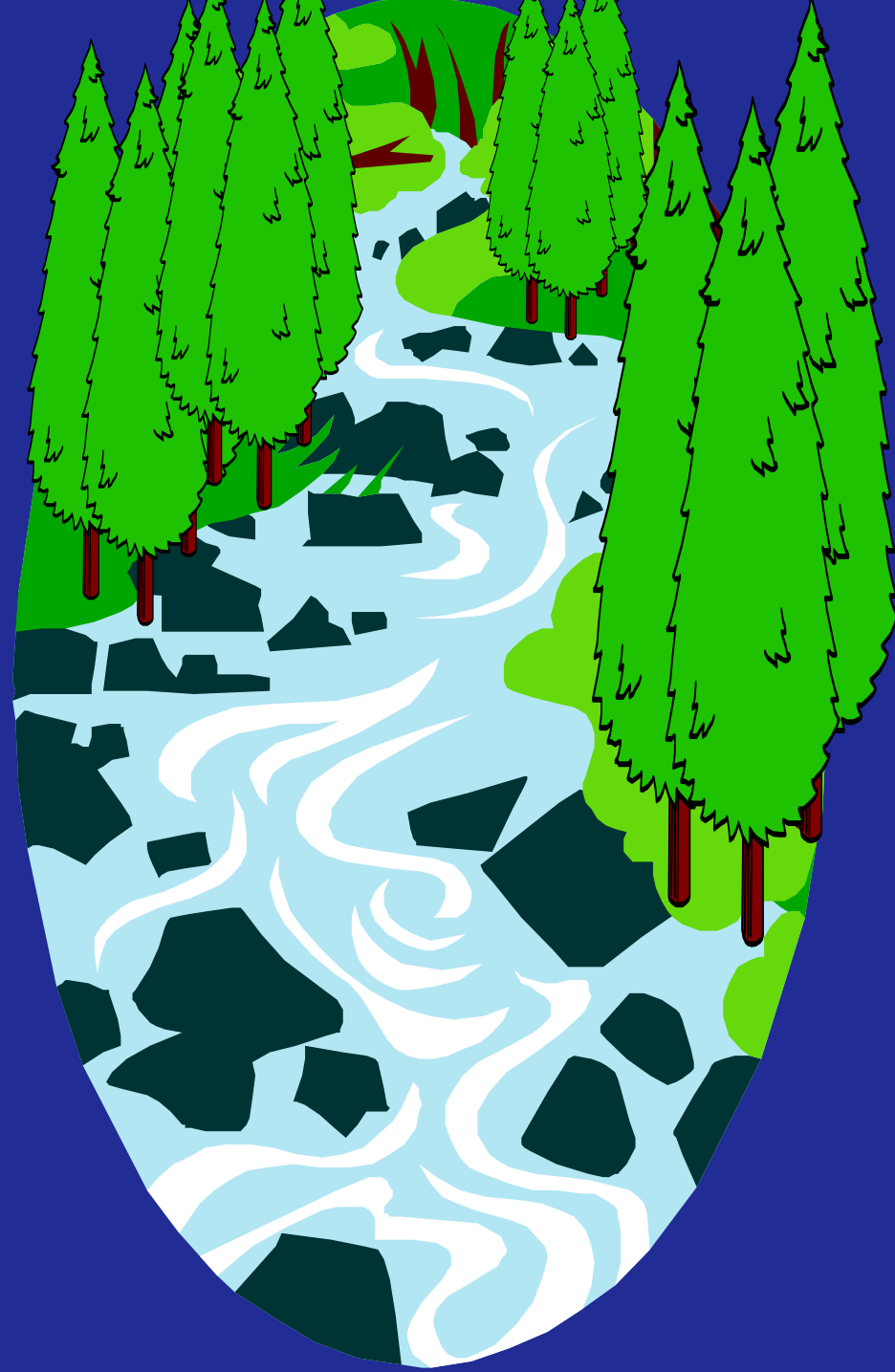


CFER – ARMACS Riparian Vegetation



1994 revision to
Oregon Forest
Practices Act
encourages
conversion of riparian
hardwoods to conifers



The role of riparian
tree species as food
subsidies:

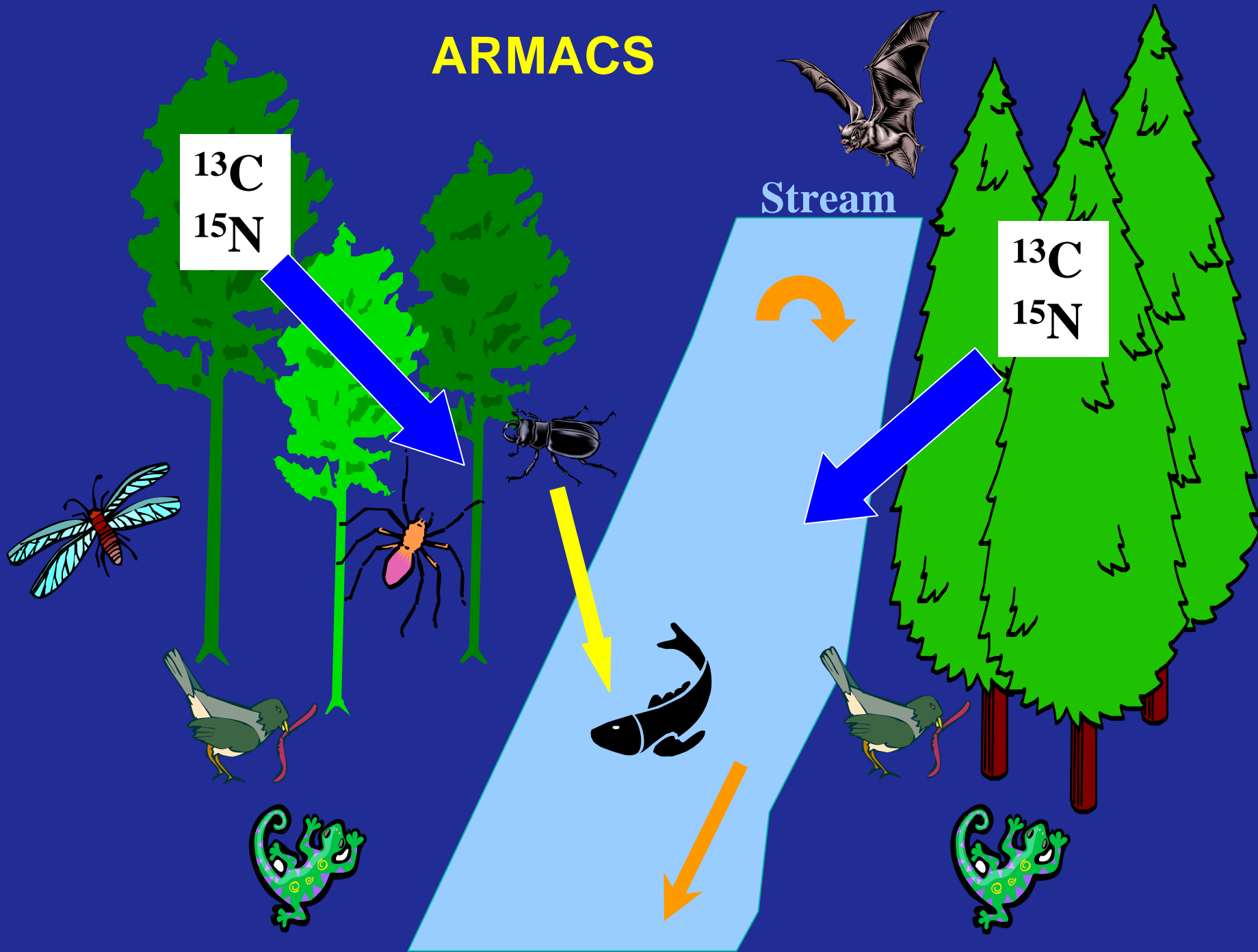
Red Alder

vs.

Douglas-fir



ARMACS



Riparian Vegetation Studies

- **Stable Isotope Patterns in RA and DF**

Emily Scott

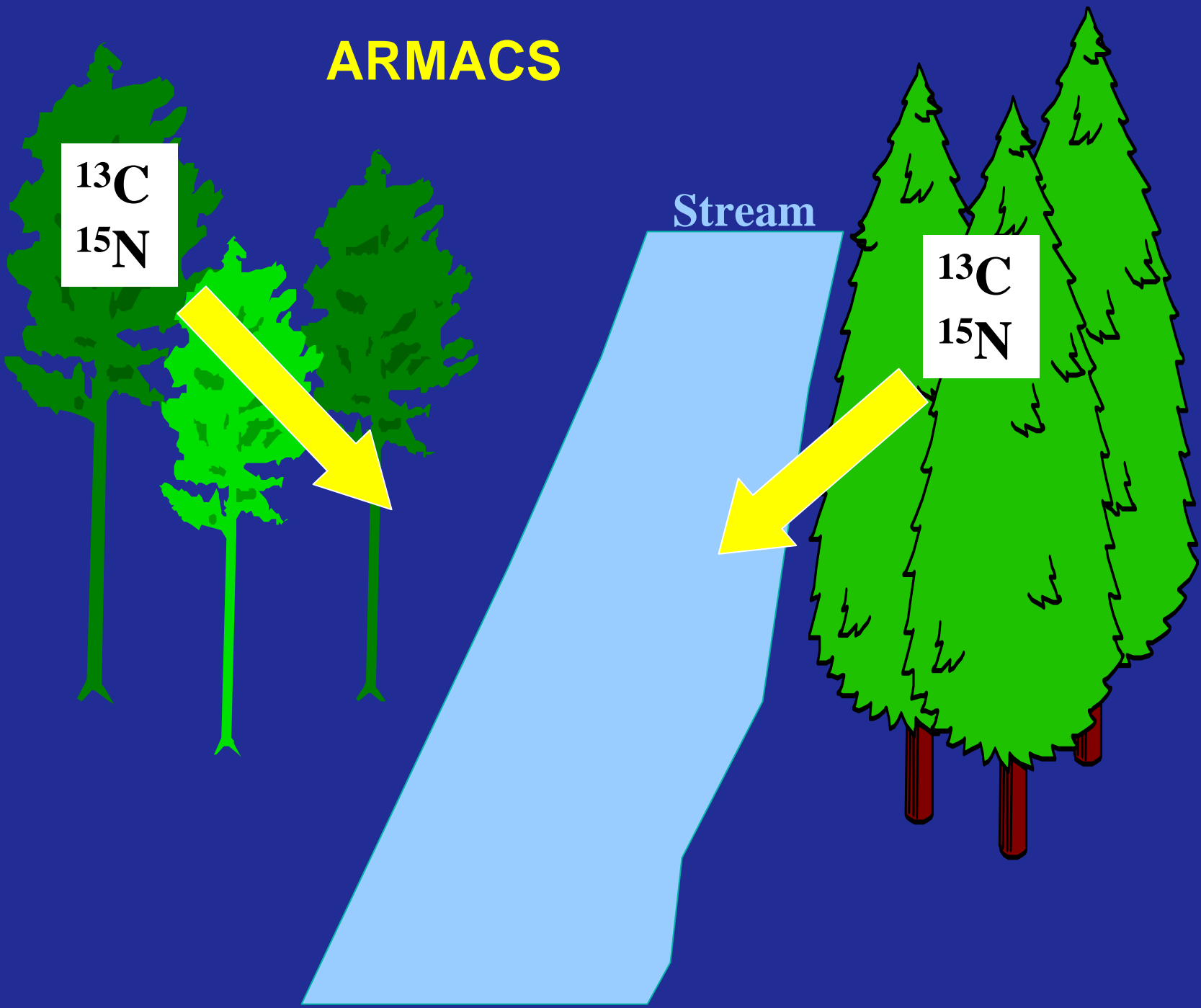
- **Litterfall Inputs to Soils and Streams**

Stephanie Hart

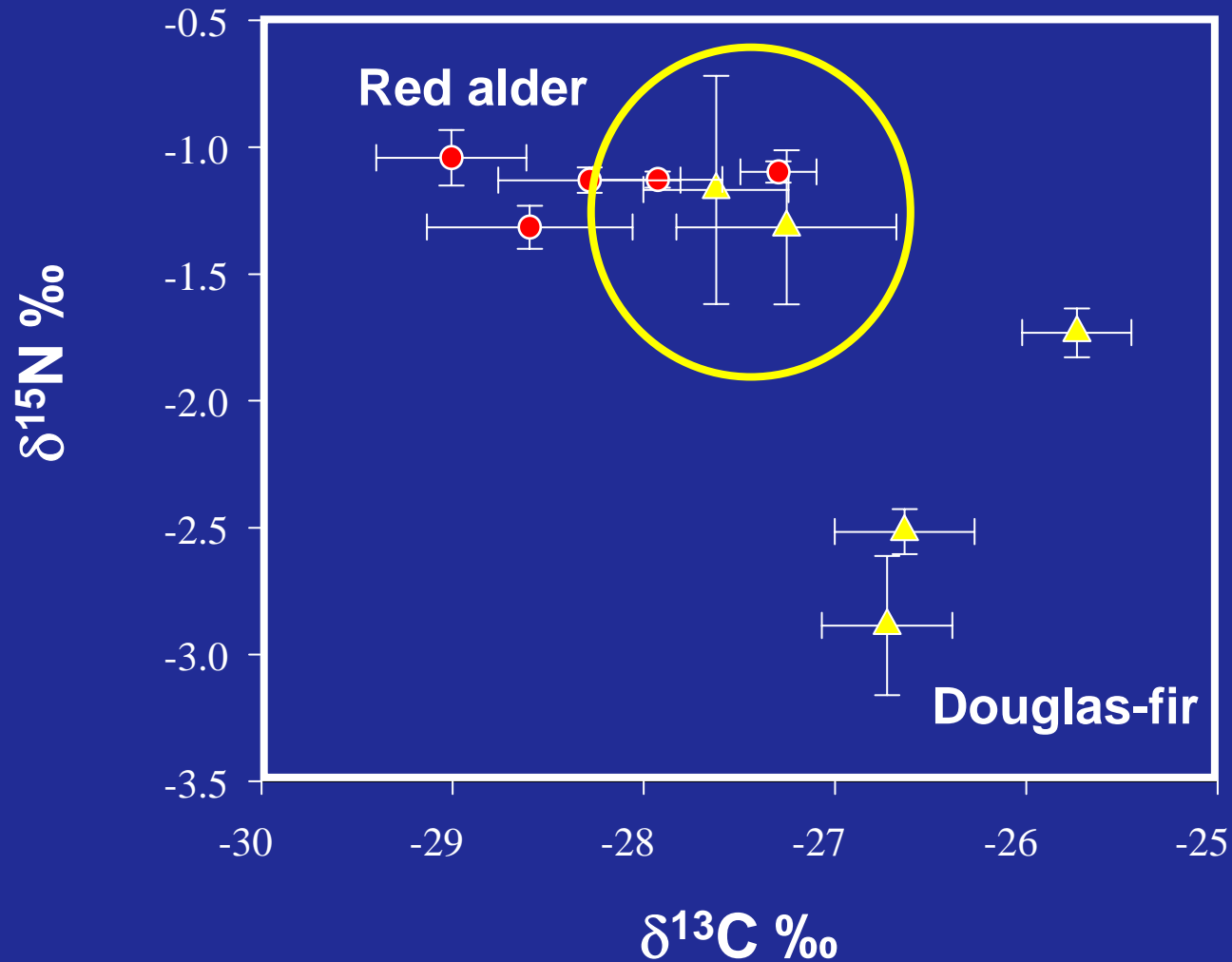
- **Litter Decay in Soils and Streams**

Joselin Matkins

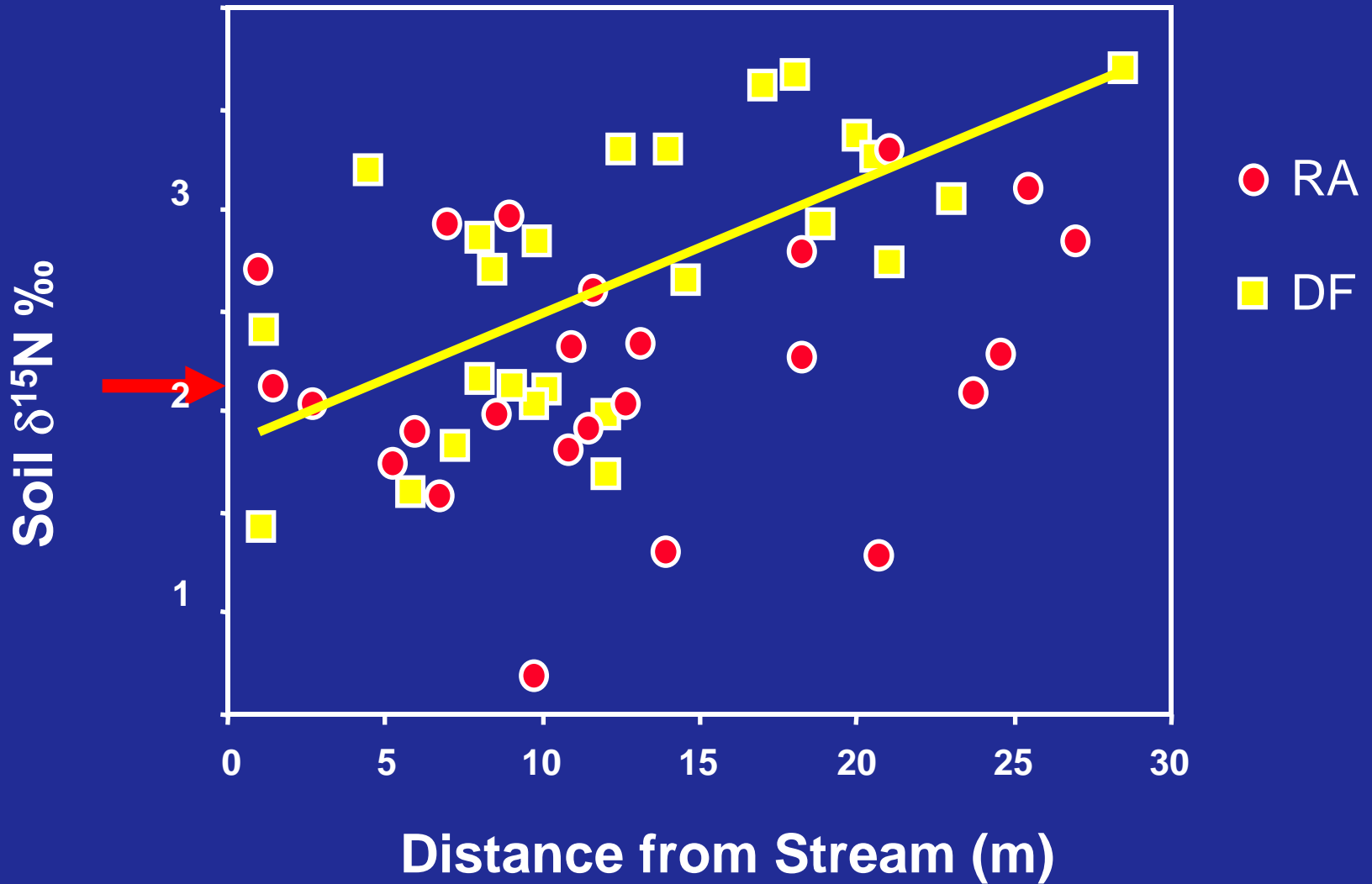
ARMACS



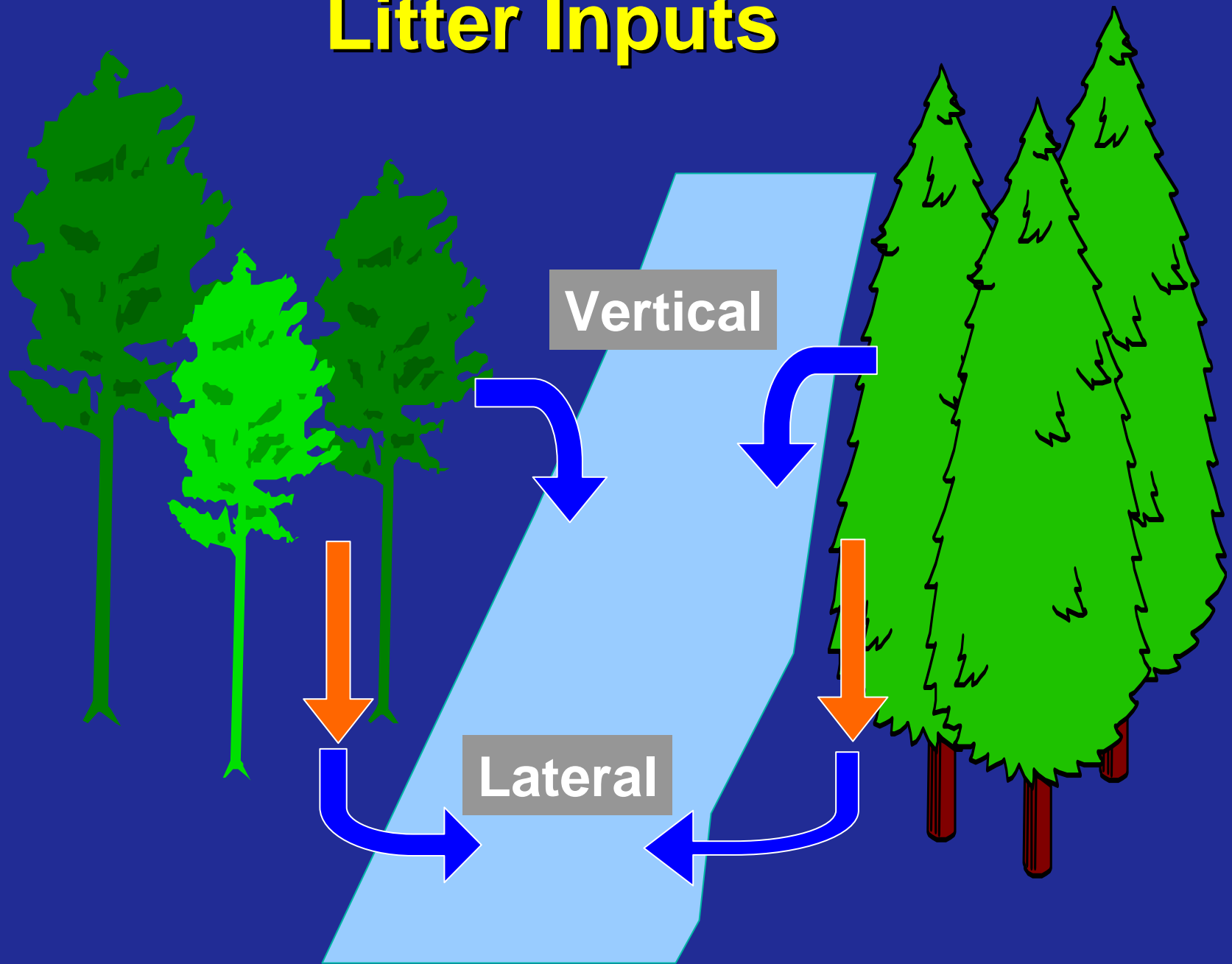
Unreliable separation of isotope signatures



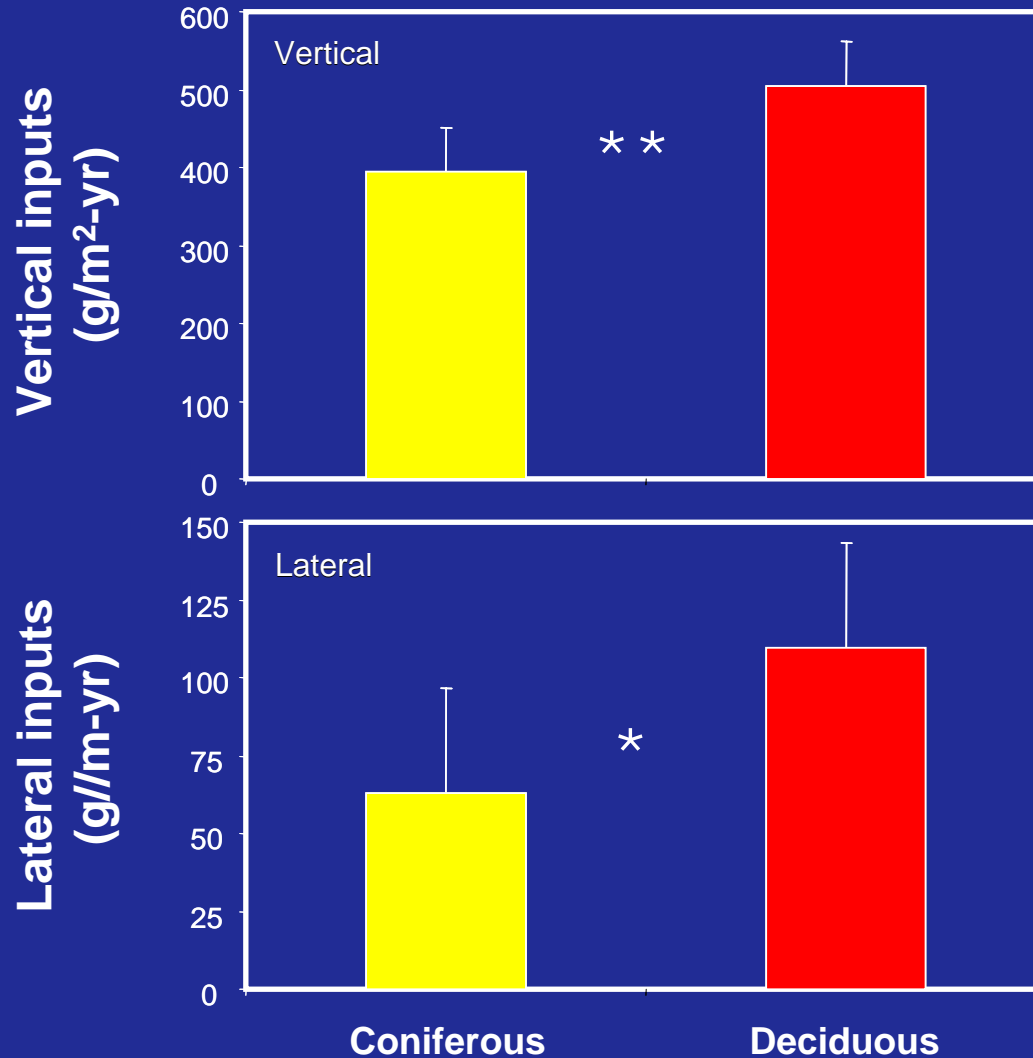
Red Alder Legacy on Near-Stream Soils



Litter Inputs

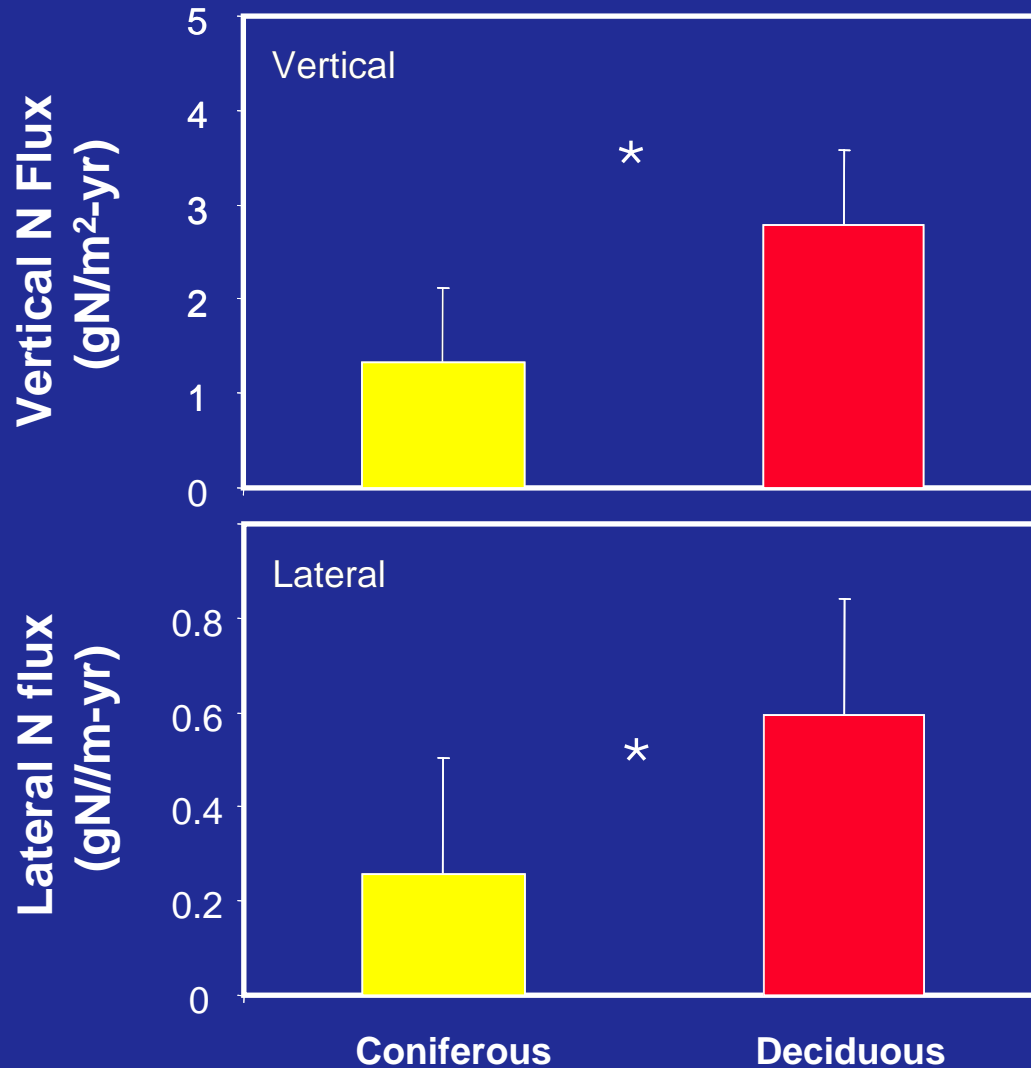


Greater Litter Inputs from Alder



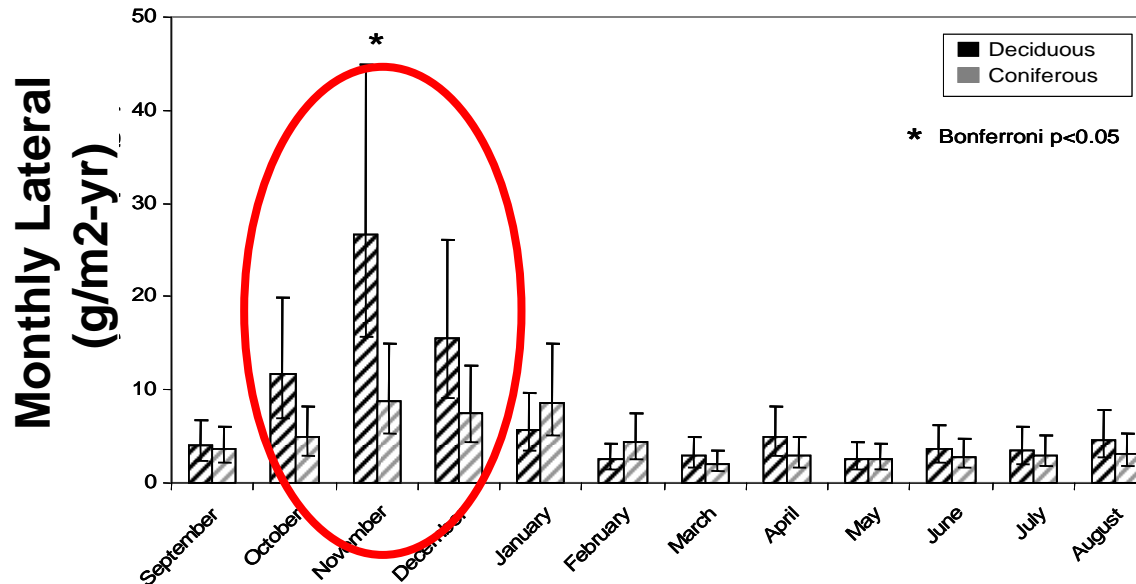
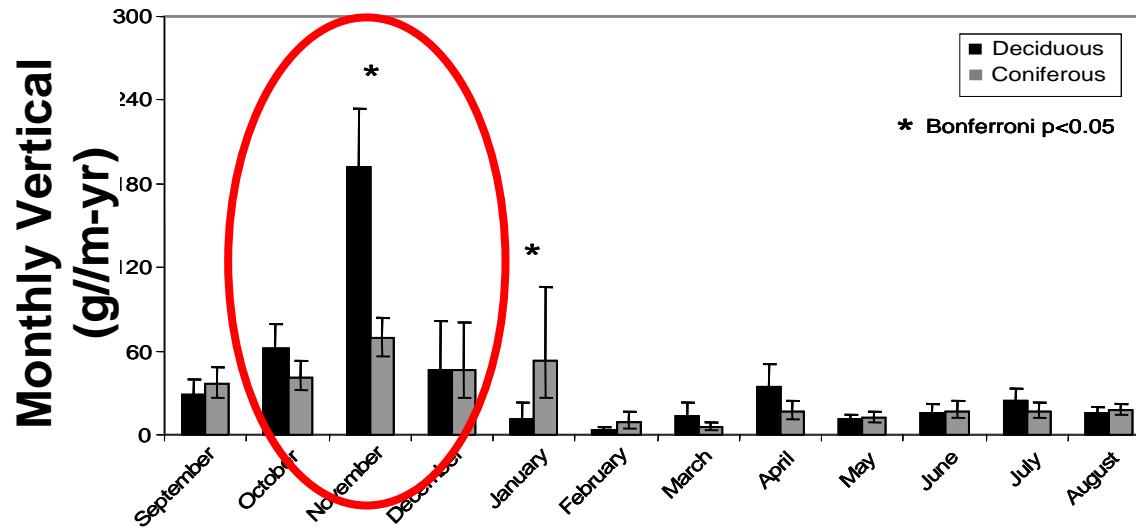
30% more overall

Greater N Inputs from Alder

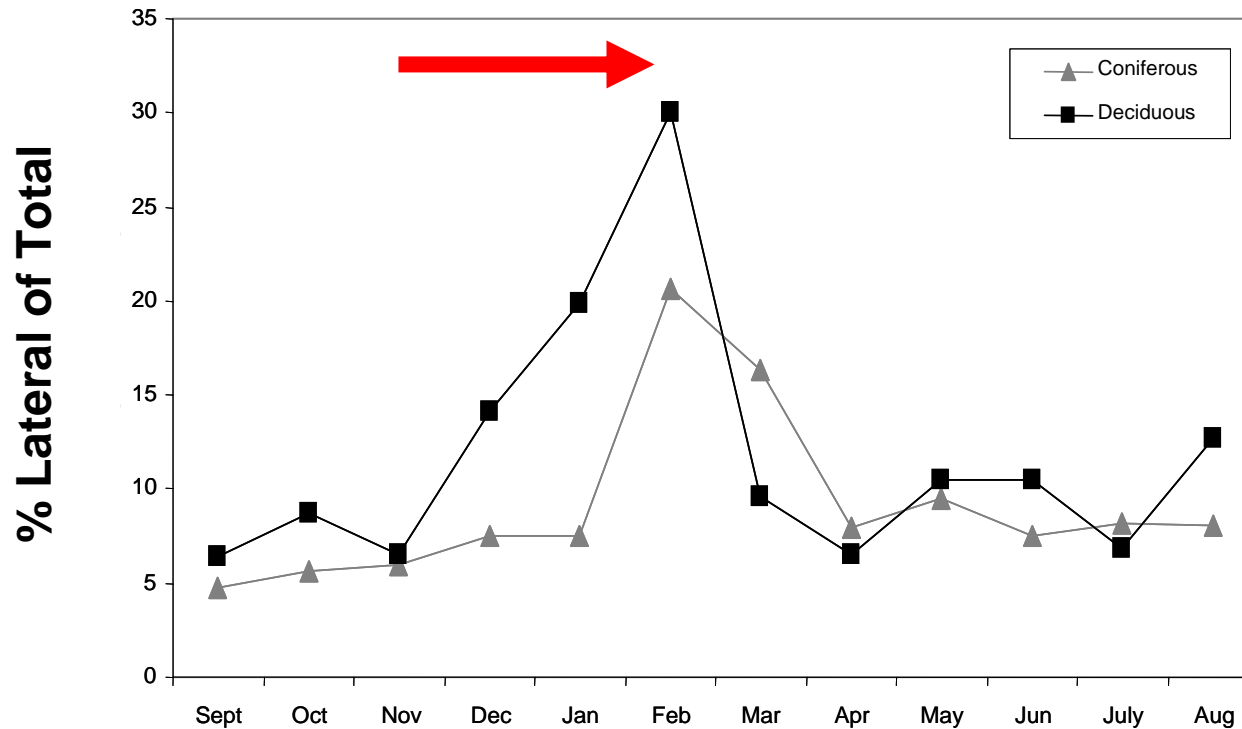


2X more overall

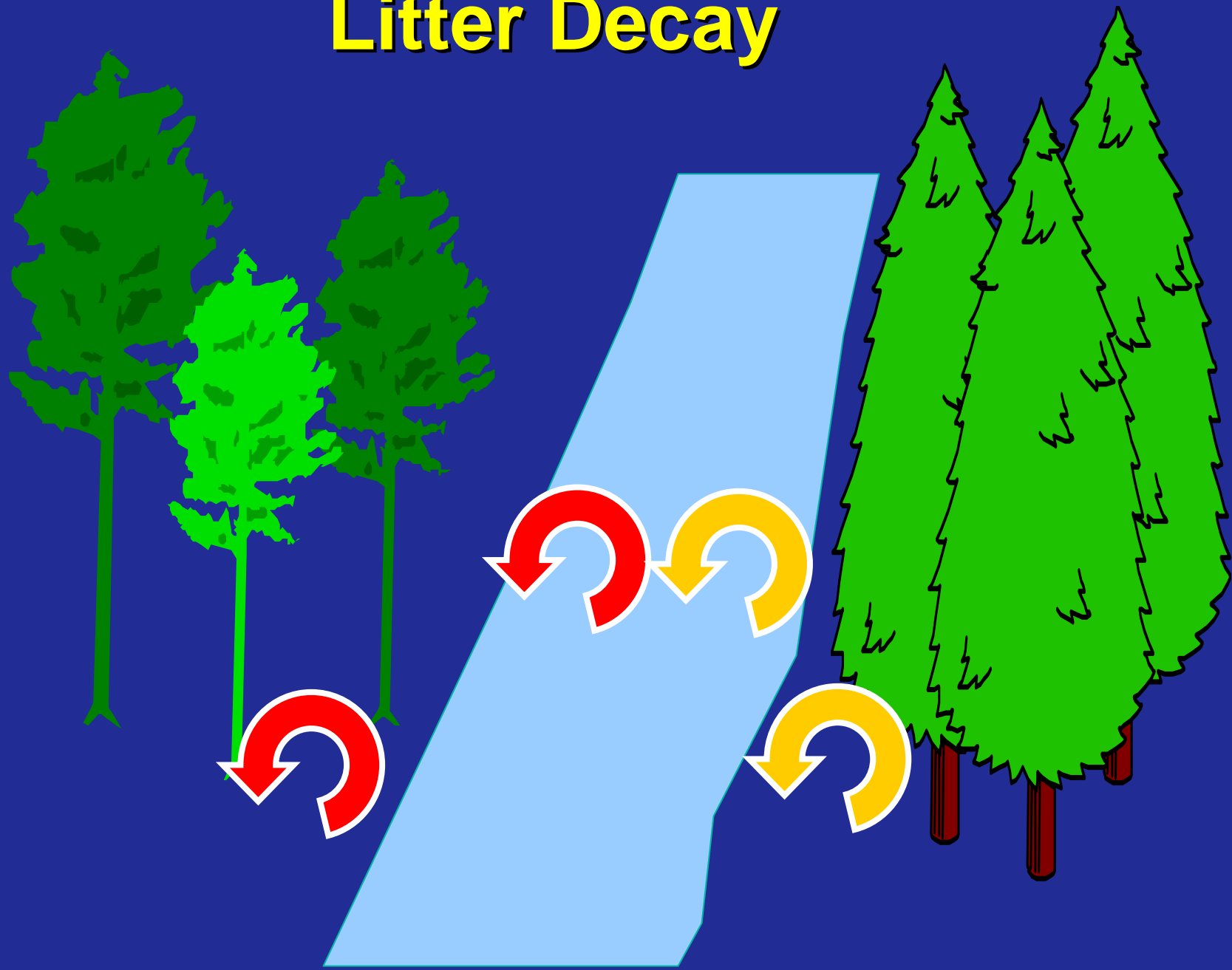
Fall Months Dominate Inputs



Time Lag for Lateral Inputs



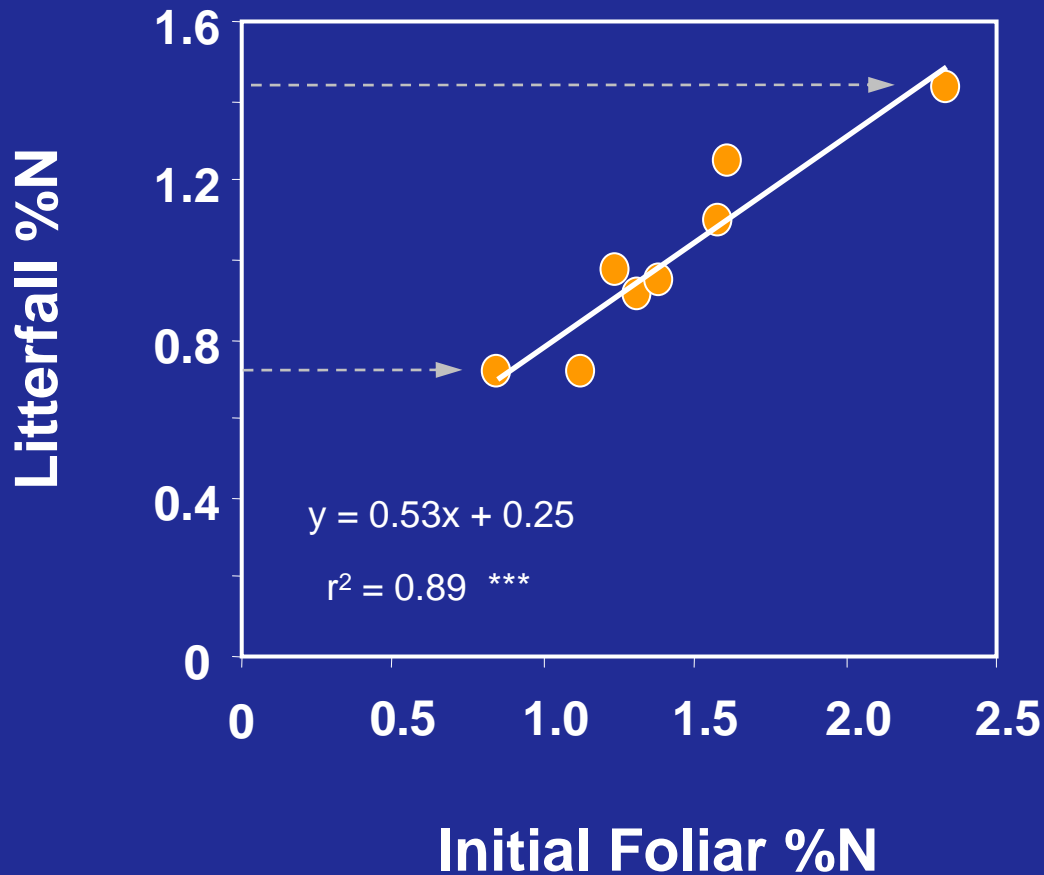
Litter Decay



Range of Douglas-fir Litter Quality

2.4 Red alder

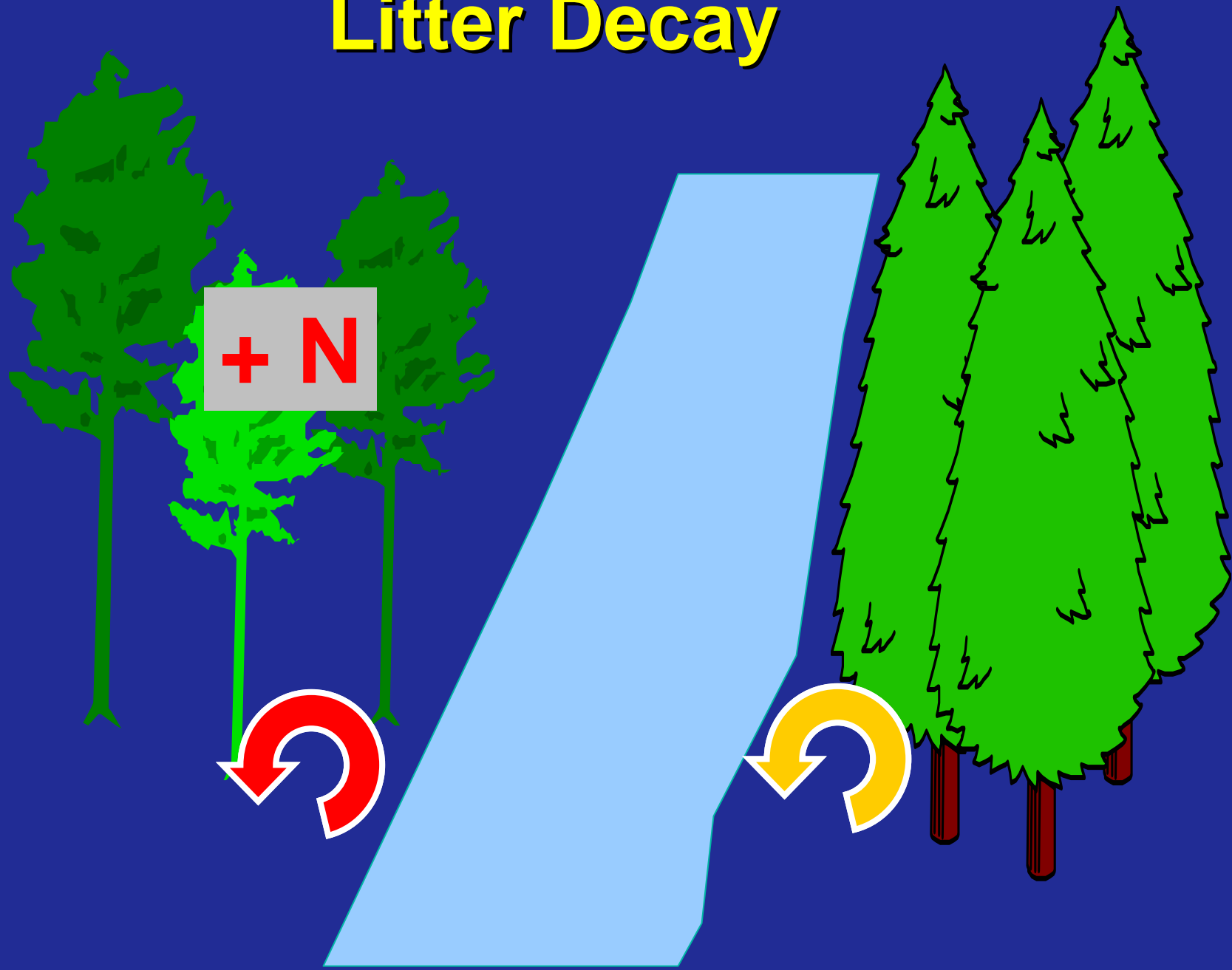
C:N = 23 (bug candy)



C:N = 40 (high quality)

C:N = 75 (low quality)

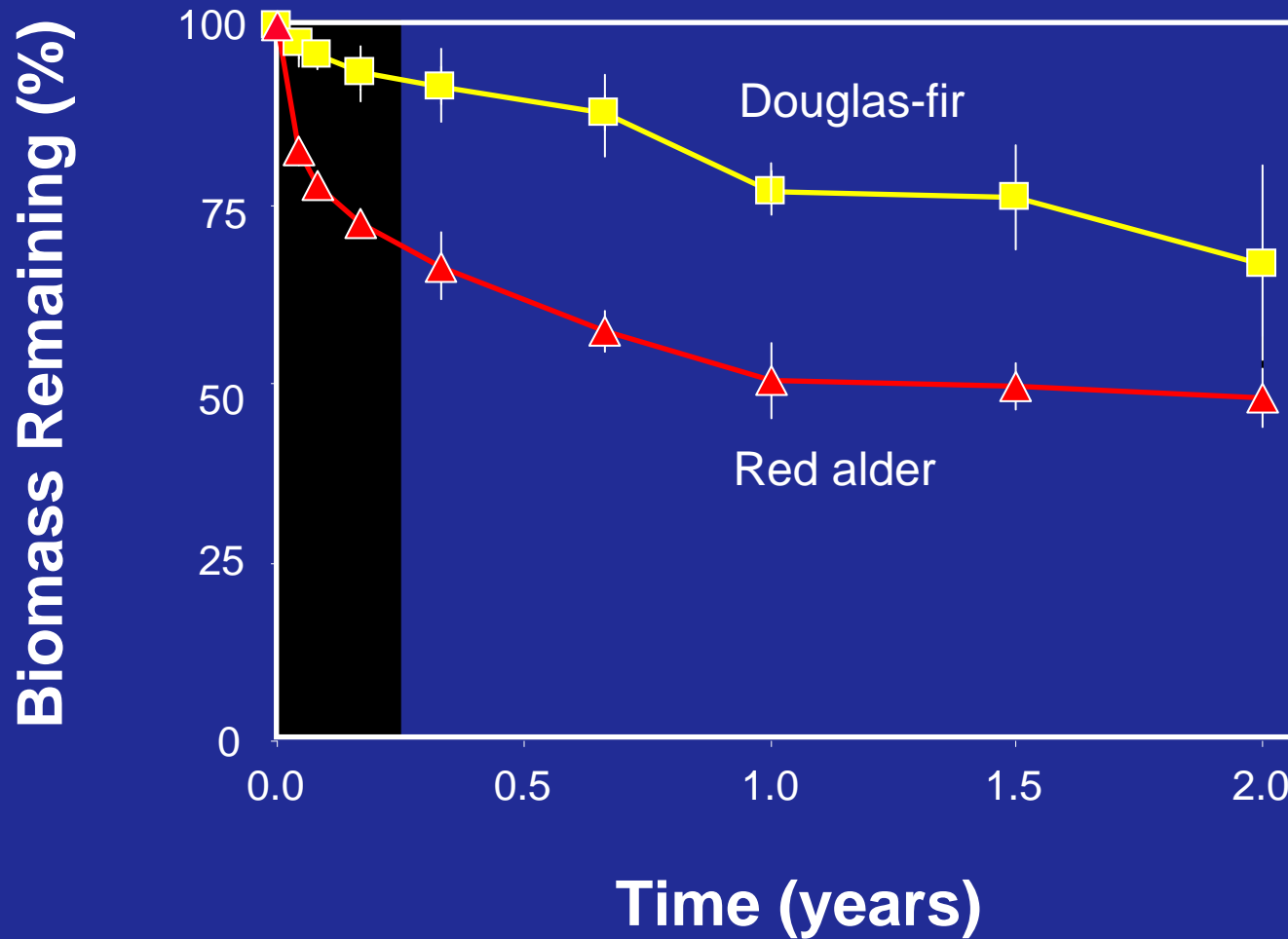
Litter Decay



Fall 2003: 3,240 litterbags - terrestrial
Fall 2004: 3,240 litterbags - aquatic

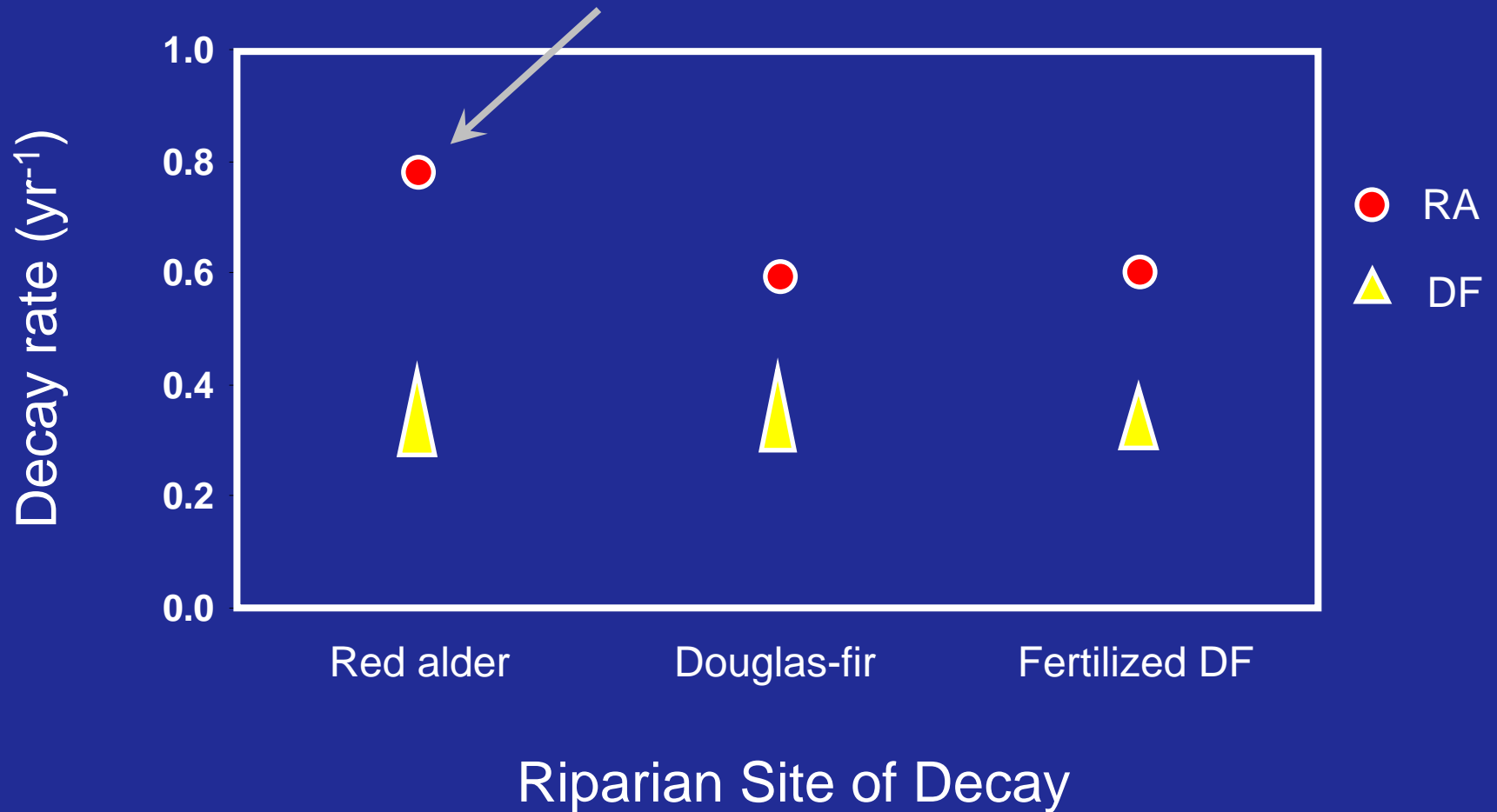


Rapid Alder Decay

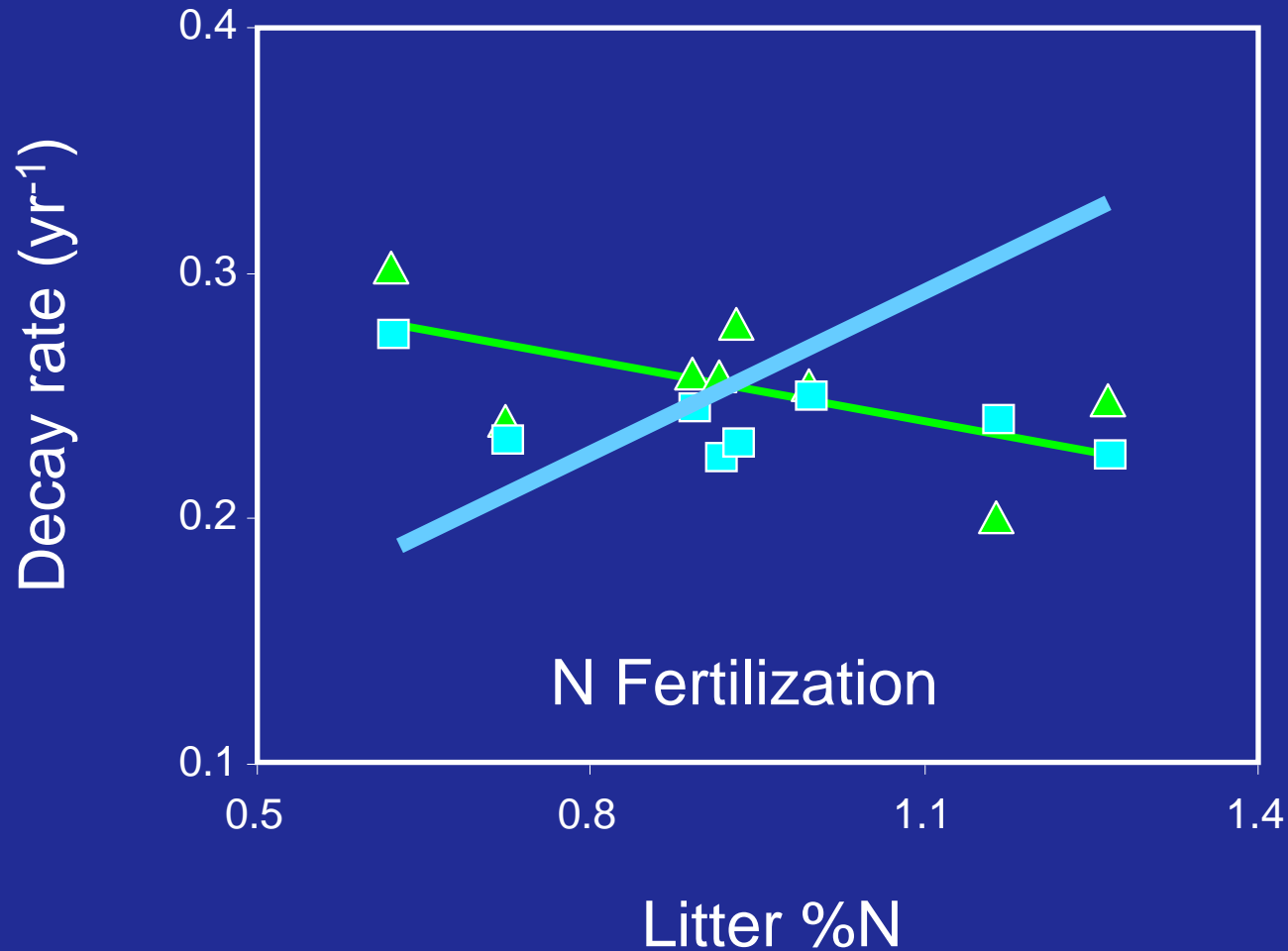


Site and Species Effects on Decay

Synergistic site x species interaction



Unexpected Slower Decay at High N

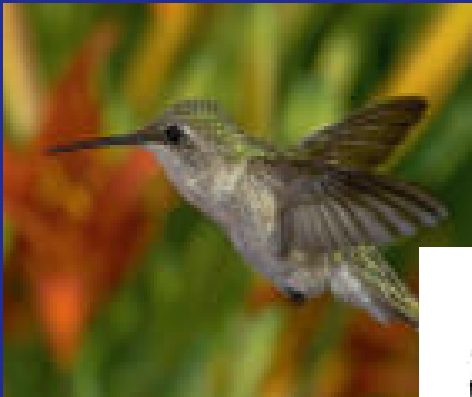


Riparian Vegetation Wrap Up

- Stable isotope data too messy for food web studies
- Alder leaves a legacy on riparian N (and $\delta^{15}\text{N}$)
- Alder delivers more and better quality litter
- Mechanism of decay stimulation is not nitrogen

Study Implications

- Alder leaves are an important energy base for terrestrial (and aquatic) food webs
- Alder habitats likely host unique and more productive soil food webs
- Alder N legacies may fuel Douglas-fir growth, but this legacy N is of limited nutritional value



Slope Matters only in Deciduous Sites

