

Eastern Washington Riparian  
Assessment Project (EWRAP):  
Phase II

Scientific Advisory Group- Eastside  
(SAGE)

# Background

- This report presents results from Phase II of the Eastern Washington Riparian Assessment Project (EWRAP)
- EWRAP is part of the Eastside Type F Riparian Rule Tool Program in the CMER workplan
- Conducted by Scientific Advisory Group for the Eastside (SAGE)

# Purpose

- Exploratory study
  - Addresses uncertainty about riparian stands managed under the Eastside Type F prescriptions
  - Documents current riparian stand conditions
  - Identifies information gaps for follow-up research
  - Informs the design of future projects to evaluate Eastside Type F riparian prescriptions

# Phase II Objectives

The EWRAP had five objectives:

1. Determine the range and distribution of current riparian stand conditions.
2. Determine the relationship between site characteristics and riparian stand attributes.
3. Determine the effect of proximity to stream on the characteristics of eastside riparian stands.
4. Determine the frequency and distribution of mortality and insect and disease effects in eastern Washington riparian stands.
5. Document management practices and other disturbance factors that affect eastern Washington riparian stands.

# Design

- An unbiased random sample of 102 sites
  - Riparian stands adjacent to eastside fish-bearing streams
  - Managed under the Forest Practices HCP
  - Variety of past forest management, site conditions
- Type of data collected included:
  - Large trees
  - Small trees
  - Understory vegetation
  - Disturbance, damage, disease
  - Site attributes

# Results: Stand Conditions

- Extensive variation in eastside Type F RMZs
  - Stand age ranged from 0 to over 150 years
  - Live large trees ranged from 0 to over 500 TPA and 0 to over 300 ft<sup>2</sup> BAPA, most RMZs had 50-200 TPA and 30-150 ft<sup>2</sup> of BAPA
  - Snags occurred in about 60% of RMZs
  - Species composition was diverse- thirteen conifer and eight broadleaf tree species
  - Conifers occurred in nearly all RMZs, broadleaves in less than half.
  - 13 forest series (8 conifer, 5 broadleaf)
  - Grand Fir and Douglas-fir series were most frequent.

# Results: Site Conditions

- Sites spread across seven GAP ecoregions,
- Elevation ranged from 1,069 to 5,554 ft
- Mean annual precipitation (PRISM model) from 14.3 and 100.5 inches
- Wetlands, rock outcrops and talus, and shrub-steppe vegetation added diversity in the RMZs
- The width of streams ranged from 4 to 112 ft.

# Results: Disturbance and Damage

- Disturbance occurred in 44 of 102 RMZs.
- Most frequent human disturbance was roads (22) and timber harvest (19)
- Recent stand-replacing fire was observed in 6 RMZs
- Evidence of damage from insects, disease and other factors was observed in 72 RMZs, most trees were not affected
- Fungi and disease damage affected 55 RMZs and 10.5% of basal area
- Insect damage in 15 RMZs affected 4.2% of basal area



# Patterns in Riparian Vegetation

- Stand diversity appears to reflect
  - the range of physiographic and climatic conditions in eastern Washington
  - past timber management
  - human and natural disturbance
  - differences in environmental conditions in proximity to the channel
- Regional differences in distribution of forest series
- Differences in riparian vegetation between regulatory zones
  - BAPA and QMD were highest in the Core Zone, decreased in the Inner and Outer Zone and were lowest outside the RMZ.
  - broadleaf trees occurred more frequently in the Core Zone, and Core Zones keyed out to broadleaf and shrub series more frequently than the other zones.
- Soil moisture varied with distance to stream
  - plants indicating wet soil conditions were more prevalent close to the stream
  - extensive variation among sites.

# Results: Forest Series vs. Timber Habitat Type Zones

- The distribution of riparian stands (forest series) did not fit the regulatory timber habitat type (THT) zones.
  - Ponderosa Pine, Douglas-fir, Western Hemlock and Western Red Cedar forest series occurred with similar frequency in the Ponderosa Pine and Mixed Conifer THTs.
- THTs did not differentiate climatic conditions in eastern Washington RMZs.
  - The average mean annual precipitation for sites in the Ponderosa Pine and Mixed Conifer THTs was similar
  - The mean annual precipitation for the Western Hemlock and Douglas-fir series RMZs was slightly higher in the Ponderosa Pine THT than in the Mixed Conifer THT, contrary to the expectation that climate would be drier in the lower elevation zone.
  - There was some indication that this was due to regional differences in precipitation at different elevations.

# Findings Report

1. Does the study inform a rule, numeric target, performance target, or resource objective?
  - Yes. Information relevant to the Timber Habitat Type framework in the eastside Type F prescriptions.
  - Exploratory study- does not evaluate the effectiveness of a rule, performance target or resource objective.
2. Does the study inform the Forest Practices Rules, the Forest Practices Board Manual guidelines, or Schedules L-1 or L-2?
  - This project is related to the Forest Practice Rules for Eastern Washington riparian management zones (WAC 222-30-022\*)
  - Does not evaluate effectiveness of the rules
  - It does characterize current (2006) conditions of riparian stands
3. Was the study carried out pursuant to CMER scientific protocols (i.e. study design, peer review)?
  - Yes. This is an exploratory report. The study design and report were reviewed and approved by SAGE and CMER, but did not receive ISPR review.

# Findings Report (continued)

## 4. What does the study tell us or not tell us?

- The study tells us:
  - distribution of current (2006) riparian conditions adjacent to fish-bearing streams in eastern Washington
  - characteristics of riparian vegetation, presence of insect and disease damage, and occurrence of human and natural disturbances.
  - Regional patterns in riparian stand conditions, and vegetative patterns related to distance from stream.
  - The distribution of riparian stand types by Timber Habitat Type zone
- The study does not tell us:
  - The study does not evaluate the effectiveness of the Forest Practice Rules for Eastern Washington riparian management zones
  - The study does not contain sufficient data to provide a thorough evaluation and validation of the existing Timber Habitat Type System.

# Findings Report (continued)

5. What is the relationship between this study and any others that may be planned, underway, or recently completed?
  - Two follow-up studies have been proposed by SAGE
    - The Eastside Modeling Evaluation Project (EMEP) will use EWRAP stand data to model to future stand conditions over time.
    - The Eastside Timber Habitat Type Validation Project would validate the Timber Habitat Type System (elevation zones)

# Findings Report (continued)

6. What is the scientific basis that underlies the rule, numeric target, performance target, or resource objective that the study informs? How much of an incremental gain in understanding do the study results represent?
  - The Eastside riparian prescriptions are intended to provide stand conditions that vary over time and mimic eastside disturbance regimes within a range that meets functional conditions and maintain general forest health (WAC 222-30-022).
  - There is uncertainty about the scientific basis underlying the rules. No documentation describes how the timber habitat type zones or the basal area ranges were developed.
  - This study does not directly address the uncertainty concerning the scientific basis that underlies the current rules governing eastside Type F waters.
  - It does reduce scientific uncertainty about riparian stand conditions and provides a modest incremental gain in understanding.

# Findings Report (continued)

- **Technical implications and recommendations**

- The study documents the diversity of riparian forests and site conditions managed under the eastside Type F riparian rules.
- It highlights the challenges of developing appropriate management prescriptions and performance targets for riparian forests in an area as large and diverse as Eastern Washington.
- The Timber Habitat Type framework did not consistently sort riparian stands on the basis of forest type (series) or current condition.
- The implications for the eastside Type F riparian prescriptions are unclear.
- If reducing scientific uncertainty about the Timber Habitat Type System is a priority, the report recommends developing a focused study to examine and validate the Timber Habitat Type system.