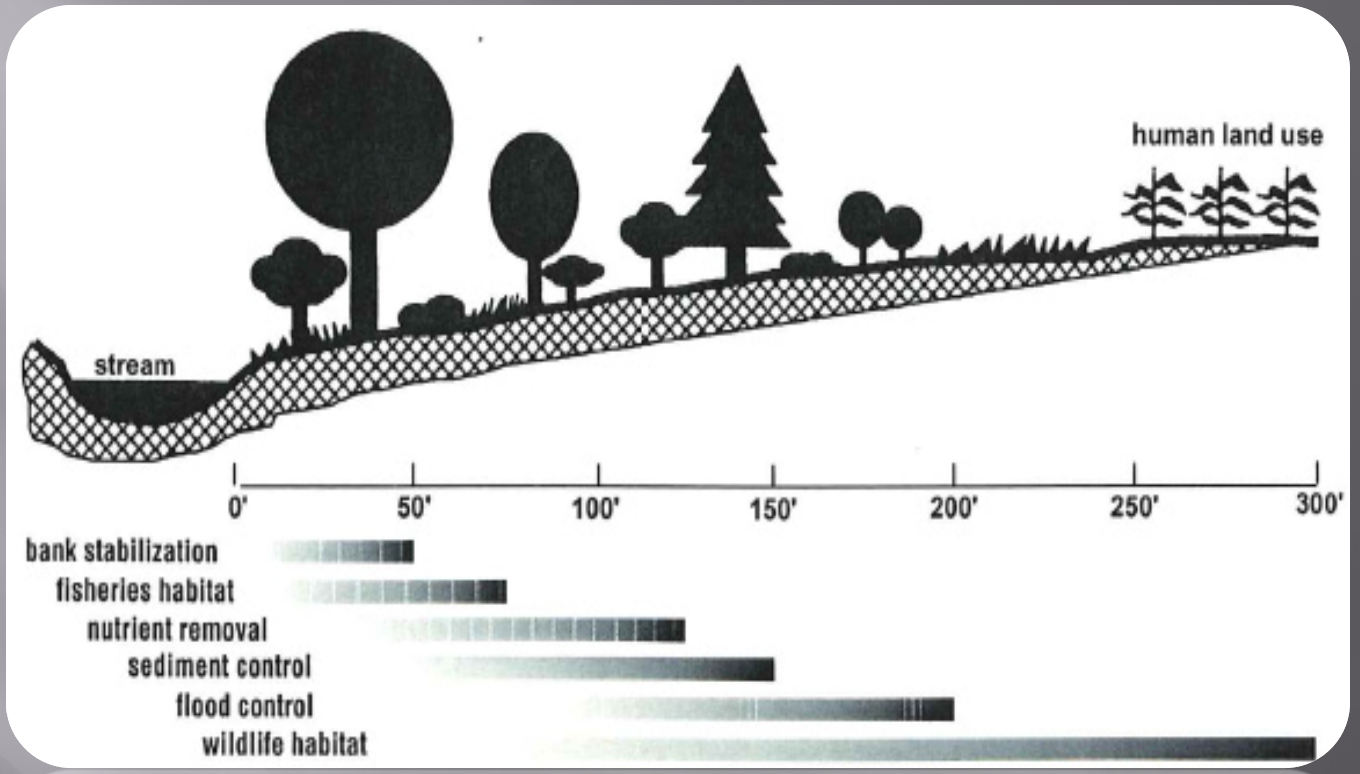


An Agroforestry Practice

U.S. Forest Service (1991)



U.S. Forest Service (1991)— One Design Fits All



Dosskey et al. (1997). Agroforestry Note #4.

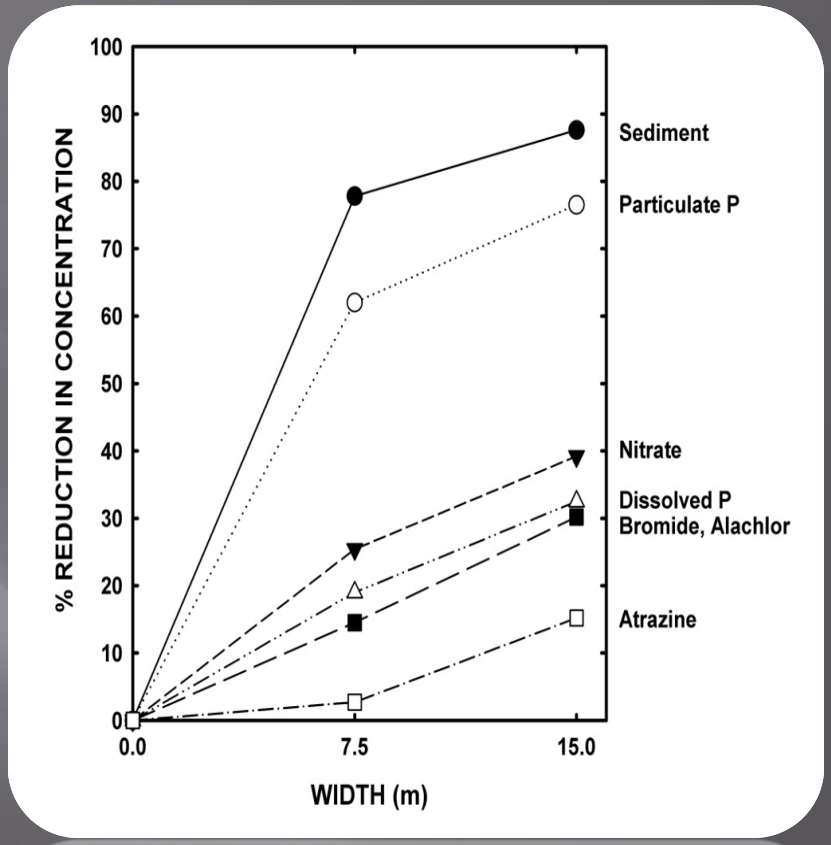
Water Quality Variables

Buffer

- Site conditions
- Pollutant type
- Design

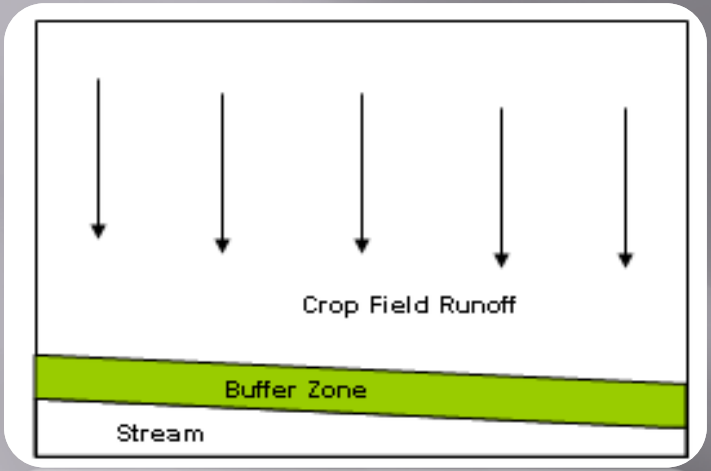
Upland

- Load
- Pathway



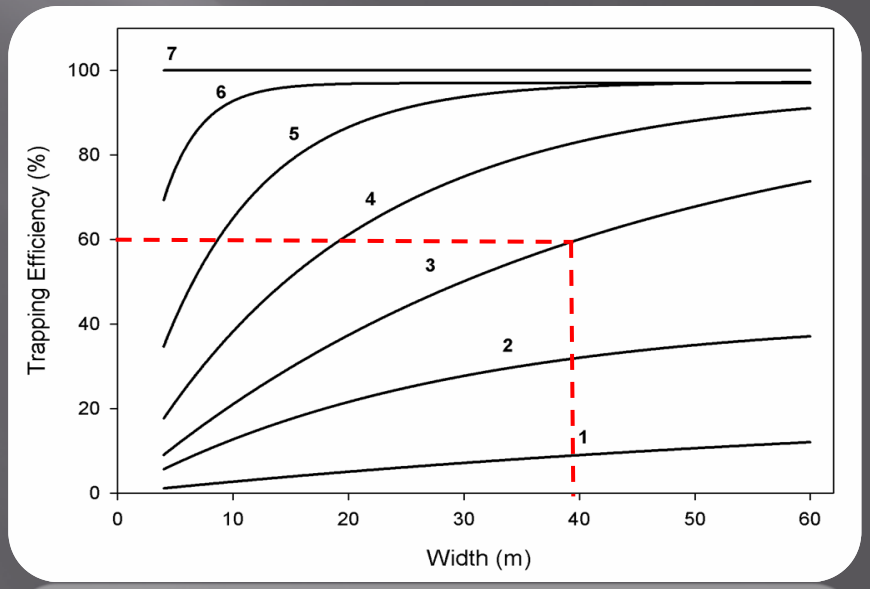
Dosskey et al. (1999)
J. Environ. Qual. 28:1479-1489

Uniform Runoff – Width



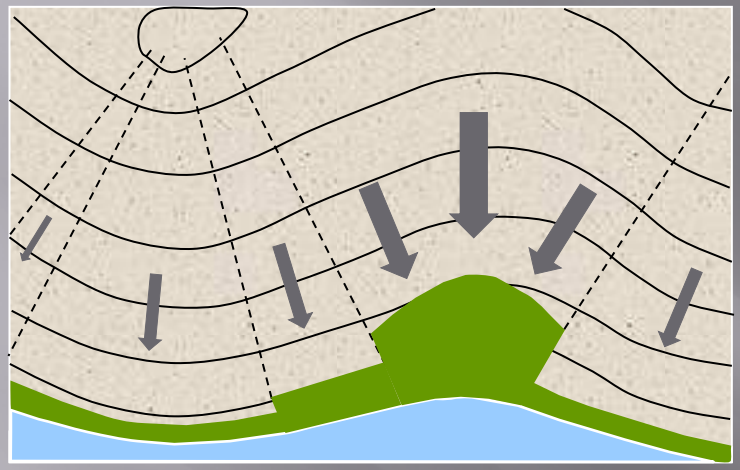
Design Variables

- Soil
- Slope
- C-factor (tillage, residue)
- Pollutant
- Field length



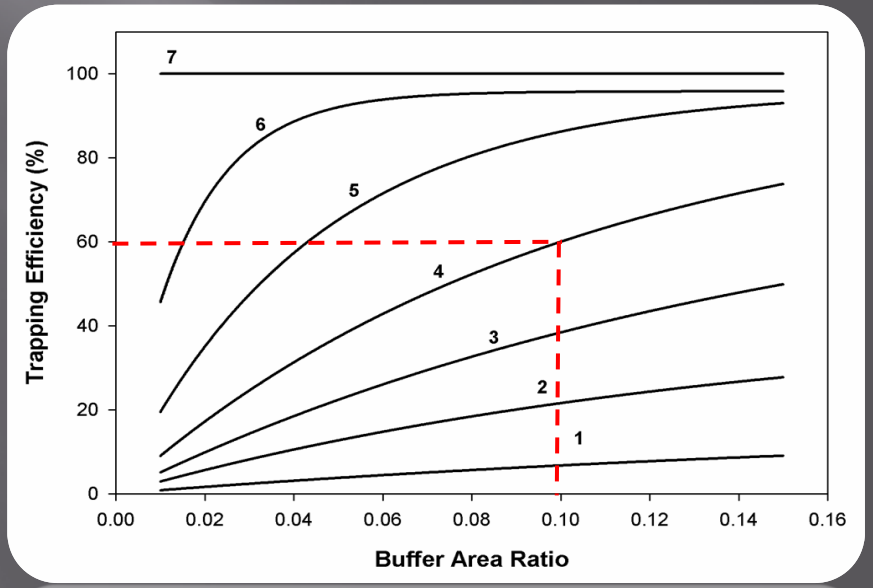
Dosskey et al. (2008) JSWC 63:232-241

Non-Uniform Runoff – Area



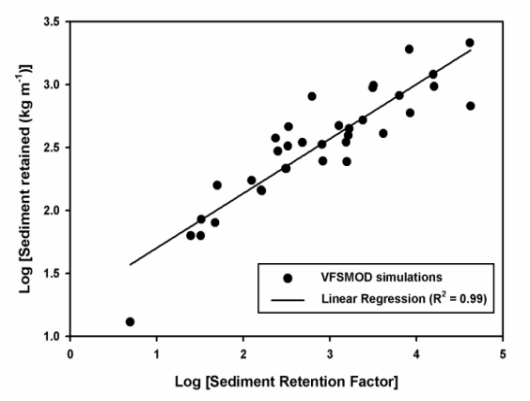
Design Variables

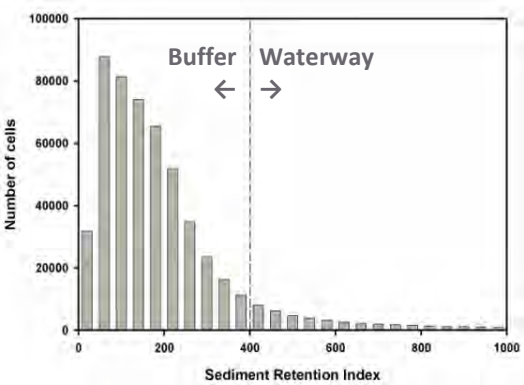
- Soil
- Slope
- C-factor (tillage, residue)
- Pollutant

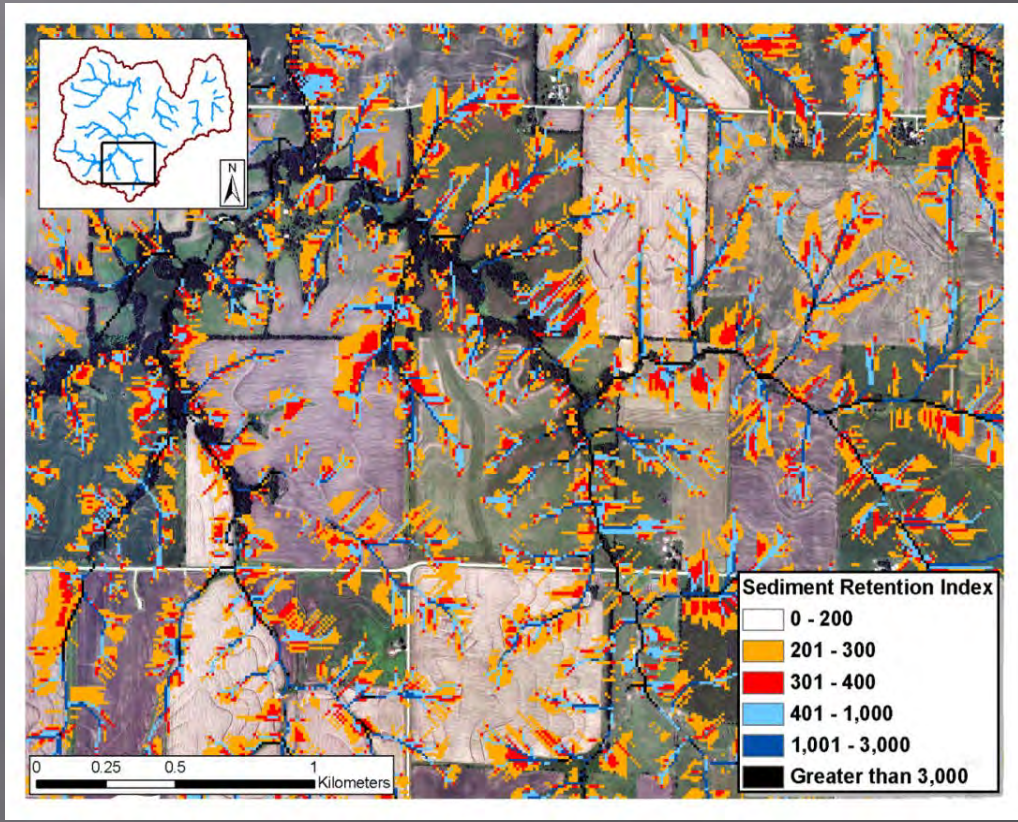


Dosskey et al. (2011) JSWC 66:29-39

Better Locations



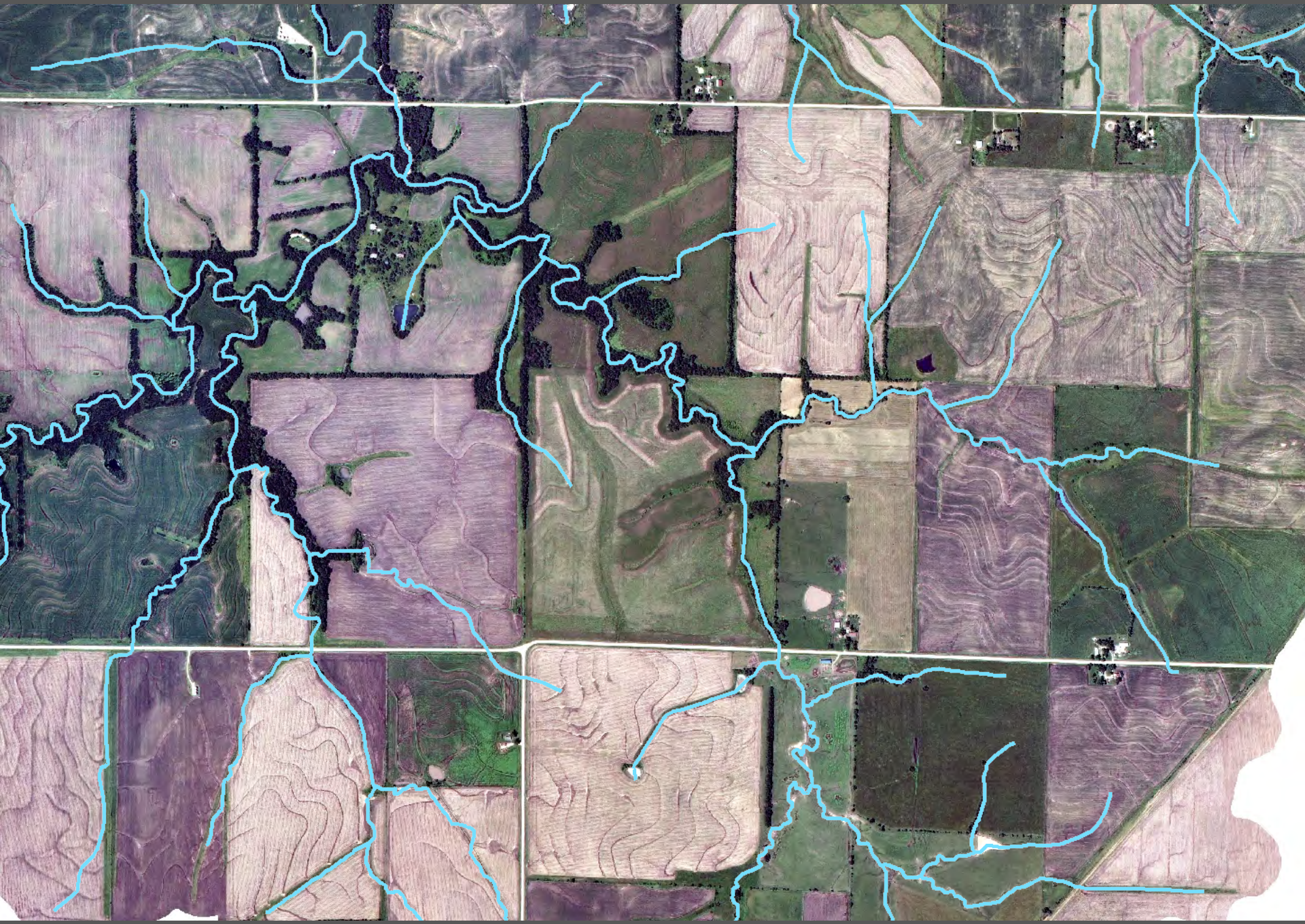


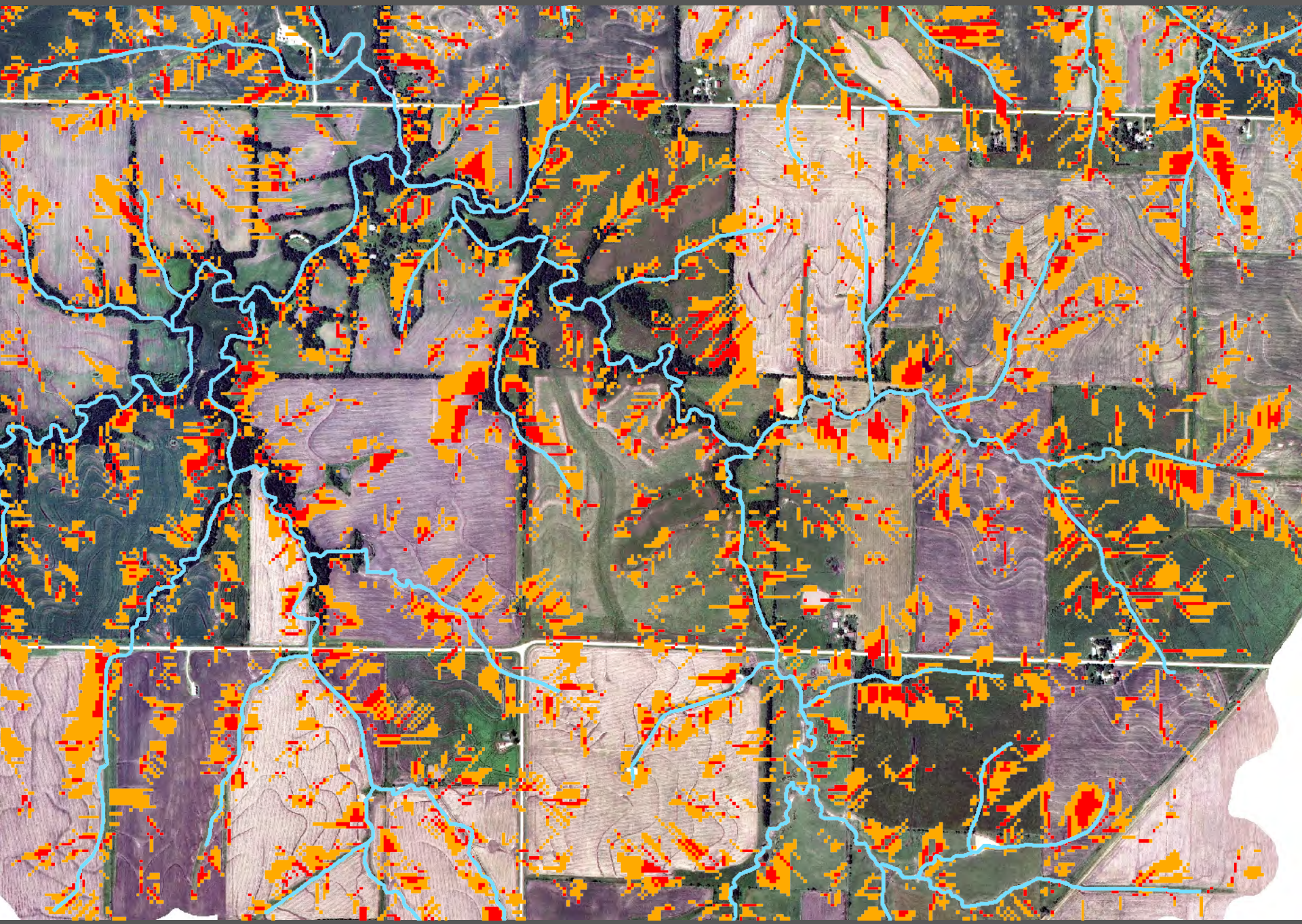


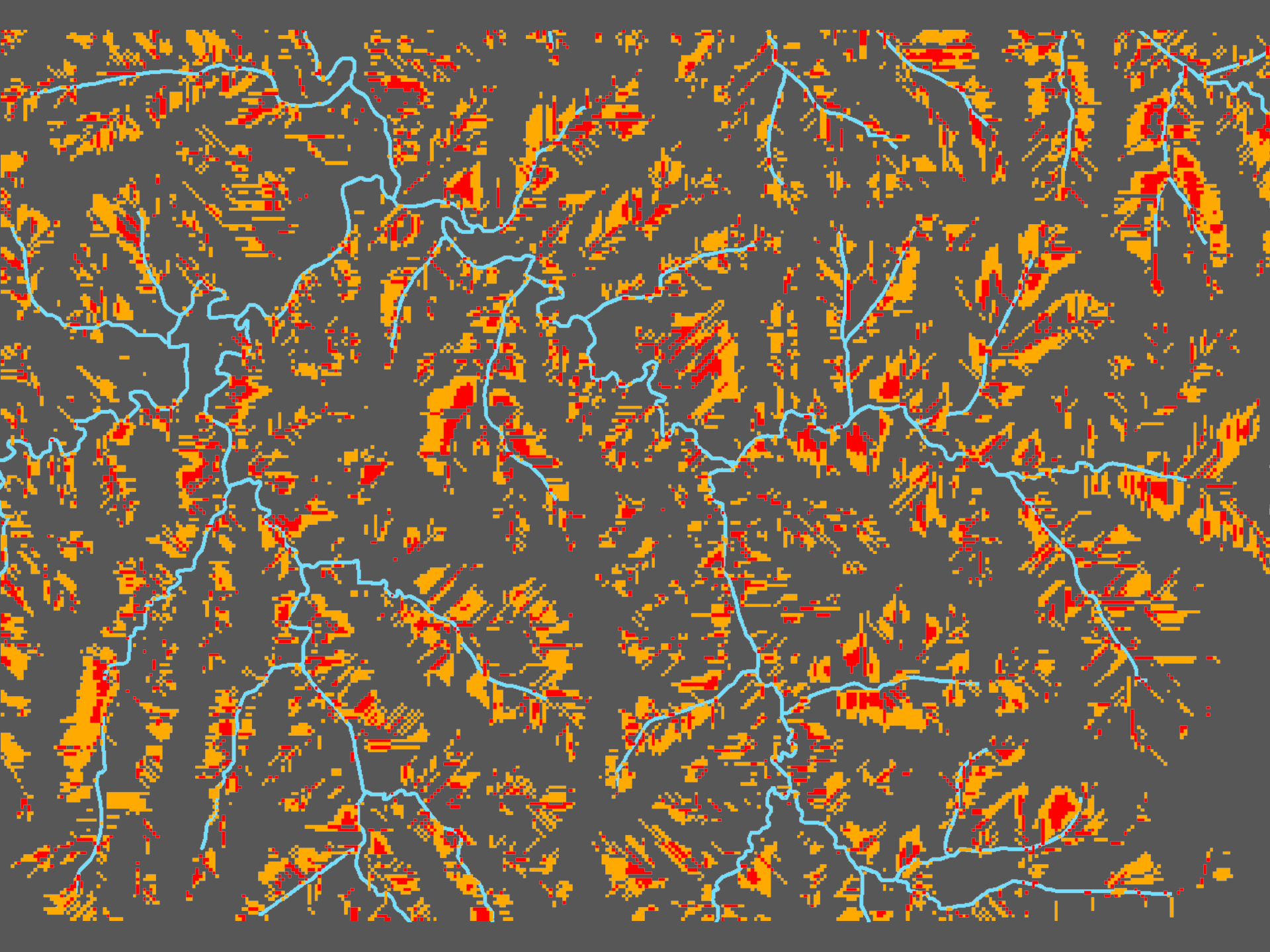
Empirical (E) = A · R · K · (LS) D_{50}

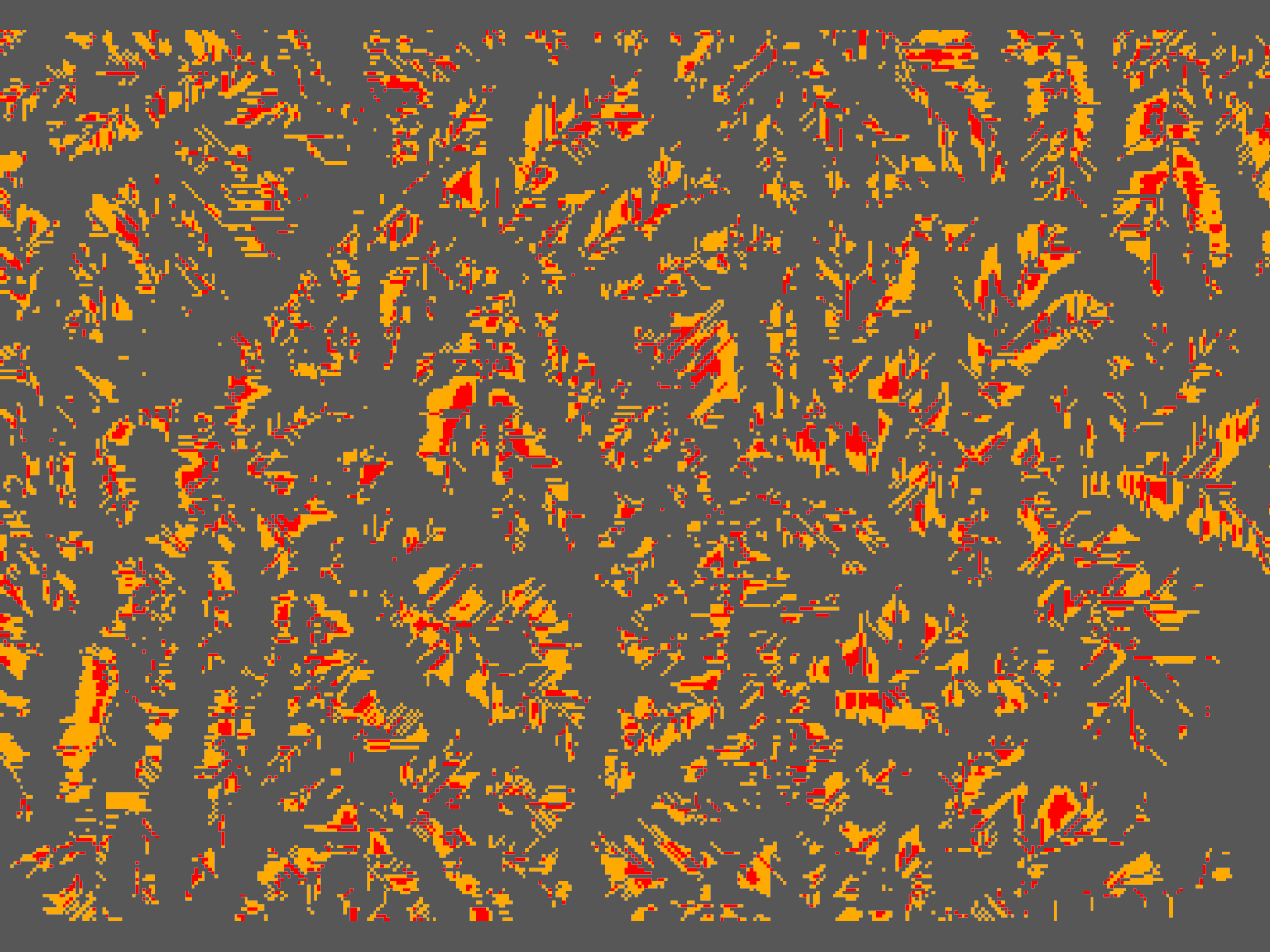
Calibrated (SRI) = 18.6 (E)^0.4333

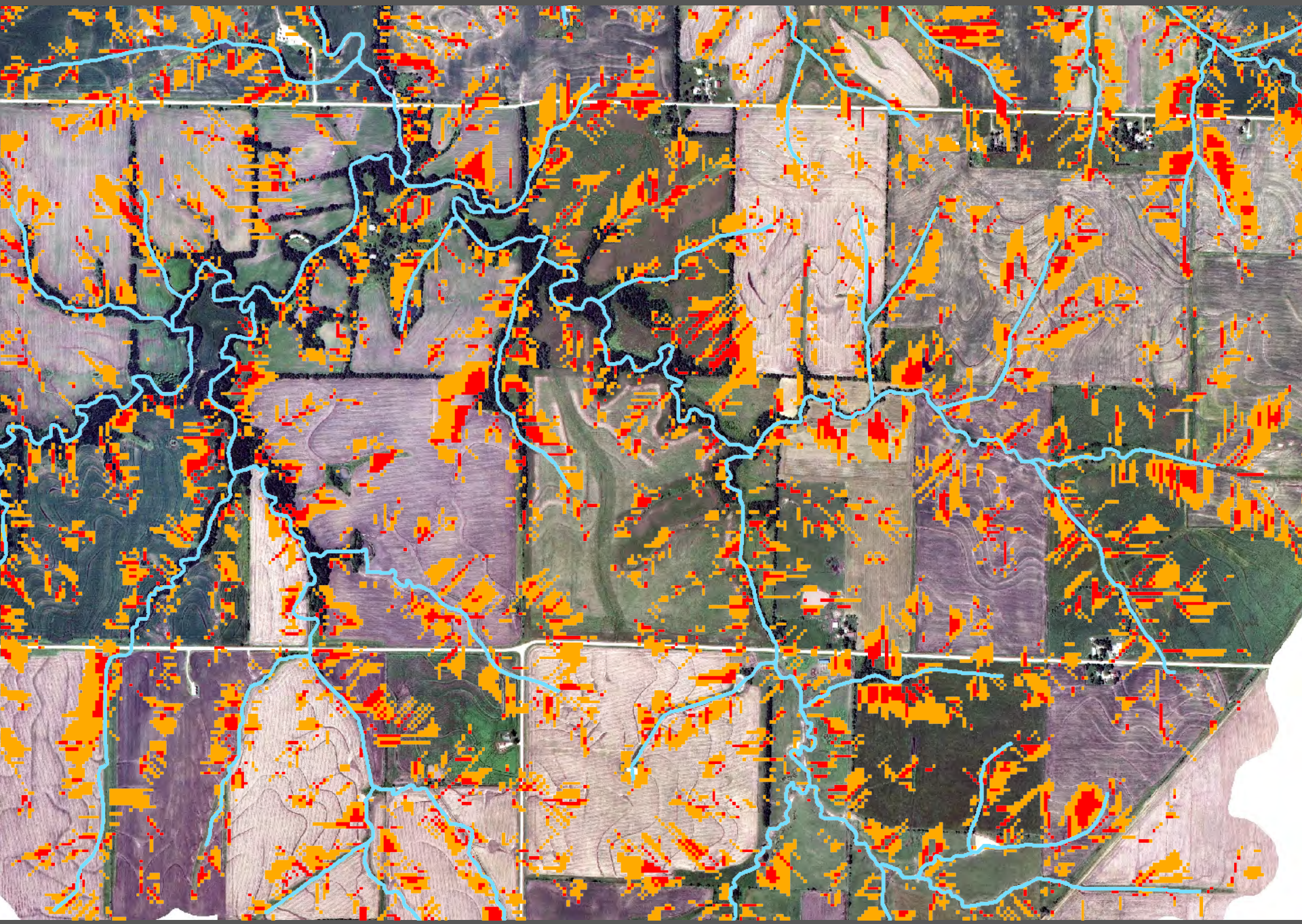
Dosskey et al. (2011) JSWC 66:362-372





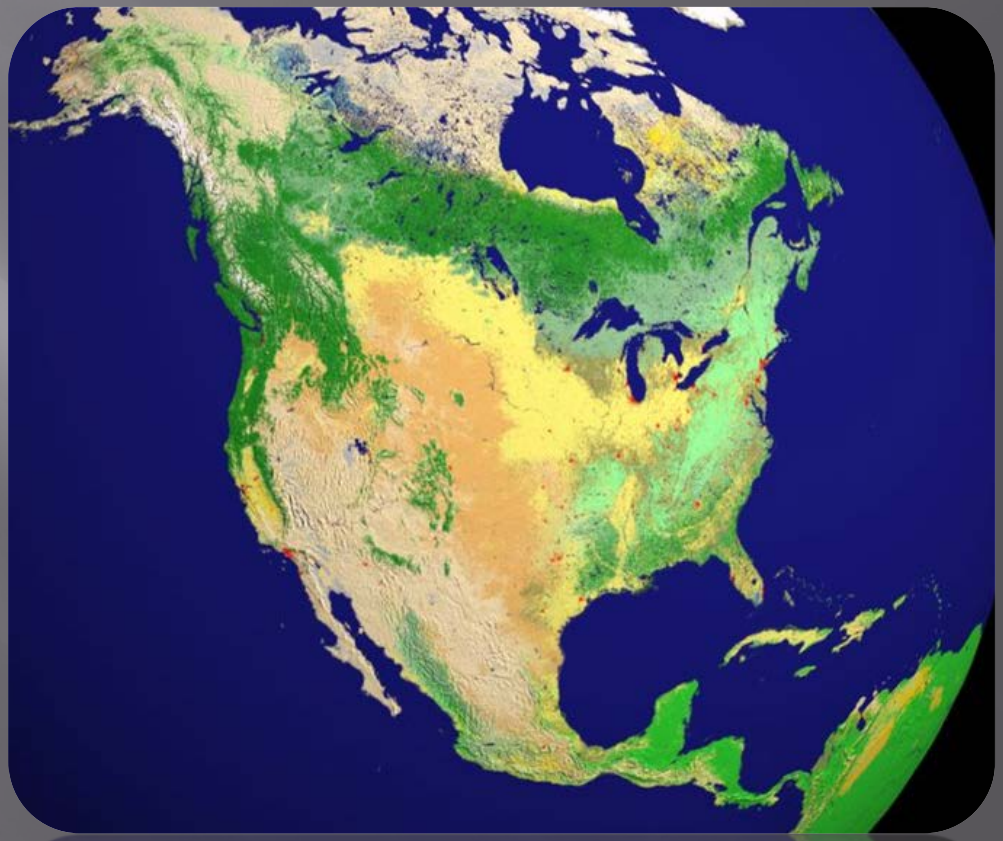






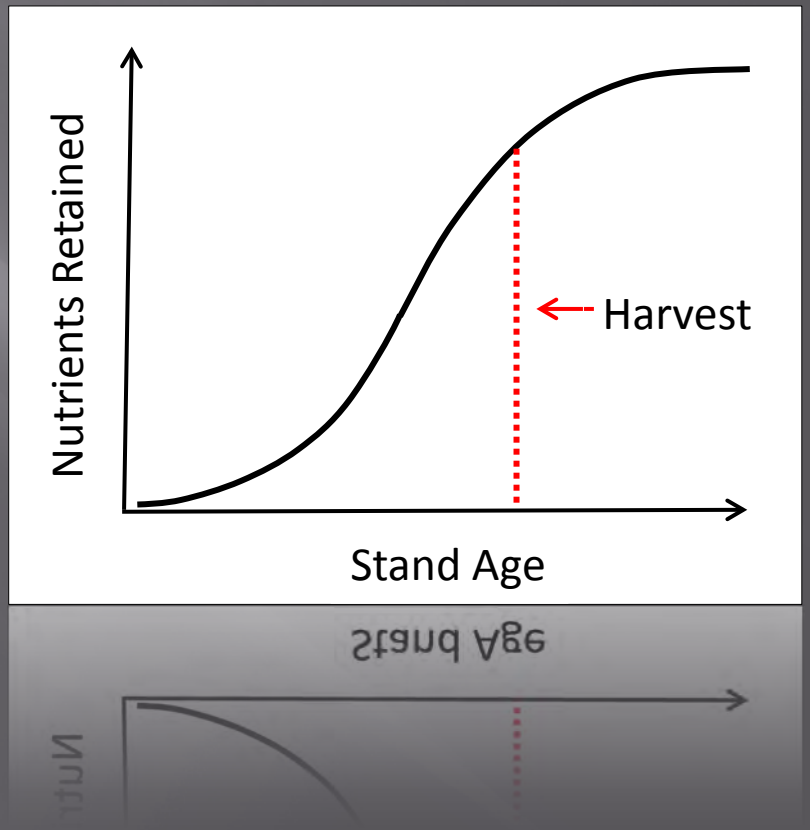
Tools for Other Regions

- ✓ Overland runoff
- ❑ Saturated runoff
- ❑ Groundwater
- ❑ Snowmelt-frozen soil
- ❑ Glacial complex

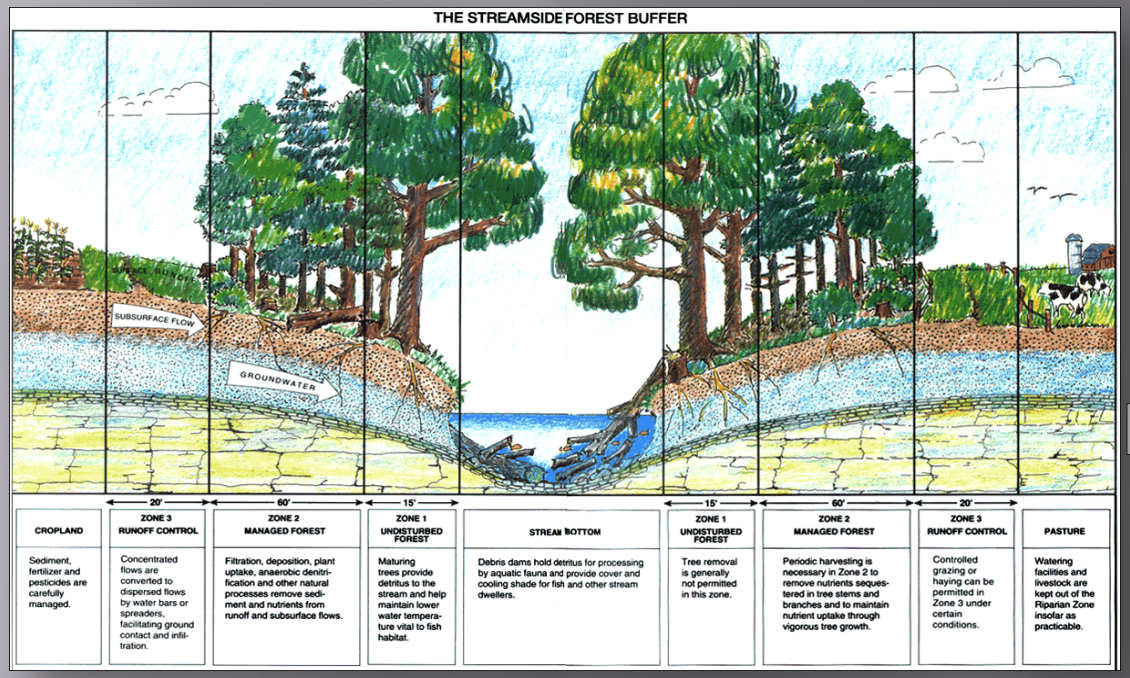


Biofuels

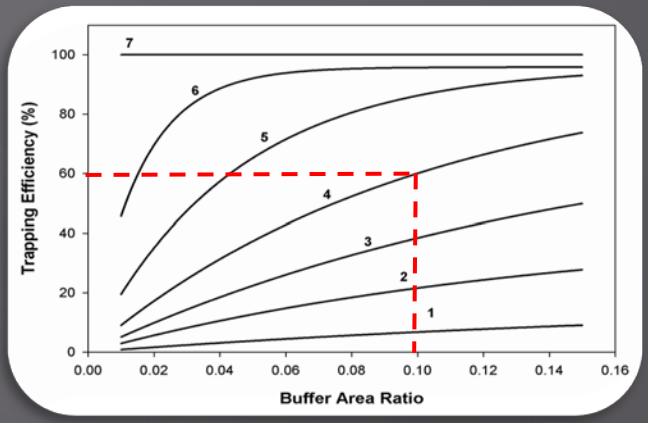
Hypothesis: Harvest enhances water quality



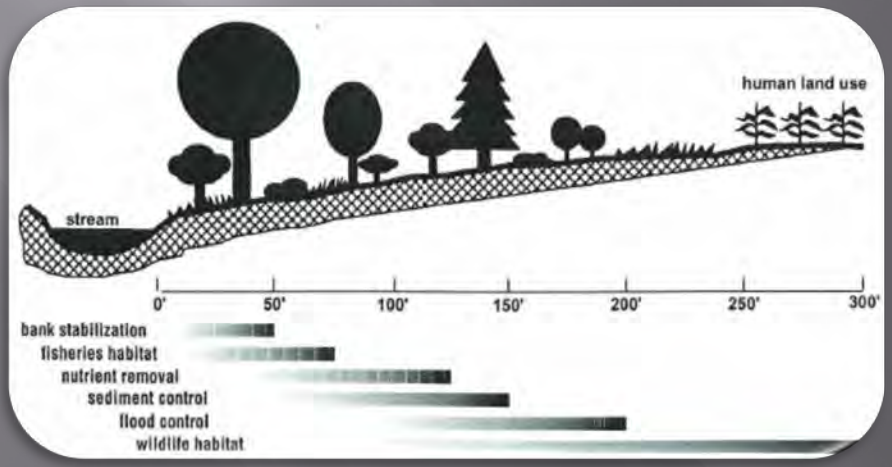
Design for Impact



Size



Multiple Benefits



Location