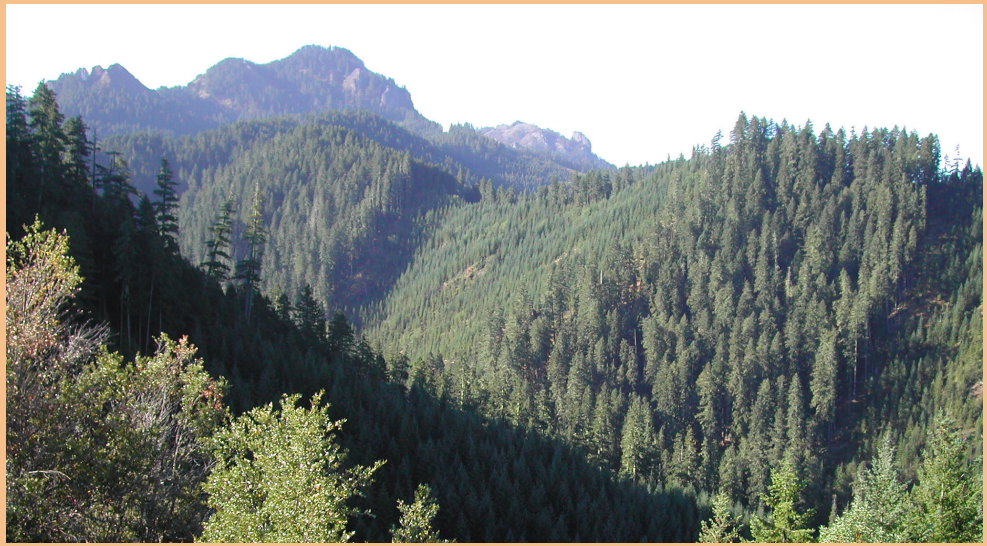
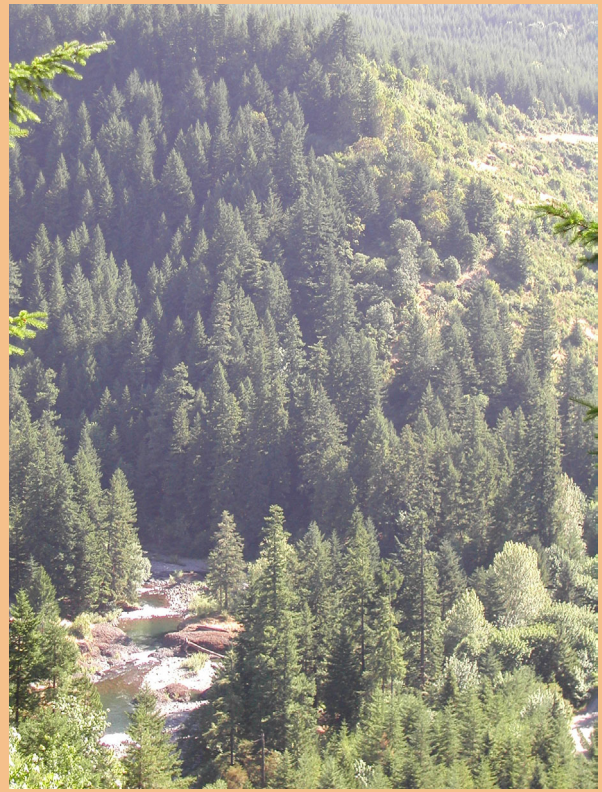
Balancing Sampling Efforts with the Realities of a Budget and Things that Go Bump in the Night



Steven H. Lanigan – USDA Forest Service

Emerging issues

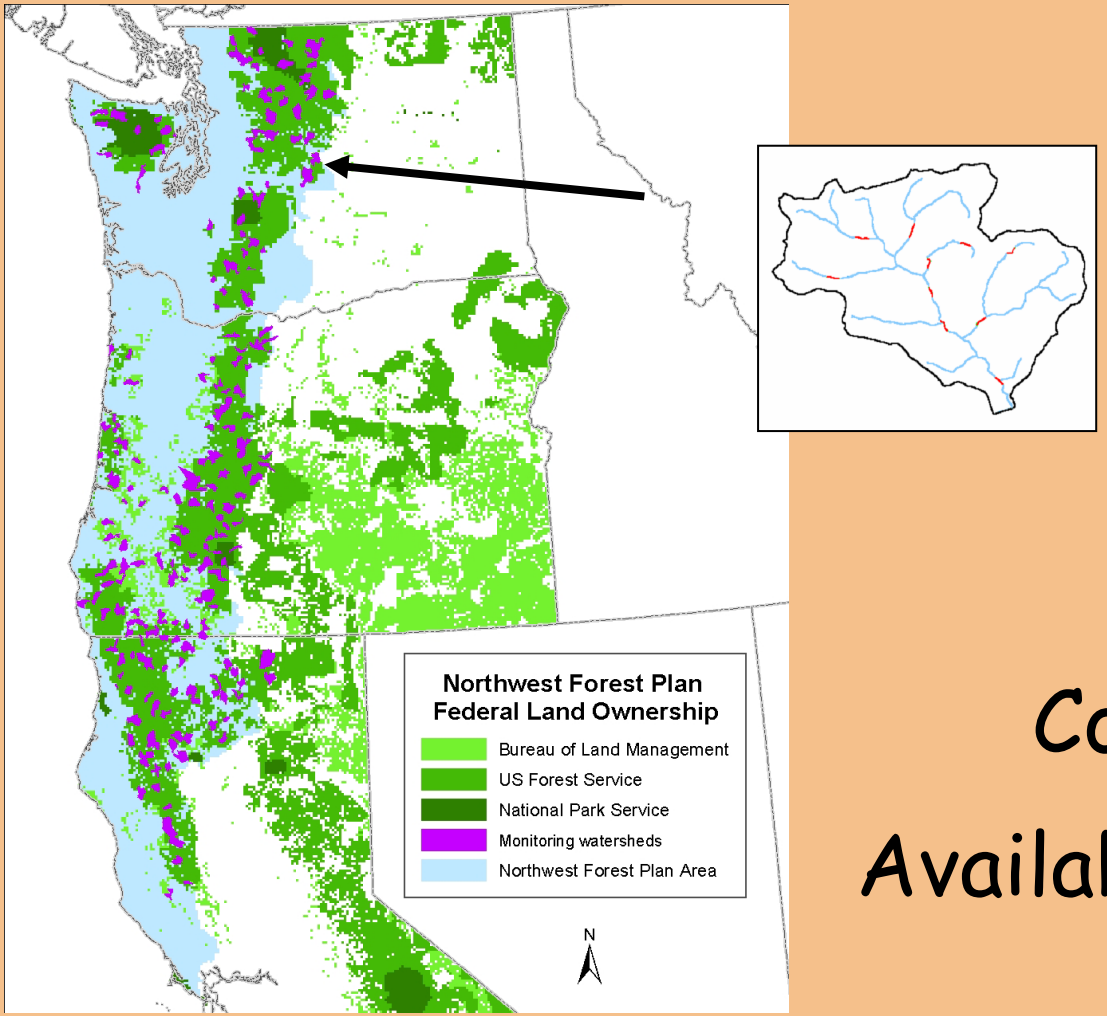
- Can we merge westside and eastside monitoring programs – any cost savings?
- Answer questions being asked at a smaller scale, e.g., Forest or BLM District.
- Be able to share data with state, federal and tribal agencies.



New management questions resulting from…

- Revision of the aquatic conservation strategy
- Forest and land use plan revisions
- Watershed restoration efforts
- Consultation on federally listed fishes

Balancing sampling efforts with limited $$



50 watersheds
x 6 reaches
= 300 reaches/yr

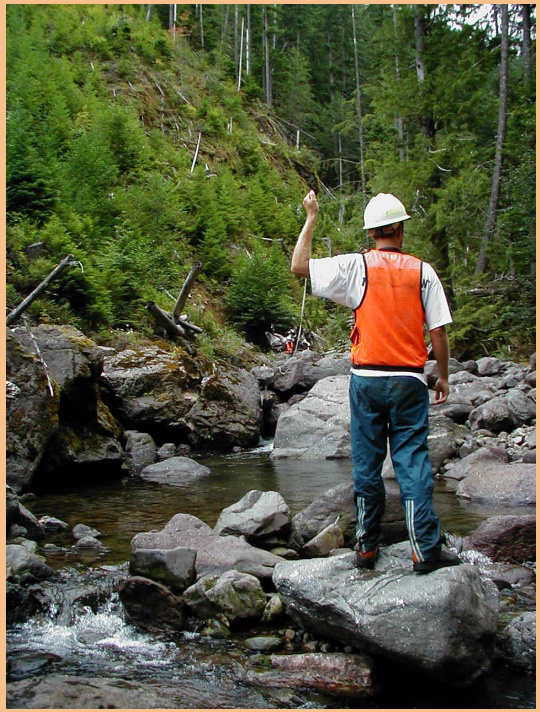
Cost = $2.1 million

Available = $1.0 million

What's the range of options?

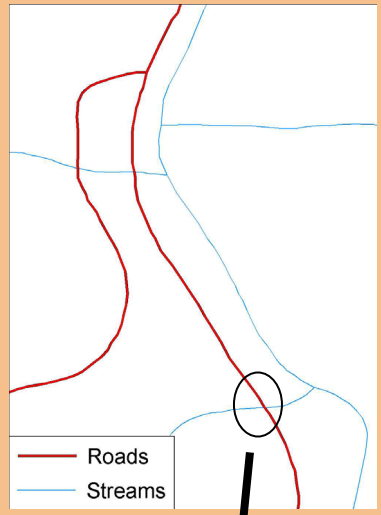
Intensive field sampling program

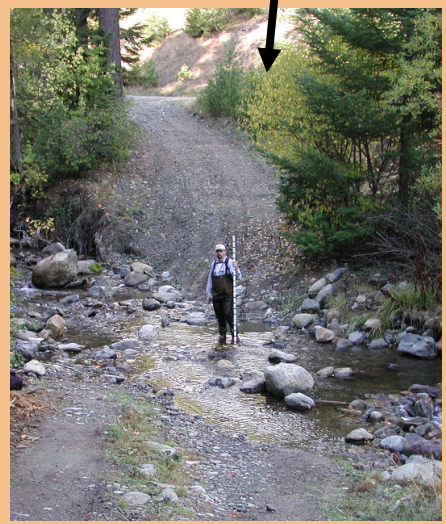
- Pros
  - Continues an established program
  - Able to collect high quality in-channel data
- Cons
  - Expensive and logistically challenging



Extensive sampling program
(Use GIS attributes as surrogates for watershed processes)

- Pros
  - Able to increase sample size of "sampled" watersheds
- Cons
  - Have to spend $$ to improve GIS coverages
  - Have to develop relationships between GIS layers and processes





Incorporate other types of monitoring, e.g., best management practices

- Pros
  - Provides timely feedback
  - Often able to determine "cause"
- Cons
  - Does not contribute directly to assessing watershed condition

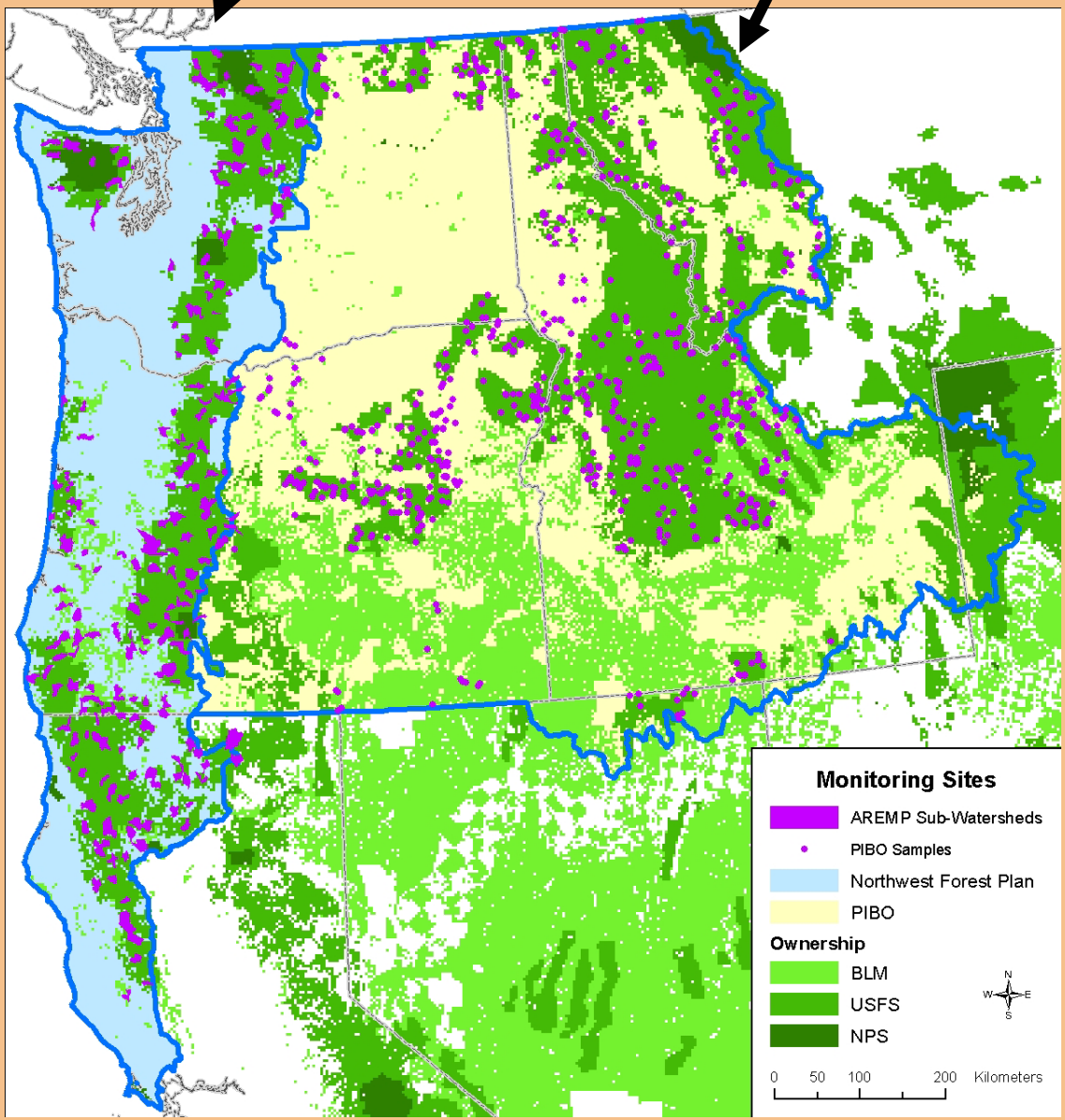
Basic considerations

- Attributes
  - Redundancy
  - Sensitive to change
- What is most cost effective way to collect data?
- How to ensure high data quality?

What's it take to share data?

- Common protocols
- Use a probabilistic sample design
- Common GIS layers

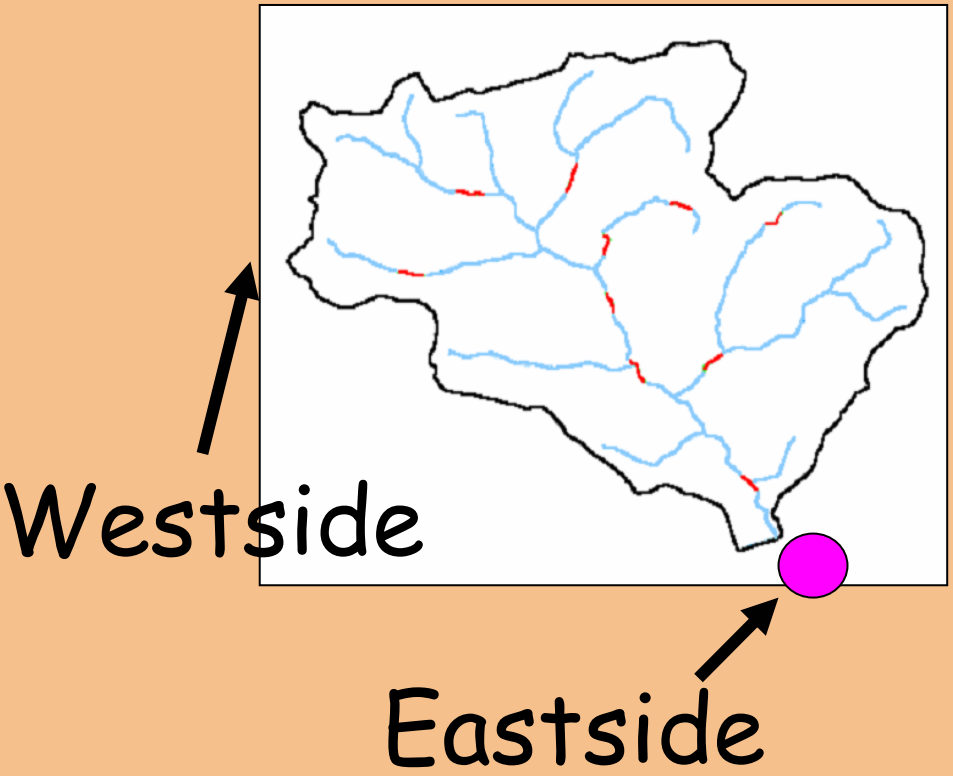
Westside + Eastside?



Westside vs Eastside (in-channel attributes)

	2002	2004
Reach length	Different	**Same**
Gradient	Different	**Same**
Pool definition	Different	**Same**
Pool tail fines	Different	**Same**
Pebble counts	Different	**Same**
Macroinvertebrates	Same	**Same**
Transect layout	Different	**Similar**
Bankfull width	Different	**Common**
Large wood	Different	**Common**

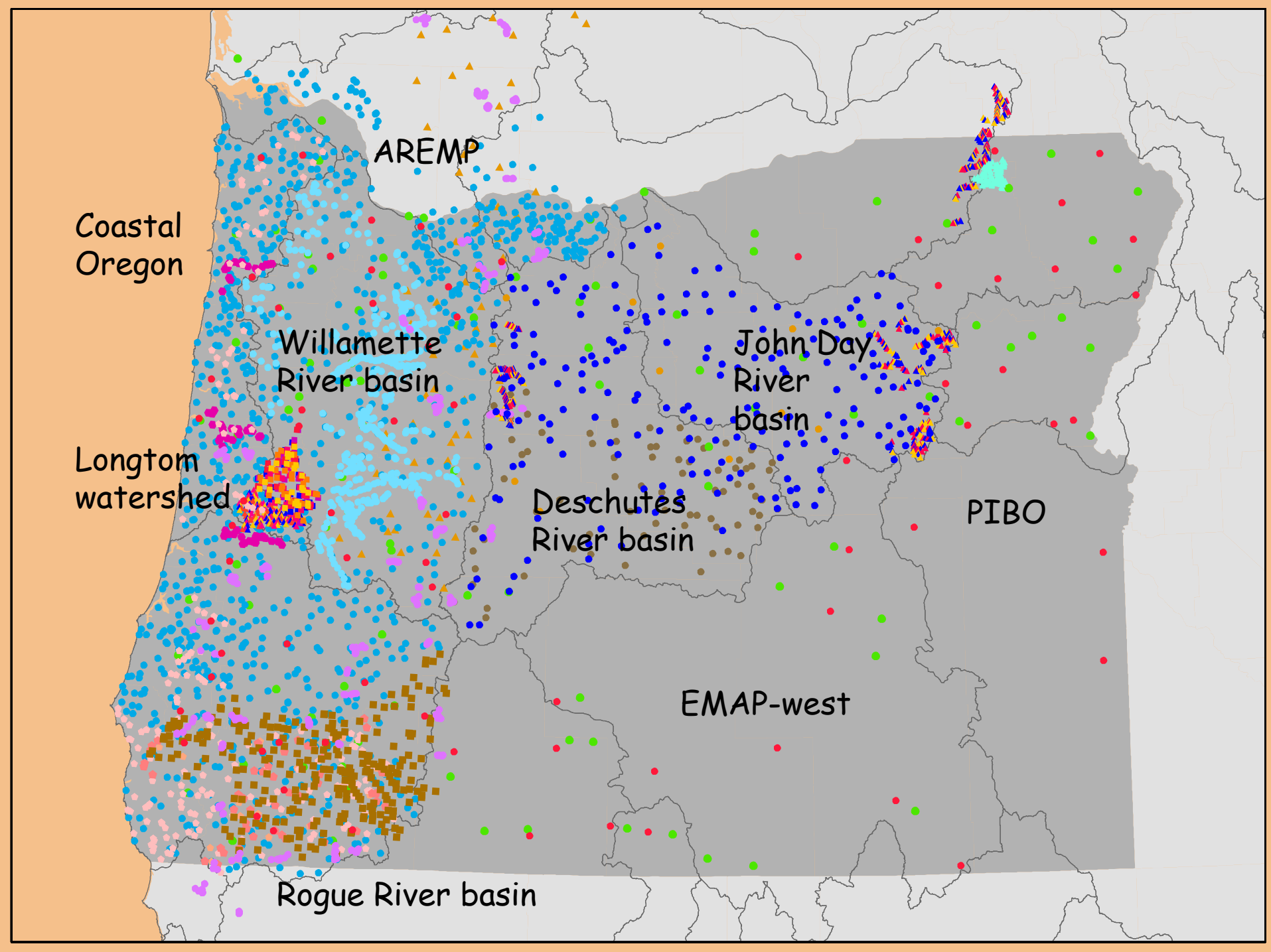
Sample design



Upslope and Riparian Data

- GIS concerns – available coverage and quality of data.
  - Stream GIS layer needs to be improved.
  - Need vegetation maps for the eastside.
  - Complete road layer is unavailable for eastside.

Pacific Northwest Aquatic Monitoring Partnership (PNAMP)


AREMP
Coastal
Oregon
Willamette
River basin
John Day
River
basin
Longtom
watershed
Deschutes
River basin
PIBO
EMAP-west
Rogue River basin

Pacific Northwest Aquatic Monitoring Partnership protocol comparison

	AREMP/ PIBO	OR DEQ	WA DOE	EPA	Columbia River RM&E	USFS stream survey
Pools						
Bankfull						
large wood						
substrate						
aquatic insects						
vegetation						

Same protocol	Different protocol	Not collected

Pacific Northwest Aquatic Monitoring Partnership protocol comparison

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pools						
Bankfull width						
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substrate						
aquatic insects						
vegetation						

"the devil's in the details"

Same protocol	Different protocol	Not collected

Side-by-Side Protocol Test

CA F&G

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

OREGON Fish & Wildlife

UCB

THE CONFEDERATED TRIBES OF THE COLVILLE RESERVATION 1872

Fish & Aquatic Ecology Unit

AREMP

Department of Ecology

RMRS United States Department of Agriculture – Forest Service Rocky Mountain Research Station

DEQ

USDA Forest Service PACIFIC NORTHWEST REGION Stream Inventory and Data Analysis

$$ =

NOAA

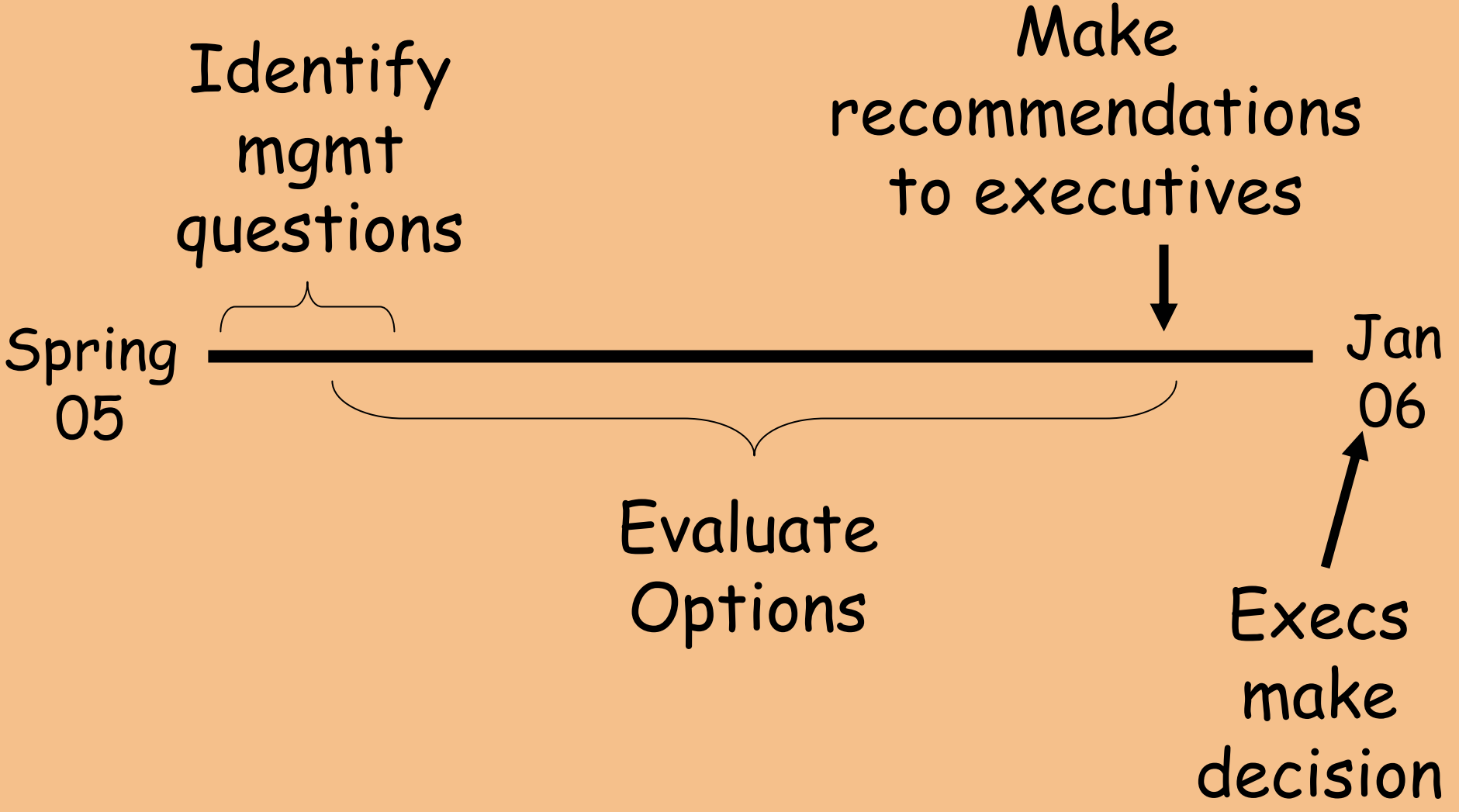
OWEB Oregon Watershed Enhancement Board

U.S. DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION

Bonneville Power Administration

What's next?

Watershed Monitoring Revision Timeline



www.reo.gov/monitoring/10yr-report/

(Draft 10-year assessment of watershed condition is at this website)