A Restoration Strategy for the eastern slope of the Cascades

James Dickinson, Richy Harrod, Paul Hessburg, Sr., William Gaines, Andrea Lyons

Okanogan-Wenatchee NF and Wenatchee Forestry Sciences Laboratory

Presentation Objectives

- Restoration Strategy
  - Benefits
  - Process
  - Timeline
- Need
  - Resilience
  - Landscapes
  - Process, pattern, function
- Details
  - Outputs
  - Scales of analysis
  - Reference Conditions
  - PLTA

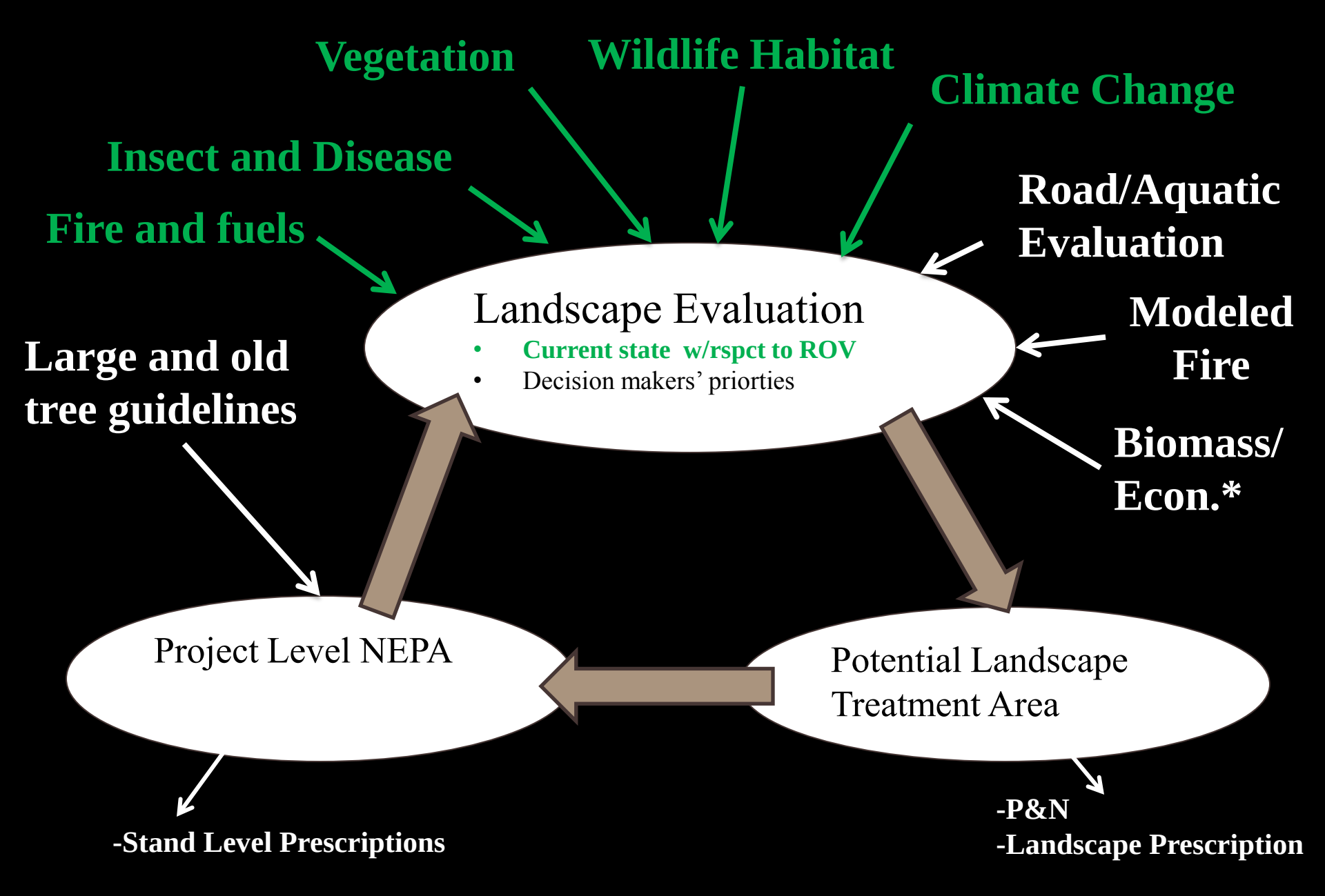
Key Forest Restoration Issues

- Restoring Resiliency
- Spotted Owl Recovery
- Climate Change
- Road/Aquatic Evaluation
- Adaptive Management and Monitoring

Benefits of the Strategy

- Doing the right things in the right places
  - Identify priority areas
  - Make transparent decisions
  - Prepare for the future

- Focused field work, realistic timelines
- Efficient planning, NEPA
- Integrated set of desired conditions
- Emphasize and plan for outcomes
- Incorporates science, support, collaborations



Multiple Projects/Landscape Evaluation

Timeline

Photointerpretation
Processing, analysis
Landscape level diagnosis /prescription

27 days
add 20 days
for additional

=

20,000 – 30,000 acres of analyzed landscape + data

PLTA diagnosis/prescription /alternative development

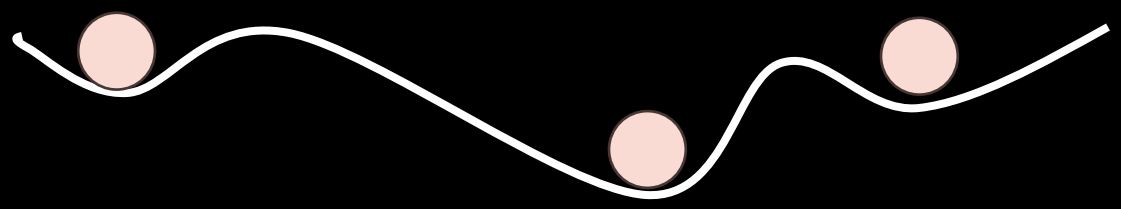
7 days

=

5-10,000ac. of proposed action, with stand specific objectives, prescriptions and effects

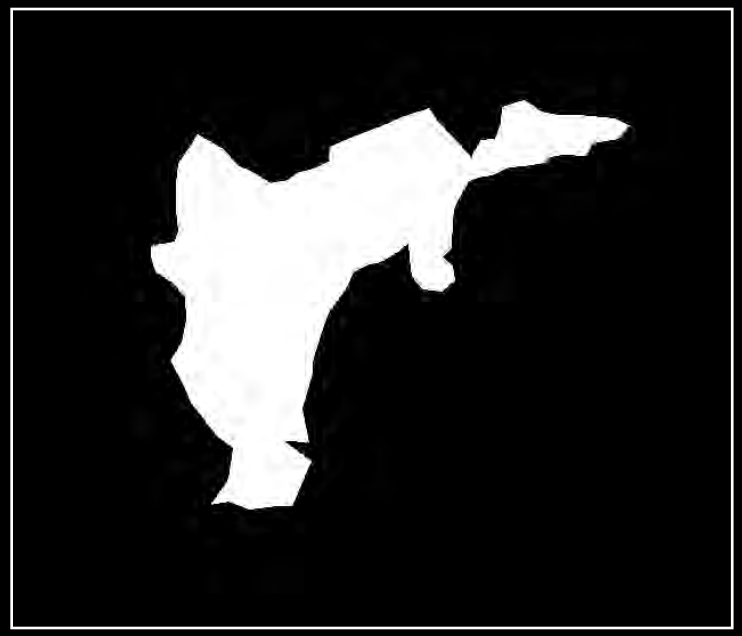
Field Recon, verification of feasibility, stand level, and other NEPA issues as usual

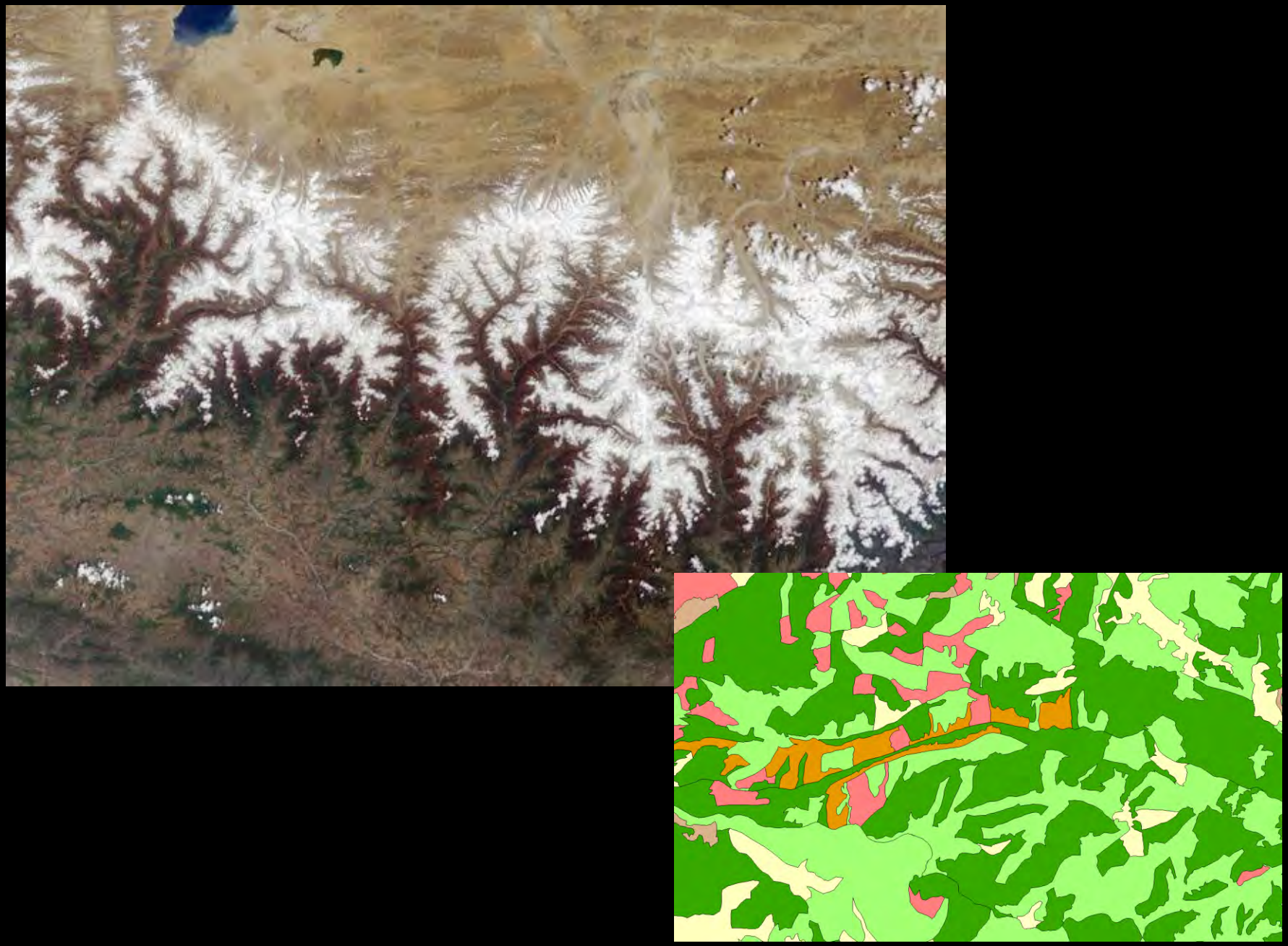
Resilience is “the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state … A resilient ecosystem can withstand shocks and rebuild itself when necessary. - Walker et al 2004



“Ecosystem restoration” is ecologically based and ecosystem services are the tangible outputs.

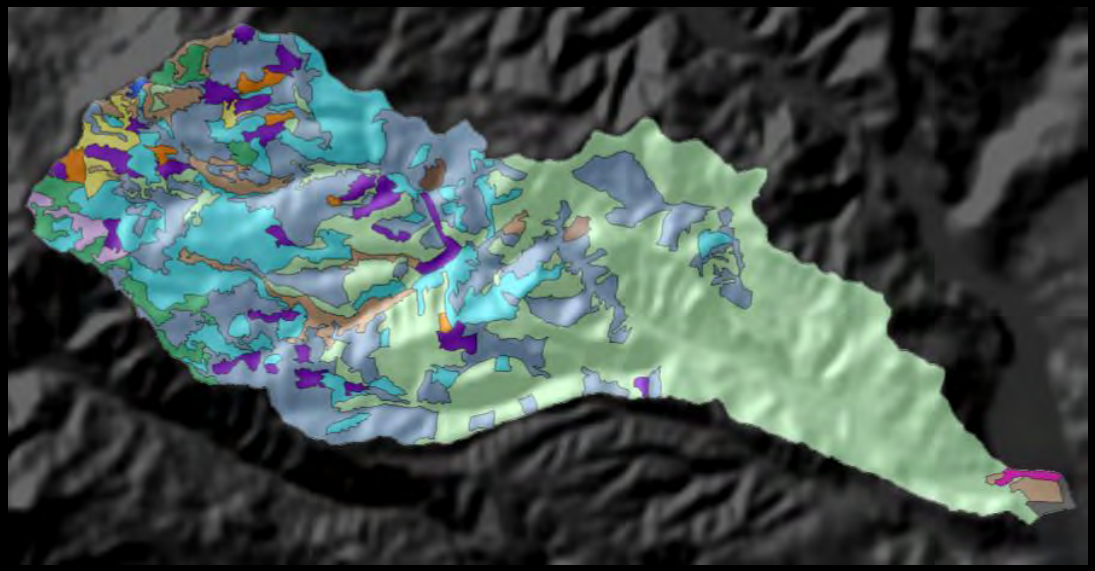
Why NOT stand level management?



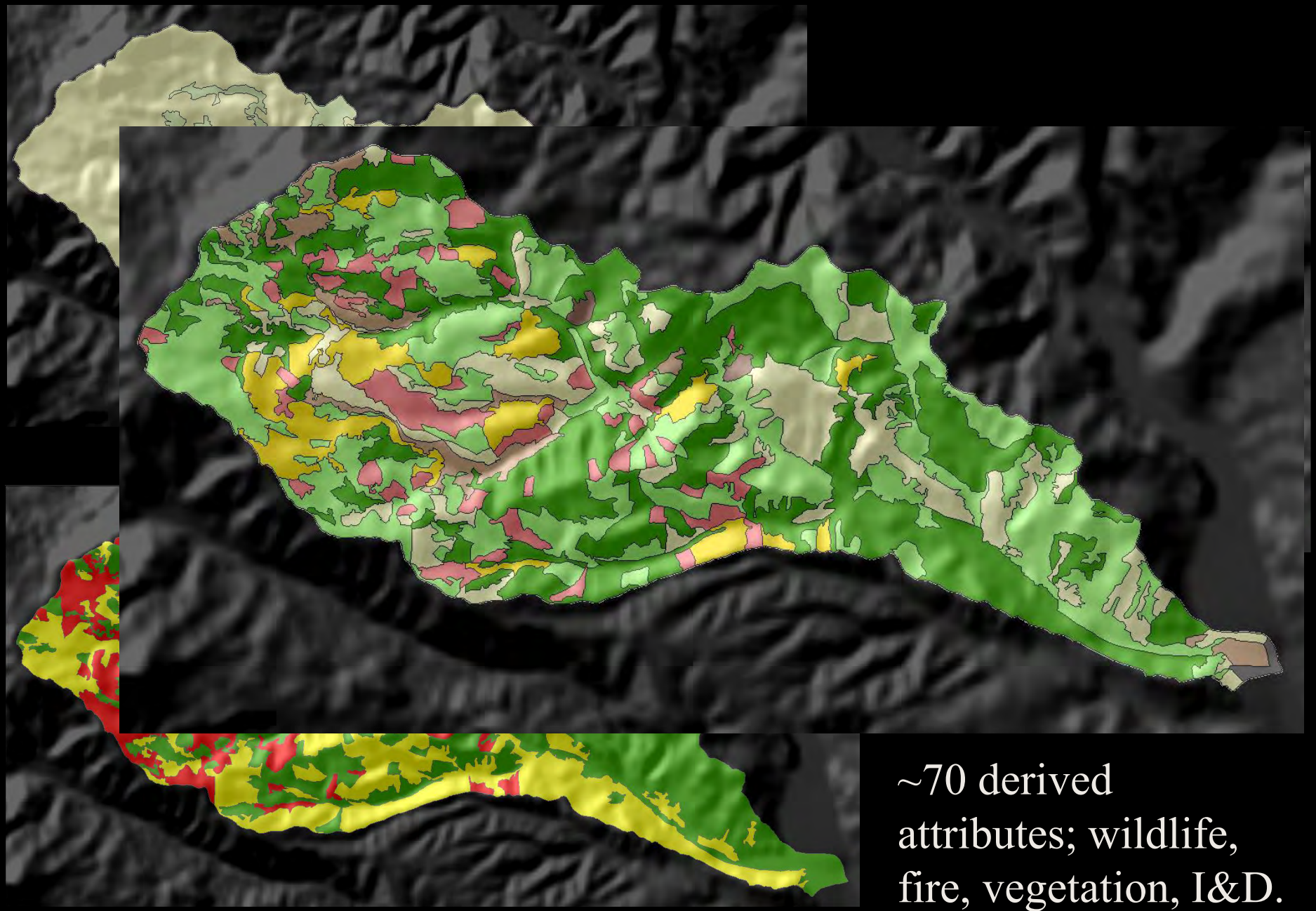


Size
Quantity
Configuration
Uniqueness
Interactions

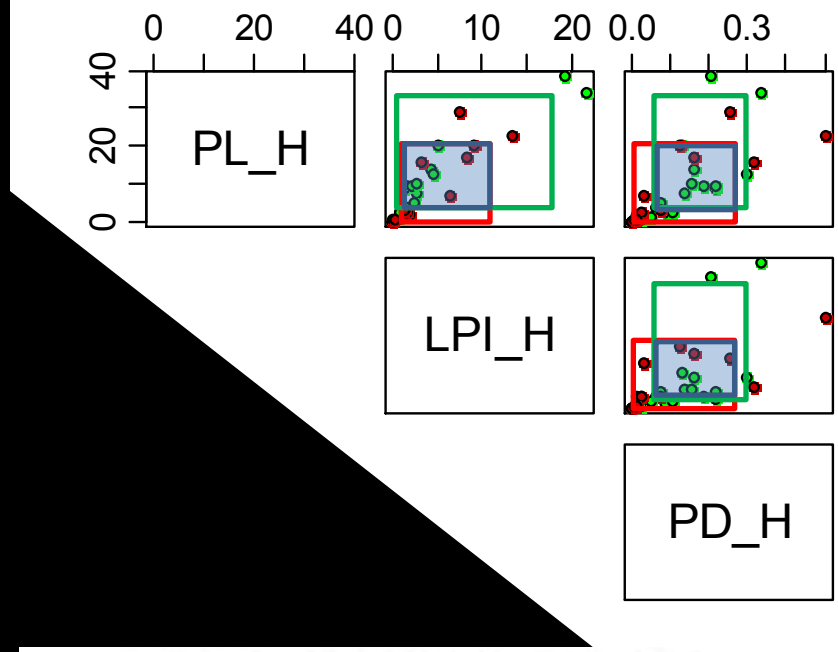
Landscape metrics are computed for an attribute (e.g. Structure) for the entire mosaic.

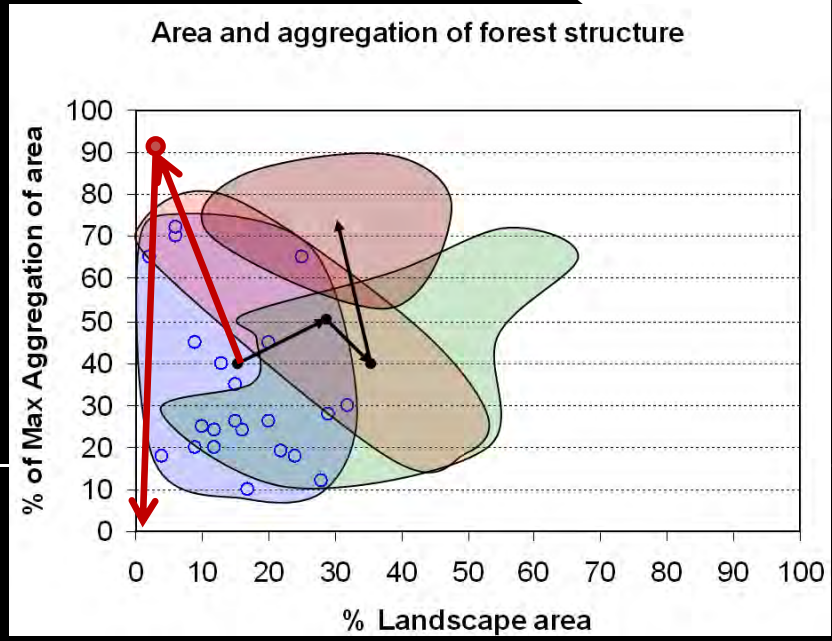


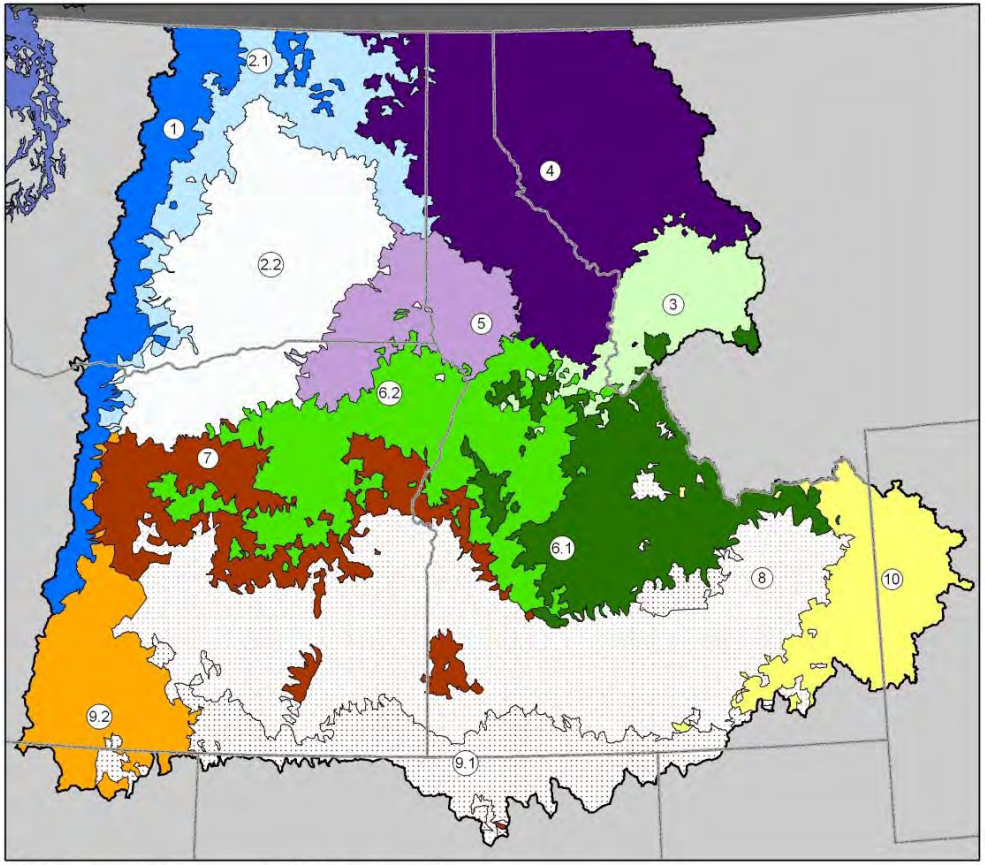
Class metrics measure the aggregate properties of the patches belonging to a single class or patch type (e.g. stand initiation within Structure)



~70 derived attributes; wildlife, fire, vegetation, I&D.

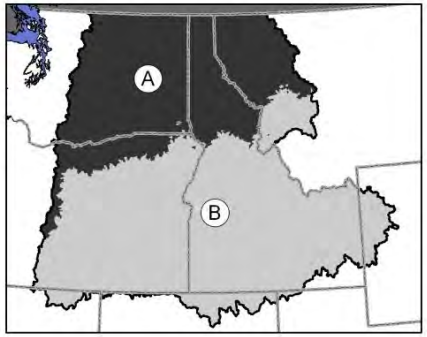






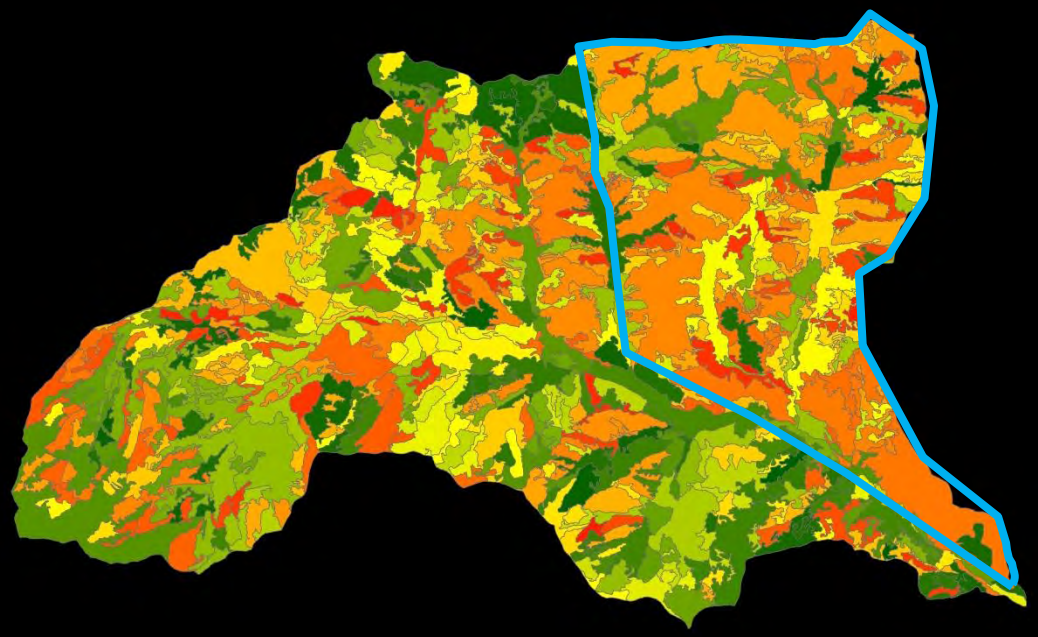
ESR Branch Group and ESR Membership

- 1 (4, 5, 6, 13, 41, 53)
- 2.1 (8, 11, 14, 21)
- 2.2 (7*, 10*)
- 4 (1, 18, 19, 20, 23)
- 5 (12, 16*, 30)
- 3 (15, 37, 38, 39)
- 6.1 (25, 29, 32, 35, 36)
- 6.2 (24, 31, 34, 54)
- 7 (9, 27, 45*)
- 8 (33*, 47*, 48*, 49*)
- 9.1 (42*, 44*)
- 9.2 (22, 28, 40, 46)
- 10 (43, 50, 51, 52, 55)



Note: ESRs with an asterisk (*) are rangeland dominated

Potential Landscape Treatment Areas

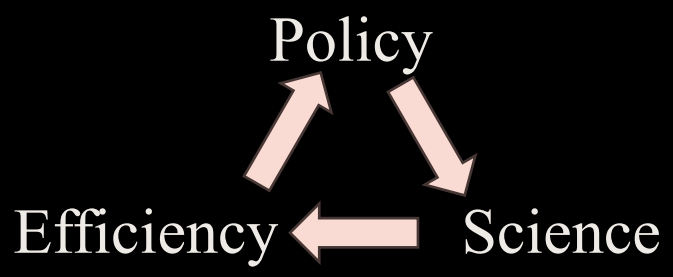


- **Landscape Rx → P&N**
- **3-5 PLTAs per subwatershed**
  - **~ 5-10k acres each**
  - **Chosen based data in underlying tables**
- **Can have multiple projects per PLTA**

Conclusions

The Restoration Strategy:

- addresses analysis, policy, and ecoystem issues.
- provides a robust analysis of how processes functioned across large landscapes, not just stands, and is supported by ecological theory
- provides enough data so that the user can ask, and answer nearly any question of the landscape
- provides a framework for planning efficiencies, long term monitoring, and adaptive management



Questions & Comments

USDA

PNW

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

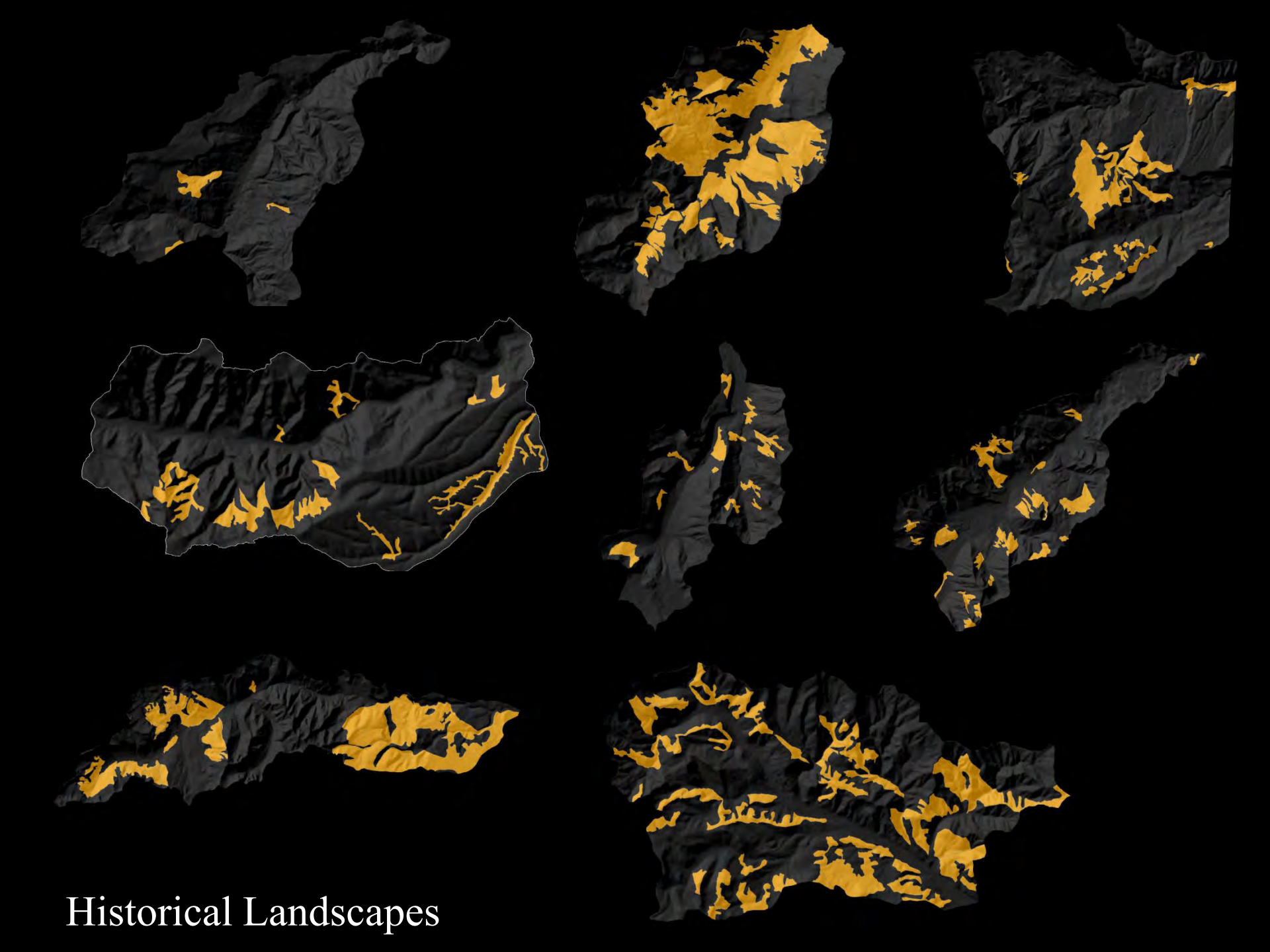
OKANOGAN WENATCHEE National Forest

EMDS

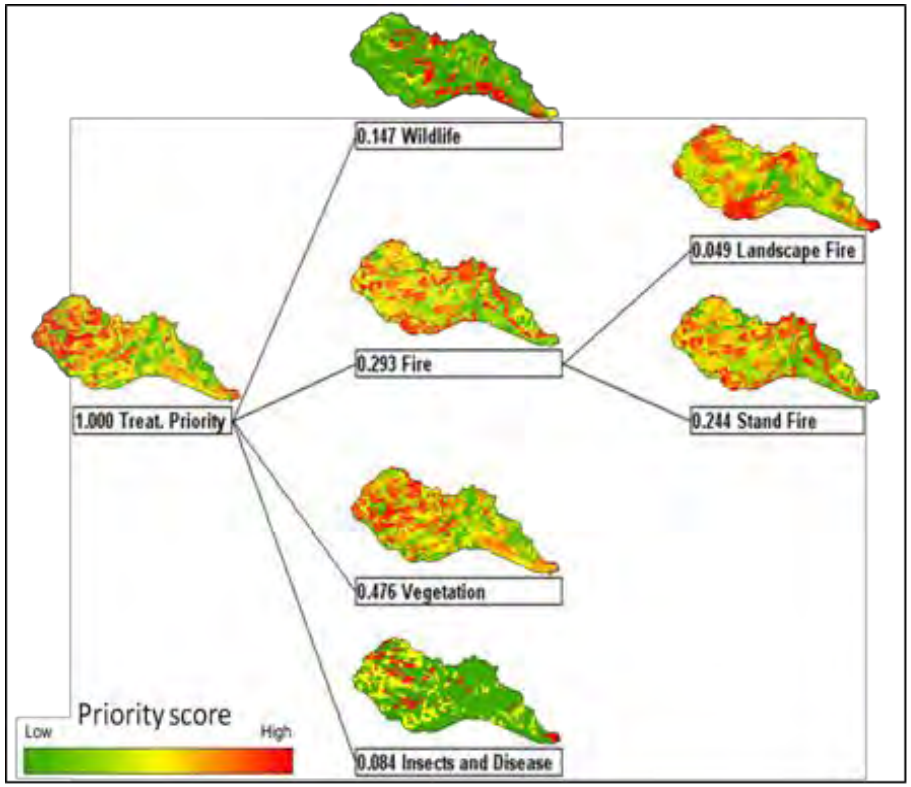
www.InfoHarvest.com

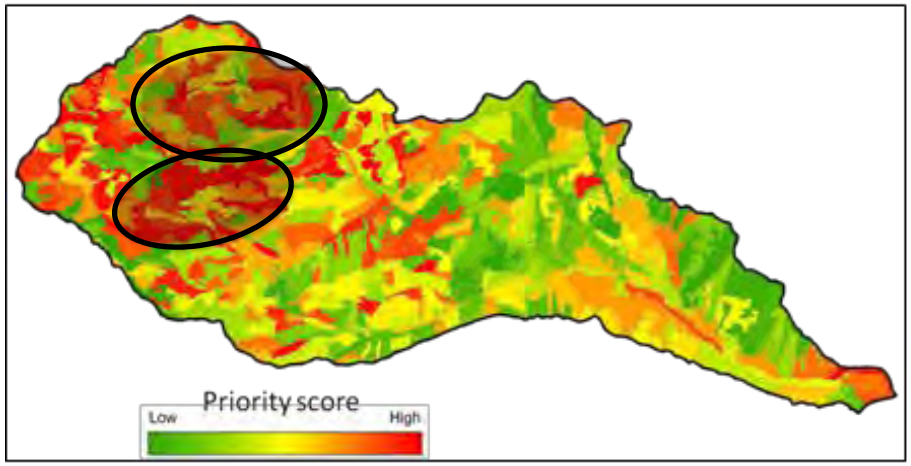
University of Redlands The Redlands Institute

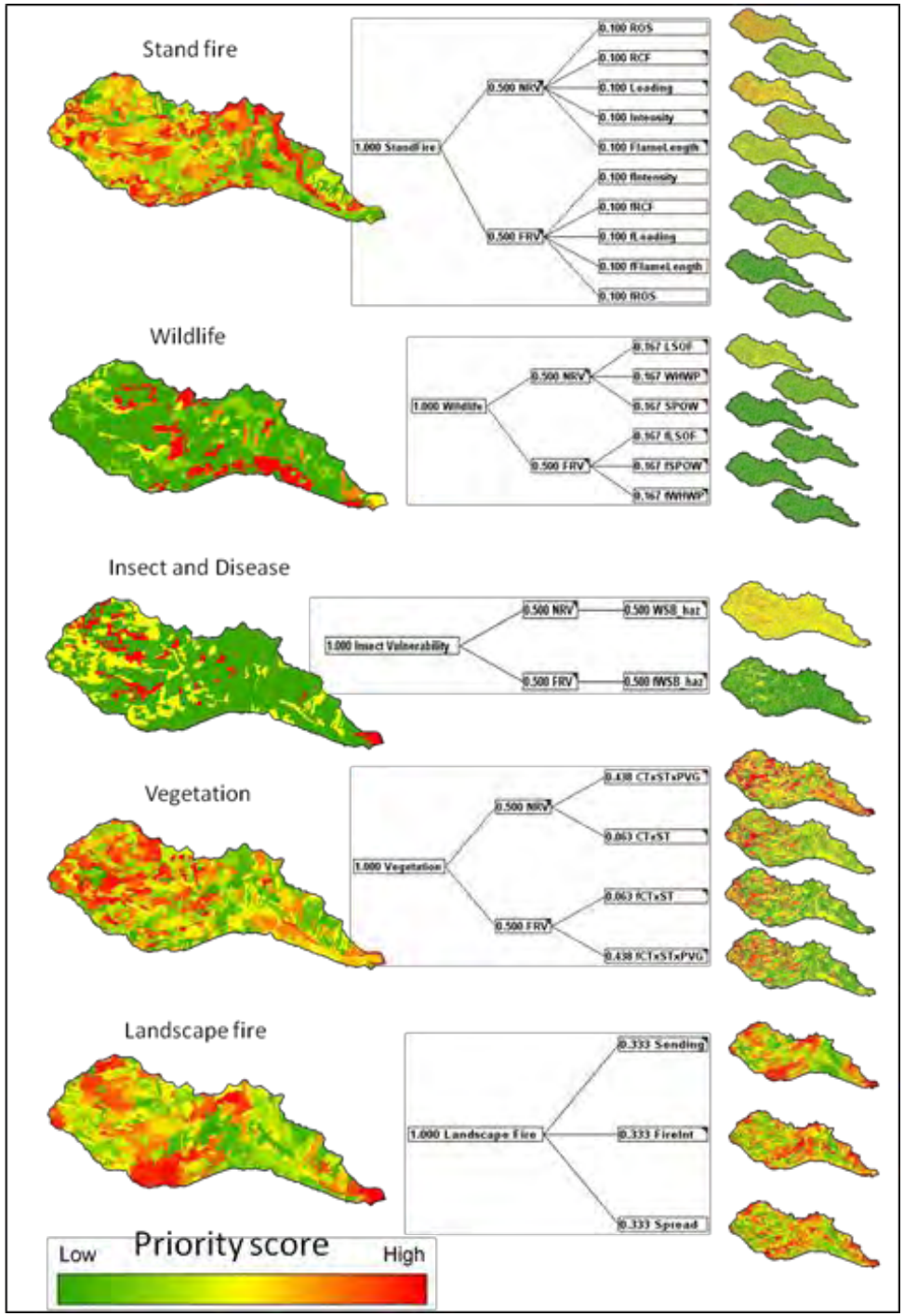
Rules of Thumb, inc.



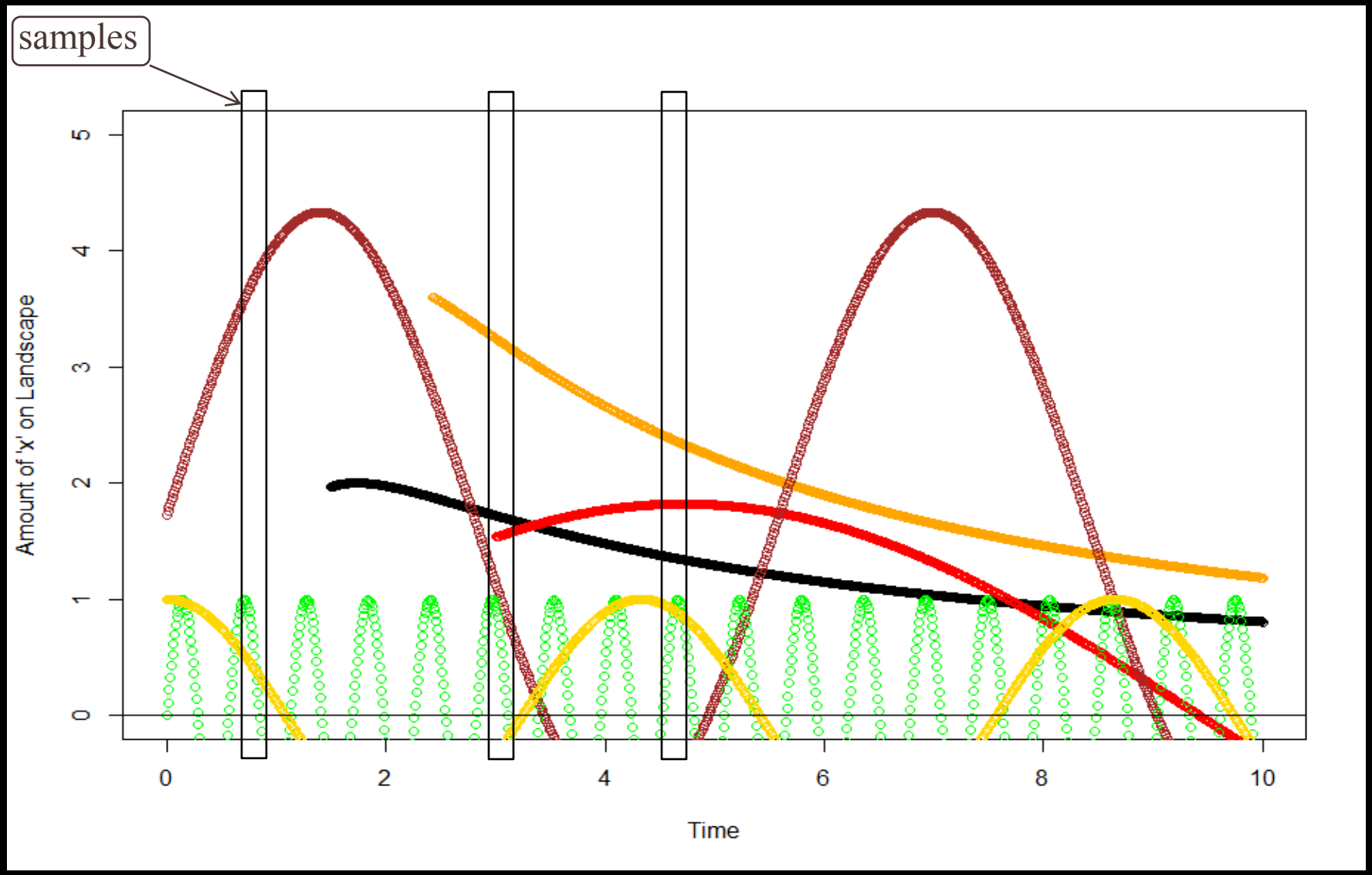
Historical Landscapes

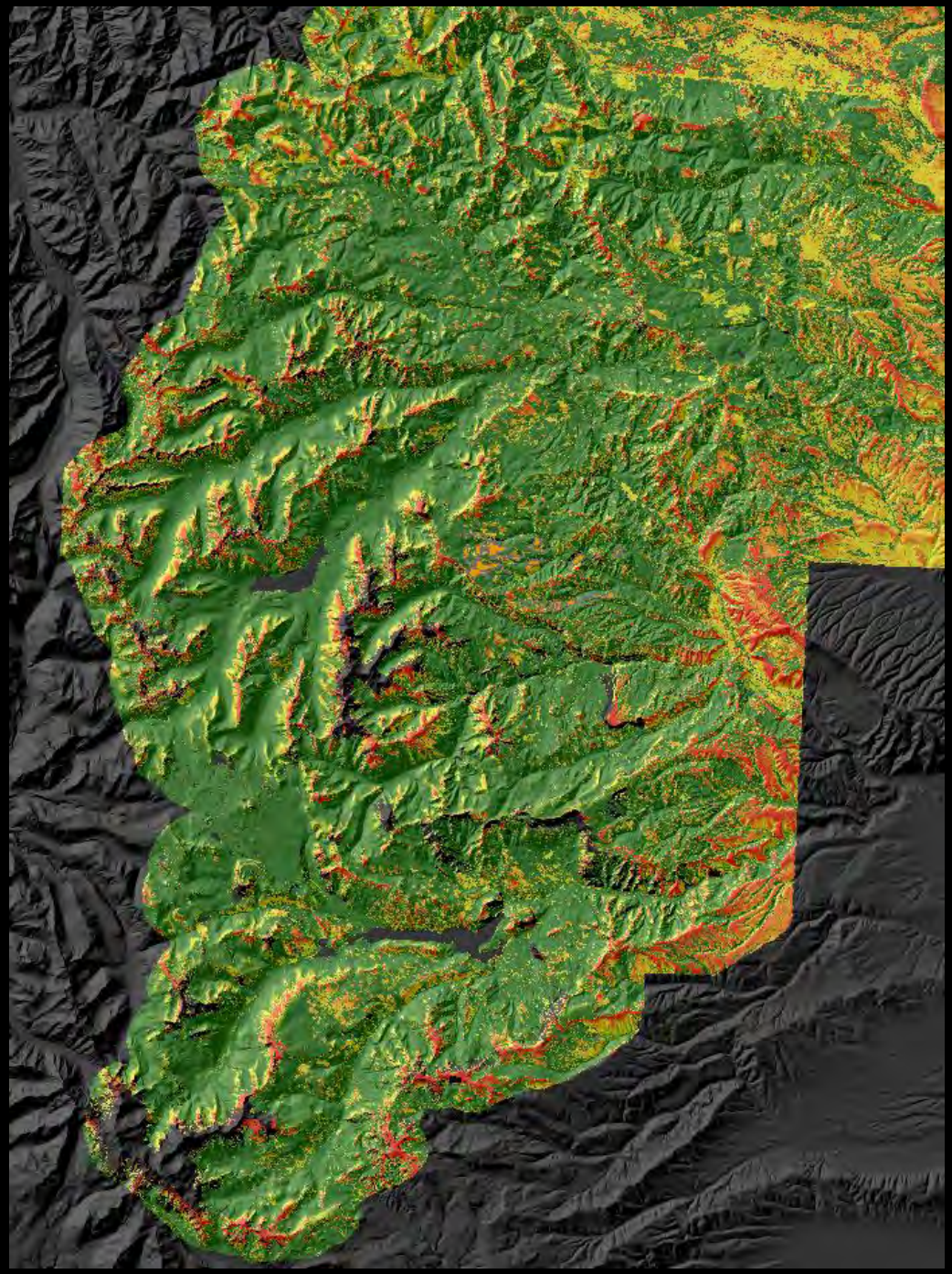

0.147 Wildlife
0.049 Landscape Fire
0.293 Fire
1.000 Treat. Priority
0.244 Stand Fire
0.476 Vegetation
0.084 Insects and Disease
Priority score
Low
High


Priority score
Low
High


Stand fire
1.000 Standfire
0.500 NRV
0.500 FRV
0.100 ROS
0.100 RCF
0.100 Loading
0.100 Intensity
0.100 FlameLength
0.100 fIntensity
0.100 fRCF
0.100 fLoading
0.100 fFlameLength
0.100 fROS
Wildlife
1.000 Wildlife
0.500 NRV
0.500 FRV
0.167 LSOF
0.167 WHWP
0.167 SPOW
0.167 fLSOF
0.167 fSPOW
0.167 fWHWP
Insect and Disease
1.000 Insect Vulnerability
0.500 NRV
0.500 FRV
0.500 WSB_haz
0.500 fWSB_haz
Vegetation
1.000 Vegetation
0.500 NRV
0.500 FRV
0.438 CTxSTxPVG
0.063 CTxST
0.063 fCTxST
0.438 fCTxSTxPVG
Landscape fire
1.000 Landscape Fire
0.333 Sending
0.333 FireInt
0.333 Spread
Low
Priority score
High

Hypothetical development trajectory of five landscapes





- Major Flow Routes
- Fireline Intensity
- Rate of Spread

- Modeled using current fuels maps
- No ROV
- Incorporated using the DSS

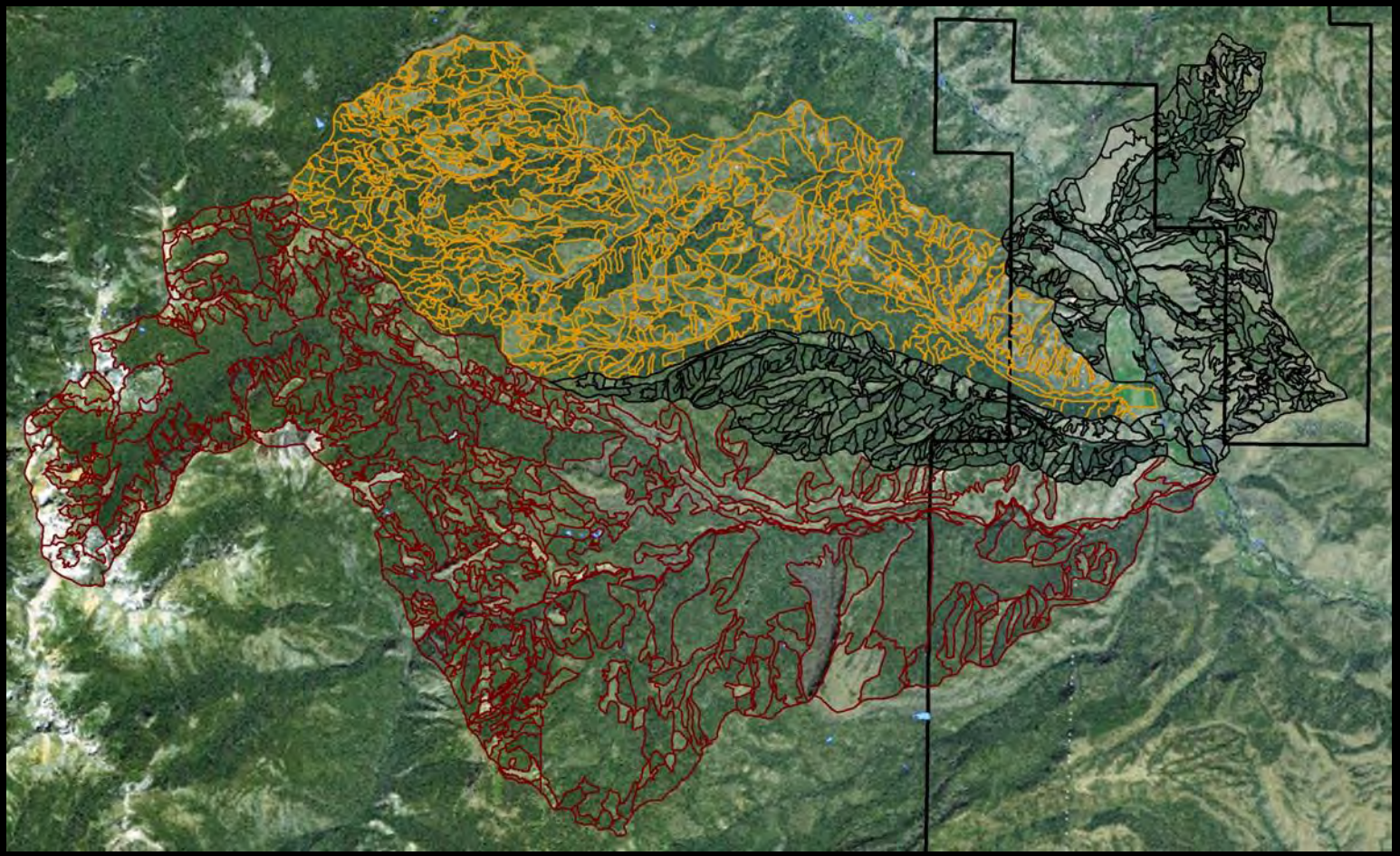
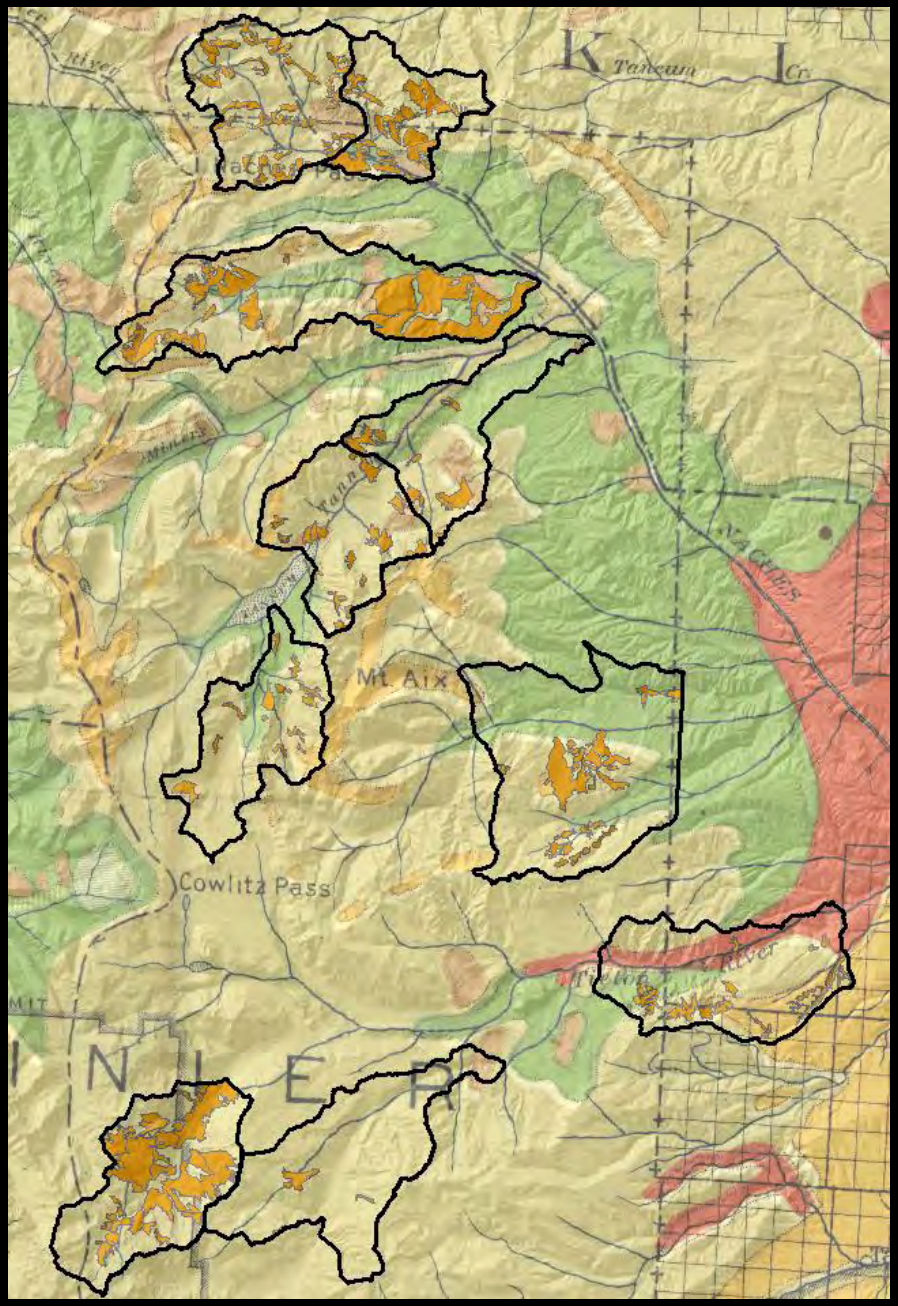
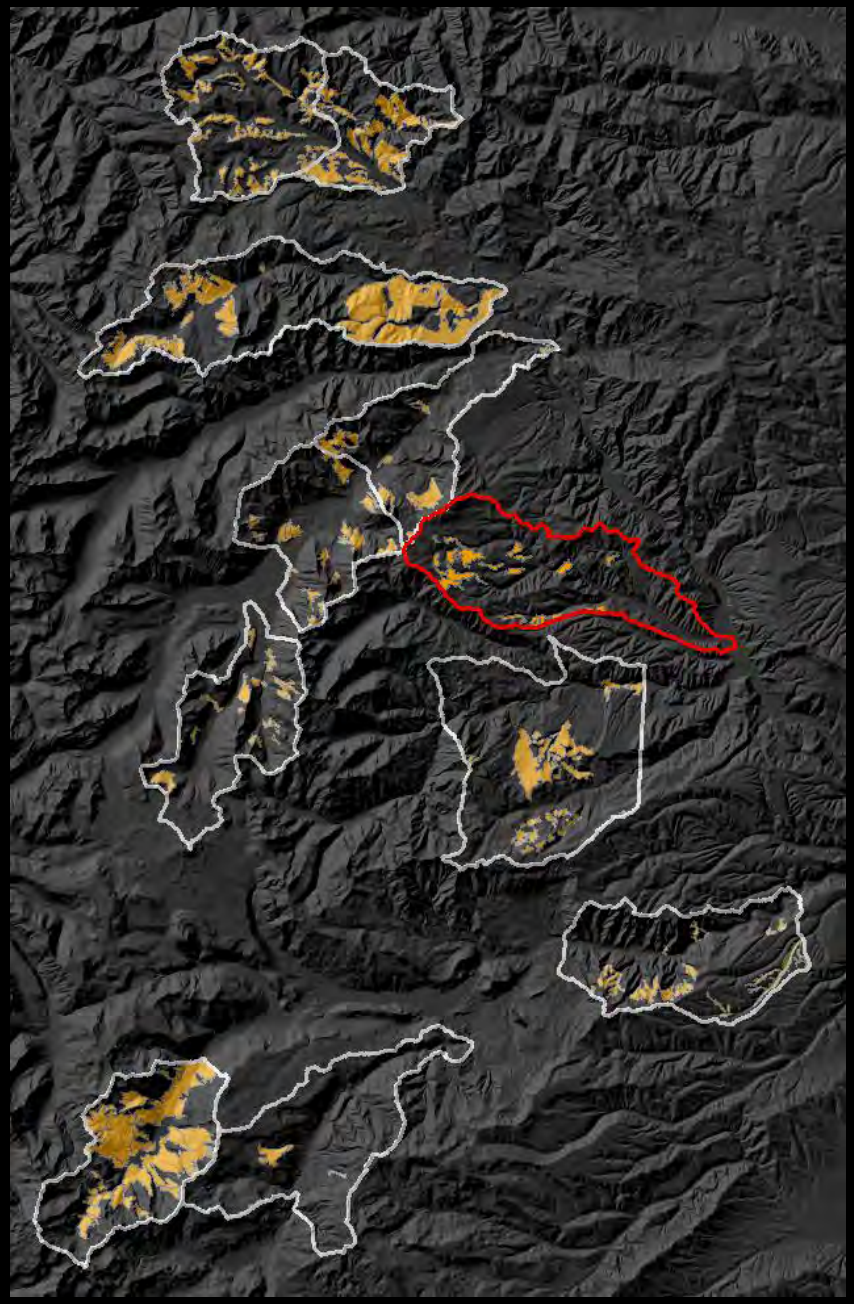


Photo Interpreted Attributes

- % Canopy cover
- # Canopy layers
- Species composition (overstory, understory)
- Tree size
- Clumpiness of trees

- 12 attributes collected; 70 derived
- Attributes → wildlife habitat, fire and insect risk


Mt. Aix
Cowlitz Pass