

Restoring the Sagebrush Ecosystem

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Scale and Opportunity



The Restoration Problem

A Massive Problem

In the western U.S., over



are invaded with exotic annual grasses — an area the size of Oregon.

A Devastating Cycle

Exotic annual grasses invade disturbed rangelands and form continuous dry fuels...



...that feed catastrophic wildfires, opening even more acres to invasion.

Rising Costs

Over the past 20 years, the Bureau of Land Management has spent over



purchasing seed, largely for post-fire restoration.

Unaffordable Success

10% — As few as ten percent of restoration projects are successful.



While the cost of seeding one acre might be \$100, the price to *successfully* restore that acre could be ten times higher.

Changing the Restoration Equation

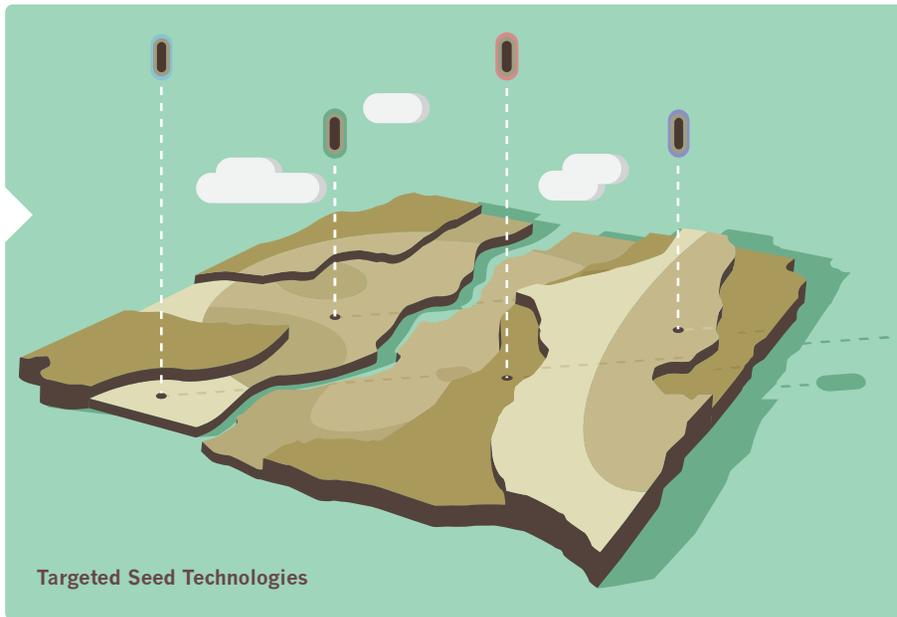
What is Precision Restoration?

Precision Restoration combines a



to match the right technology to the right location.

Learn more:
<http://www.nature.org/oregon/breakthrough>
<http://oregonstate.edu/dept/eoarc/>



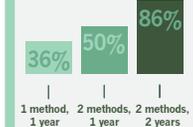
Targeted Seed Technologies

Bet Hedging



Land managers can increase their odds of success by hedging their bets and seeding multiple ways at once.

Combining Seeding Options Improves Chance of Success



See Davies et al. 2017

A Theory for Change

1. Improve Restoration Success

High failure rates leave a lot of room for improvement. Even small advances can lead to dramatically more success.

2. Lower Restoration Costs

Successful restoration is less expensive restoration, leaving managers with money and seed to invest in other priorities.

3. Break the Annual Grass-Fire Cycle

More effective, affordable restoration reclaims more acres of degraded rangeland.

4. Restore the Range

Our best protection against invasion is healthy rangeland. Successful restoration leads to ecosystem resilience.