Elk River Restoration Summit

February 8 and 9, 2012
Eureka, CA

Adona White, PE
Basin Planning
North Coast Regional Water Quality Control Board

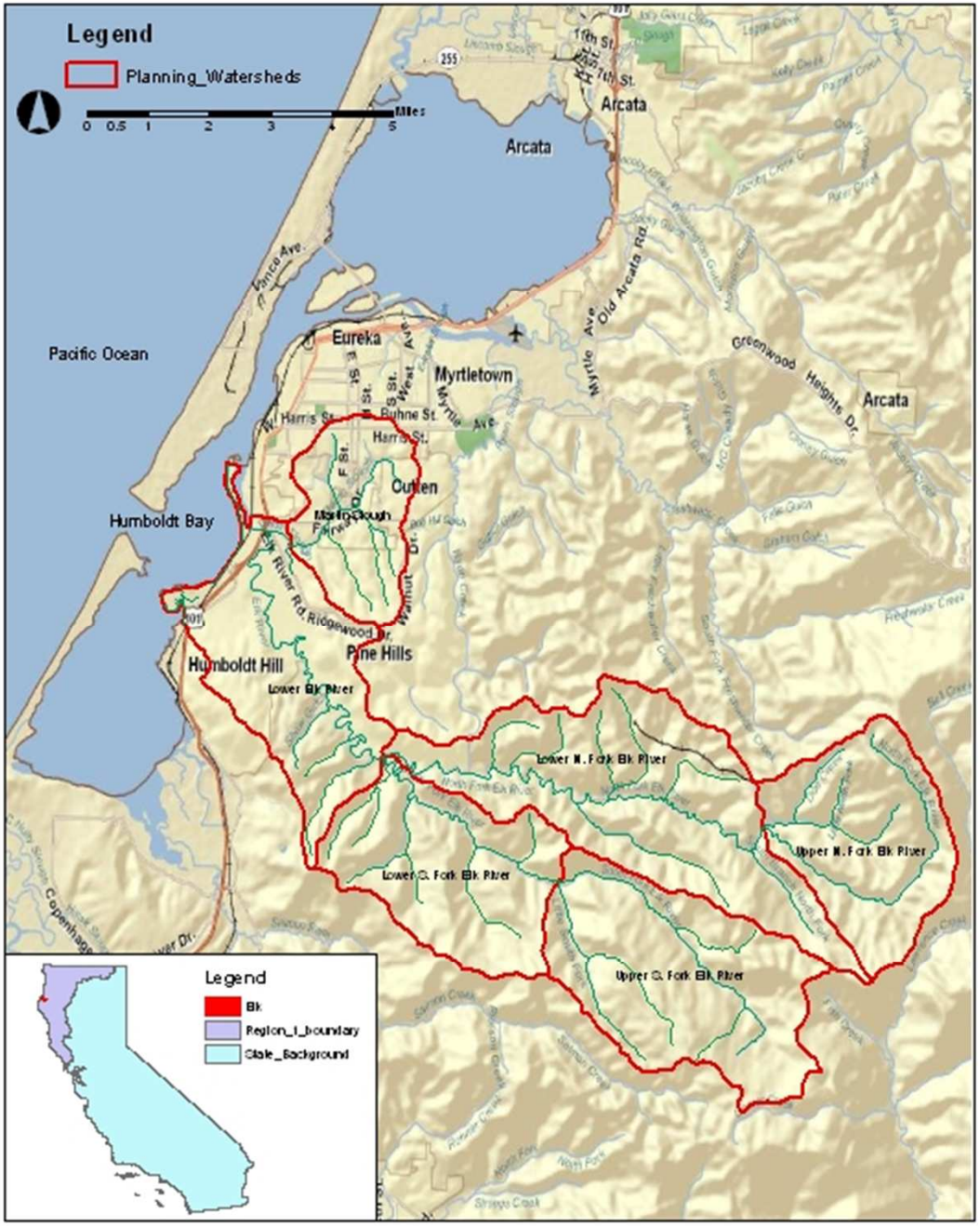
CALIFORNIA
Water Boards

Track Elk River TMDL development, and download documents for review and comment:

http://www.waterboards.ca.gov/northcoast/progams/tmdl/elk

Sign-up for announcements pertaining to Elk TMDL:

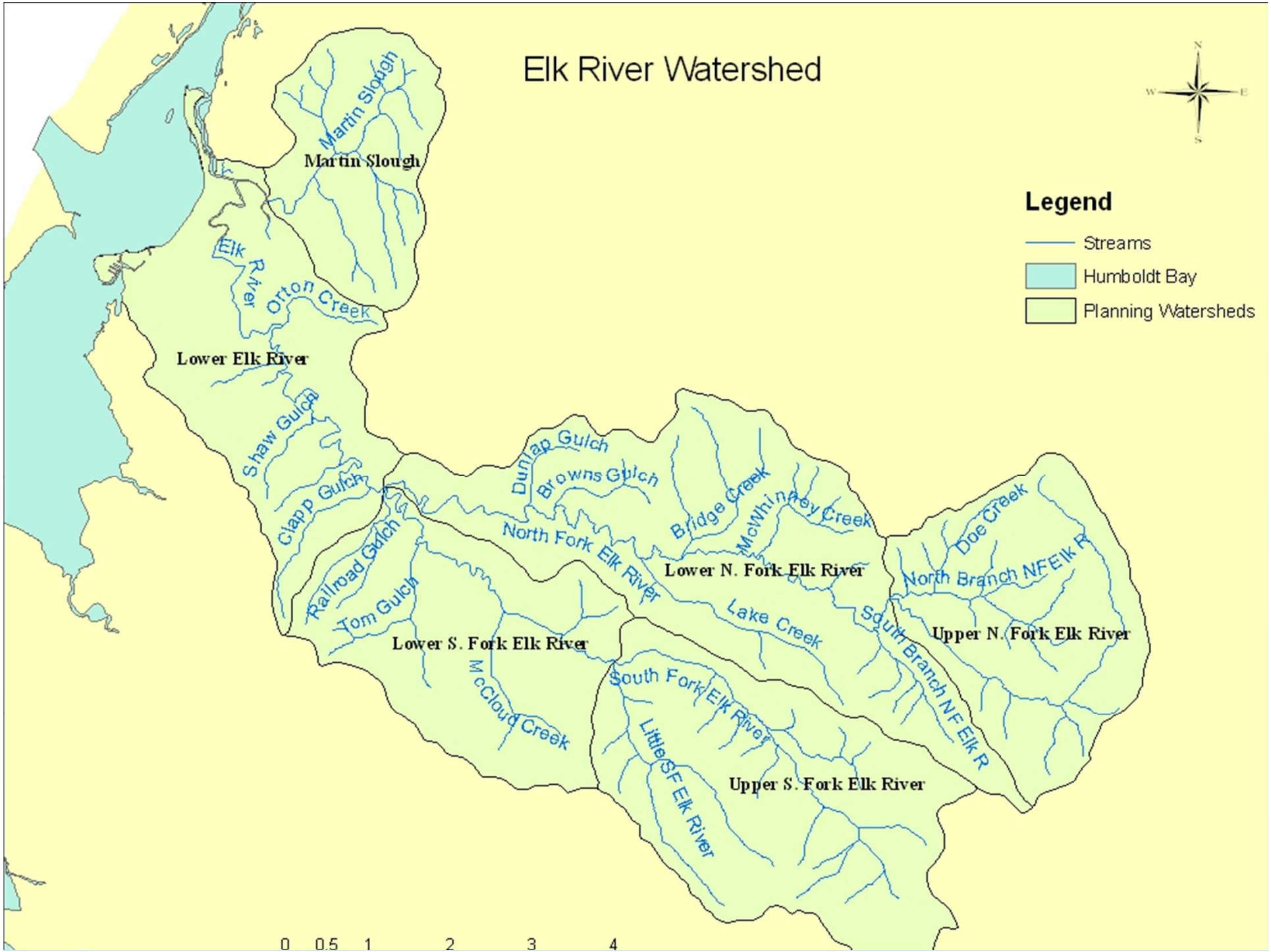
http://www.waterboards.ca.gov/resources/email_subscriptions/reg1_subscribe.shtml

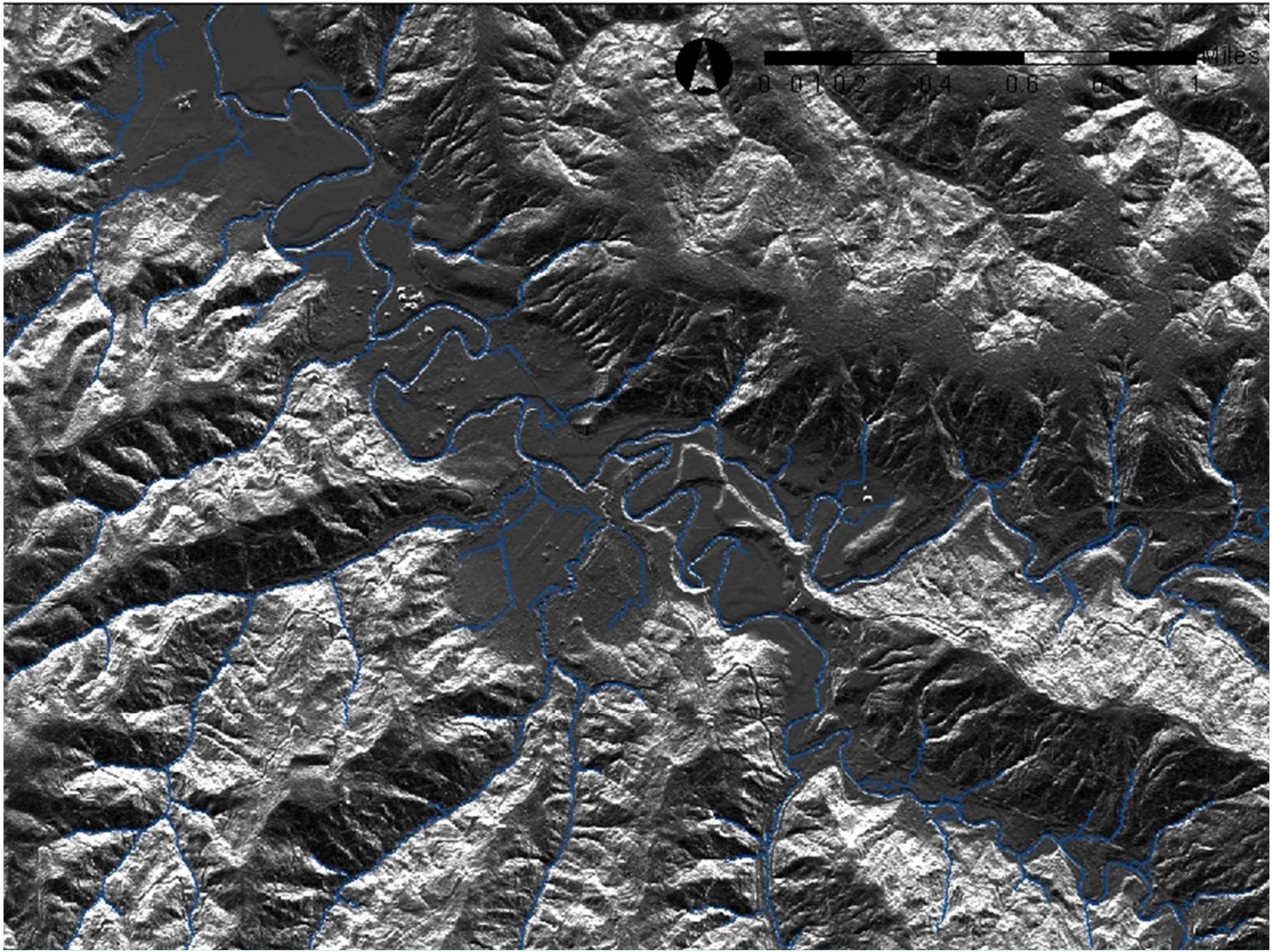


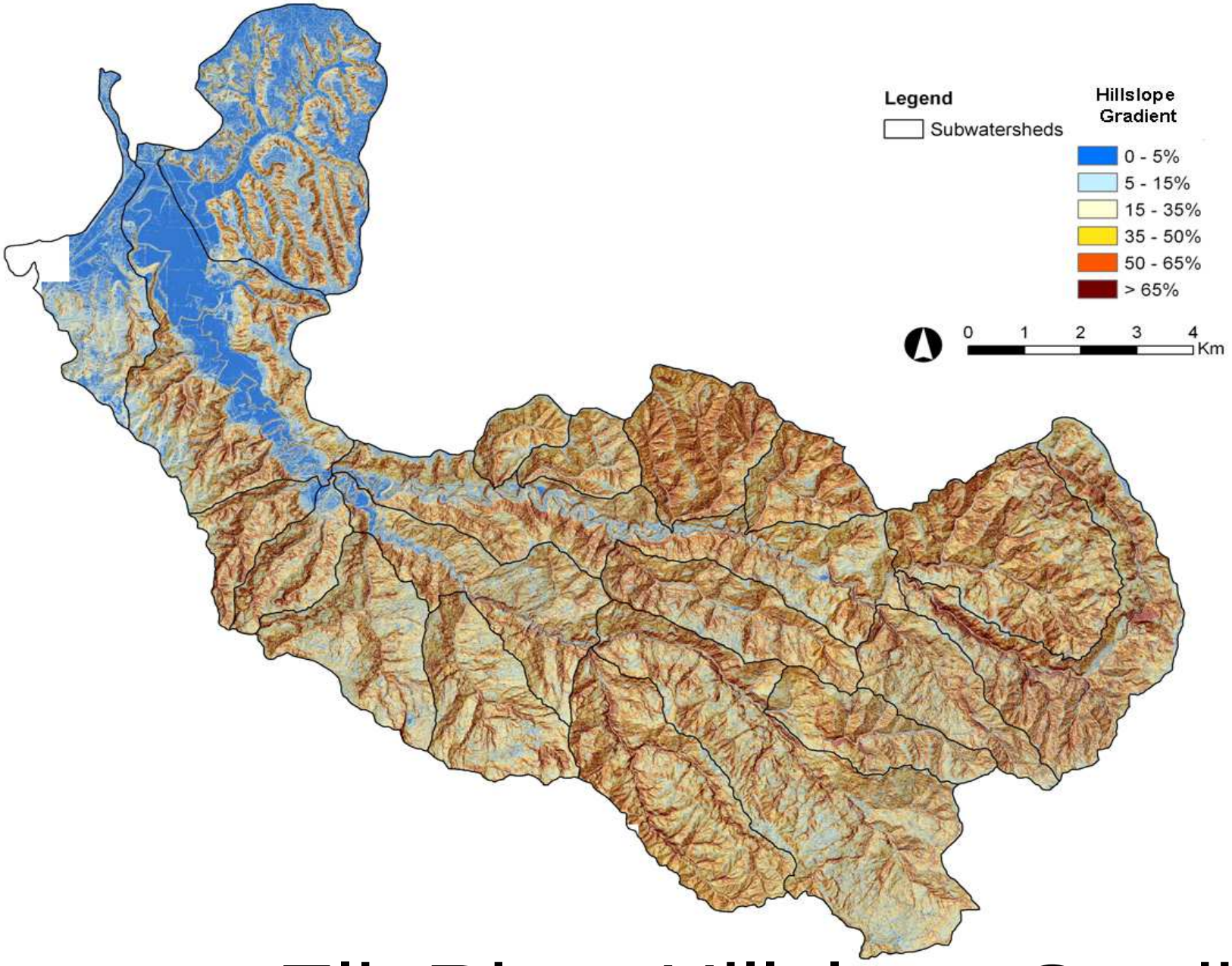
Elk River Watershed

58.3 square miles

- North Fork Elk River (22.5mi^2)
- South Fork Elk River (19.5 mi^2)
- Lower Elk River (10.4 mi^2)
- Martin Slough (5.9 mi^2)

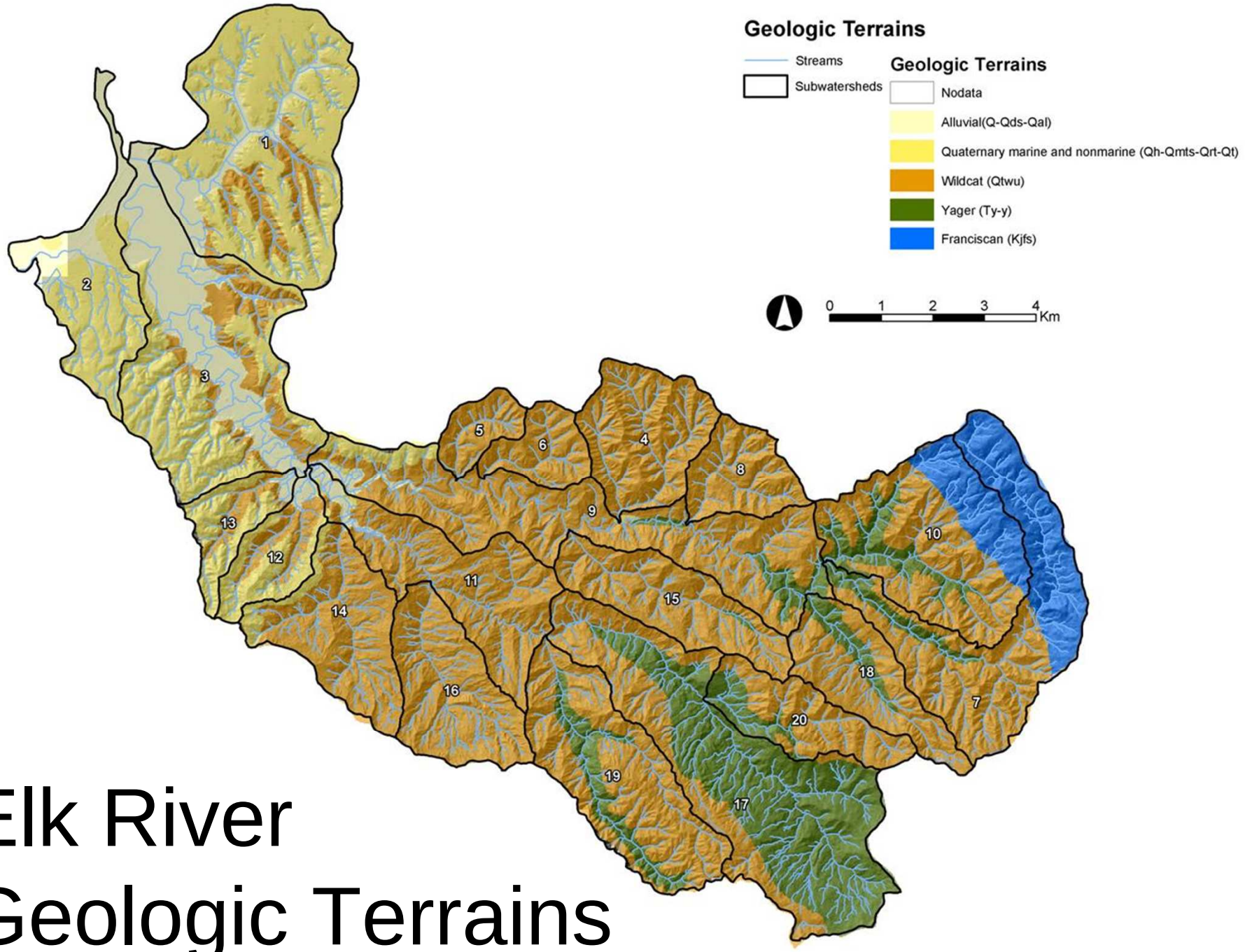

Elk River Watershed
Legend
Streams
Humboldt Bay
Planning Watersheds
Martin Slough
Martin Slough
Elk River
Orton Creek
Lower Elk River
Shaw Gulch
Clapp Gulch
Railroad Gulch
Tom Gulch
Lower S. Fork Elk River
McCloud Creek
Dunlap Gulch
Browns Gulch
North Fork Elk River
Bridge Creek
McWhinney Creek
Lower N. Fork Elk River
Lake Creek
South Fork Elk River
Little SF Elk River
Upper S. Fork Elk River
Doe Creek
North Branch NF Elk R
South Branch NF Elk R
Upper N. Fork Elk River
0 0.5 1 2 3 4


0 0.1 0.2 0.4 0.6 0.8 1
Miles

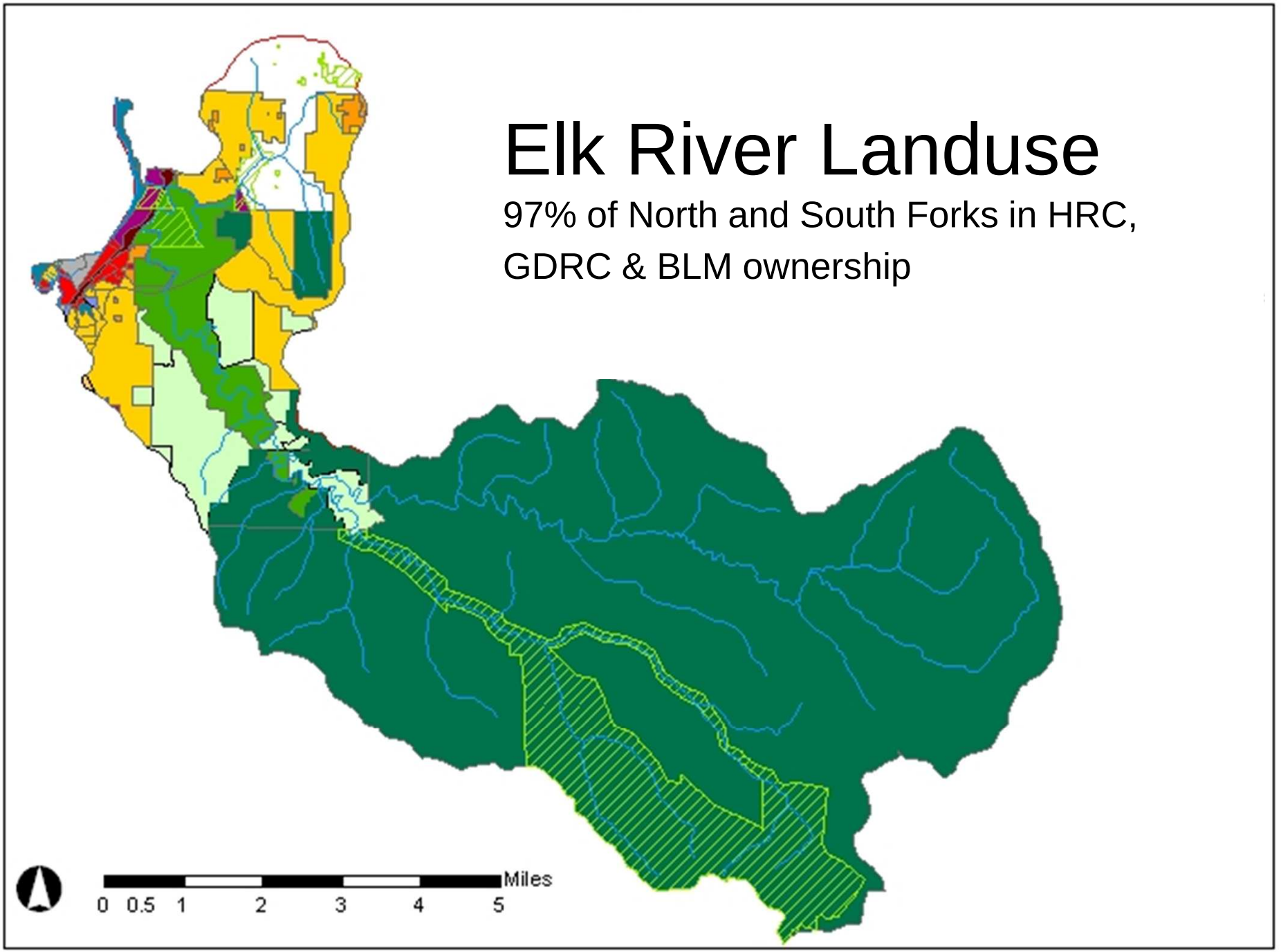


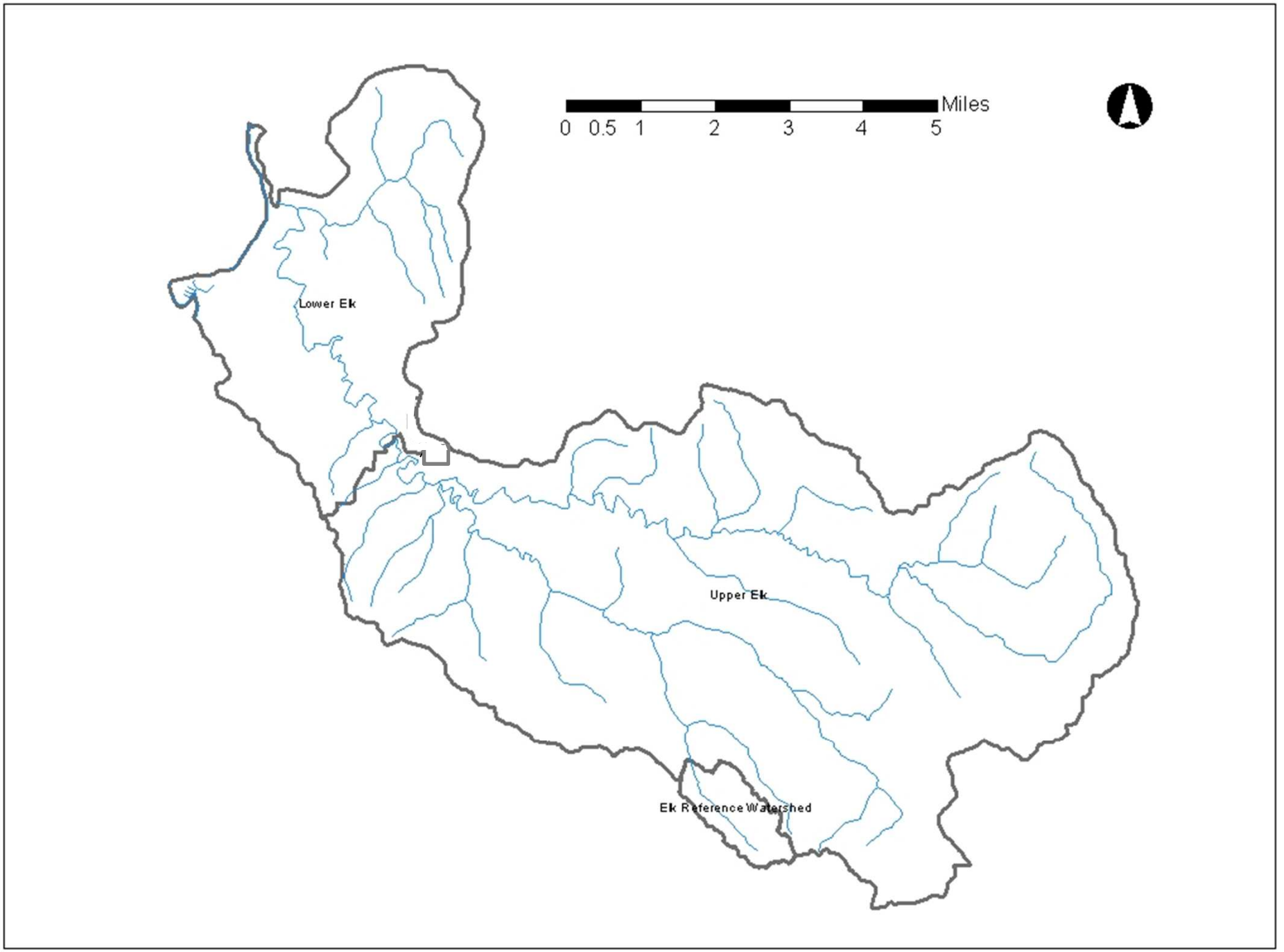
Elk River Hillslope Gradient

Stillwater Sciences VESTRA Curry Group Inc.

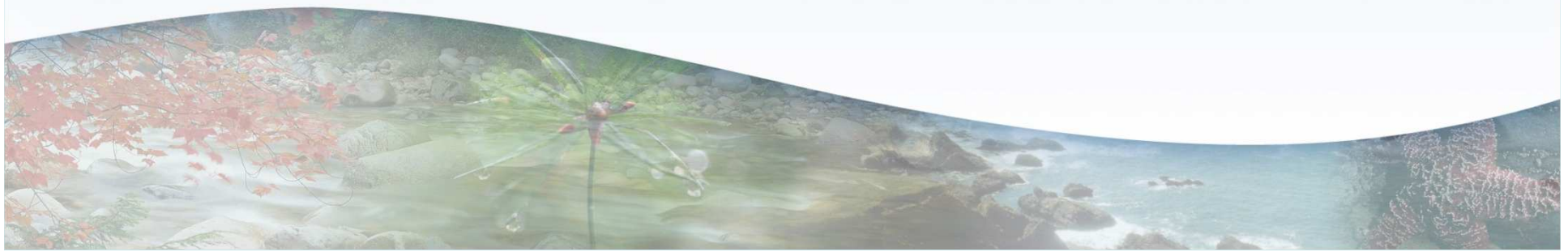


Elk River Geologic Terrains


Elk River Landuse
97% of North and South Forks in HRC,
GDRC & BLM ownership
Miles
0 0.5 1 2 3 4 5


Miles
0 0.5 1 2 3 4 5
Lower Elk
Upper Elk
Elk Reference Watershed

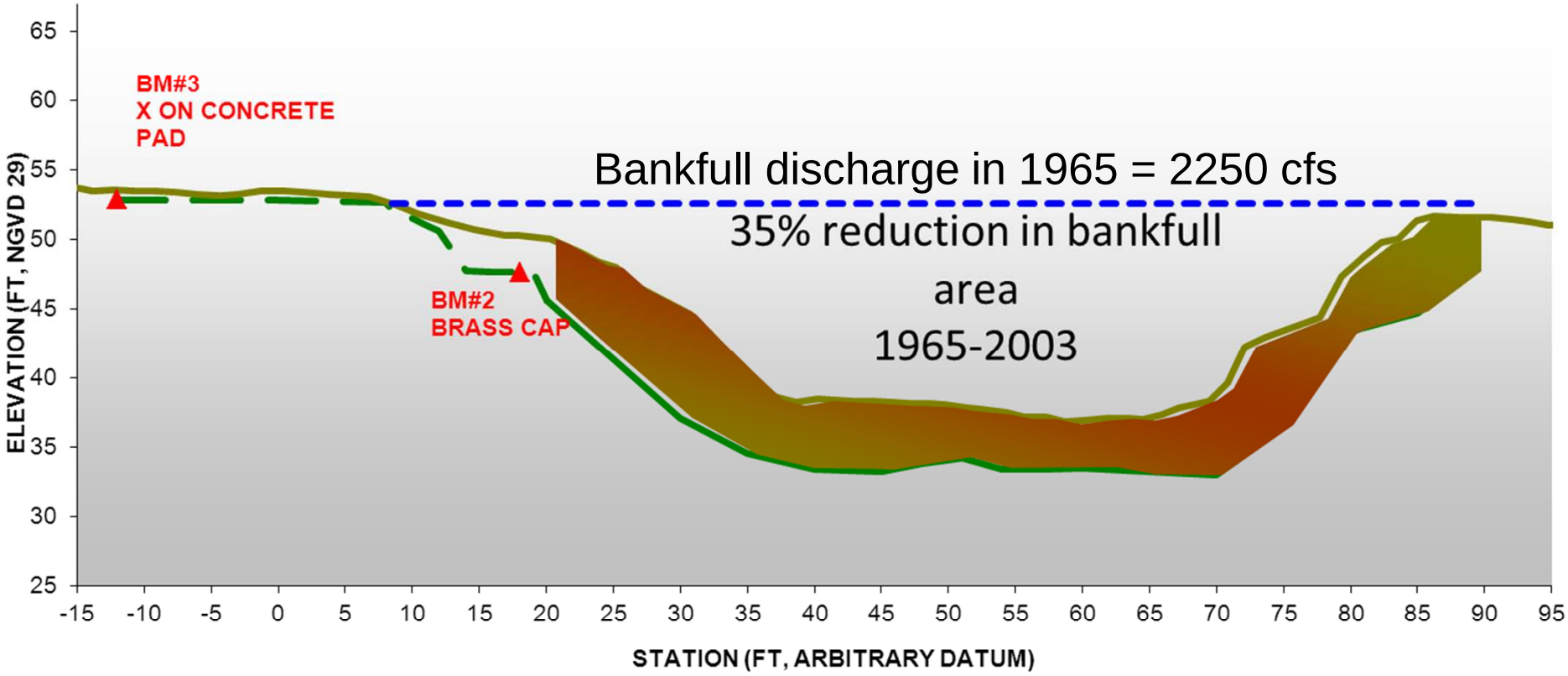
Fly through



Beneficial Use Impairment & Exceedence of Water Quality Objectives

- Sediment deposition
  - Reduced channel capacity; altered morphology
  - Nuisance flooding conditions
  - Pool filling; spawning habitat
- Elevated suspended sediment concentrations and turbidity levels
  - Limit fish feeding and survivability
  - Limit water supplies; increased maintenance

Comparison with historic conditions:
USGS gaged Upper Mainstem (1958-1967)
PL reoccupied site beginning in 1998

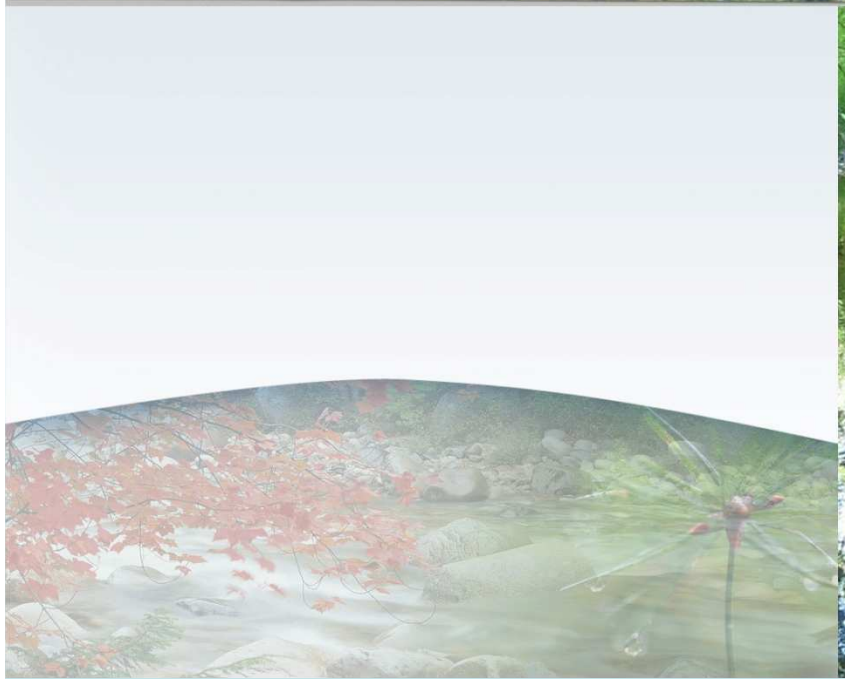


Nuisance Flooding Conditions

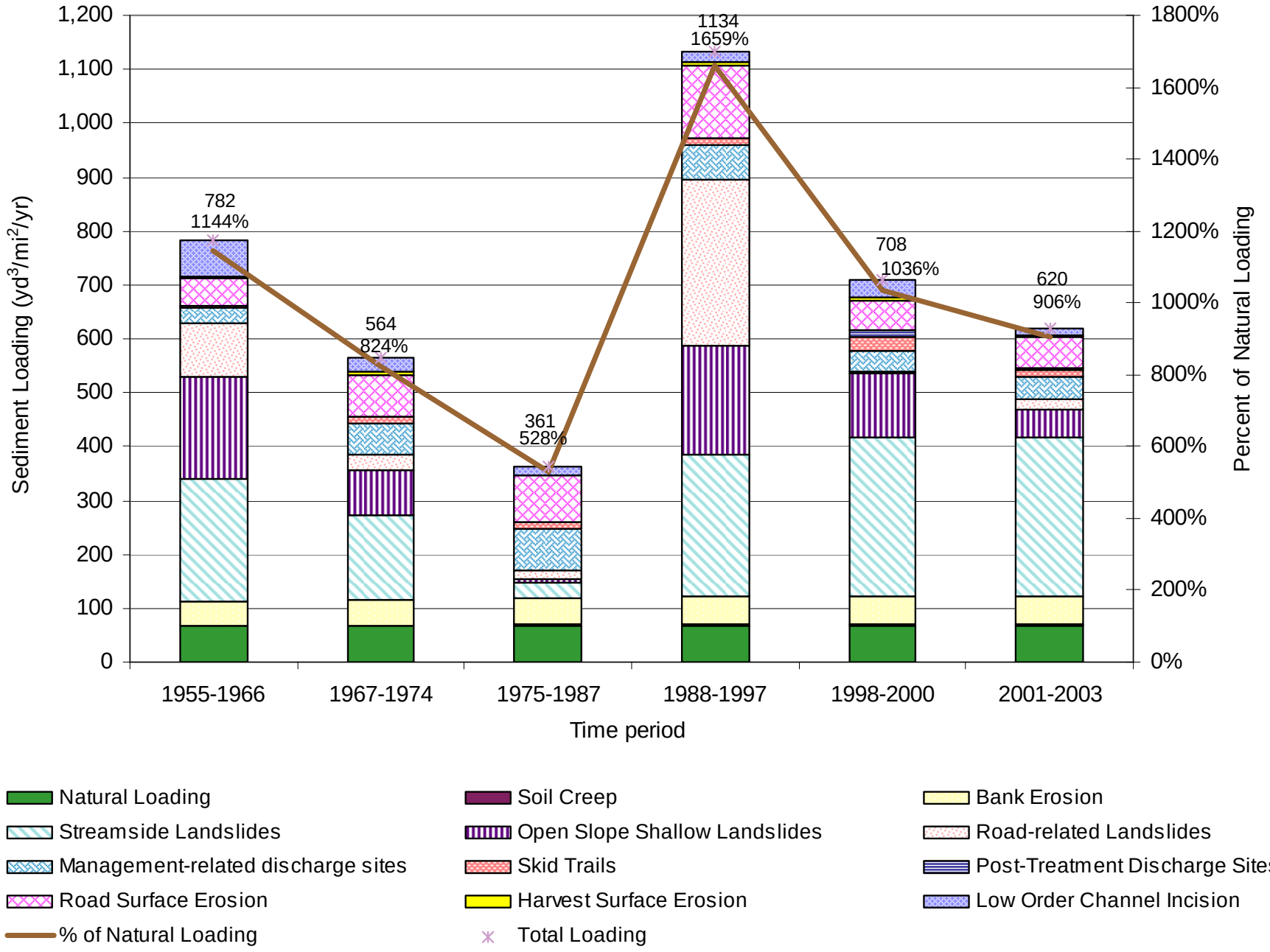
(California Water Code section 13050.)

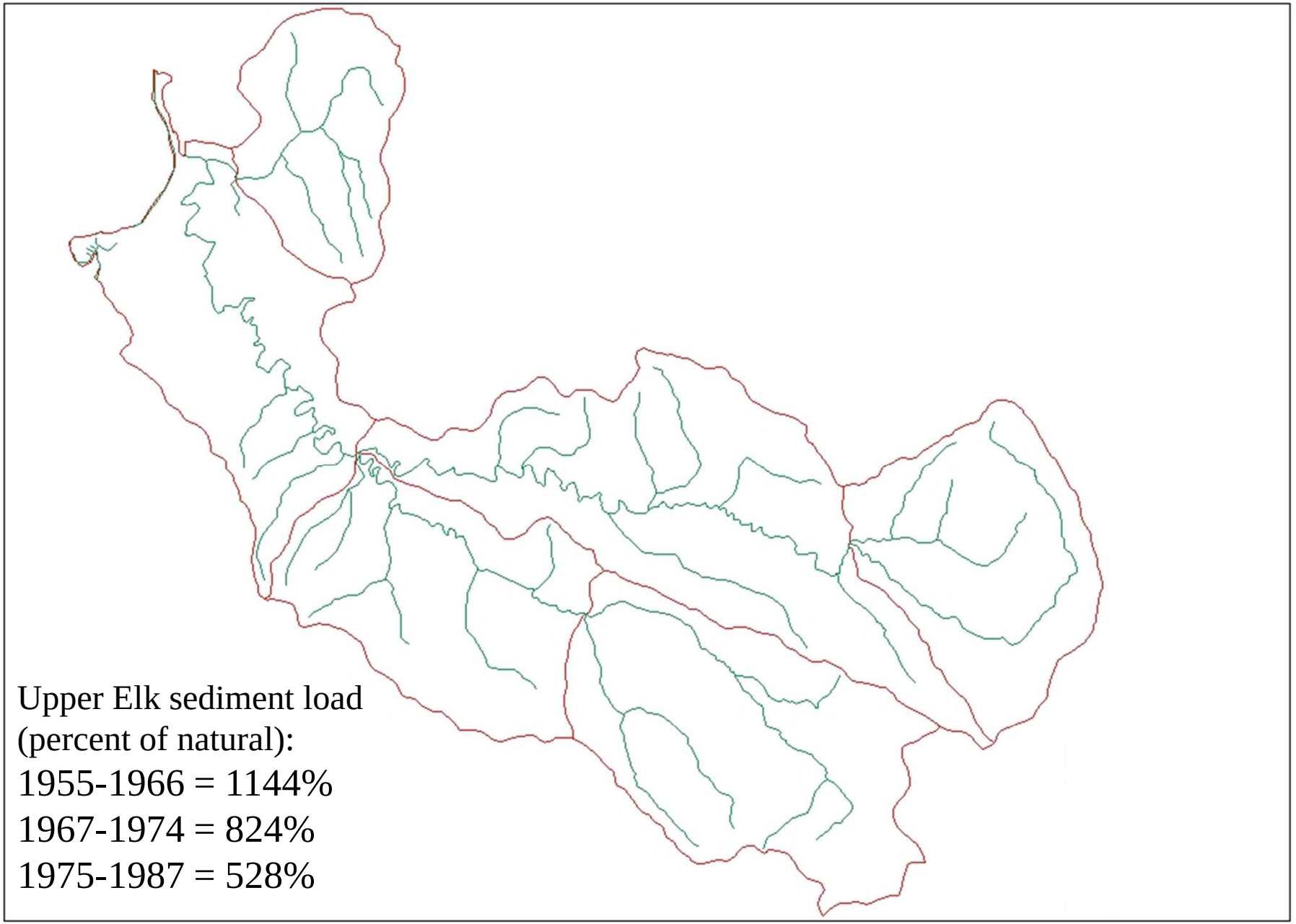
Sediment loads and ongoing deposition

Cumulative Effects

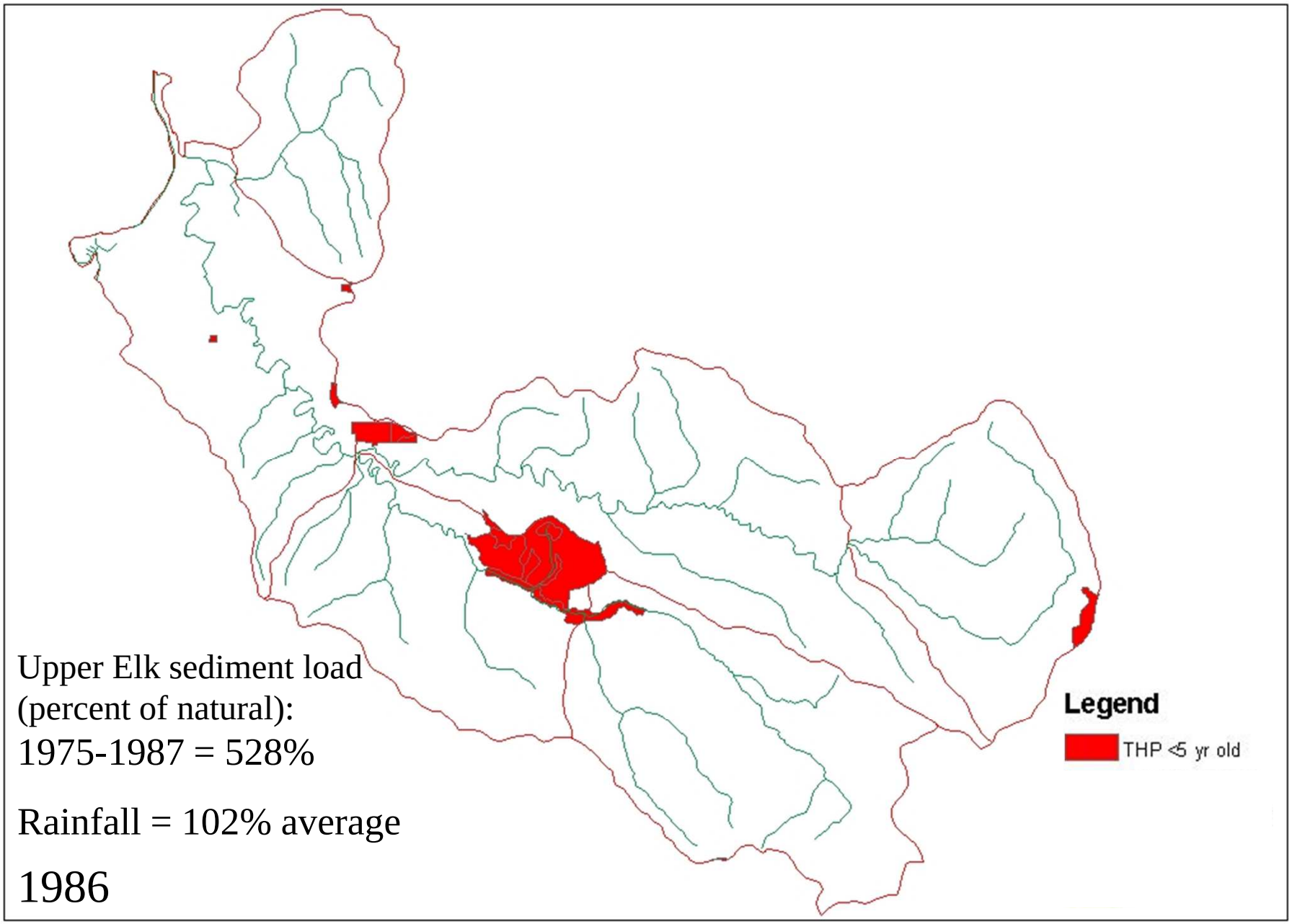


Draft Management Sources Summary





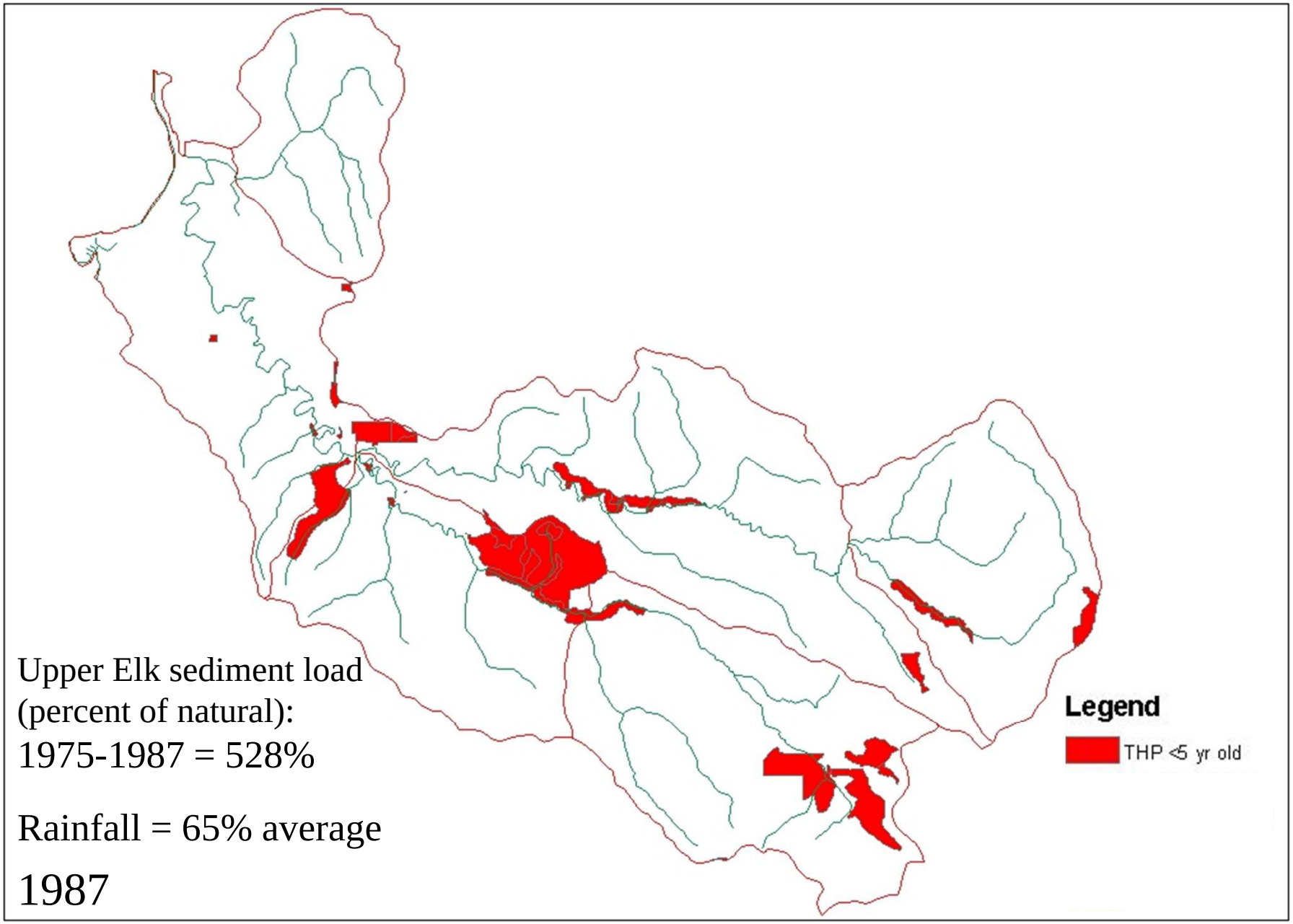
Upper Elk sediment load
(percent of natural):
1955-1966 = 1144%
1967-1974 = 824%
1975-1987 = 528%



Upper Elk sediment load
(percent of natural):
1975-1987 = 528%

Rainfall = 102% average

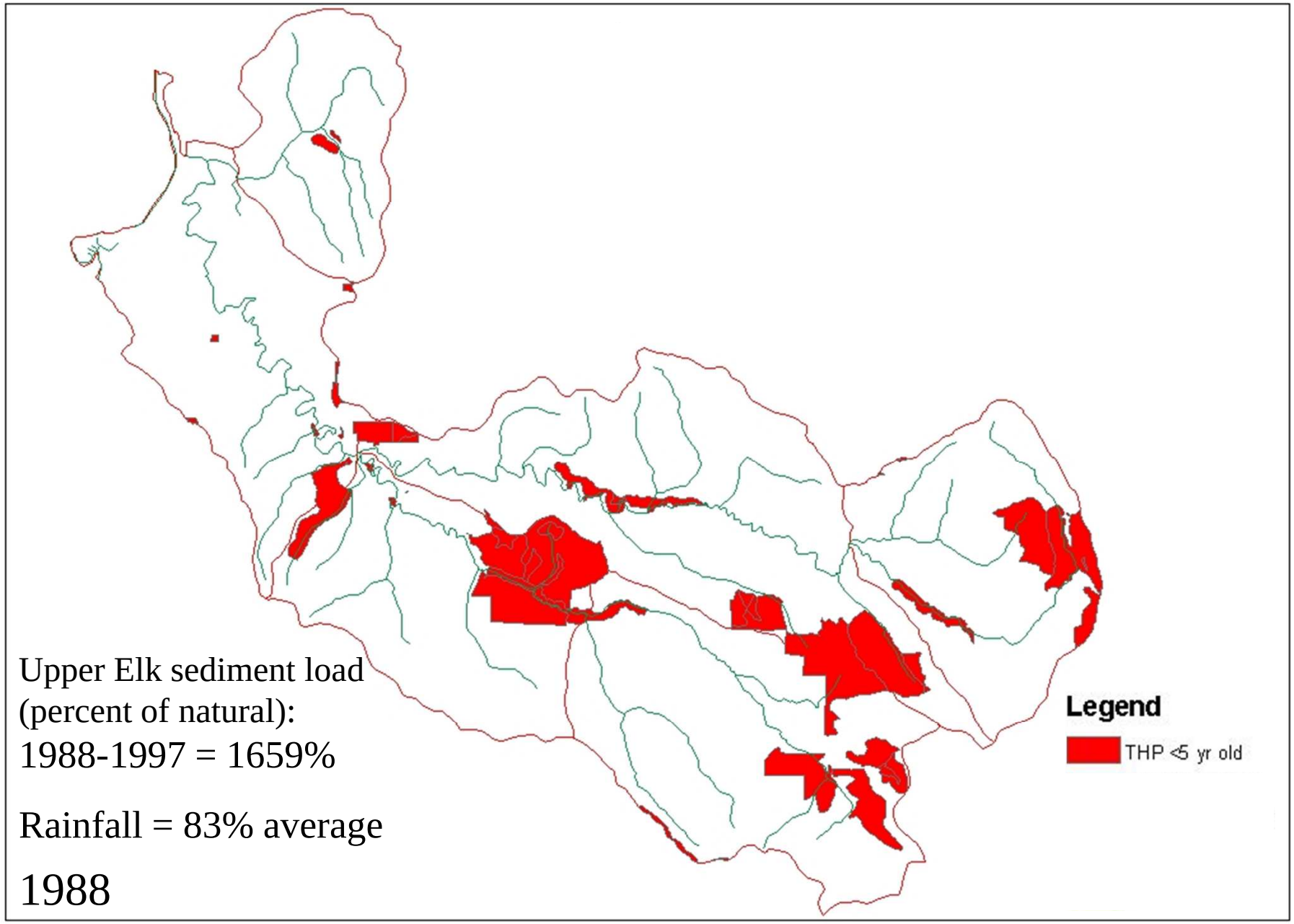
1986



Upper Elk sediment load
(percent of natural):
1975-1987 = 528%

Rainfall = 65% average

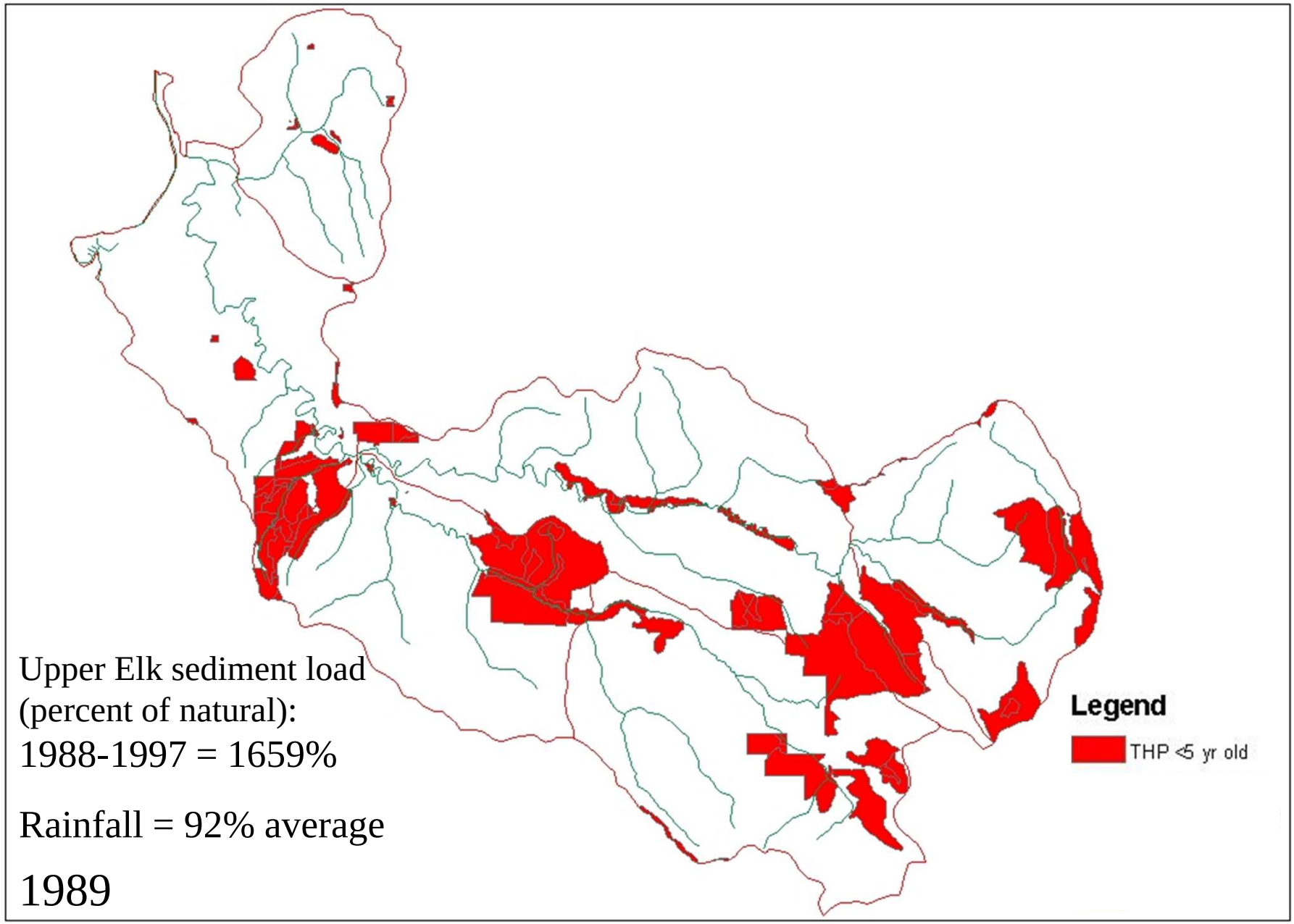
1987



Upper Elk sediment load
(percent of natural):
1988-1997 = 1659%

Rainfall = 83% average

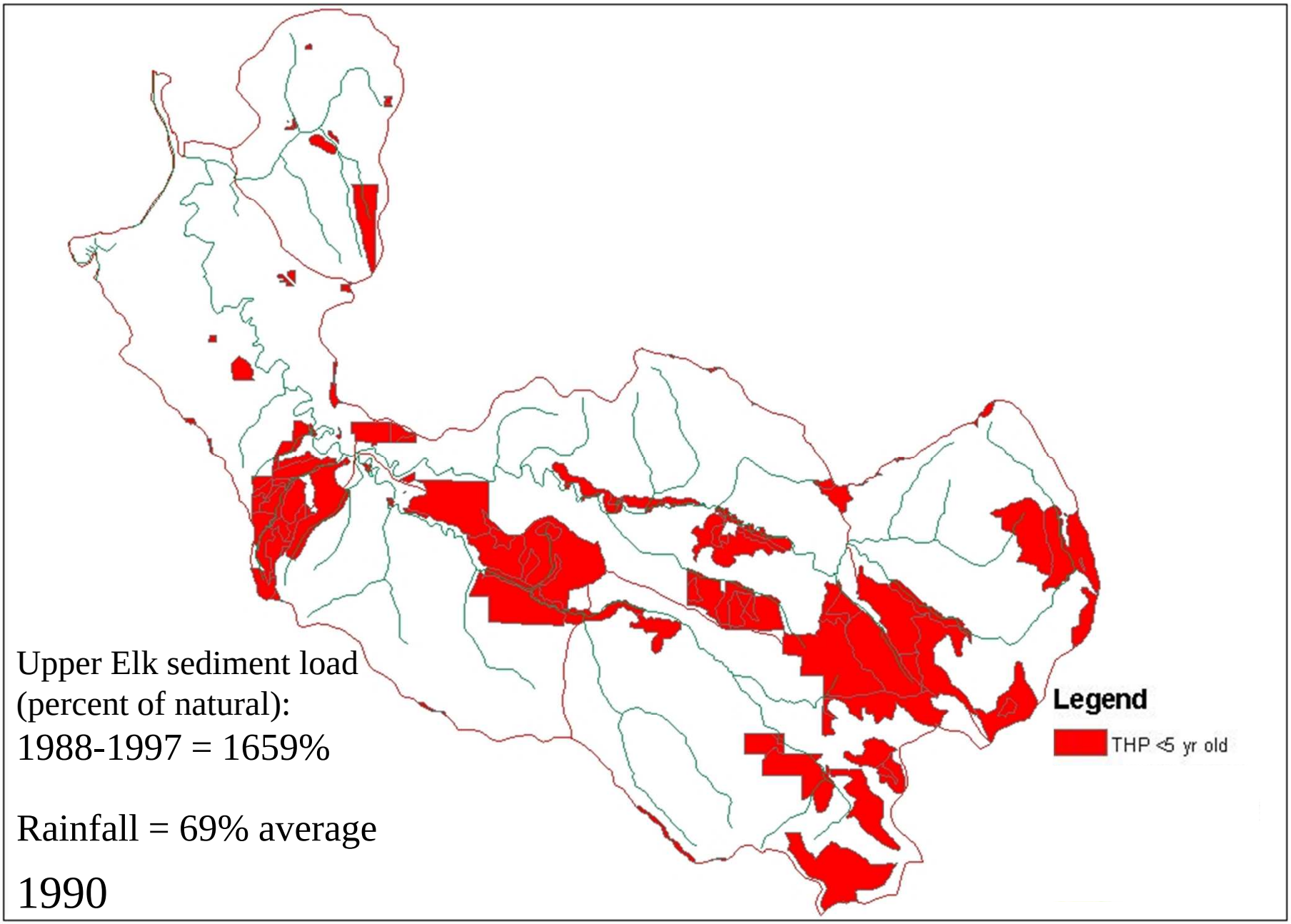
1988



Upper Elk sediment load
(percent of natural):
1988-1997 = 1659%

Rainfall = 92% average

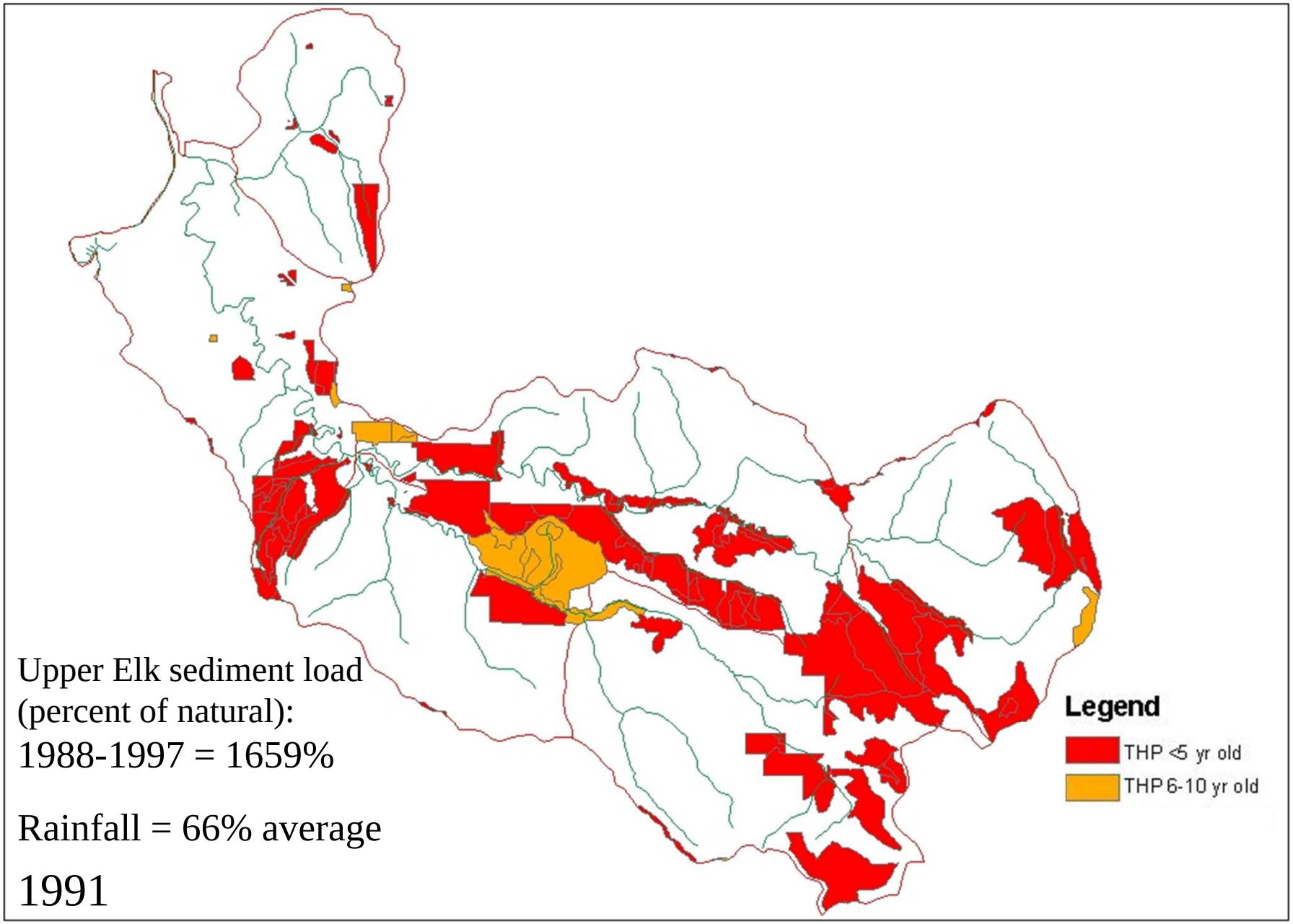
1989



Upper Elk sediment load
(percent of natural):
1988-1997 = 1659%

Rainfall = 69% average

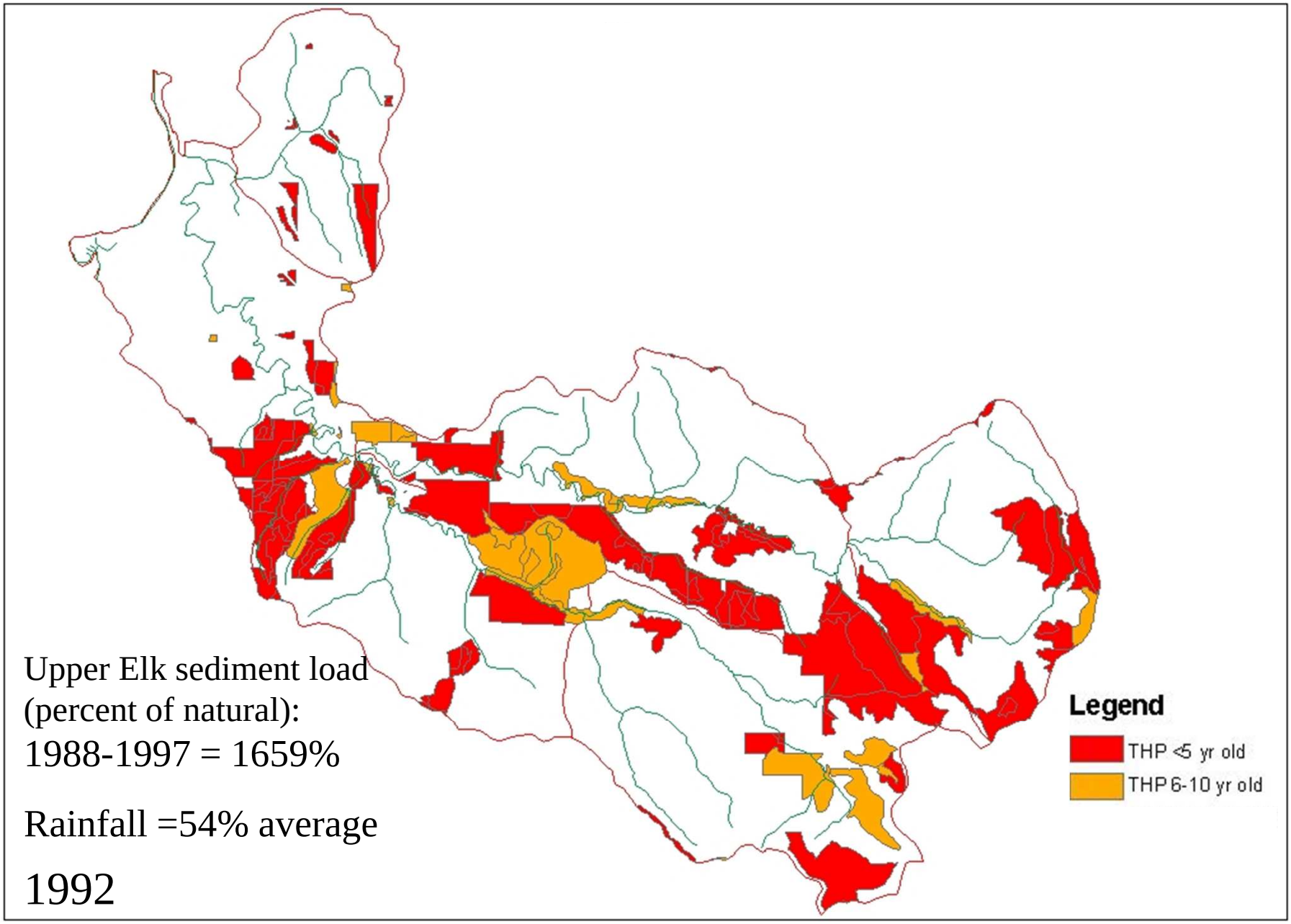
1990



Upper Elk sediment load
(percent of natural):
1988-1997 = 1659%

Rainfall = 66% average

1991

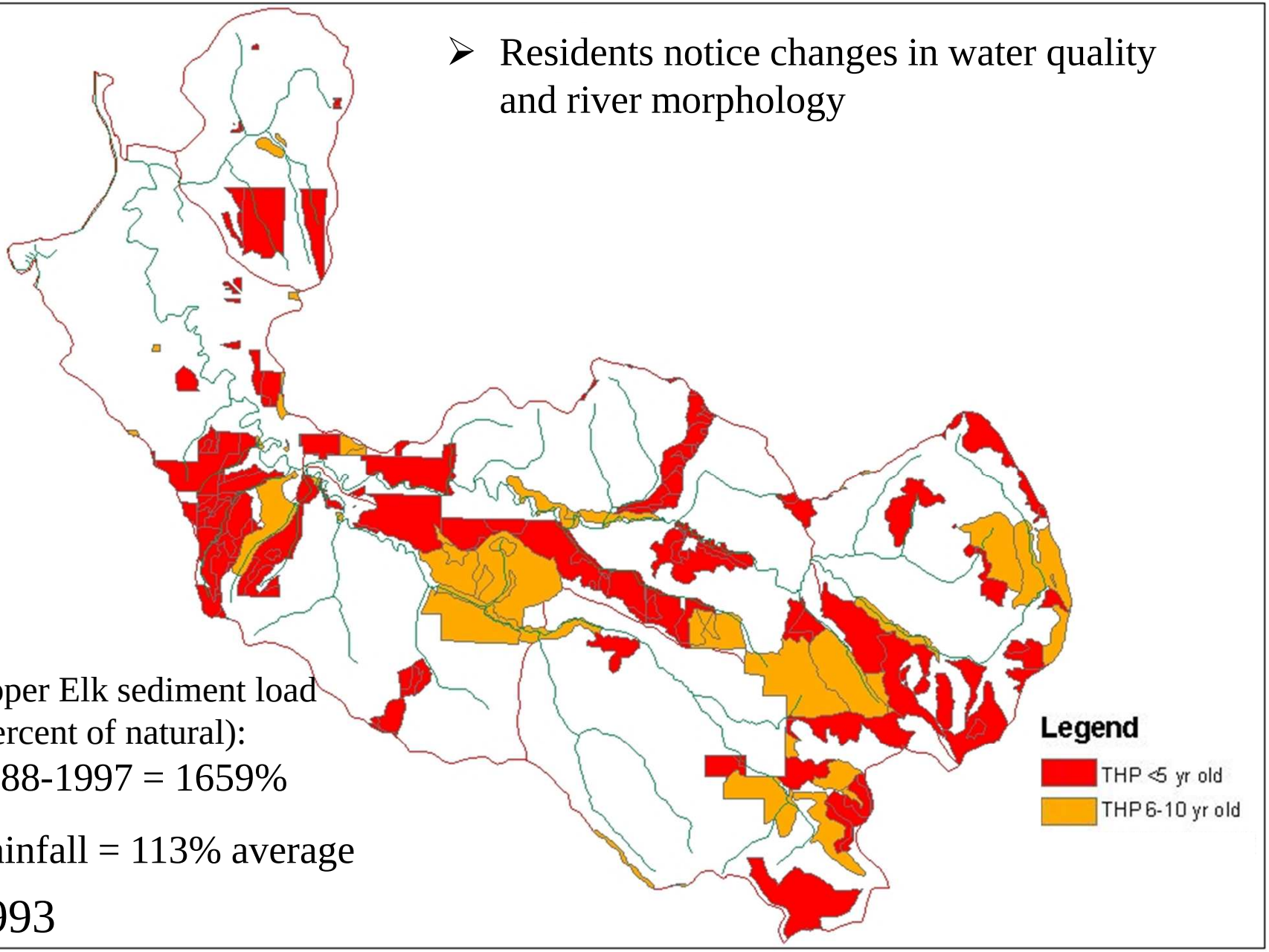


Upper Elk sediment load
(percent of natural):
1988-1997 = 1659%

Rainfall =54% average

1992

- Residents notice changes in water quality and river morphology

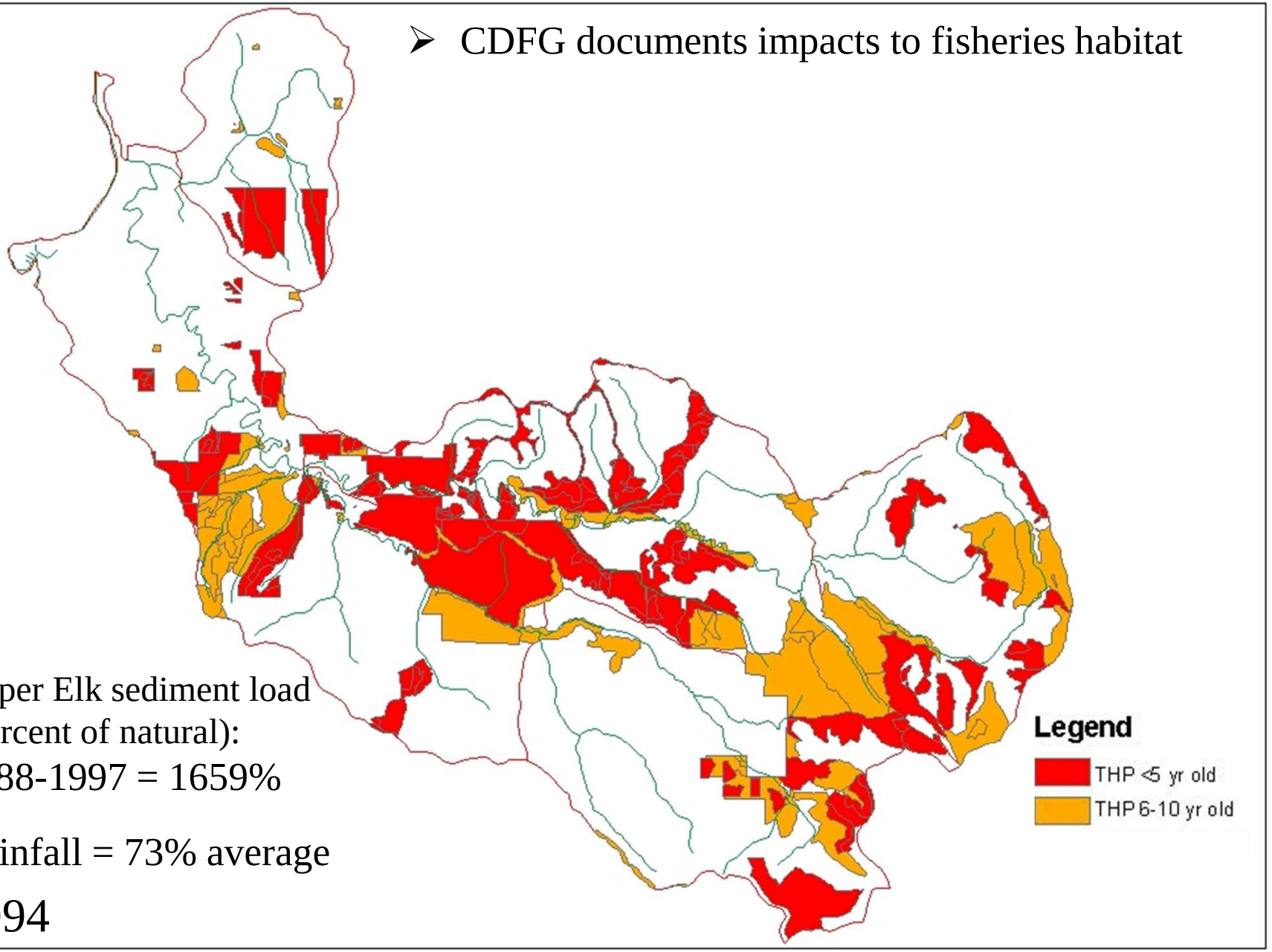


Upper Elk sediment load (percent of natural):
1988-1997 = 1659%

Rainfall = 113% average

1993

- CDFG documents impacts to fisheries habitat

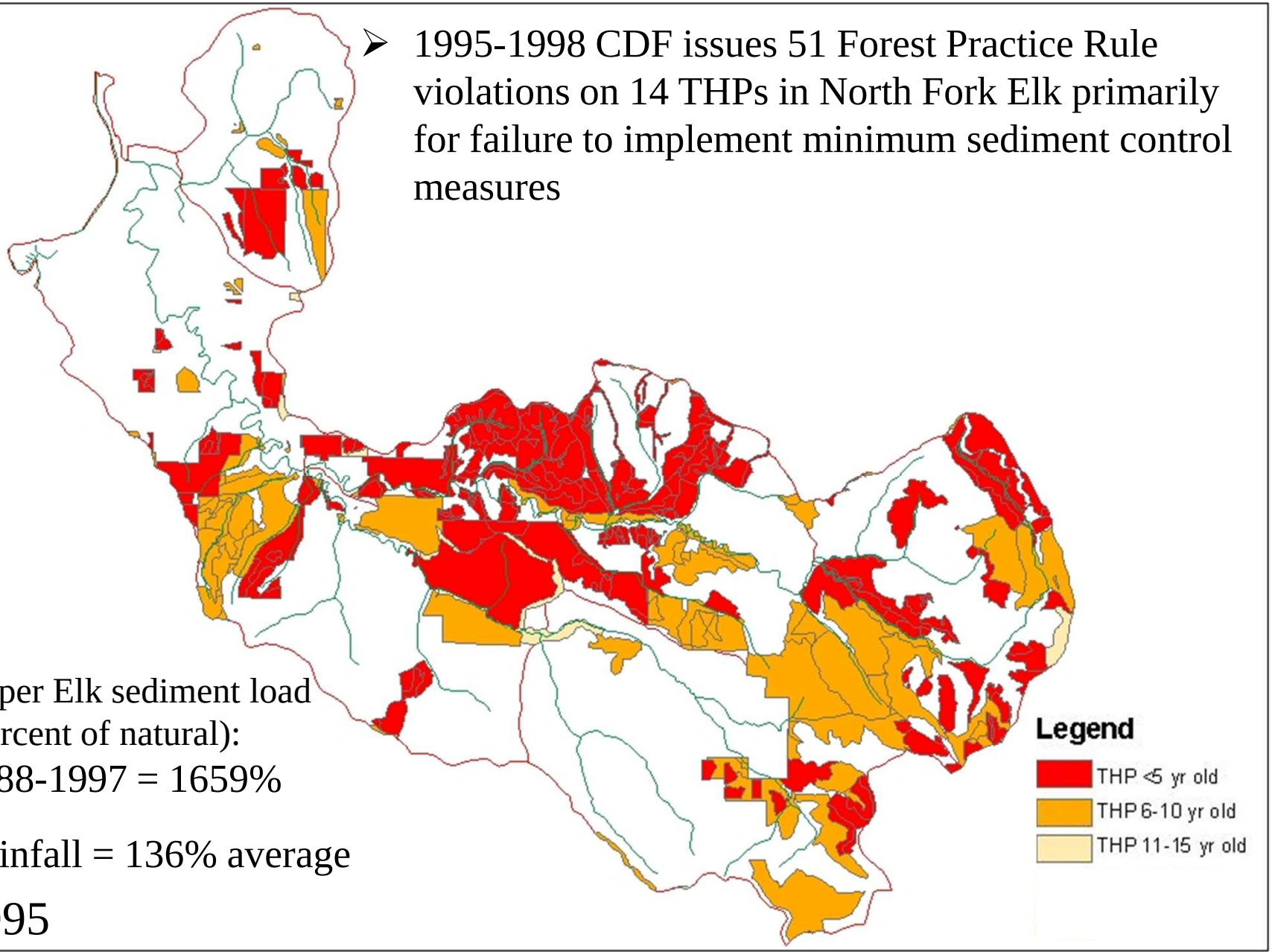


Upper Elk sediment load (percent of natural):
1988-1997 = 1659%

Rainfall = 73% average

1994

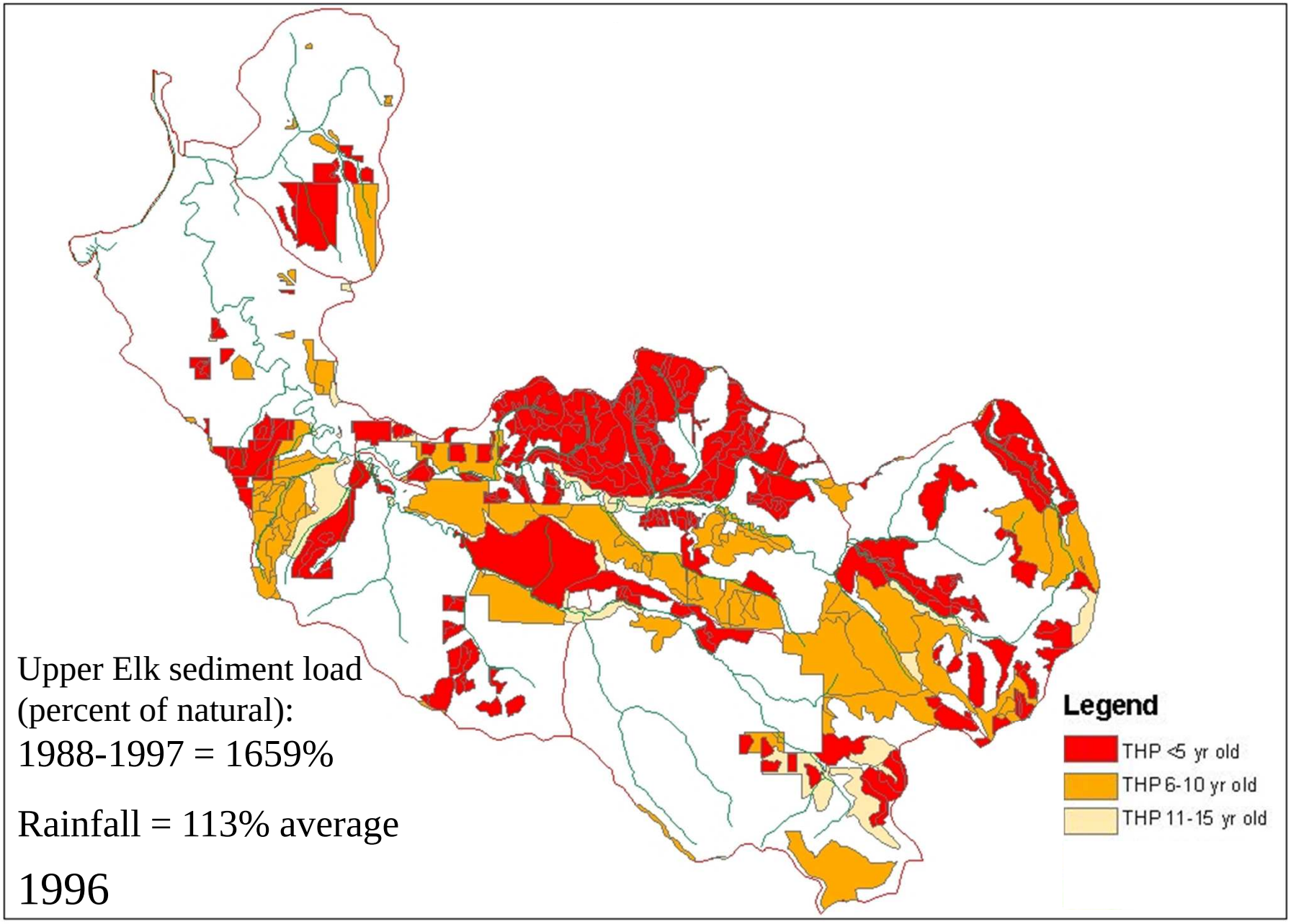
- 1995-1998 CDF issues 51 Forest Practice Rule violations on 14 THPs in North Fork Elk primarily for failure to implement minimum sediment control measures



Upper Elk sediment load (percent of natural):
1988-1997 = 1659%

Rainfall = 136% average

1995

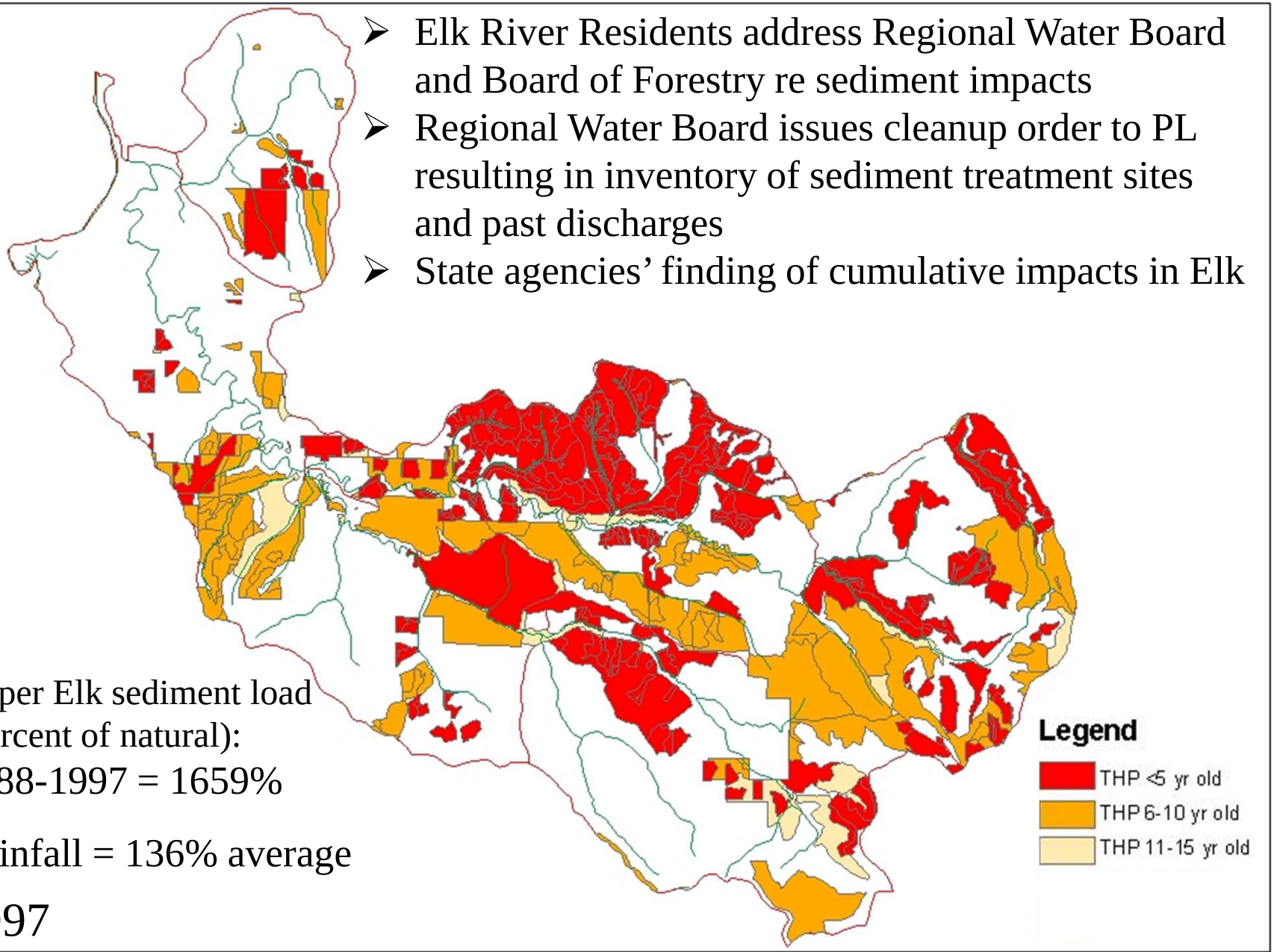


Upper Elk sediment load (percent of natural):
1988-1997 = 1659%

Rainfall = 113% average

1996

- Elk River Residents address Regional Water Board and Board of Forestry re sediment impacts
- Regional Water Board issues cleanup order to PL resulting in inventory of sediment treatment sites and past discharges
- State agencies' finding of cumulative impacts in Elk

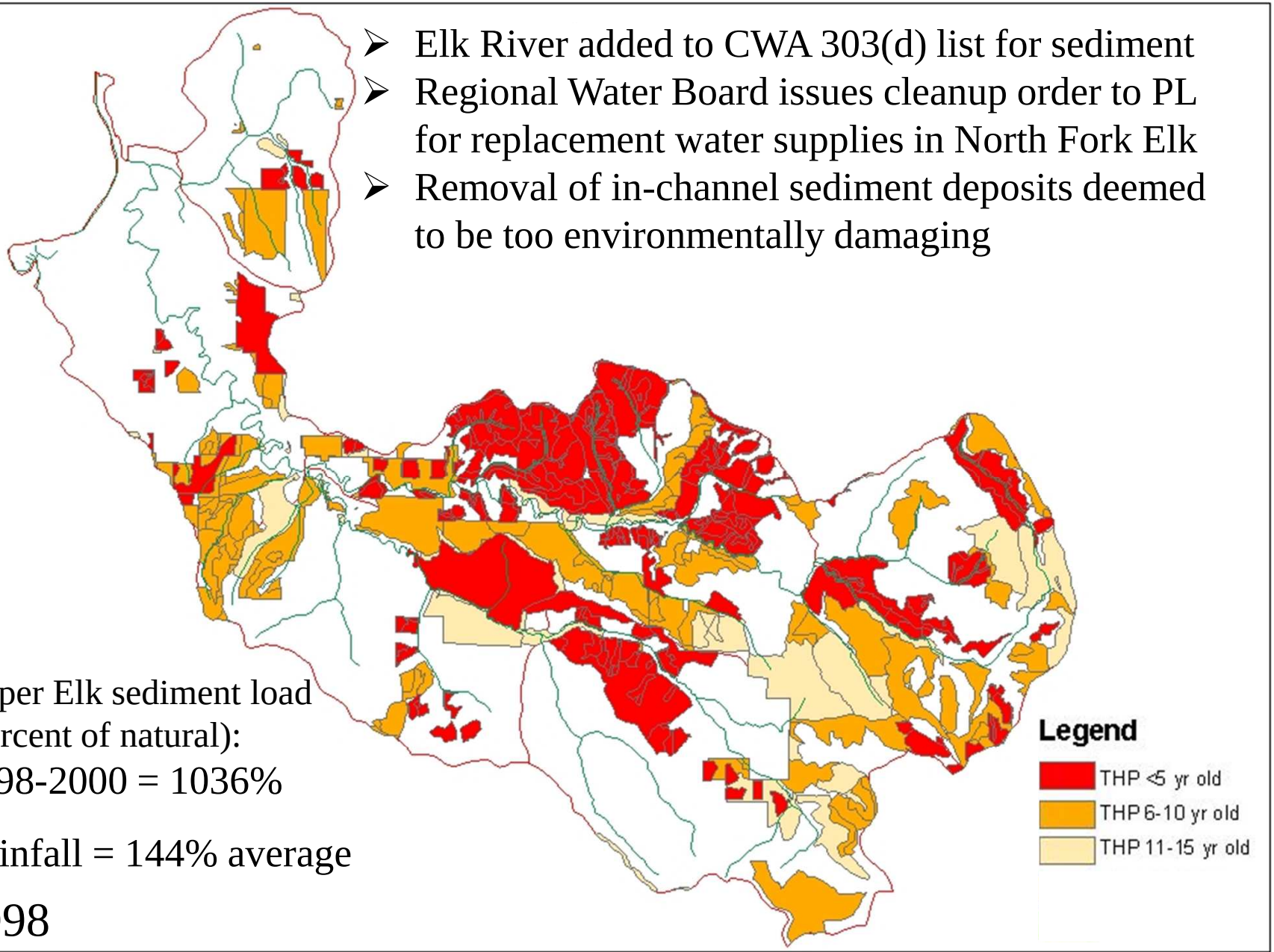


Upper Elk sediment load (percent of natural):
1988-1997 = 1659%

Rainfall = 136% average

1997

- Elk River added to CWA 303(d) list for sediment
- Regional Water Board issues cleanup order to PL for replacement water supplies in North Fork Elk
- Removal of in-channel sediment deposits deemed to be too environmentally damaging

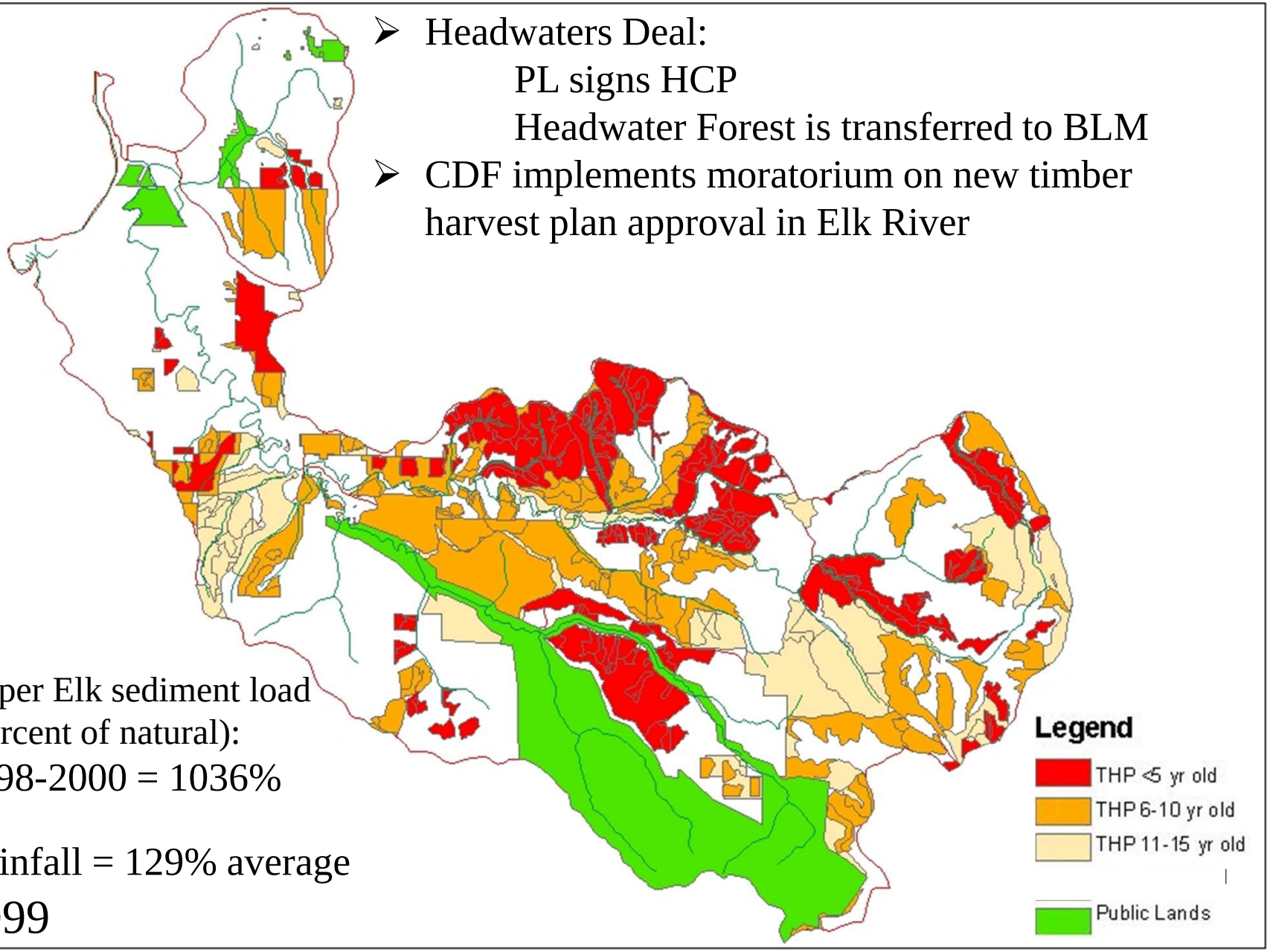


Upper Elk sediment load (percent of natural):
1998-2000 = 1036%

Rainfall = 144% average

1998

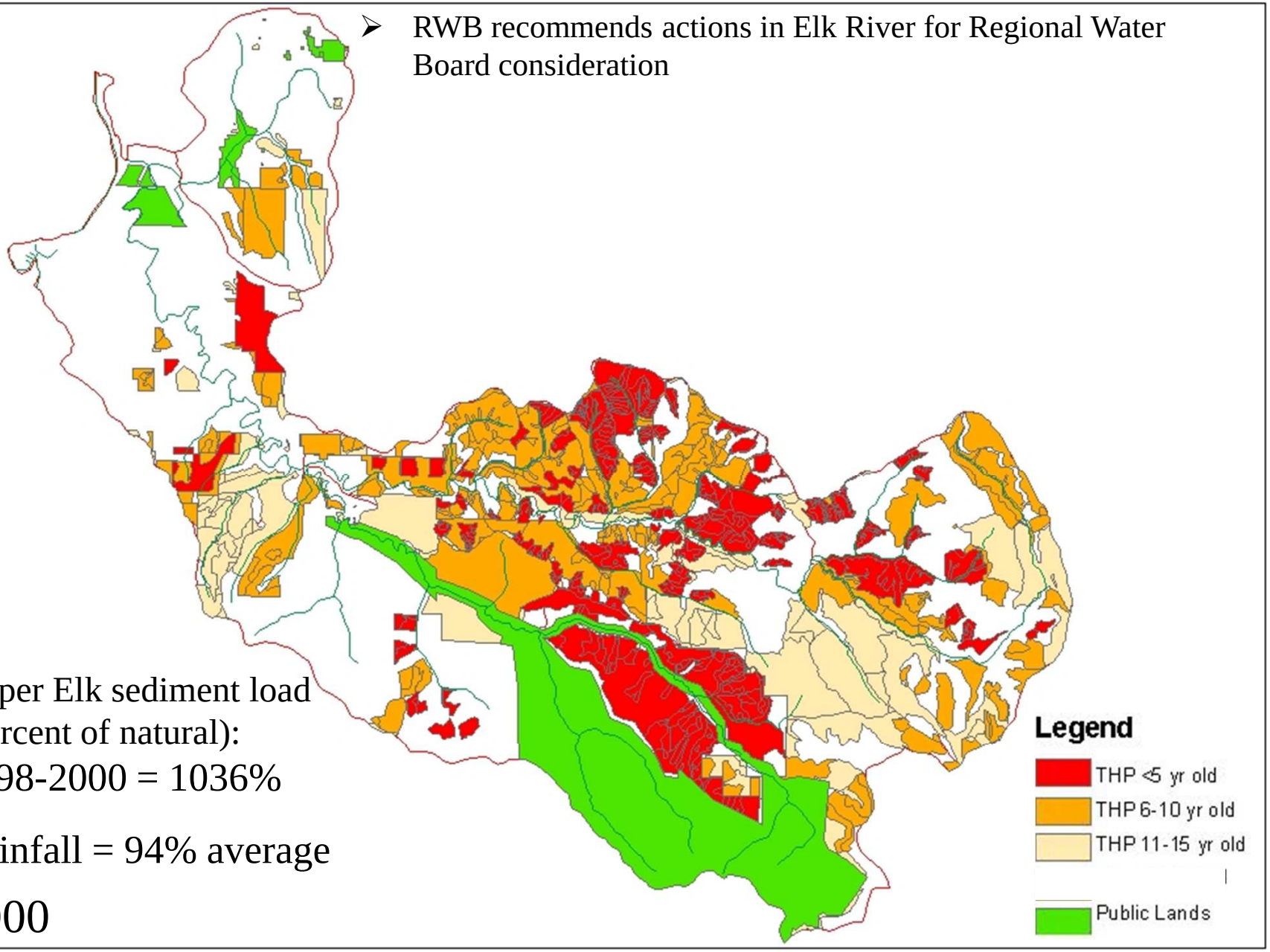
- Headwaters Deal:
  - PL signs HCP
  - Headwater Forest is transferred to BLM
- CDF implements moratorium on new timber harvest plan approval in Elk River



Upper Elk sediment load (percent of natural):
1998-2000 = 1036%

Rainfall = 129% average
1999

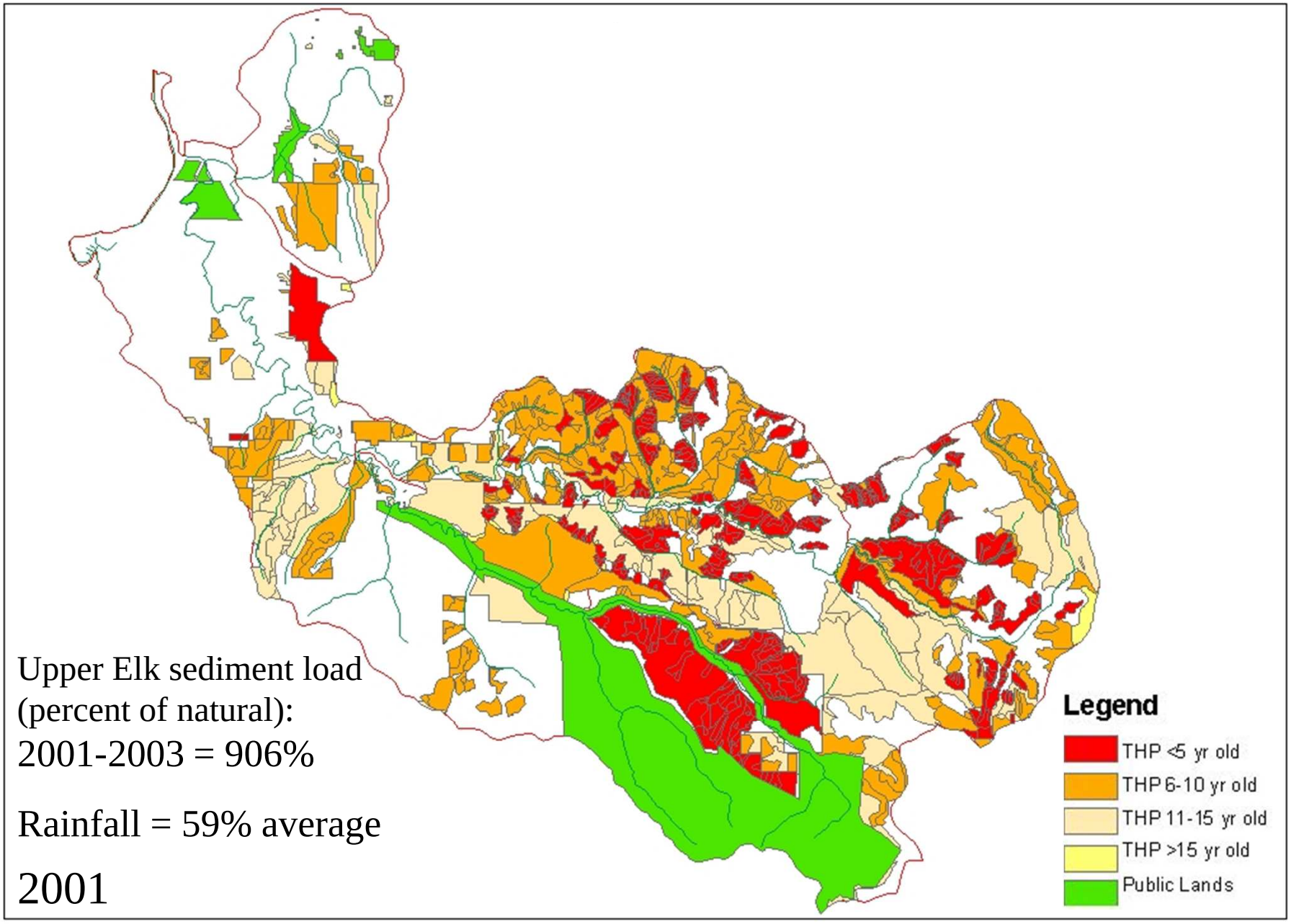
- RWB recommends actions in Elk River for Regional Water Board consideration



Upper Elk sediment load (percent of natural):
1998-2000 = 1036%

Rainfall = 94% average

2000

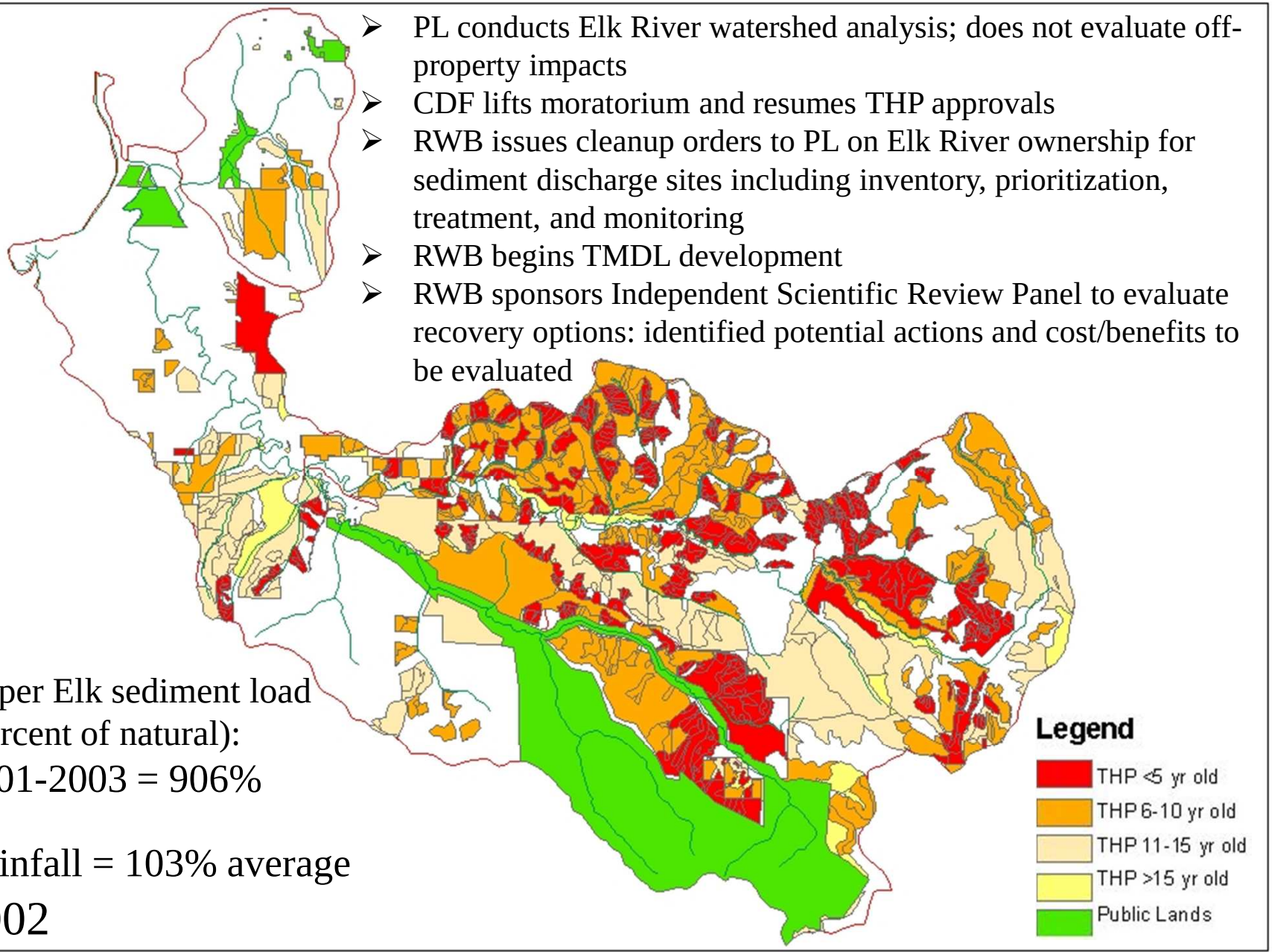


Upper Elk sediment load (percent of natural):
2001-2003 = 906%

Rainfall = 59% average

2001

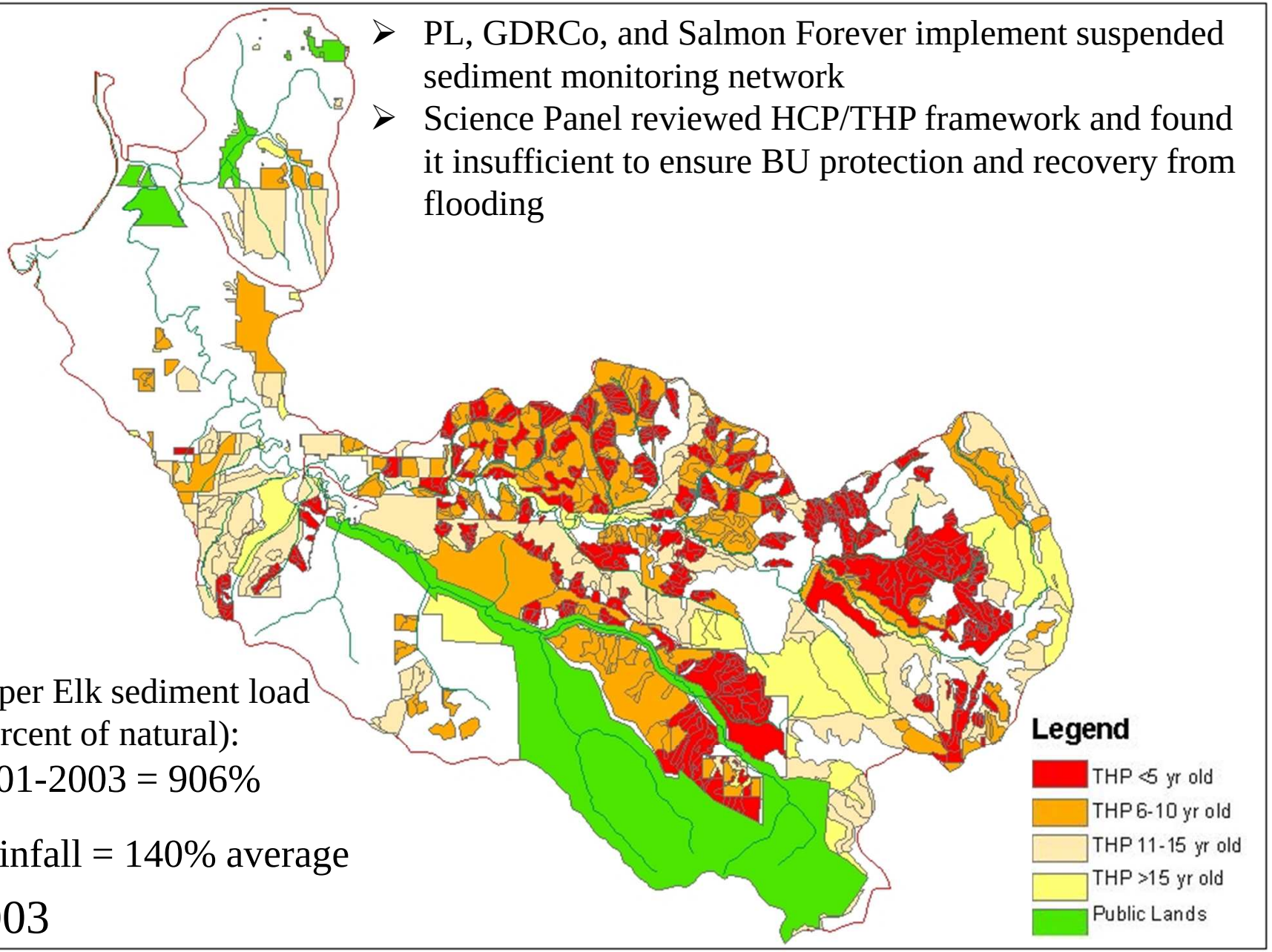
- PL conducts Elk River watershed analysis; does not evaluate off-property impacts
- CDF lifts moratorium and resumes THP approvals
- RWB issues cleanup orders to PL on Elk River ownership for sediment discharge sites including inventory, prioritization, treatment, and monitoring
- RWB begins TMDL development
- RWB sponsors Independent Scientific Review Panel to evaluate recovery options: identified potential actions and cost/benefits to be evaluated



Upper Elk sediment load (percent of natural):
2001-2003 = 906%

Rainfall = 103% average
2002

- PL, GDRCo, and Salmon Forever implement suspended sediment monitoring network
- Science Panel reviewed HCP/THP framework and found it insufficient to ensure BU protection and recovery from flooding

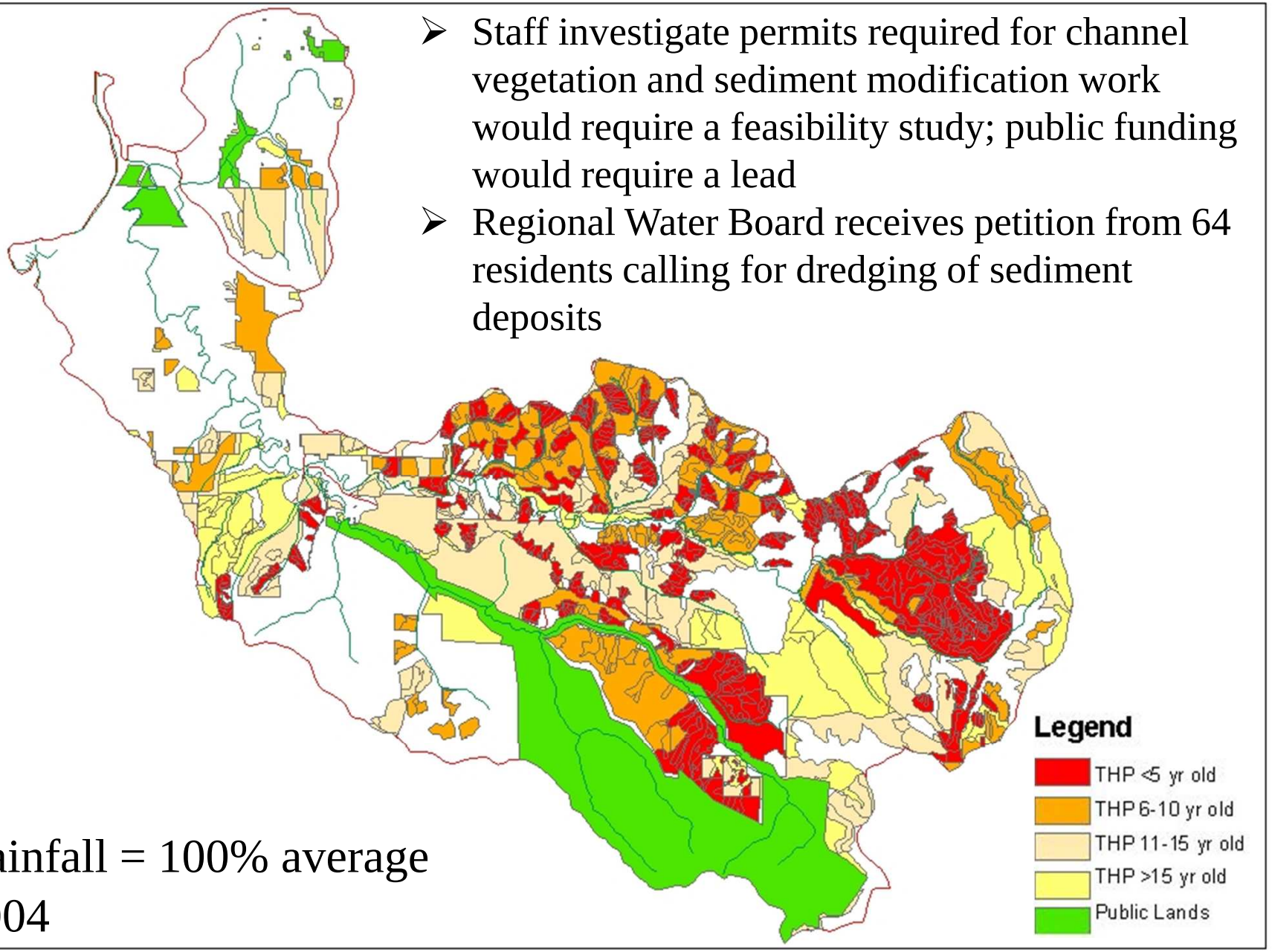


Upper Elk sediment load (percent of natural):
2001-2003 = 906%

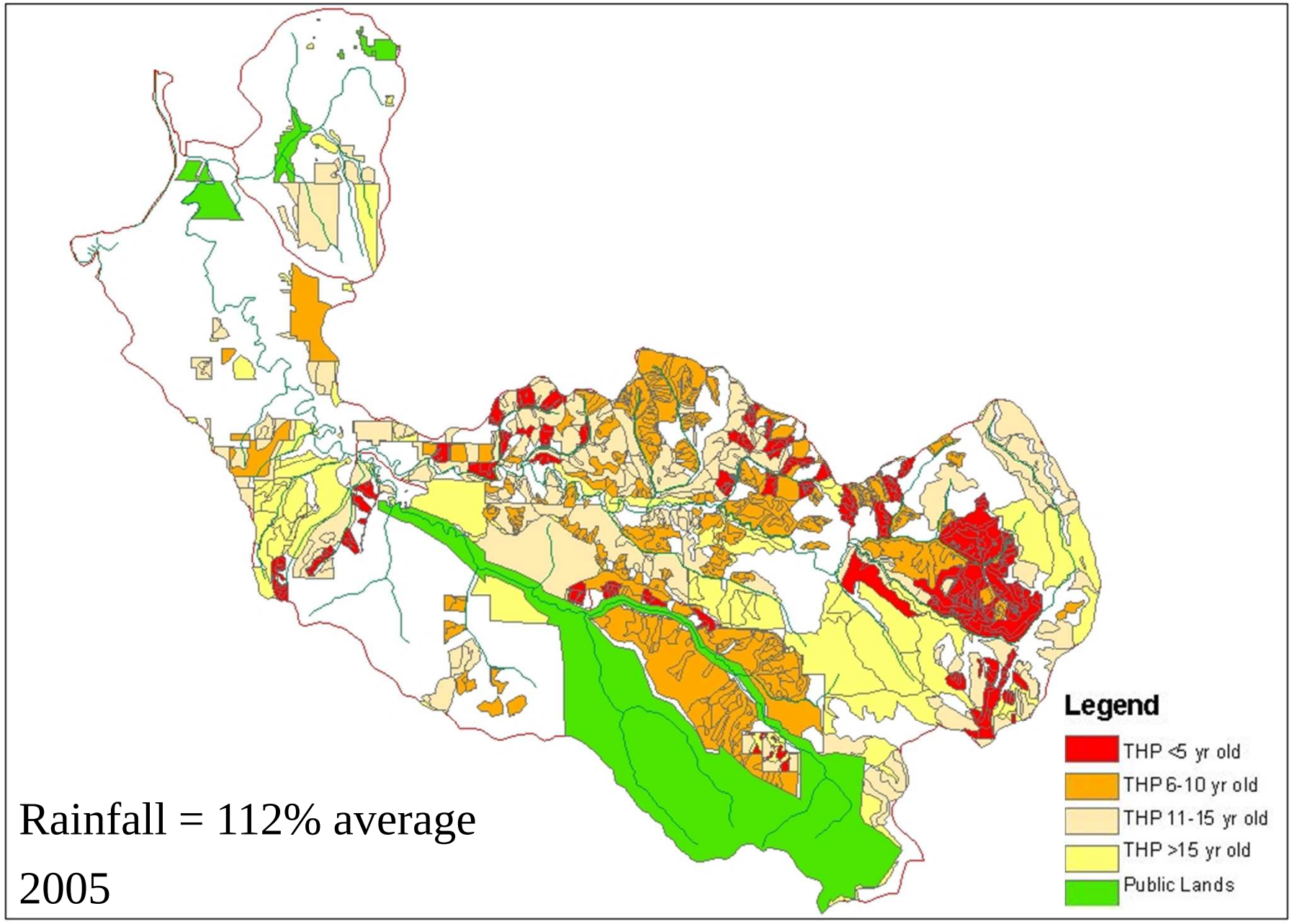
Rainfall = 140% average

2003

- Staff investigate permits required for channel vegetation and sediment modification work would require a feasibility study; public funding would require a lead
- Regional Water Board receives petition from 64 residents calling for dredging of sediment deposits



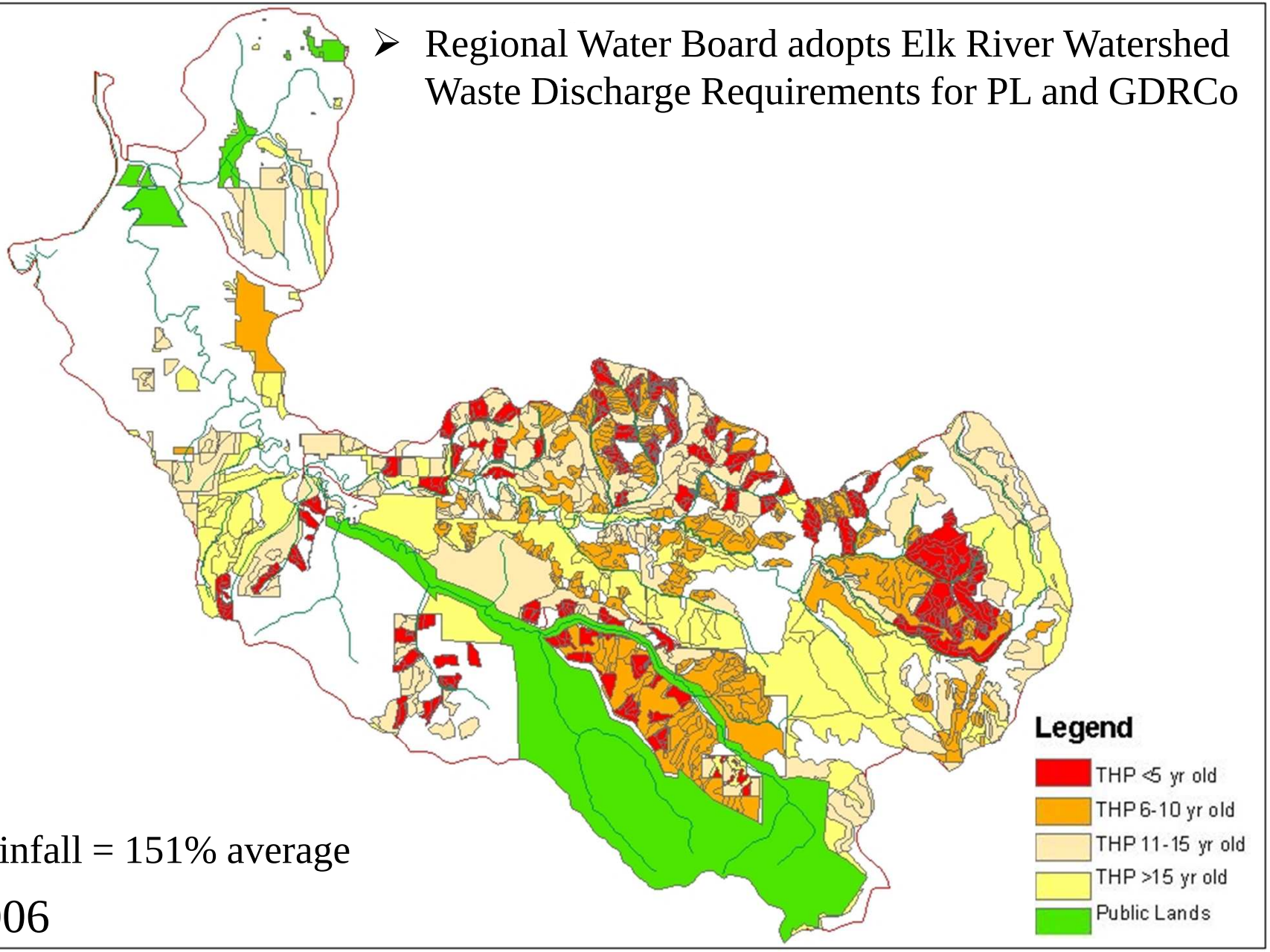
Rainfall = 100% average 2004



Rainfall = 112% average

2005

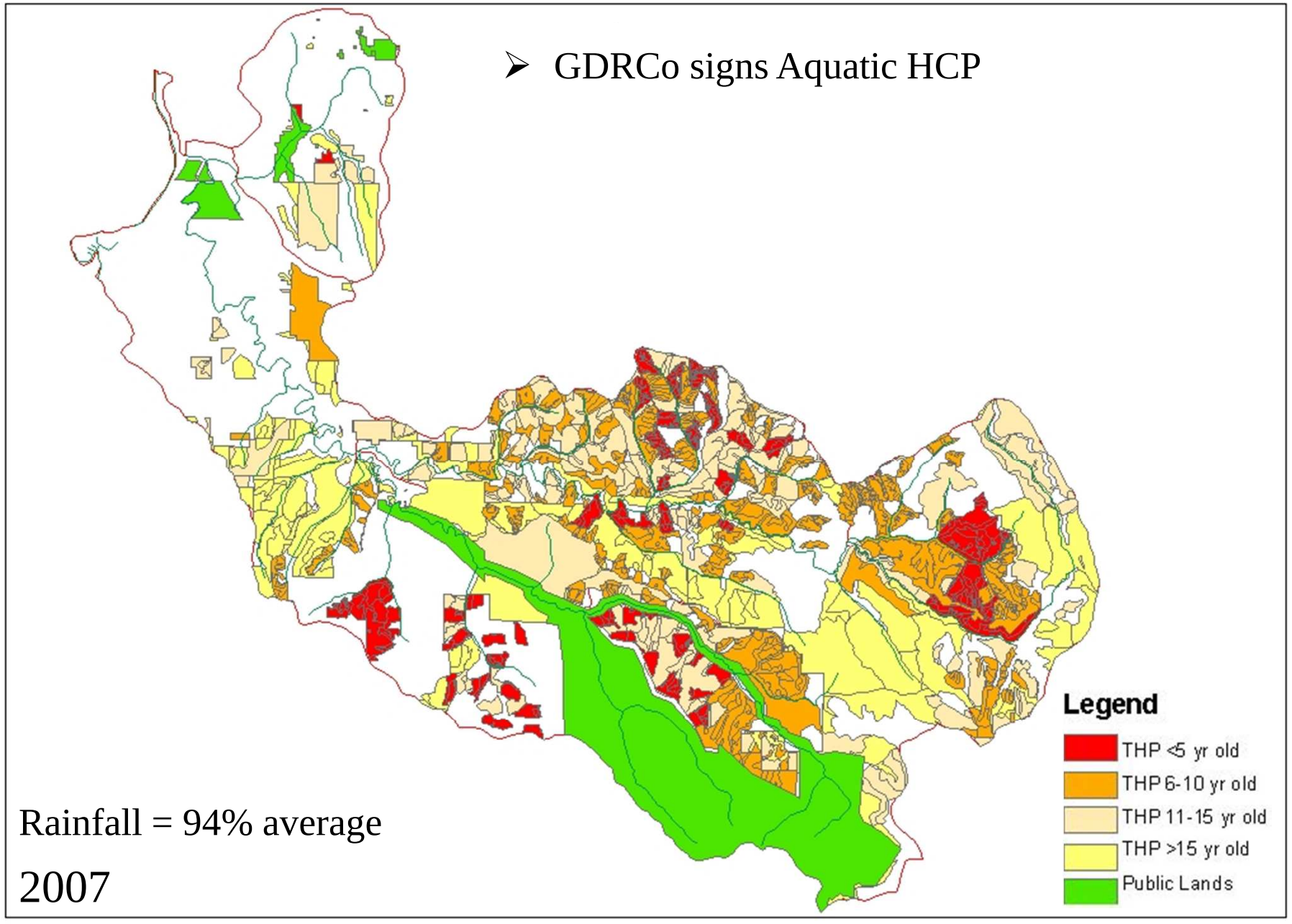
- Regional Water Board adopts Elk River Watershed Waste Discharge Requirements for PL and GDRCo



Rainfall = 151% average

2006

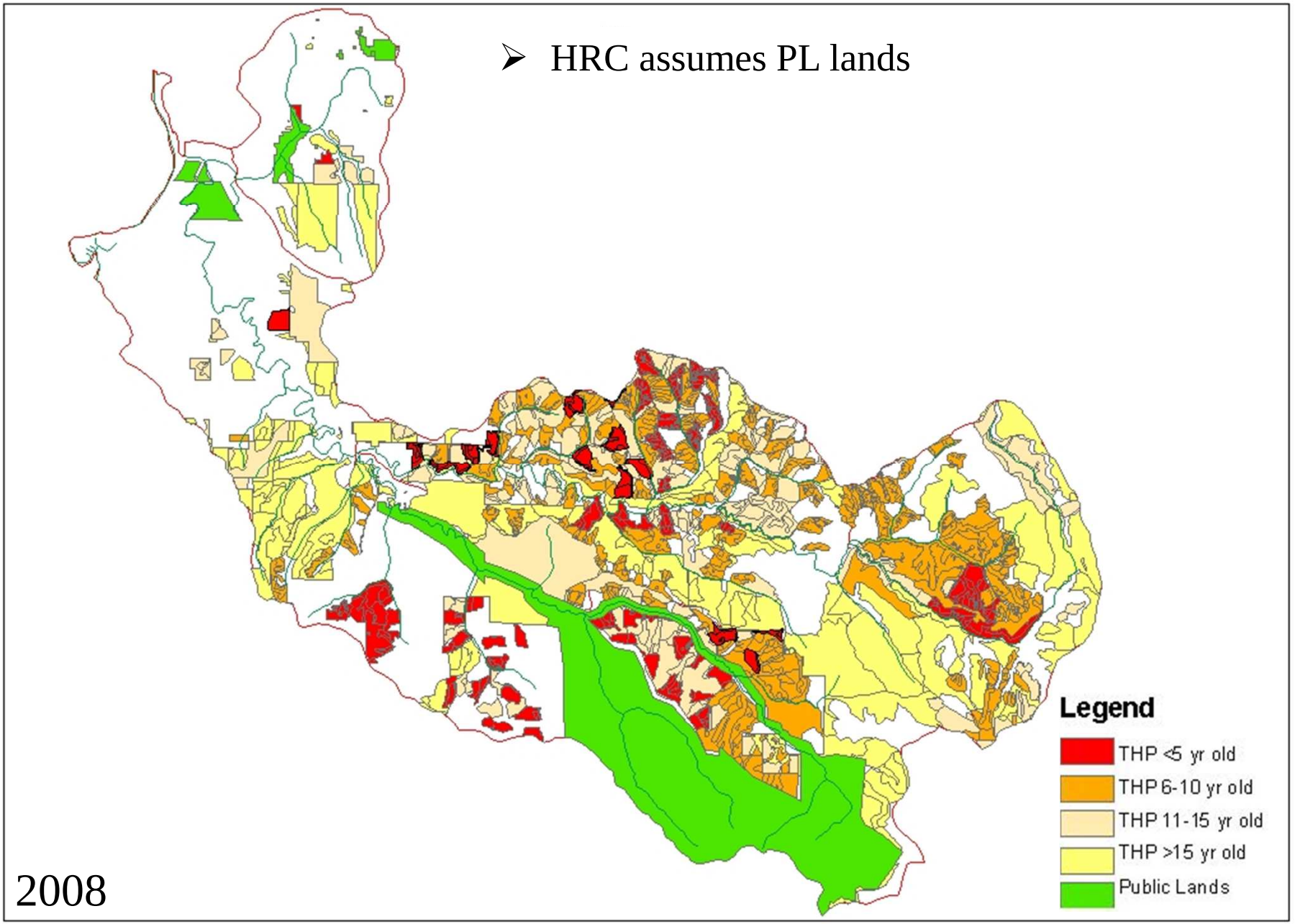
- GDRCo signs Aquatic HCP



Rainfall = 94% average

2007

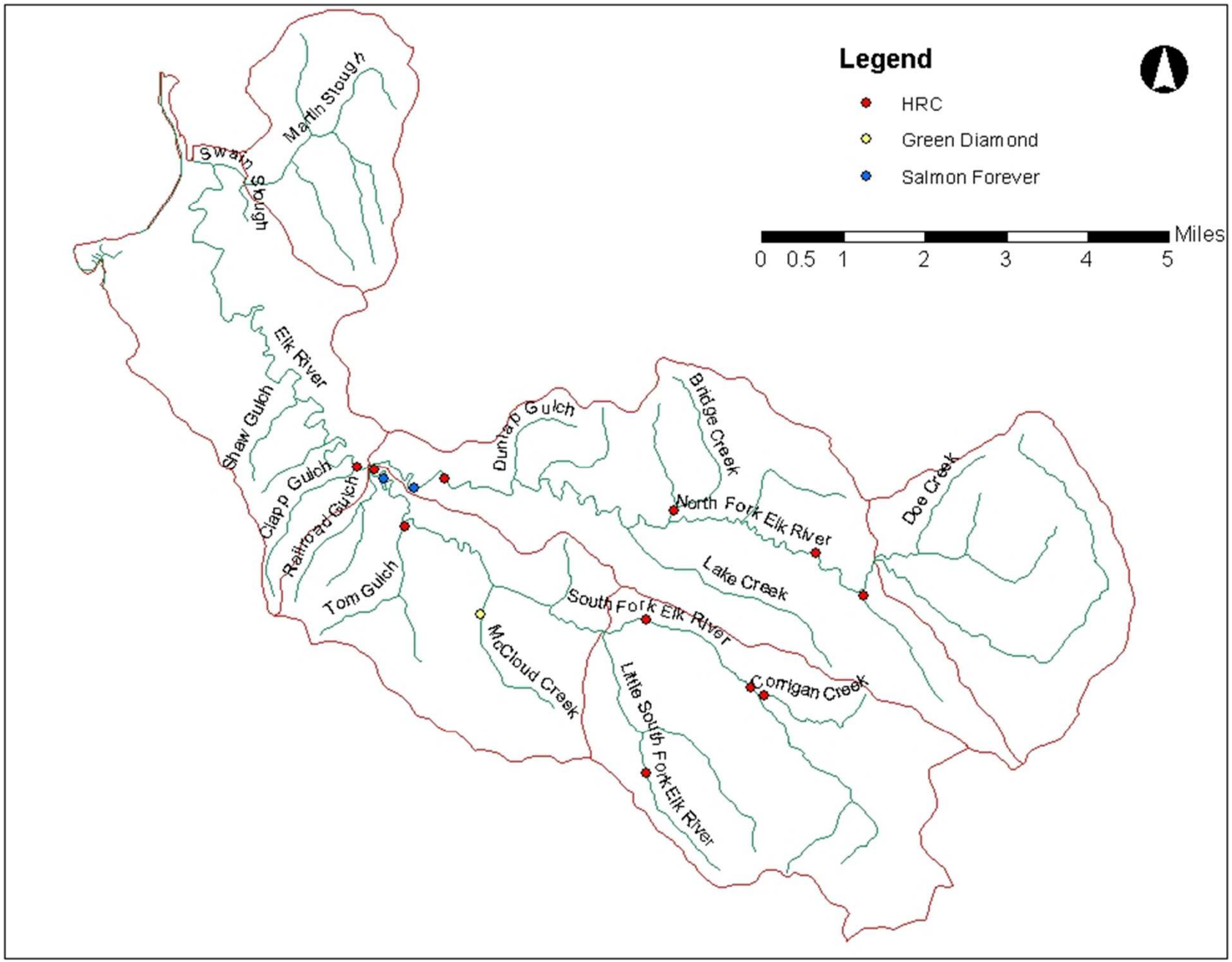
- HRC assumes PL lands



2008

Current Regional Water Board Program in Upper Elk

- Inventory, Prioritize, Treat & Monitor existing sediment sources
- Ensure timber harvest plan activities don’t create new sources of sediment; limit overall disturbance
- Track landslides and instream sediment loads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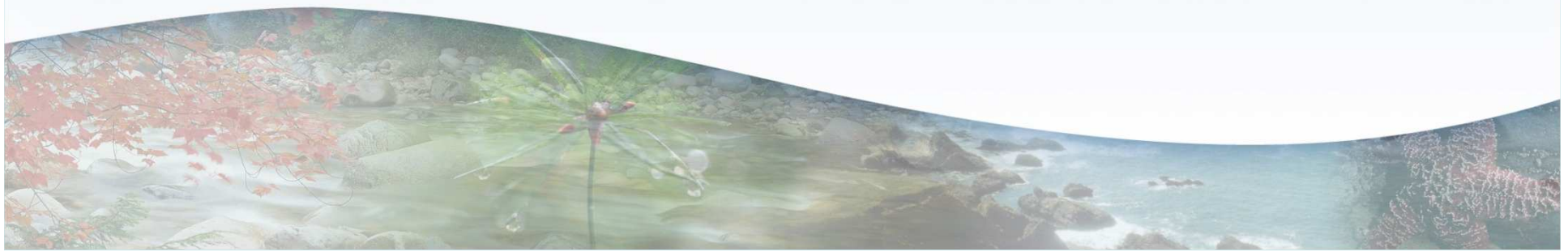
South Fork Elk River
McCloud Creek
Little South Fork Elk River
Corrigan Creek

Anticipated Upper Elk TMDL Implementation Program

- Build on current framework to further control management-related sediment loads
- Strategy to alleviate impairment from stored sediment

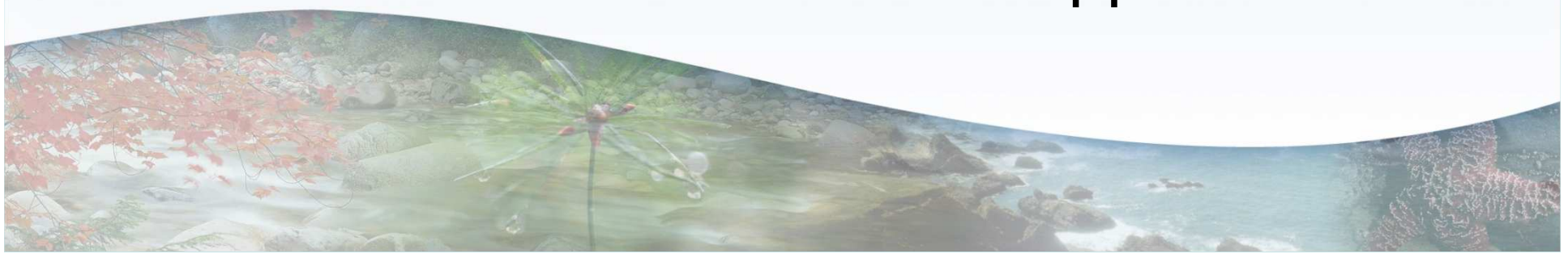
Restoration objective

Develop collaborative, scientifically-based restoration strategy with specific actions designed to hasten recovery of beneficial uses of water and related ecosystem functions in the lower Elk River



Define Channel Restoration Approach

- Stakeholder representation and leadership structure to promote buy-in
- Technical strategy capable of evaluating effects of individual and multiple actions, in combination with reduced sediment loads
- Identified actions would have a high likelihood of success and support



The time is ripe

- New upstream landowner
- Lawsuits are settled
- Sediment control measures well underway
- TMDL pending
- Momentum from grant
- It is the perfect to time to get together, figure it out, and move a restoration strategy forward!