Who Am I?

MES gCORE Faculty Intro: Judy Cushi

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Who Am I? Professionally….

What are my Research Interests

What do I see in my teaching future?

Who Am I? Personally….

What you should know.…

Who Am I (Professionally)

1. BA –Philosophy/Math ; MA Philosophy (of Science)
2. ~10 years – software developer
   - industry, universities, startups, medical IS…
3. Evergreen Teaching (from 1983)
   - Software engineering
4. Ph.D. –Computer Science & Engineering
5. Evergreen Teaching & Research (from 1994)

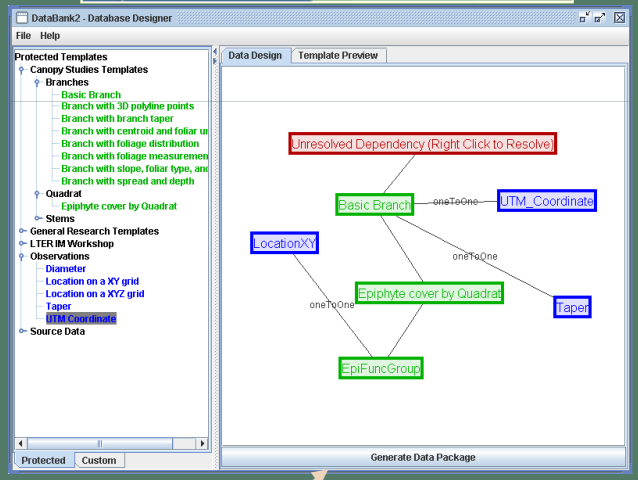
A Computer Scientist and Ecology Informatician

How might information technology help scientists?

My (current) Research Interests

1. Databases for field ecologists….
2. The ES *data deluge*
   - Visualization
   - Modeling & Analysis

Canopy DataBank (with N. Nadkarni et al)

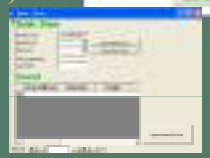


Documentation (*.HTML)

Access Database

_workspace.xml
(Specific to the particular study you are working on)
Includes Templates

(Includes Data entry forms)



Forms

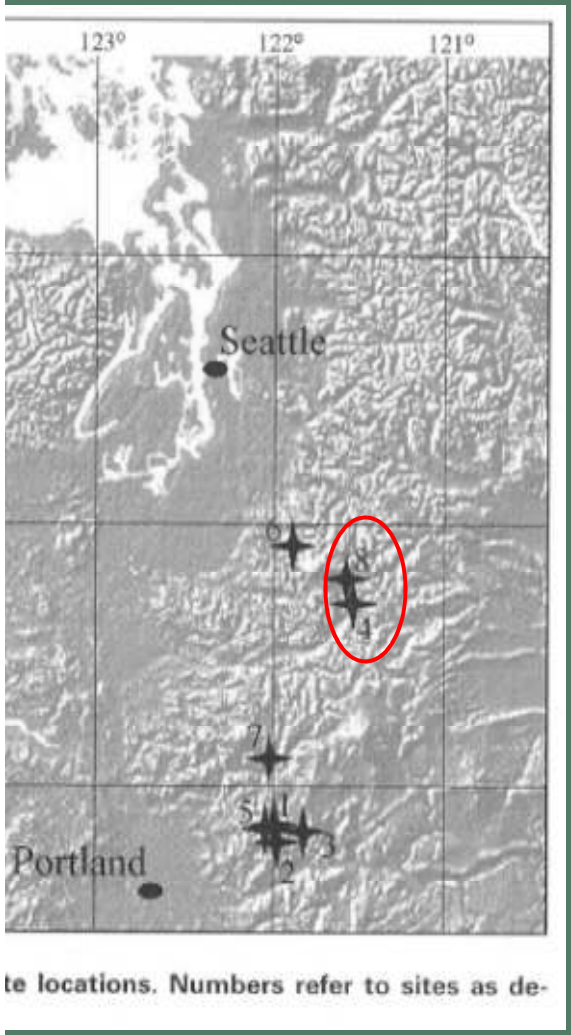
Ecological Metadata Language *_eml.xml

Palm Top + Laser Finder Field Data Entry

Visualization

Analysis?

Thousand Year Chronosequence (1kcs)



te locations. Numbers refer to sites as de-

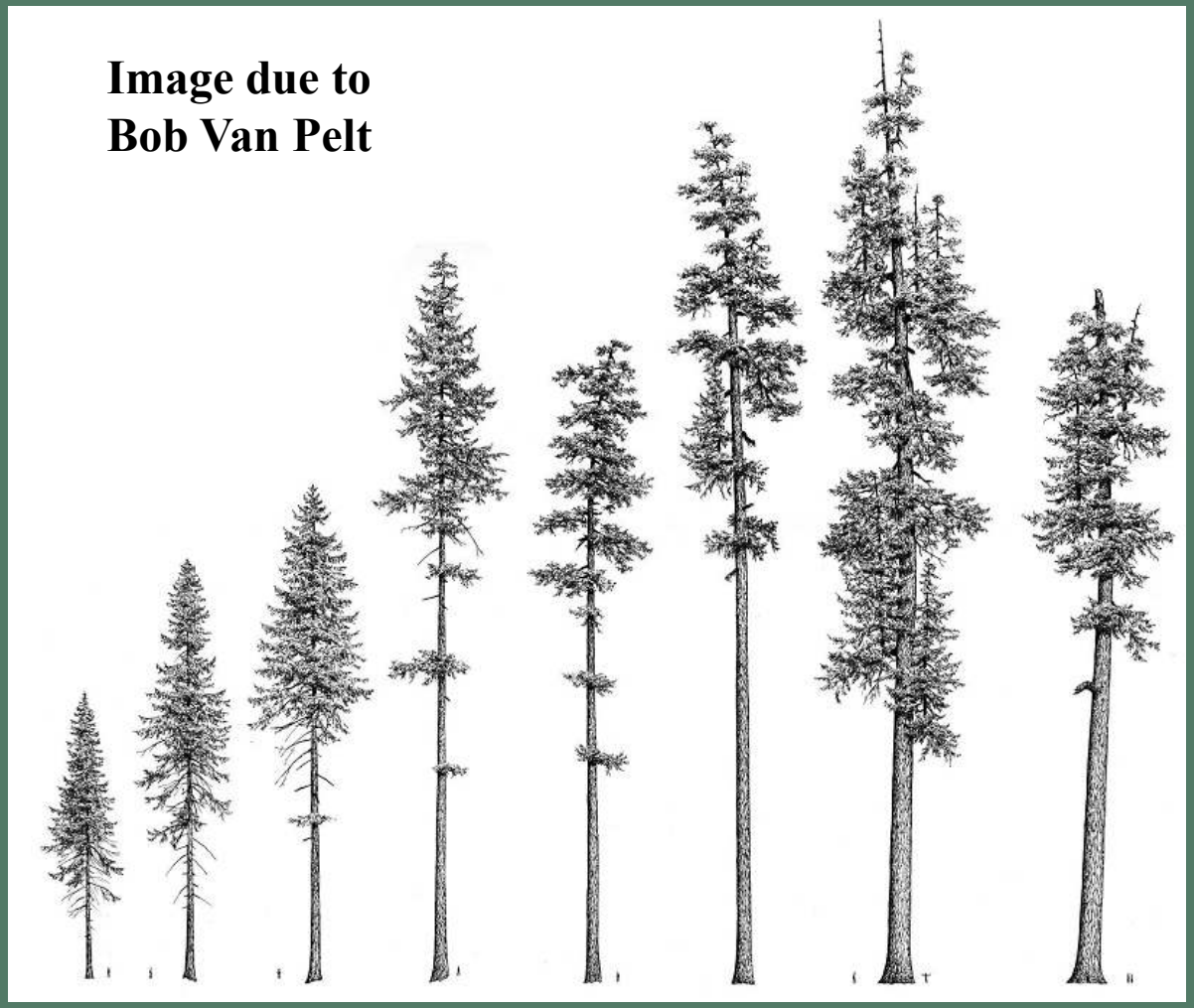
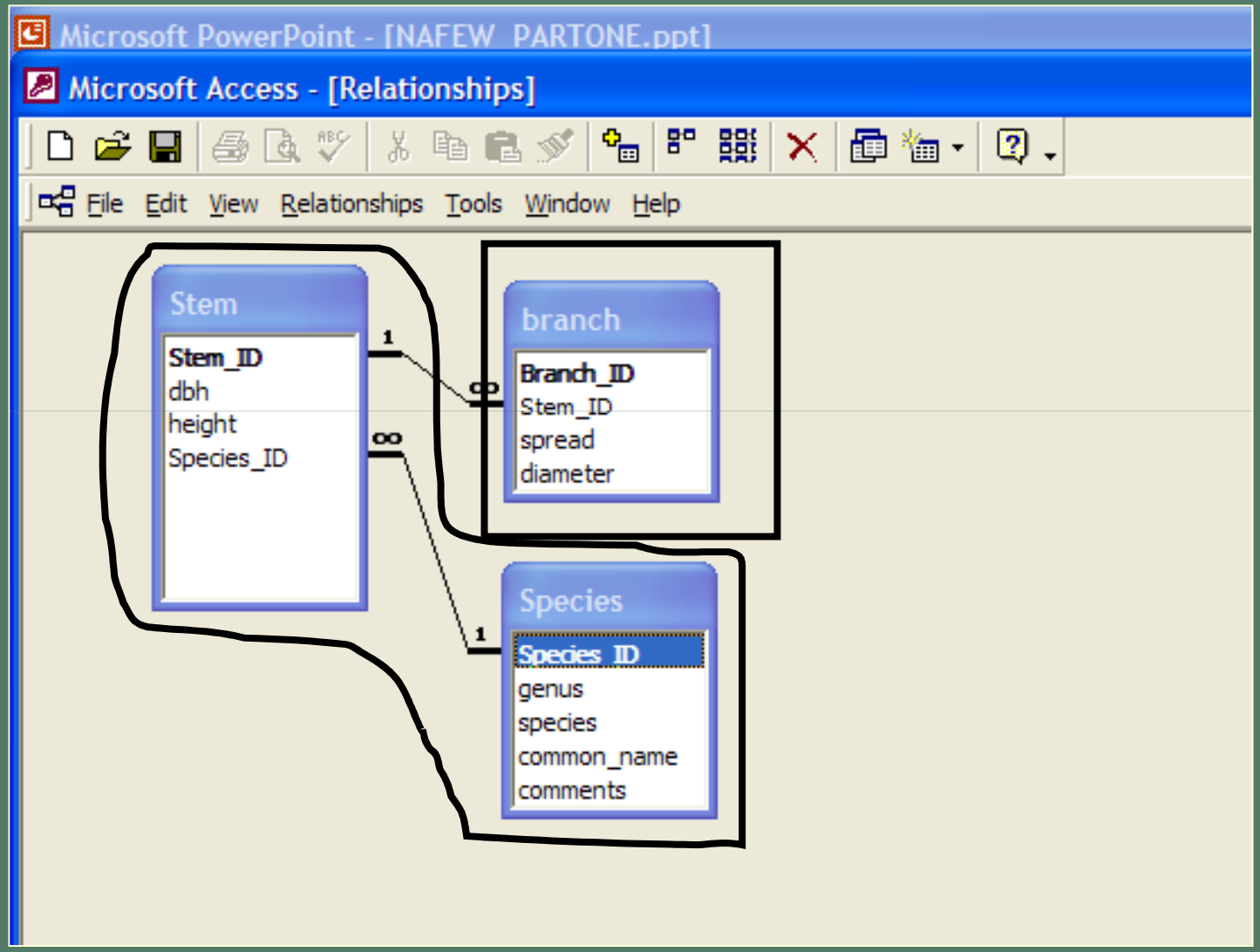


Image due to
Bob Van Pelt

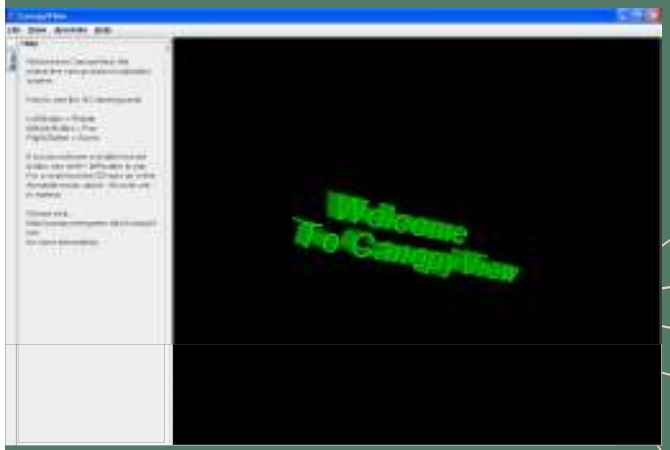
overlap with the LIDAR coverage

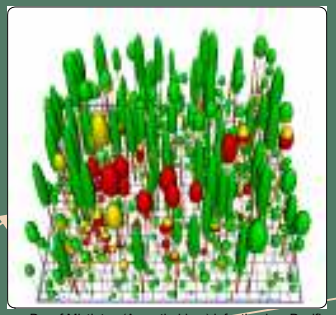
- **Site 8 Chinook transects 1 (detailed branch data) and 2 –**
- **Site 4 Ohanapecosh complete coverage (Transect 3 detailed branch data)**

MS *Access* DataBank Design

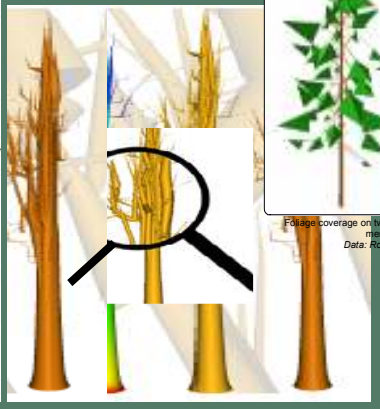


CanopyView

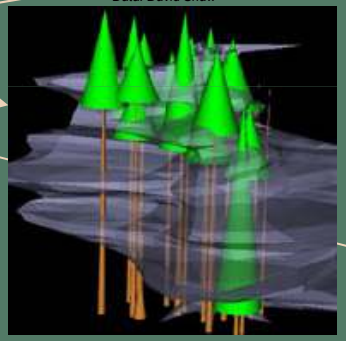


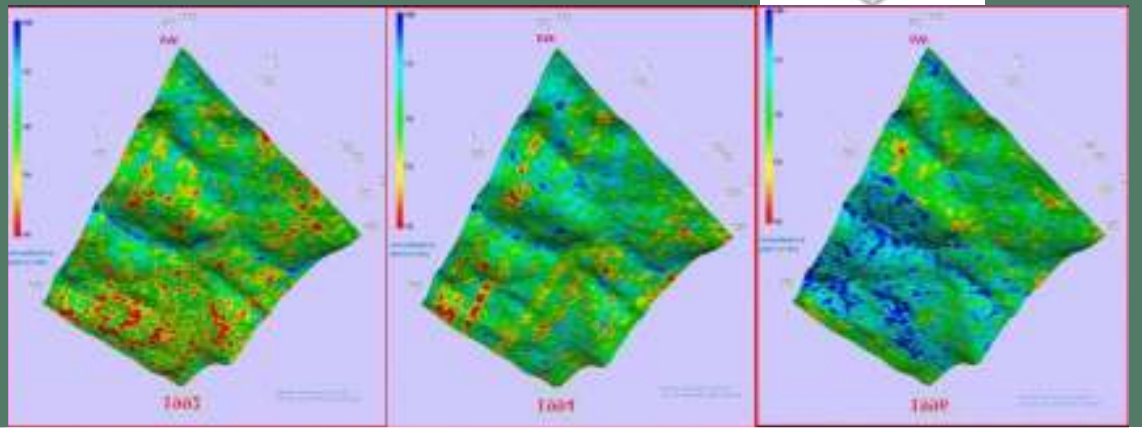


Dwarf Mistletoe (Arceuthobium) infection in a Pacific Northwest forest
Data: David Shaw



Foliage coverage on two Douglas Firs (Pseudotsuga menziesii).
Data: Robert Van Pelt

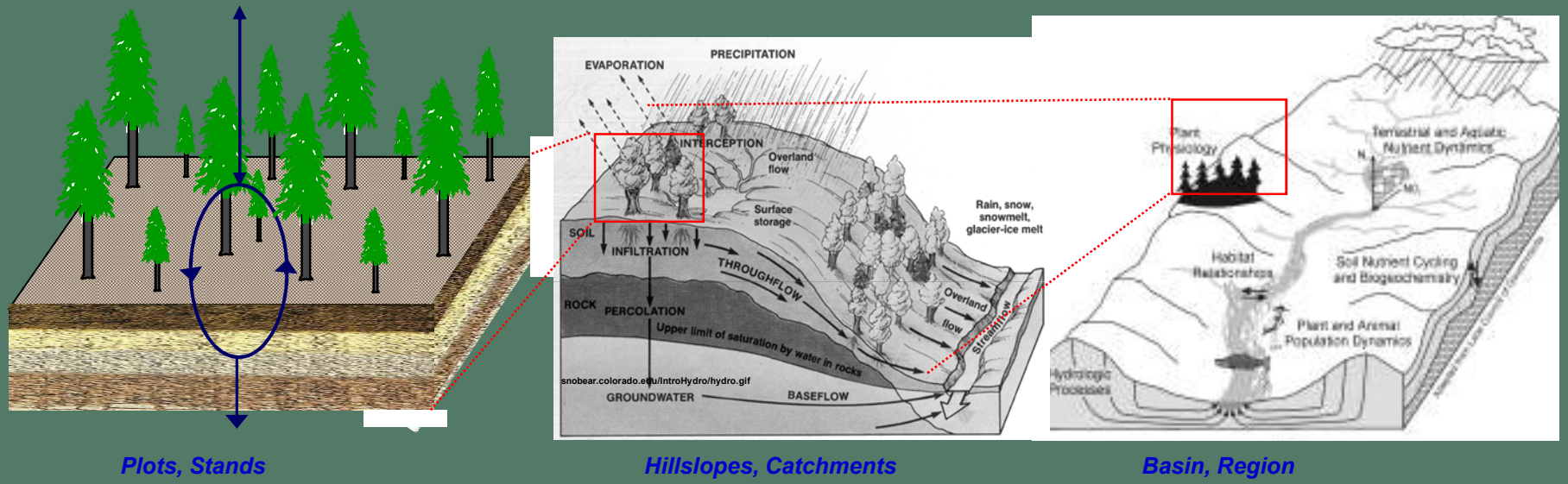




CanopyStats
...coming....

VISTAS

VISualization of Terrestrial-Aquatic Systems

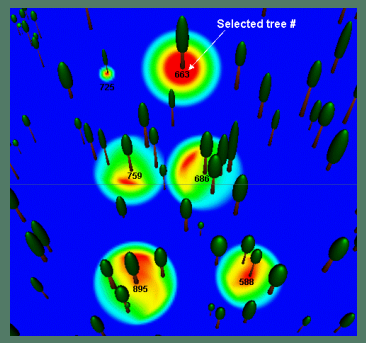


Plots, Stands *Hillslopes, Catchments* *Basin, Region*

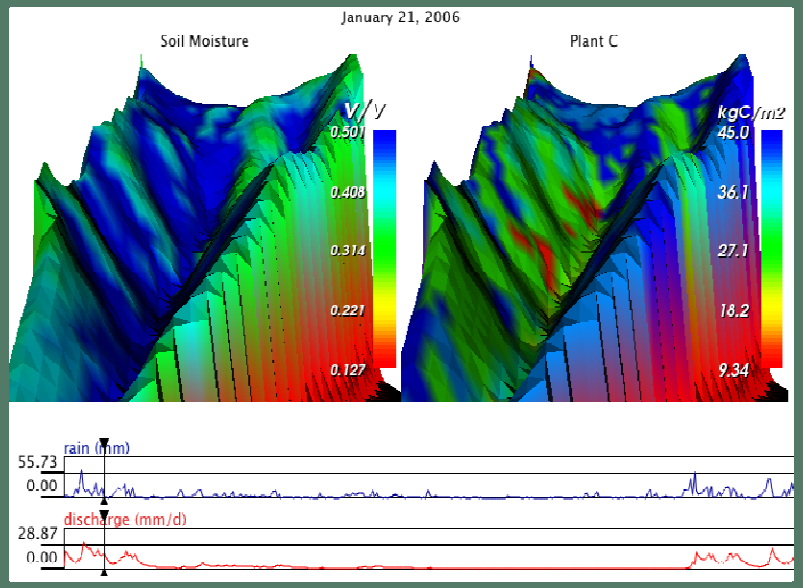
Eco-hydrologic modeling:
Integrate & Scale Up Data from Plots to Region, from Days to Centuries

VISTAS

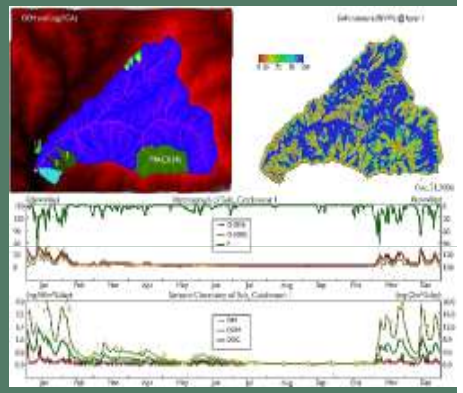
a) 0.1 km² forest stand, to b) 1 km² catchment, to c) 64 km² basin.



a) Effect of tree size & competitors on nitrogen uptake in a 400-yr forest. Visualized patterns not evident in raw data provide new insight into forest habitat structure.



b) Effect of tree size & competitors on nitrogen uptake in a 400-yr forest. Visualized patterns not evident in raw data provide new insight into forest habitat structure.

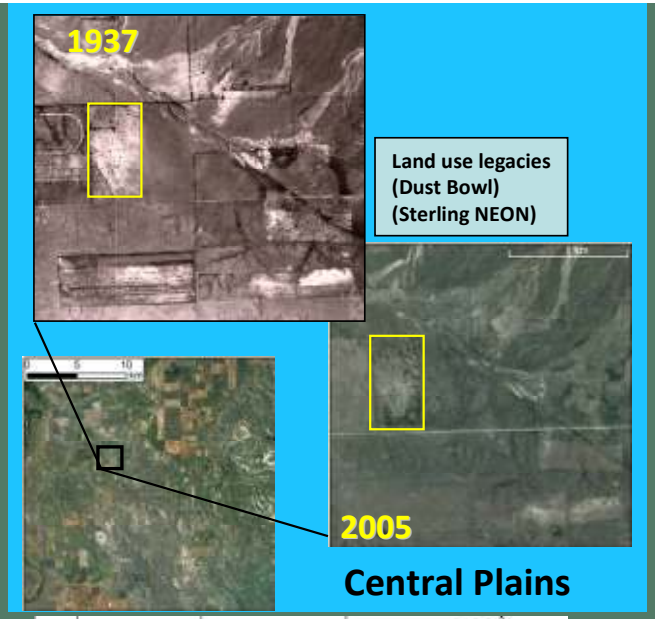


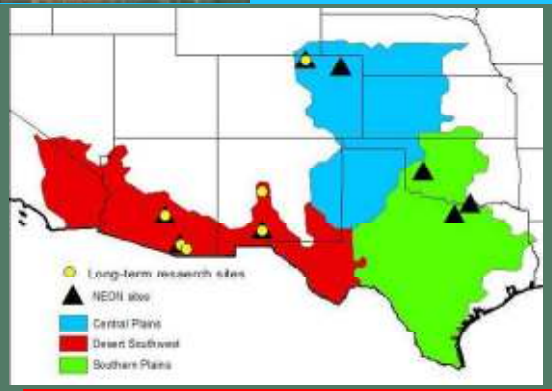
c) Visualizations at basin scale help users understand & communicate climate change & forest harvest: stream network, soil moisture, stream water quality & quantity.

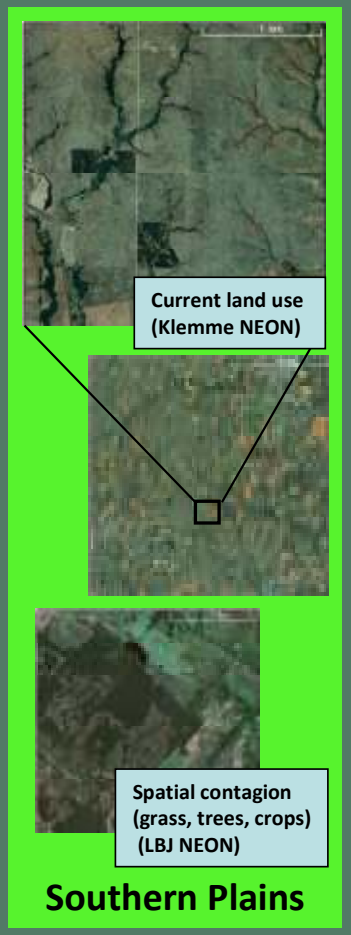
Ecological Connectivity

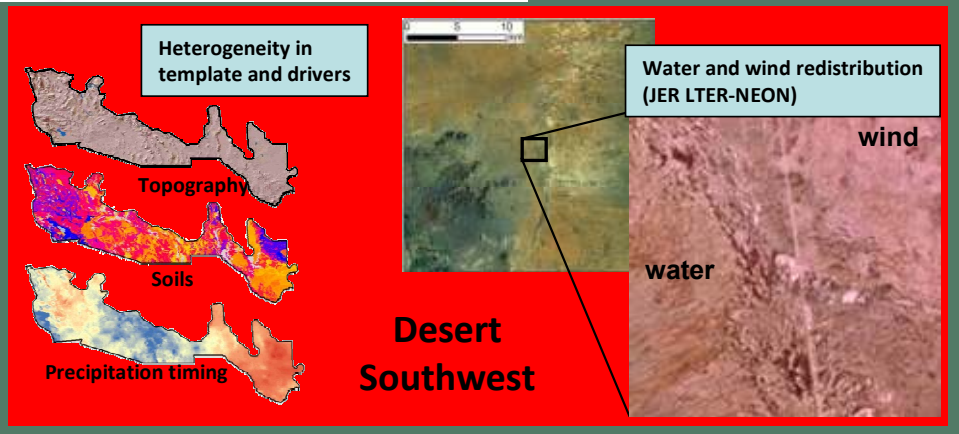
Drivers -> Responses

over space & time









My MES Teaching

1. **What I bring:**
   - **Climate change & PNW**
   - **Environmental Observatory Data Repositories**
   - **Information Browsing, Data Wrangling**
   - **gCORE web site**

2. **This Year (what I especially look forward to)**
   - **Working in faculty teams,**
   - **Ecology modeling & analytics**
   - **Better understanding Climate Change & public attitudes**
   - **Working with the same students <u>all year</u>**
   - **Helping to get them started on their degree goals, especially the thesis!**

Who Am I (Personally)

1. ‘got a life
   - Hiking, skiing, yoga
   - An accidental golfer
   - Physical culture
   - Cooking….
2. I’ve been in the PNW since ~1979
3. I “live” in Bend OR

What you should know….

1. **Seminar is my favorite part of the program….**
   It bugs me when students don't read the book…

2. **I <u>really</u> love Evergreen**
   - **Teaching writing**
   - **Interdisciplinarity**
   - **Team teaching**
   - **Problem Oriented Curriculum**
   - **Student projects (blend theory & practice)**
   - **Working intensively and long term**

   …with the same group of students