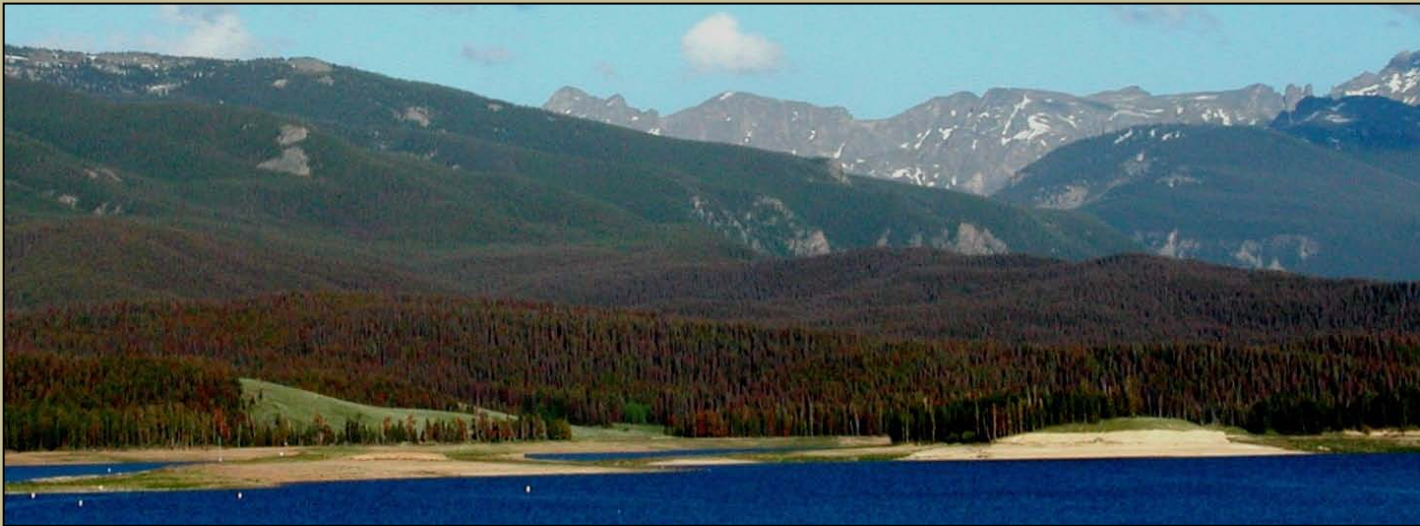


Incorporating Insect Outbreaks into CLM-CN

Steven L. Edburg, Jeffrey A. Hicke,
David M. Lawrence and Peter E. Thornton

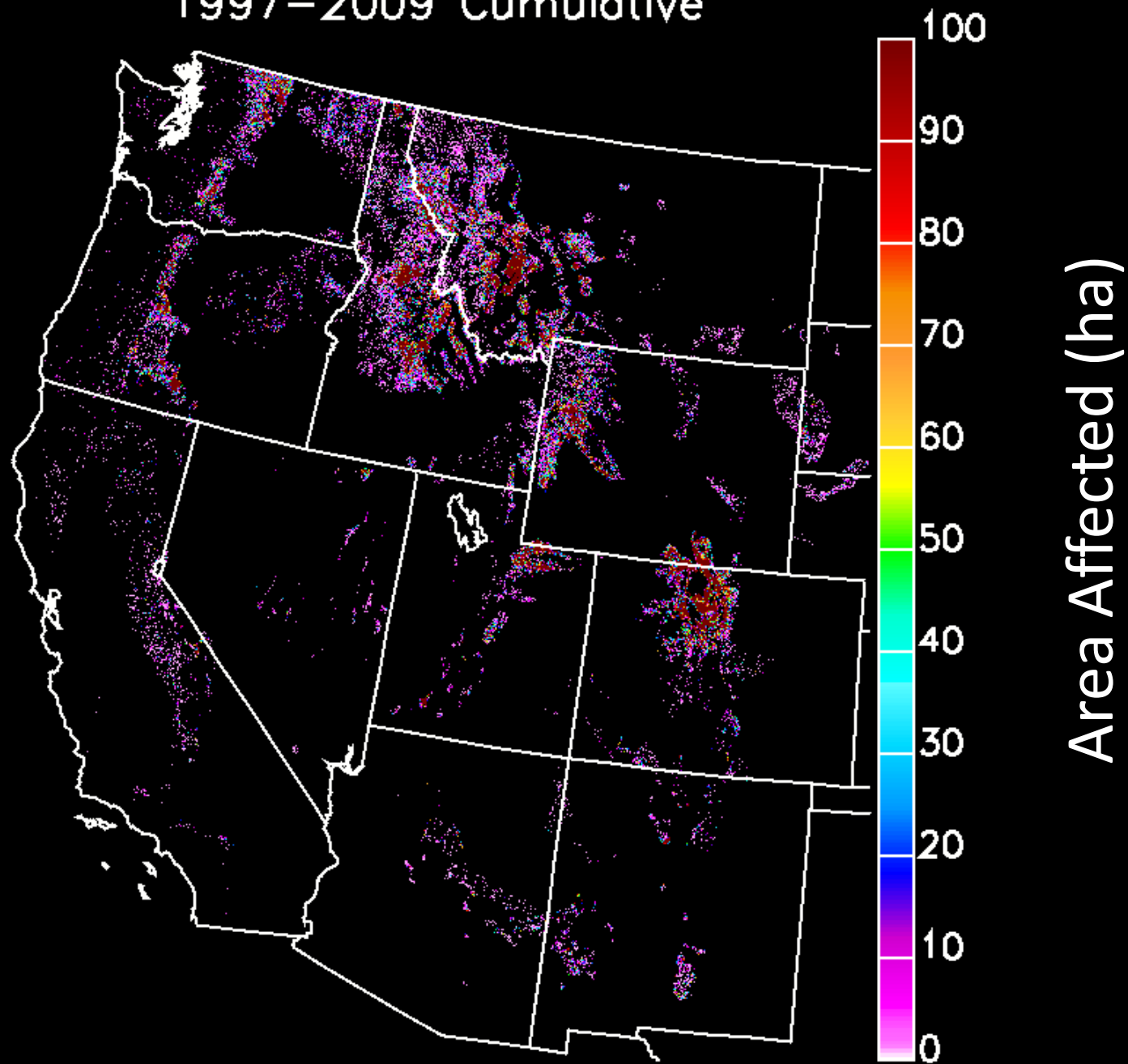


Green Ridge, Colorado, June 19th 2005.

Topics

1. Incorporating Insect Outbreaks into CLM-CN
 - Importance of snag fall rate
2. Western US Vegetative Carbon Bias
 - Evaluation with Forest Inventory Analysis (FIA)

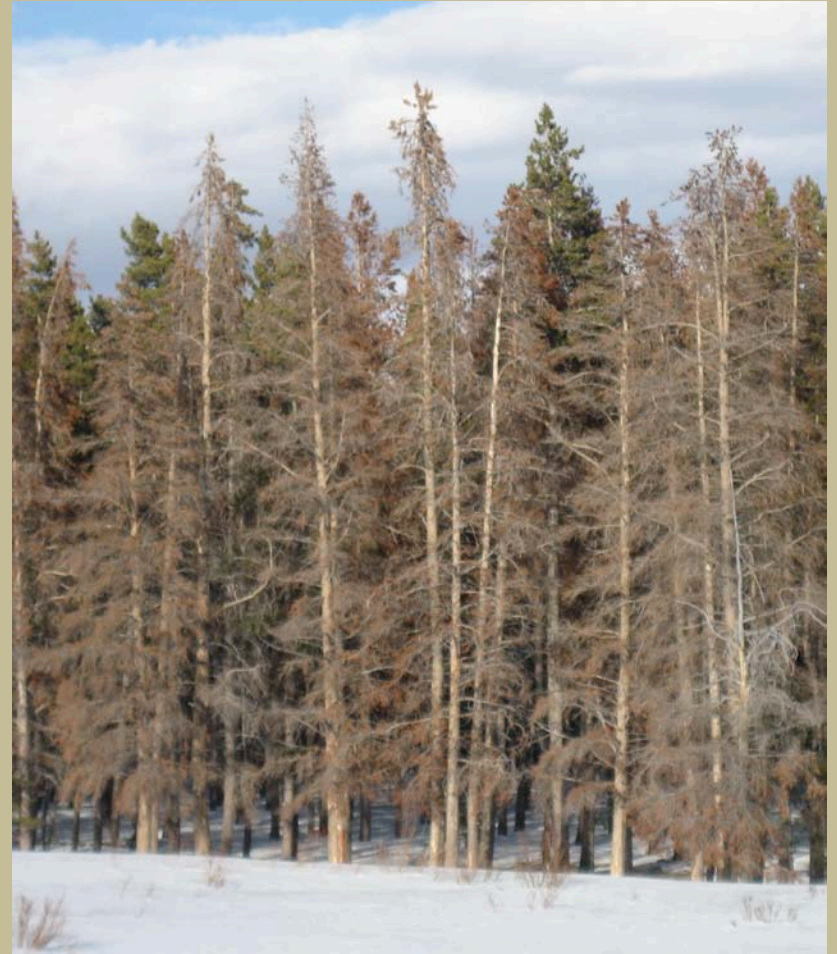
1997–2009 Cumulative



Bark Beetle Disturbance Time Series



Red Needles (1 – 3 yrs)



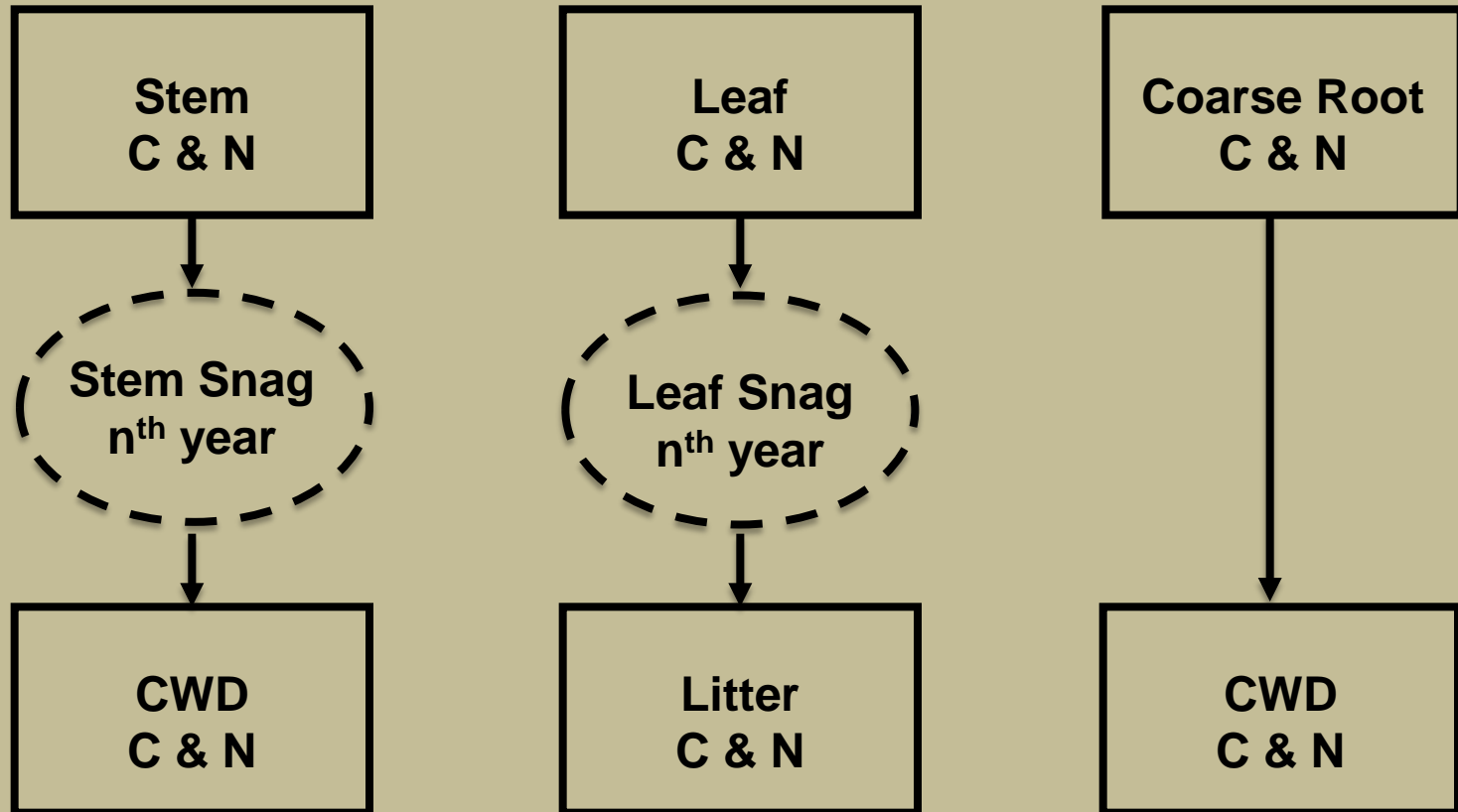
Standing Snags (3 – ? yrs)

Recovery



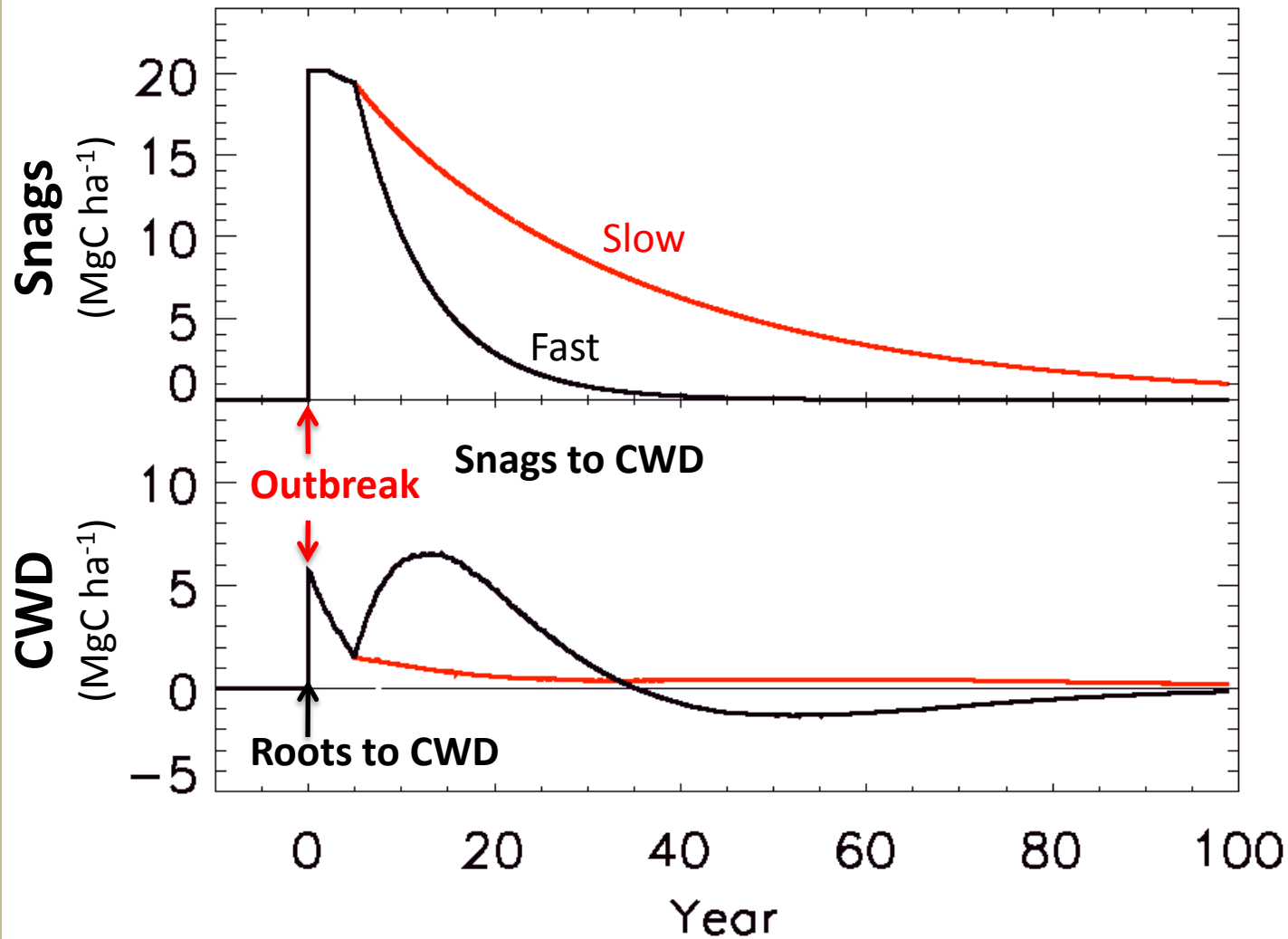
Post-disturbance (10 - ? yrs)

Added Snag Pools to CLM-CN

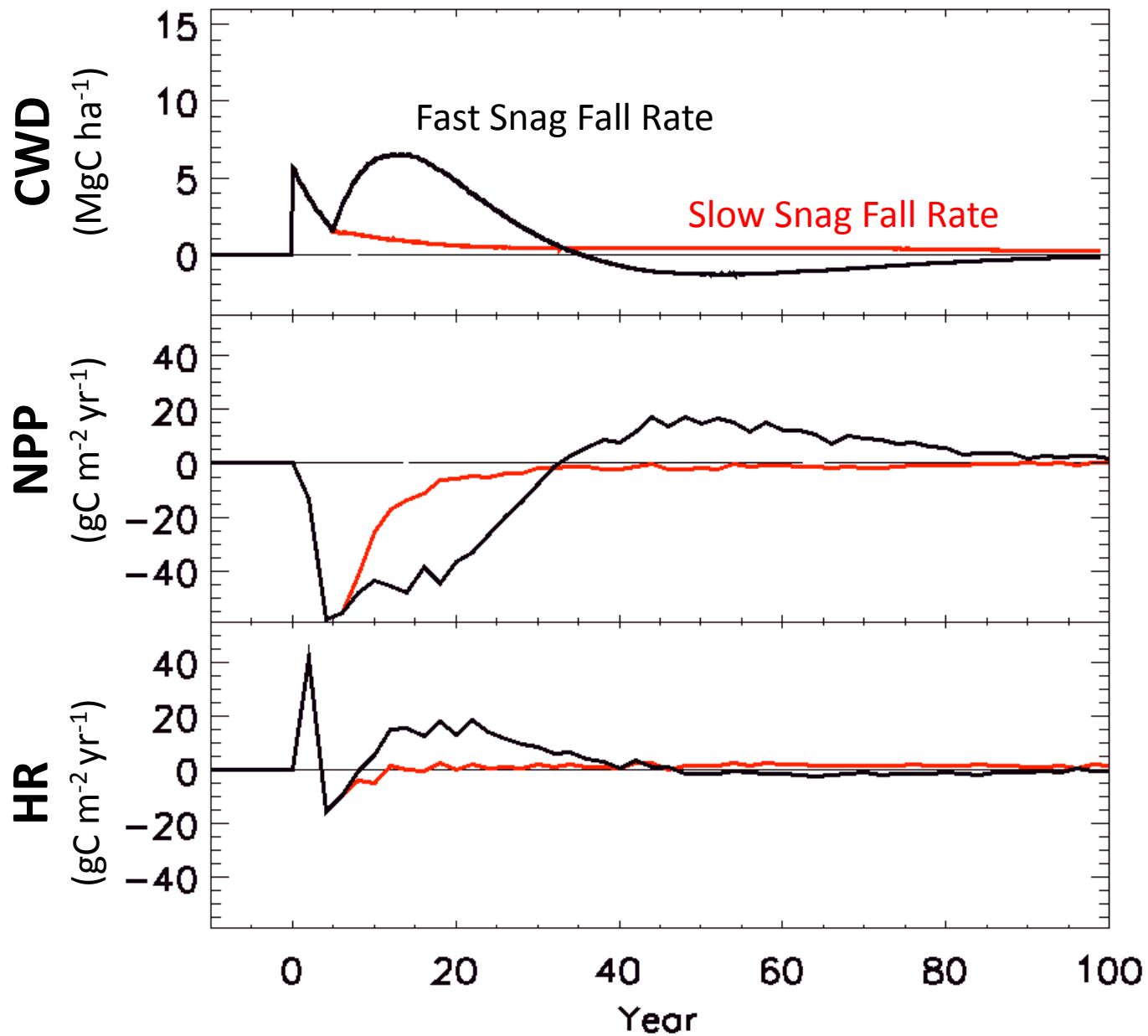


Snag Fall Rate Alters CWD Dynamics

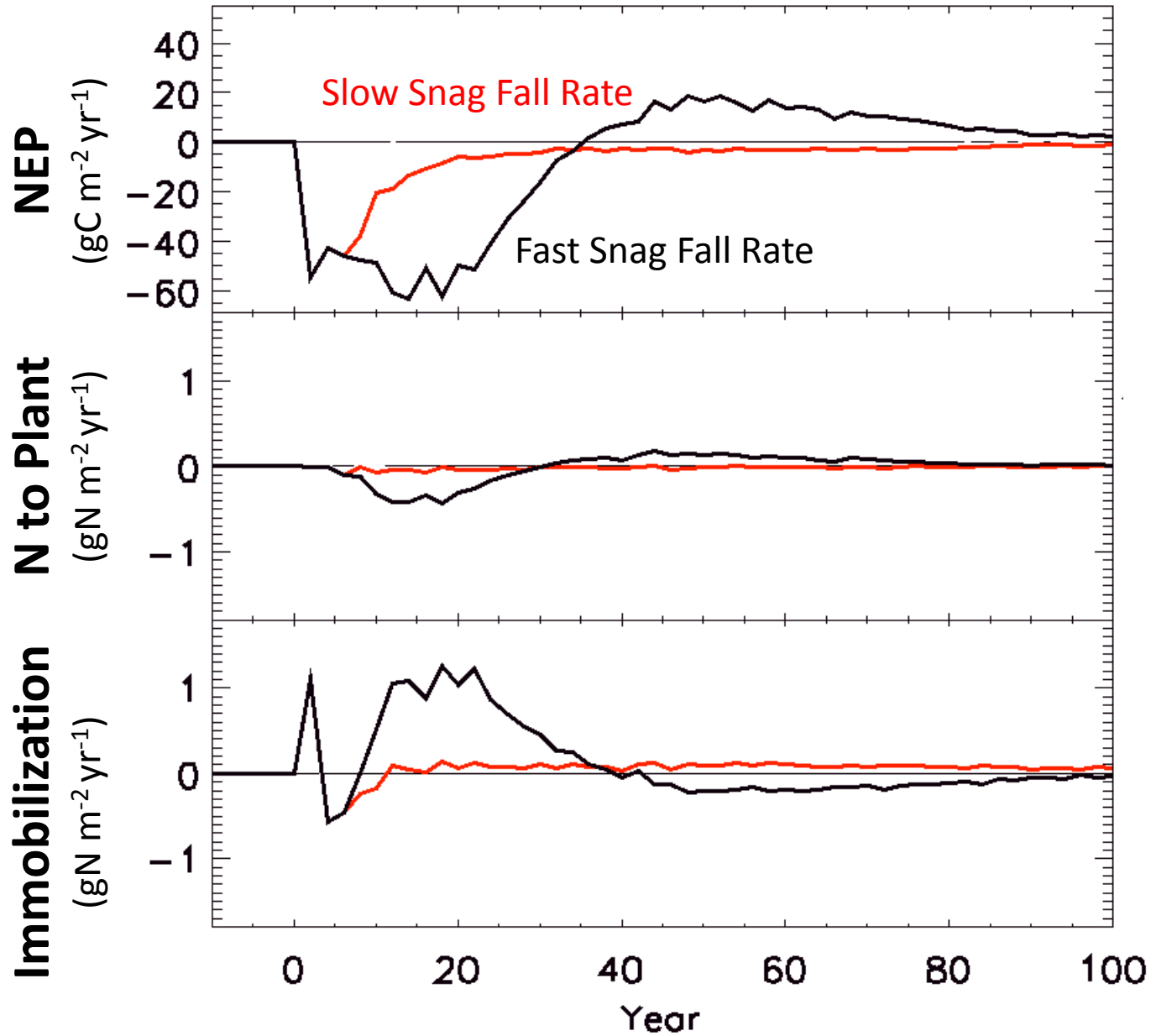
Point simulation in Idaho: 50% insect mortality



C Fluxes are a Function of Snag Fall Rate



Soil N. Dynamics Play a Key Role in Recovery



Snag Fall Rate is Important

- Snag fall rate plays a key role on NEP
- Few studies on snag fall rate
- Few studies on N dynamics following an insect outbreak

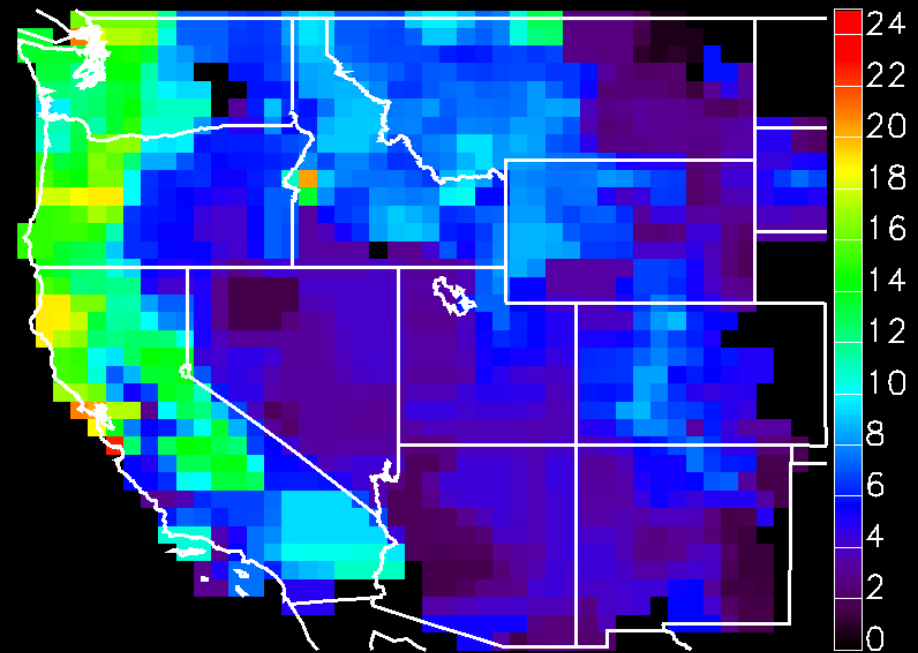
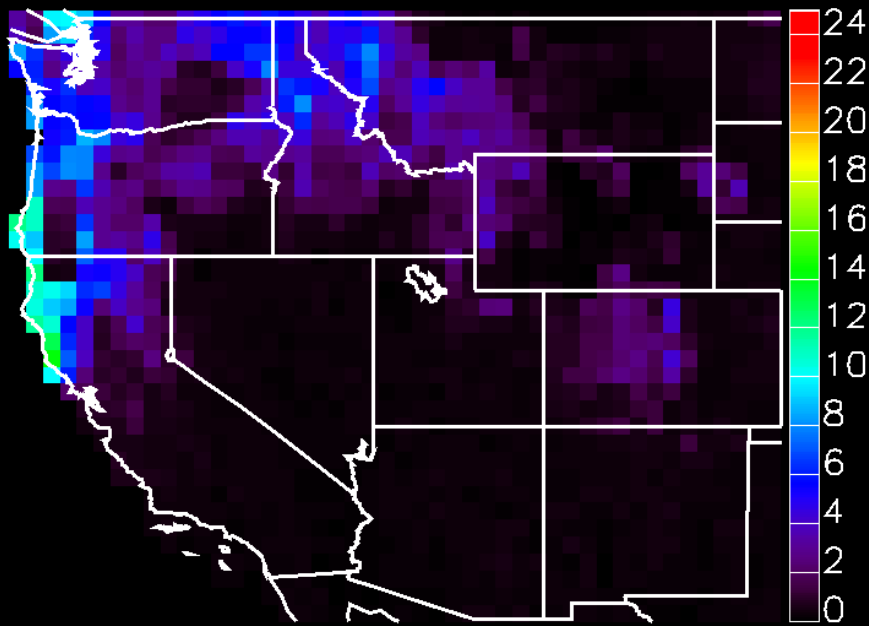
Western US Veg. C Bias

Conducted a western US Spin up
prior to simulating insect impacts

Vegetative C (kg C m^{-2})

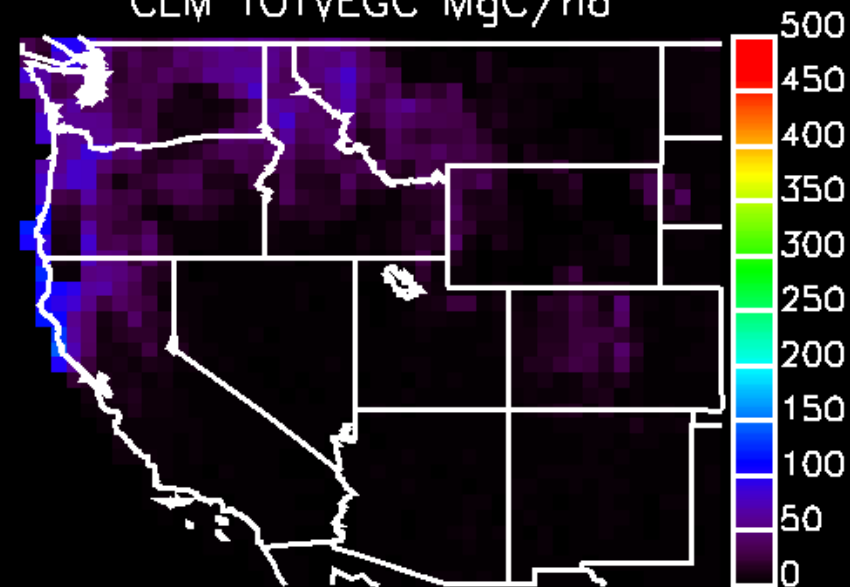
CLM-CN

FIA

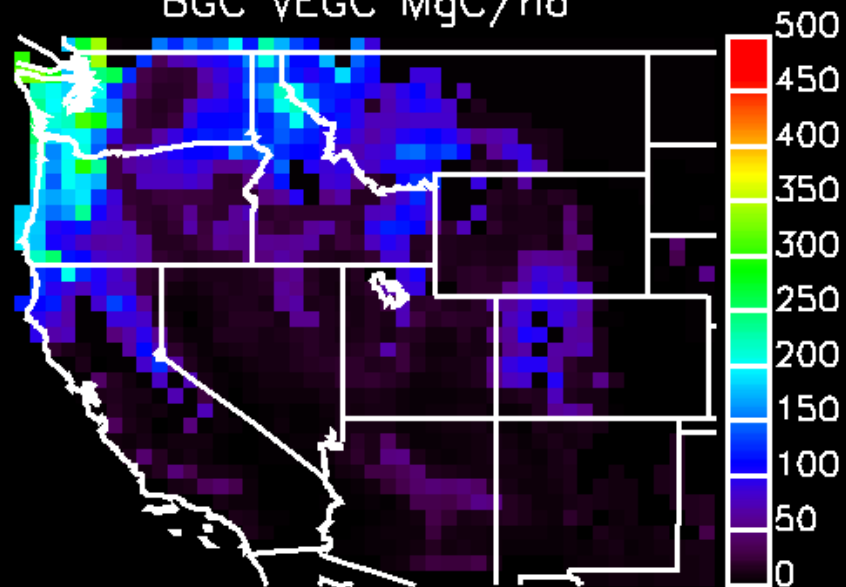


Hicke et al., 2007, *Ecological Applications*

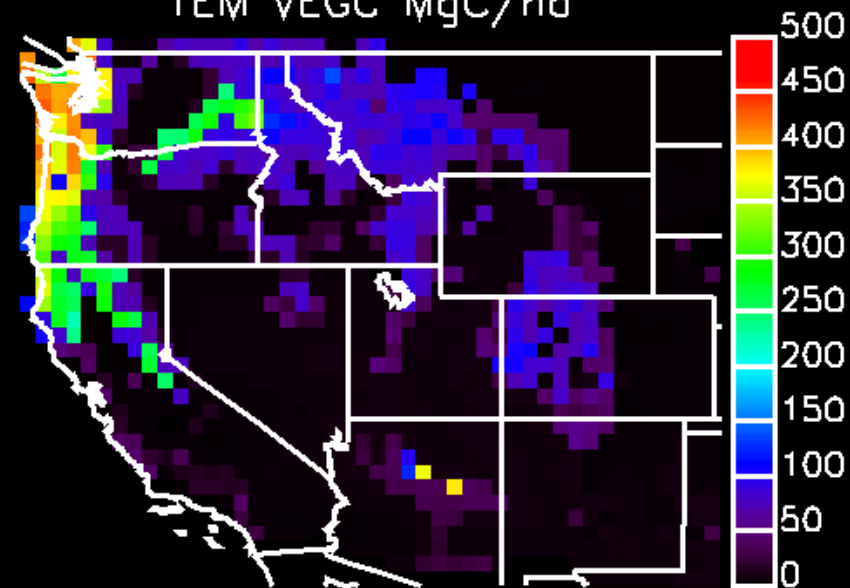
CLM TOTVEGC MgC/ha



BGC VEGC MgC/ha



TEM VEGC MgC/ha



CEN VEGC MgC/ha

