Restoration Assessment and Monitoring Program for the Southwest (RAMPS)

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Restoration Assessment and Monitoring Program for the Southwest (RAMPS)

Drylands in the southwestern U.S. have been disturbed and face global change pressures that create land degradation.

Restoration practices are critically needed to promote recovery from disturbance, improve the health and integrity of drylands, and ensure the long-term sustainability of ecosystem services.
The Southwest is experiencing rapid growth

Source: USGCRP

Population Change in Percent

- < -50%
- -49 - -1%
- 0 - 49%
- 50 - 99%
- 100 - 249%
- 250 - 499%
- > 500%

Source: USGCRP
The Southwest is a hotspot for climate change


Seager et al. Science 2007
Restoration – a moving target?

“The usefulness of historical ecosystem conditions as targets and references must be set against the likelihood that restoring these historic ecosystems is unlikely to be easy, or even possible, in the changed biophysical conditions of the future” (Harris et al., Res Ecol 2006)
The Southwest has abundant federal lands

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<thead>
<tr>
<th>State</th>
<th>BLM</th>
<th>BOR</th>
<th>DOD</th>
<th>FS</th>
<th>FWS</th>
<th>NPS</th>
<th>Other</th>
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</thead>
<tbody>
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<td>Arizona</td>
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<td>4%</td>
<td>11%</td>
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<td>California</td>
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<td>11%</td>
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<tr>
<td>SOUTHWEST TOTAL</td>
<td>68%</td>
<td>39%</td>
<td>58%</td>
<td>36%</td>
<td>40%</td>
<td>51%</td>
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The mission of RAMPS is to strengthen restoration strategies and outcomes executed by DOI and other agencies in the southwestern U.S. by providing science and guidance on effective restoration practices.

RAMPS is coordinated at the USGS-Southwest Biological Science Center and composed of a consortium of scientists, managers, and practitioners with dryland restoration expertise.
Grasslands, shrublands, and low-elevation woodlands & forests that are water-limited.

- Colorado Plateau
- Sonoran Desert
- Chihuahuan Desert
- Mojave Desert
- Adjoining forests/woodlands/riparian areas

Locations where managers currently have low restoration success.
RAMPS Collaborators
Network of Scientists – Managers – Practitioners

Contact: smunson@usgs.gov
RAMPS ↔ DOI

Provide timely, well-informed, and effective restoration strategies

Serves several current DOI strategies, plans, and orders

- Mitigating negative impacts to DOI resources at landscape scales (DOI Mitigation Policy, Sec. Order 3330; Clement et al. 2014);

- Conserving rangeland habitat in the West for wildlife species and economic activity (DOI Integrated Rangeland Fire Management Strategy, Sec. Order 3336);

- Ensuring the availability of genetically appropriate seed to restore viable and productive plant communities and sustainable ecosystems (National Seed Strategy);

- Understanding and preventing the loss of habitat for pollinators (Presidential Pollinator Research Action Plan)

- Supporting climate-resilient investments (Presidential Climate Action Plan)

- Considering ecosystem services in federal decision-making (Presidential Memorandum on Ecosystem Services).
Restoration Assessment and Monitoring Program for the Southwest

- Status and Trends
- Climate & Land Use
  - CSCs, LCCs
- Environments
  - Priority Ecosystems
- Wildlife
- Invasive Species
- Renewable Energy
- Fire
- TES Species
  - Plants
  - Animals
- Landscape Science
RAMPS Objectives

Mission: provide scientifically credible research and management-relevant information in support of five primary objectives. (Future objectives will be developed by RAMPS collaborators to meet growing research needs.)

1. Synthesize restoration assessments and monitoring results to identify best management practices for successful restoration in the arid conditions of the Southwest
Synthesize scientific and management records of restoration treatments
Identify where restoration treatment efforts have succeeded and failed due to biophysical characteristics and management practices.
2. Provide decision-support tools to inform when and where environmental conditions are likely to be suitable for restoration.

Uses short-term forecasts from:

[Map of soil moisture showing probability of seeds having adequate water for successful establishment]

2. Provide decision-support tools to inform when and where environmental conditions are likely to be suitable for restoration.

See Brad Butterfield’s talk at 3:55p today!
3. Develop and disseminate information for deciding locally appropriate seed mixes and native plant materials
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Native Plant Materials Development Program

Copeland, S.M. et al., In Prep
4. Assess the benefits/outcomes of restoration practices relative to their costs

- 9,000 acres
  - < 2 weeks with 2 helicopters, ~$382,000
  - 25 – 35% decrease in Bromus cover

- > 1 year with 10-person ground crew, ~$750,000
  - 40 – 70% decrease in Bromus cover
5. Create frameworks and tools that support monitoring of restoration treatments
What can you get out of RAMPS?

- Access to program coordinator
- Participate in early synthesis activities
- Help decide future directions
- Access information on best restoration practices

What do you have to do to be a part of RAMPS?

- Share data/participate in focus groups
- Take part in infrequent calls
- Help coordinator know of your ongoing work/needs
RAMPS Consortium

**USGS:** Southwest Biological Science Center, Forest and Rangeland Ecosystem Science Center, Western Ecological Research Center, Fort Collins Science Center, Western Geographic Science Center

**DOI:** National Park Service, Bureau of Land Management, US Fish and Wildlife Service, Tribes (Navajo Nation)

**USDA:** Agricultural Research Service, U.S. Forest Service

**Universities:** Northern Arizona University, University of Nevada – Las Vegas, University of Colorado – Boulder, University of California – Davis

**Other:** Department of Defense, Chicago Botanical Garden

Support for RAMPS is provided by the USGS Ecosystems Mission Area

Please contact us if you’re interested in being apart of RAMPS!

Contact: Seth Munson  928-523-7740  smunson@usgs.gov