

Why RAMPS?

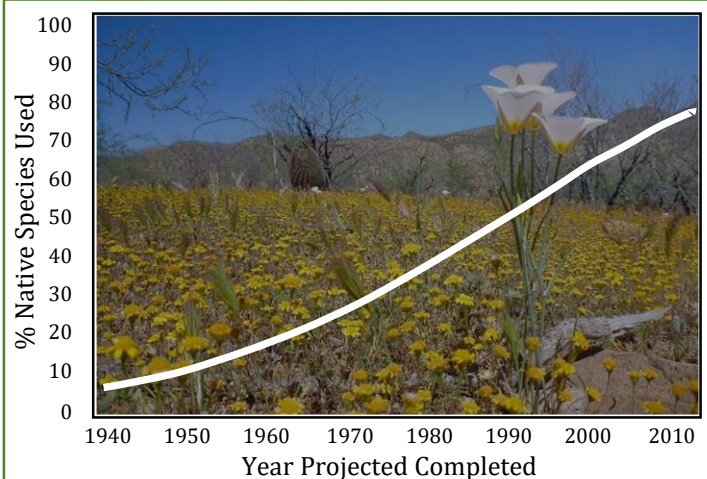
The Restoration Assessment and Monitoring Program for the Southwest (RAMPS) seeks to assist U.S. Department of the Interior (DOI) and other land management agencies in developing successful treatment activities, such as restoration, mitigation, rehabilitation, and land enhancement. Invasion by non-native species, wildfire, drought, and other disturbances are growing rapidly in extent and frequency, creating novel ecosystem states and transitions that create challenging conditions for land managers. These growing problems often cross administrative boundaries, requiring agencies to proactively work together. Managers can greatly benefit from collaborative, innovative, and dynamic approaches to transmit and receive information on the most effective and resource-efficient approaches to enhance land condition. In order to meet this management need, RAMPS has created a hub for information, science, and tools needed to successfully restore degraded areas. RAMPS is an interdisciplinary network of scientists, land managers, and practitioners coordinated at the Southwest Biological Science Center that uses service-delivery models to improve restoration strategies and outcomes.



Map showing the desert ecosystems that are part of the RAMPS network: Colorado Plateau, Mojave, Sonoran, and Chihuahuan. (Image credit: Google Maps)



Loss of perennial grass cover and increased soil erosion have decreased productivity in southwestern landscapes. Costs for land treatments have been increasing over time, while results may not be fully mitigating the disturbance and increasing productivity over time. (Photo credit: Molly McCormick, USGS)



The use of native seeds in Bureau of Land Management land treatments has been increasing (as illustrated by the white trendline in the figure above). How are land managers making choices about which seeds, which source locations, which seed producer, which destinations, which seeding technique to use? RAMPS conducts experiments, synthesizes data, and packages information that provides guidance for these decisions to increase seeding establishment in a variety of conditions. Figure modified from Copeland et al. (2017). (Photo credit: Molly McCormick, USGS)

What are the RAMPS activities?

Data synthesis: There is a lack of land treatment, restoration, mitigation, and enhancement data and results that provide managers and practitioners with information about successes and failures that could enhance the effectiveness of subsequent efforts. Learning from successful approaches and replicating those approaches will streamline the decision-making process and enhance outcomes.

Cost-benefit analysis: Cost effectiveness in management and intervention efforts is of primary concern to management agencies and organizations that have limited resources to conduct treatments. Evaluation of projects needs to consider both costs and meeting desired outcomes.

Plant materials guidance: Deciding on appropriate plant materials (seeds, container plants, or cuttings) can be difficult given the potential limited supply of materials and scientific knowledge of appropriate seed transfer zones for species. Access to seed selection tools, lack of plant materials producers, and the latest research on plant materials can improve land enhancement outcomes.

Monitoring protocols: Restoration and rehabilitation treatments are frequently conducted to conform to environmental laws and regulations, but are often lacking an effective monitoring framework to determine if treatments have been successful in recovering desirable plant, soil, and ecosystem properties. Development of monitoring protocols will increase accountability, create data that can be shared and analyzed on a landscape scale, improve planning and implementation, provide guidance to support effective land treatments, and save money over time by avoiding ineffective treatment practices.

Field trial network: Systematic experimental sites that will synthesize existing knowledge on land treatments and test new methods can improve restoration outcomes.

Community of practice: Strengthening a community of practice or knowledge sharing amongst stakeholders who provide land enhancement services will inform the work of RAMPS from the ground-up. This will increase social capital and adaptive capacity within the community.



No land manager or practitioner, whether within DOI, state, tribal, or private lands should be limited by information, tools, guidance, or peer support. By participating in the RAMPS network, we can work together to enhance landscape productivity and reduce risks posed by invasive species, wildfire, bare ground, and eroding soils across the Southwest. (Photo credit: Molly McCormick, USGS)

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Visit the RAMPS website for more information:
<https://usgs.gov/sbsc/ramps>