Western Plant Materials Consortium Workshop

April 26-30, 2010

USDA, ARS, NPA Poisonous Plant Research Unit

1150 East 1400 North Logan, UT

Workshop Topics

Tuesday – April 27

- Welcome
- National Program
- Strategic Planning
    - Assessing Program Needs – What is working and how can we improve, are we working on the right issues, is the PM program reactive or proactive?
        - Collaborative face to face meeting approach
        - Comprehensive survey approach
    - Technology Transfer – Maintaining and improving connectivity to FO. – Is the PM program building and providing the right products, what are barriers?
        - How adults learn presentation
        - How do people get information today/trends
        - Field Office streamlining initiative
    - Resource Issues – Role and Opportunities for PMCs
        - Air Quality
        - Pollinators
        - T&E species, sagegrouse, and other wildlife issues
        - Biofuels
        - National Park Service reimbursables
    - Plant collection, selection, release, and use strategies
        - Assisted evolution approach
        - Genetic analysis approach
        - South Texas PMC *(Kingsville)* plant collection, selection, and release development
        - Hawaii PMC approach for plant collection, selection, and release development
        - Idaho approach for plant collection, selection, and release

Wednesday – April 28

- PMC Presentations – Provide overview of PMC, its service area, priorities, species being collected for future studies, summarize current species under evaluation, stage of selection process, identify recent *(within 3 years)* and planned future releases
- ARS Presentations
    - Introduction to the FRRL
    - A summary of plant collection activities by the FRRL
    - Grass germplasm developed by the FRRL between 1980-present
    - The potential of legume germplasm for rangelands
    - The potential of forage kochia for rangelands

- Pollinating Insect Laboratory Overview
- Poisonous Plant Laboratory Overview
- Tours
  - Poisonous Plant Laboratory
  - Pollinating Insect Laboratory
  - Forage and Range Laboratory

Thursday – April 29

- Development of seed transfer zones and plant development protocols to maximize adaptability to changing ecosystems. What should be PMC approach and what are needed tools to gets us there?
  - Identify potential joint activities *(meetings, plant material exchange, planned plant collections, etc.)* to improve efficiencies and service
    - NM, CO, AZ, CA, OR, HI PMC's – *Group*
    - ID, NV, WA, MT, AK PMC's – *Group*
- PMS roles and responsibilities – Changing paradigms, how is this function provided with reduced budgets and staff?
- PM open discussion, concerns, proposals, etc. – *Group*
- Sampling/evaluation methods – improving quality and reducing Experimental error
  - Evaluations to meet Conservation Standards criteria
  - Tools/procedures for improving quality and efficiency of field measurements
- Making documents 508 compliant, *(demo and Q&A)*
- How to set up and conduct net meetings
- Farm Management software – opportunities to improve efficiencies

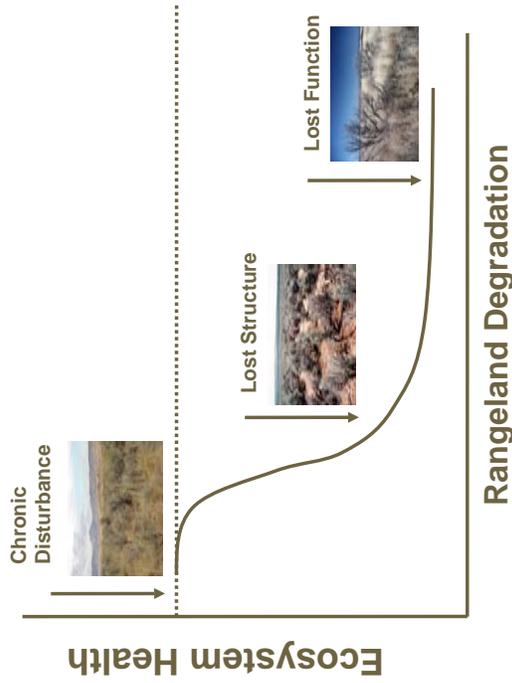Ecology discussions in Greenhouse *(see Ecology handout on next page)*
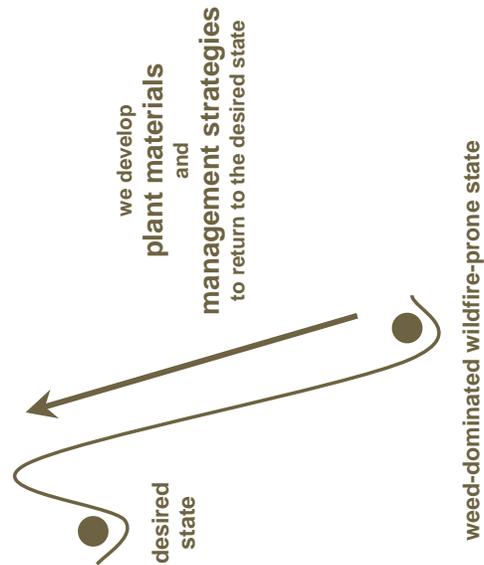

Interactive classroom discussions

ECOSYSTEM STRUCTURE AND FUNCTION

Chronic Disturbance

Lost Structure

Lost Function

Ecosystem Health

Rangeland Degradation

Scaling the importance of traits

functional plant traits

functional plant materials

functional plant communities

functional ecosystems

VISION

To develop plant materials and ecological applications to improve weed- and fire-resistance of rangelands

---

ECOLOGICAL RESTORATION
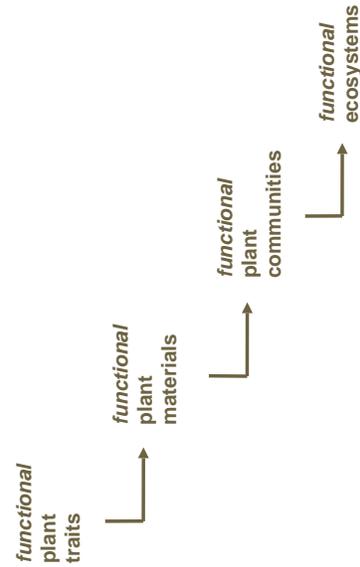
we develop
plant materials
and
management strategies
to return to the desired state

desired state

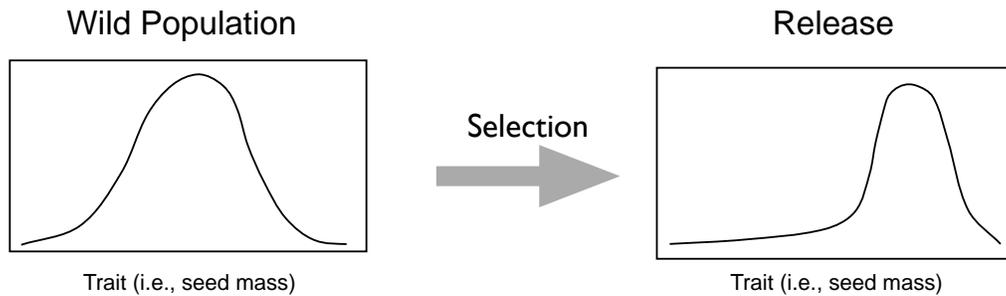weed-dominated wildfire-prone state

---

Thomas A. Monaco · Scientist
Forage and Range Research Laboratory · USDA-ARS · 6300 Old Main Hill · Logan, UT 84321
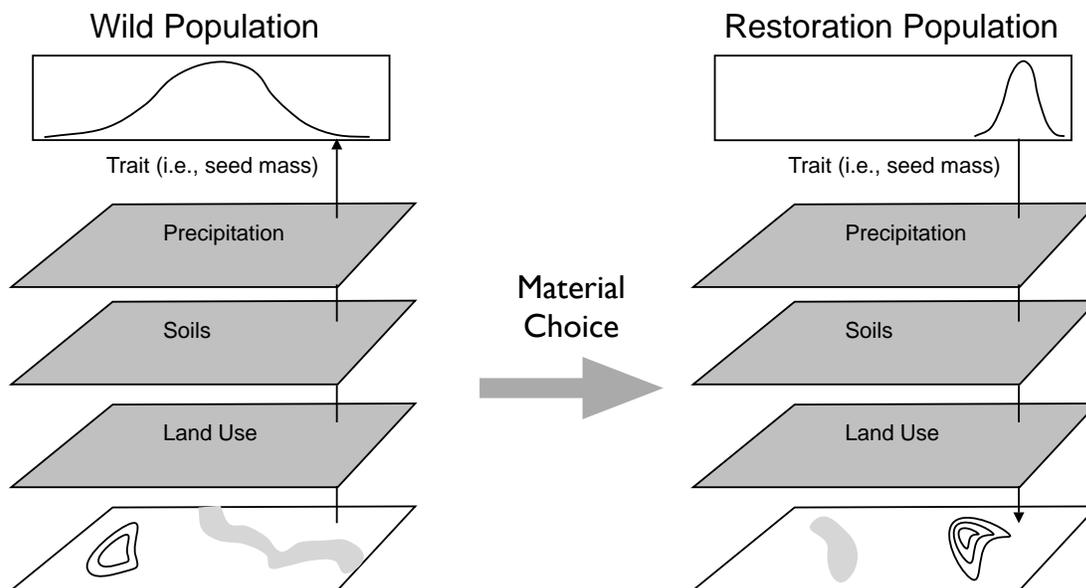tom.monaco@ars.usda.gov

Plant Traits on the Landscape

1. How have traits changed with use of developed plant materials? What traits are available?

Wild Population

Release

Selection

Trait (i.e., seed mass)

Trait (i.e., seed mass)

Selection for one trait alters other traits and a more narrow trait distribution exists in released material than wild populations. We compare traits in wild and released material and determine how trait distributions are currently changing on the landscape.

2. Matching traits to landscapes and site conditions.

Wild Population

Restoration Population

Trait (i.e., seed mass)

Trait (i.e., seed mass)

Precipitation

Precipitation

Material Choice

Soils

Soils

Land Use

Land Use

Restoration will be most successful when plant materials are matched to landscapes. We quantify traits in intact ecosystems and choose restoration materials with traits that most closely match.

A. Joshua Leffler · Research Associate
Forage and Range Research Laboratory · USDA-ARS · 6300 Old Main Hill · Logan, UT 84321
jleffler@cc.usu.edu