

Southwest Seed Partnership

Melanie Gisler & Cameron Weber, Institute for Applied Ecology

Kathryn Kennedy, US Forest Service Southwest Region

Zoe Davidson, New Mexico Bureau of Land Management

Thank you to Ella Samuel and partners





I. Impetus for Seed Partnership

Wildfire aftermath

Bare ground -major issue for SW
Too extensive for single organization to cover seed needs
Crosses land ownership







9-12-2013
Wendell L. Malone
Dark Canyon Arroyo

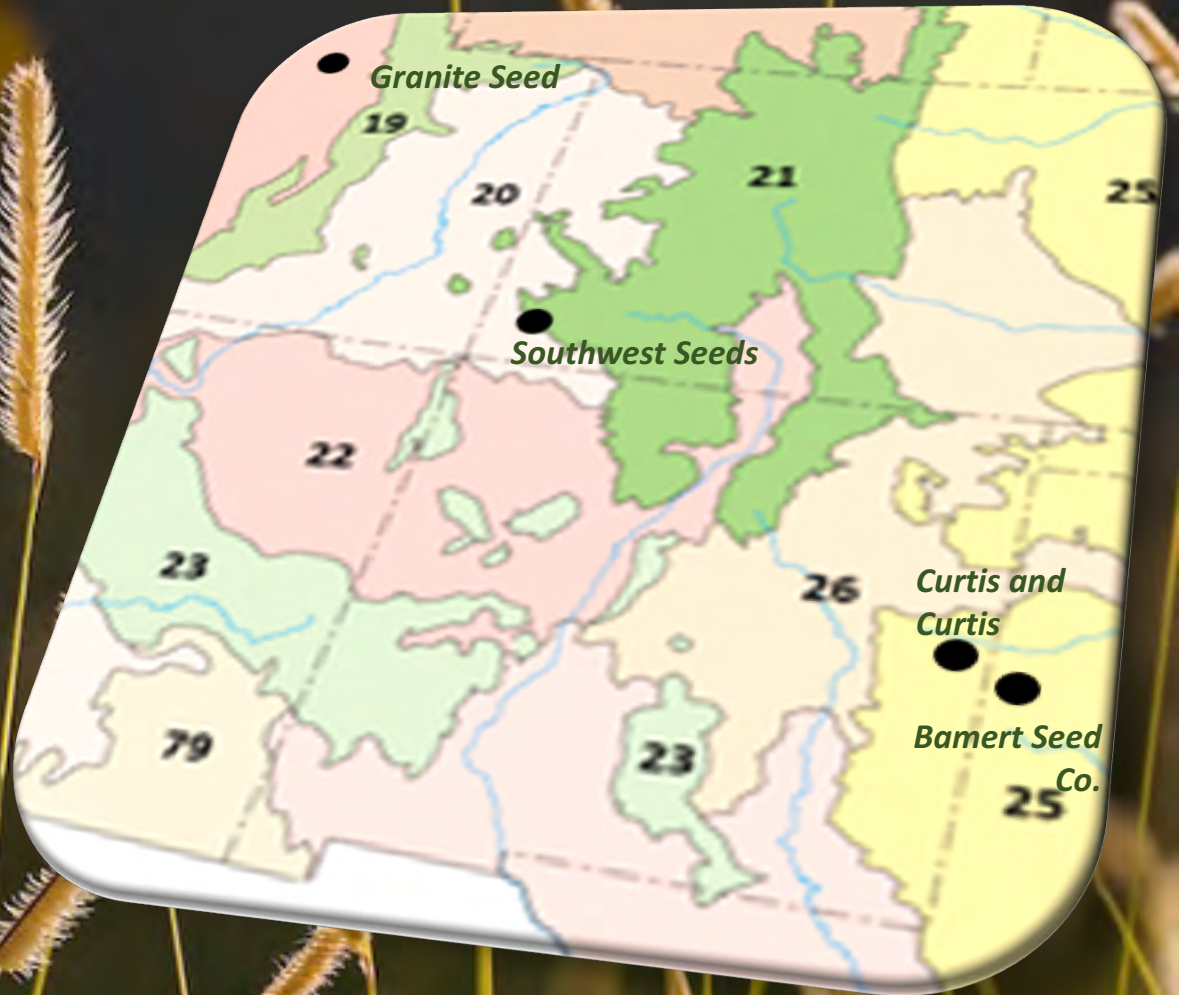
Adios seed bank

- Locally adapted seed
- High genetic diversity
- Species diversity



Commercial sources of native seed in SW

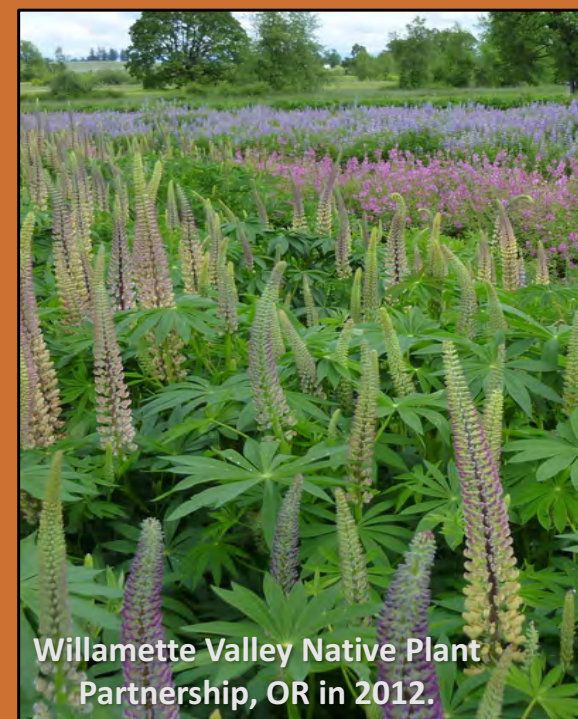
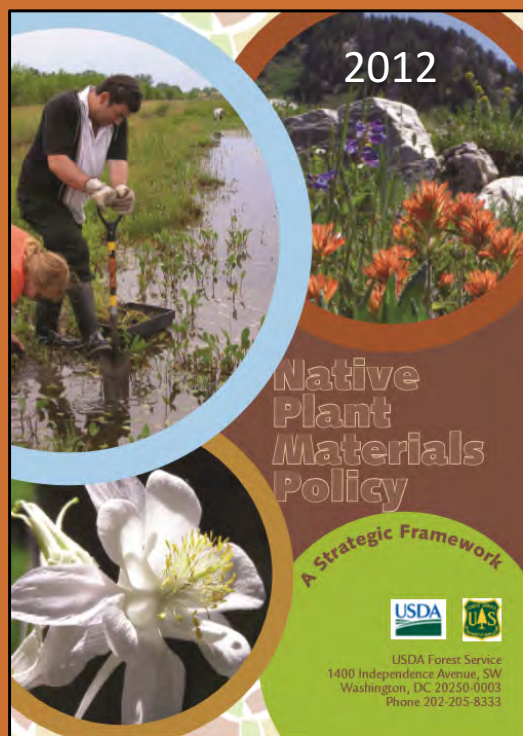
- Few producers
- Seed from outside region
- Cultivars (lower genetic diversity)



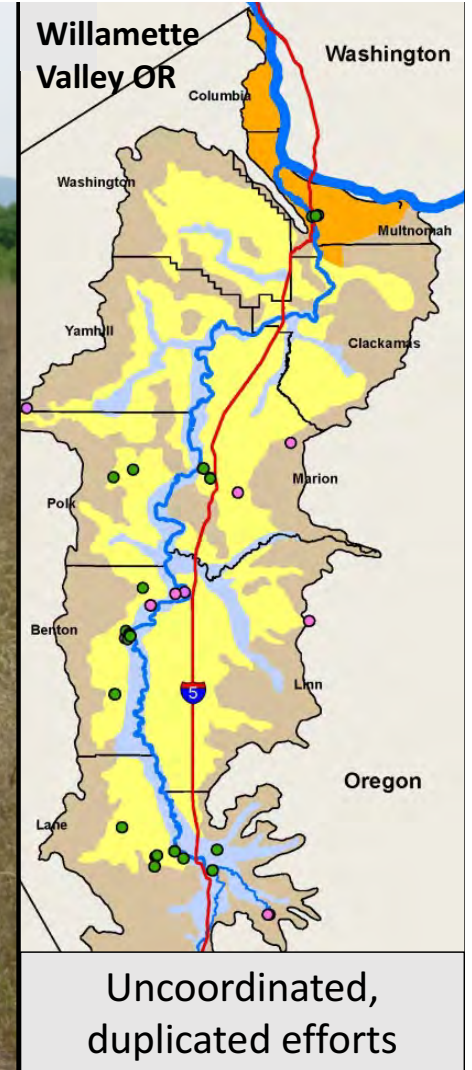
II. History of Partnership

Initiated October 2015

More seed & better seed & program



15 years ago

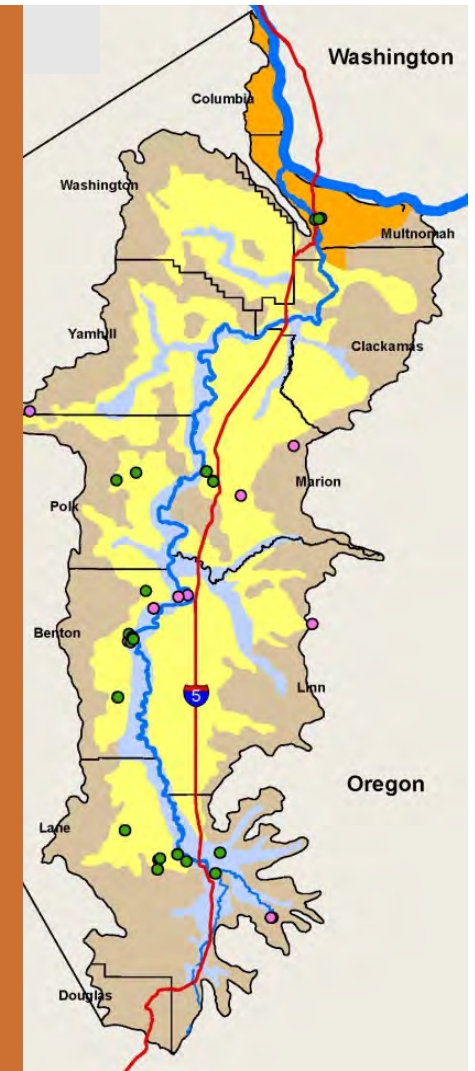


Willamette Valley Plant Materials Partnership



30 partners
Signed MOU
Pool resources for coordination, collection, production
50 species in production

Corvallis Plant Materials Center



Southwest Seed Partnership

National and Regional

Forest Service R3
Bureau of Land Management
Institute for Applied Ecology
National Park Service
US Fish and Wildlife Service
Natural Resources Conservation Service

New Mexico

Quivira Coalition
NM Department of Transportation
NM Land Conservancy
Pueblo of Santa Ana
NM Dept. of Energy Minerals and Natural Resources
NM Game and Fish

Arizona

Verde Valley Native Plant Materials Partnership
Borderlands Restoration



III. Primary Purpose of Partnership and What We Do



Implement National Seed Strategy

National Strategy Goals



SW Seed Partnership Steps



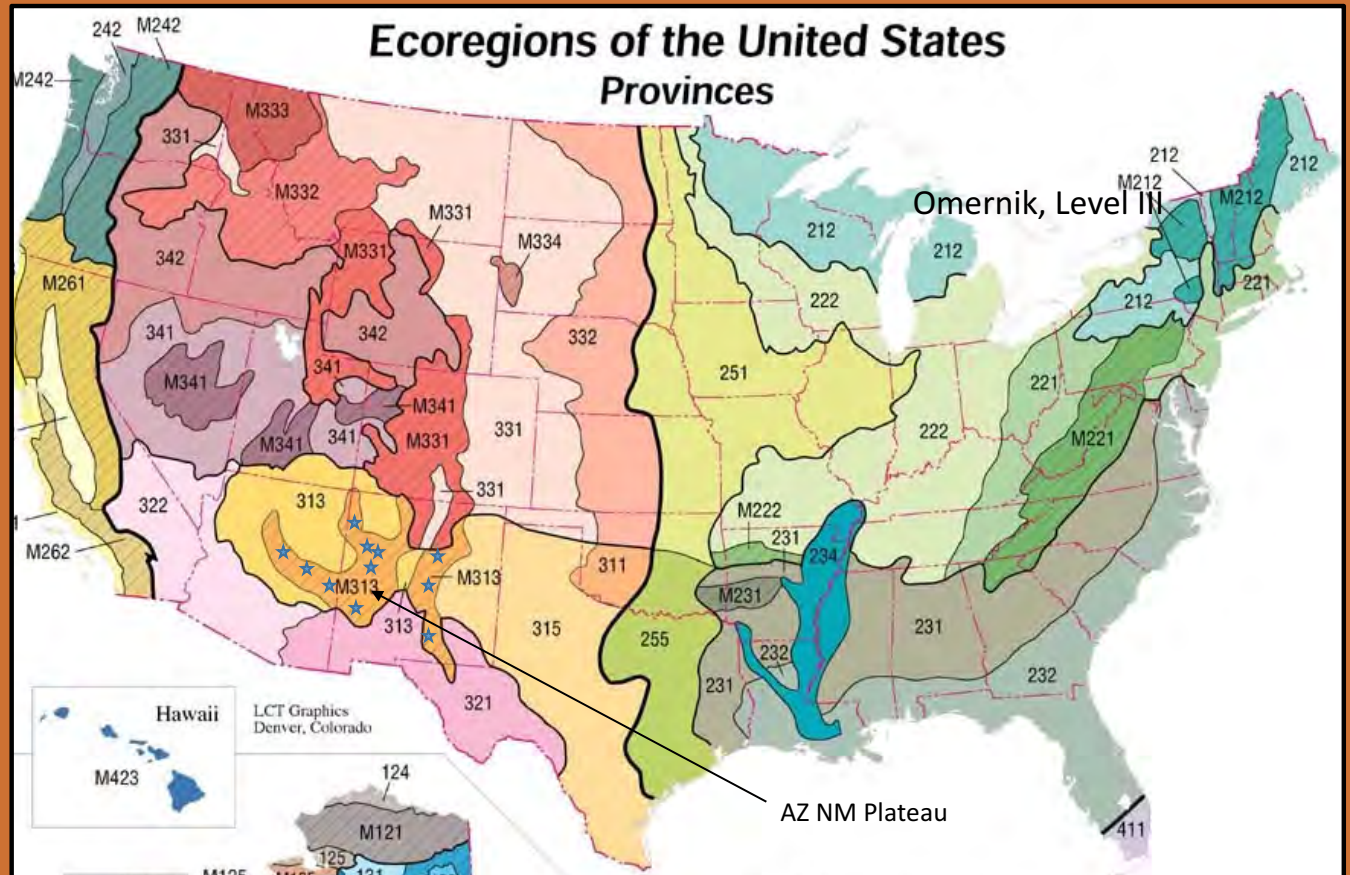
1. Assessments and prioritization
2. Seed collection and tracking
3. Accessions based on science
4. Production
5. Collaboration and coordination

ASSESSMENTS

Step 1

Determine Geographic Priorities

Which ecoregions have the
greatest demand for seed?



Step 2

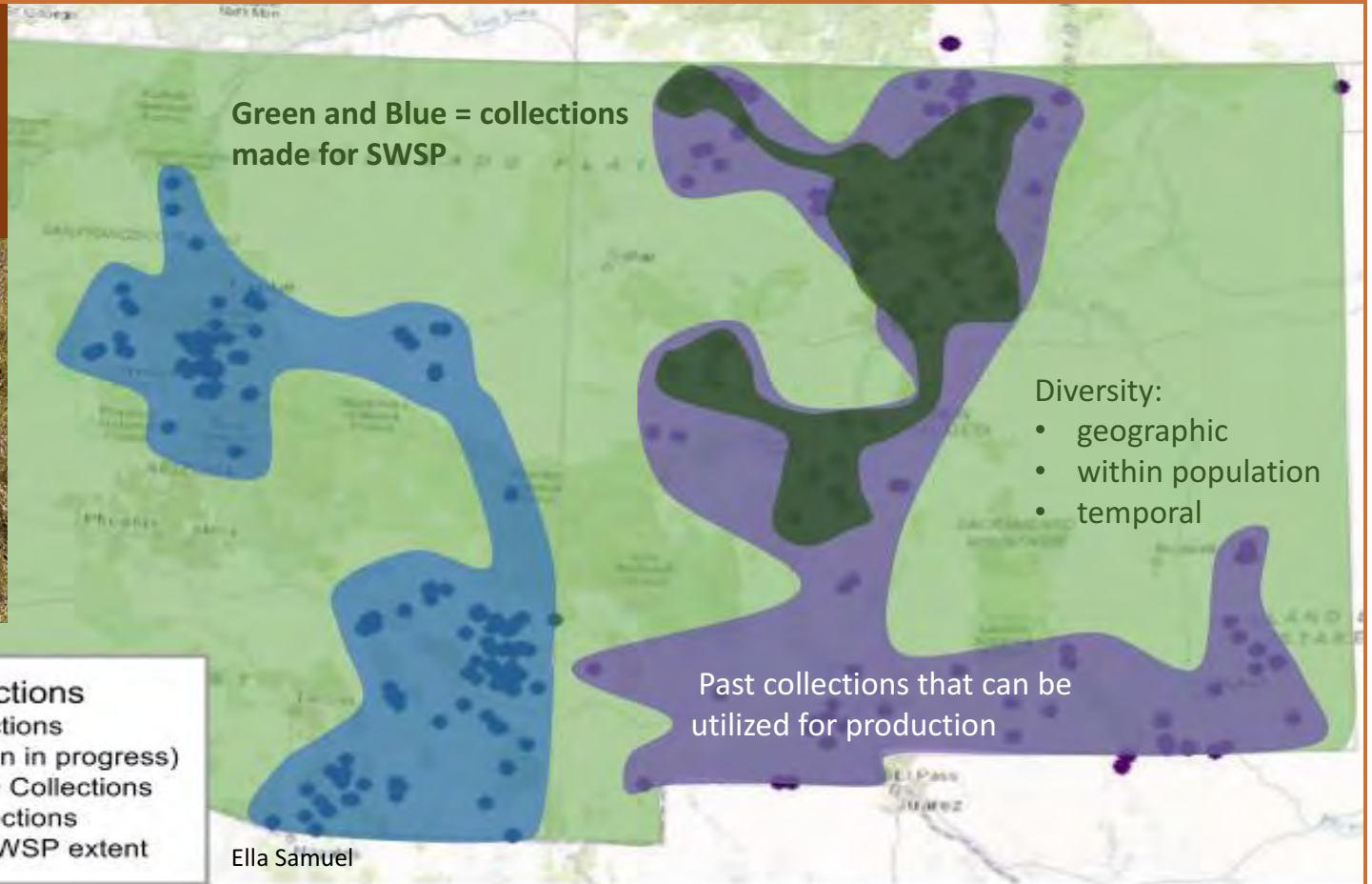
Identify Target Species

Species in demand?

Desired attributes?



Step 3 Collect Seed



2016 Seed Crew 5 Partner Collaboration

NM
Forest Service R3
NM Bureau of Land Management
National Park Service
Institute for Applied Ecology

AZ
Verde Watershed Plant Materials Program



6 ecoregions, >200 populations from 62 species
Cover 2 program needs: SOS and SWSP

Step 4 Track Seed

The screenshot shows a Microsoft Access database window with a table named 'Collection Record'. The table contains the following data:

CollectionID	Collection Date	Species	Site Name	Green (taken seed)	Herbar (and sporophore if applicable)	Population size	How was population sampled?
1152							
1163							
1089			Meadow Lake Road	roadside		100s	20%
1072	6/24/2009		Felix Green	upland		1,000	175 collected
1110		ACM					
1136		ACM	Hazel Dell				
224	8/16/2005	ACM	Wilamette Narrows	steep slope along river, up			
797	7/30/2007	ACM	Balslet Slough	upland prairie	700	70	
808	7/31/2007	ACM	Bassett Park	upland prairie	1000	90	
803	8/2/2007	ACM	Dairy Farms	upland prairie	15	100%	
815	8/3/2007	ACM	Dairy Hill	upland/river prairie	80	30%	
807	8/3/2007	ACM	Kulling	upland prairie	300	80%	
818	8/13/2007	ACM	Canopus Preserve	upland prairie/rocky outcrop	150	80%	
817	8/13/2007	ACM	Hill	Wetland prairie	80	100%	
819	8/14/2007	ACM	Crowe	upland prairie	80	100%	
843	8/14/2007	ACM	Shore Road	prairie prairie habitat, potential old run			
301	7/12/2007	ALAM	Wilamette Narrows	exposed, grassy, rocky outcropping	300	100	
789	7/13/2007	ALAM	Kingsley Prairie	wet prairie	2000	70	
787	7/13/2007	ALAM	Sublety Prairie	wet prairie	10000	80	
1000	7/15/2008	ALAM	Sublety Prairie	wet prairie	85	80%	
1033	7/15/2008	ALAM	Thomas Creek & Hwy 226	wet prairie	25	100%	
1007	7/17/2008	ALAM	Collins	roadside	20	100%	
985	7/17/2008	ALAM	Cuddeback	wet prairie	large	60%	
1009	8/17/2008	ALAM	Pitch	wet prairie	300	100%	
996	7/25/2008	ALAM	Sweet Grass Farm	upland prairie	50	100%	
1024	9/24/2008	ALAM	Speedway	wet prairie	500	50%	
1054	7/1/2009	ALAM	Allen and Allen	wet prairie	5,000	1050 collected	
1038	7/2/2009	ALAM	Sublety Prairie	wet prairie	10,000	10%	
1005	7/3/2009	ALAM	Kingsley Prairie	wet prairie	200	5% of pop in 100 corner of site	
233	8/18/2005	ASSP	E.E. Wilson	roadside	1000	sampled ripe pods - 9 pods	
256	8/31/2005	ASSP	Balslet Slough	roadside	1000		



Can we share databases with partners or make data cross walks?

BUILD ACCESSIONS BASED ON SCIENCE

Step 5
Determine seed zones
Balance genetic contributions



PRODUCTION

Step 6

Production 2017 NM & AZ

Contracting 4-10 small to
medium-sized test fields

Matrix grasses, pollinator
resource plants, annual



COLLABORATION AND COORDINATION

Steps 1-7

Check-in meetings w/core partners (4x/month)

Stakeholder Meeting
(1x/year) April 26, 2017, ABQ

Committees

Steering

Grower Advisory

Seed Quality

Species Selection



IV. Critical assessment of what we are lacking

Lack: SW producers. Experience and appropriate farm equipment for native species production.



Solution

- Outreach - make case to farmers to convert other ag crops to native
- Native species require less water (water shortages in SW)
- Listen to and respond to needs, offer training, and involve in R & D

Farming for Restoration

Demand for native seed is increasing, but few farmers in New Mexico and Arizona are producing this crop. Diverse, locally-adapted material is especially valuable and missing from the market. In response to regional restoration needs, the Southwest Seed Partnership seeks farmers who want to grow native seed. We are working to support an emerging native seed industry for the Southwest.

Example species used in habitat restoration:
Achnatherum hymenoides Indian ricegrass
Achillea millefolium western yarrow
Asclepias speciosa showy milkweed
Asclepias subverticillata horsetail milkweed
Bouteloua curtipendula sideoats grama
Bouteloua gracilis blue grama
Heterotheca villosa hairy false goldenaster
Sphaeralcea angustifolia copper globemallow
Sphaeralcea coccinea scarlet globemallow
Sporobolus airoides alkali sacaton
Sporobolus cryptandrus sand dropseed
Thermopsis montana mountain goldenbanner

Who buys native seed for restoration?

- US Forest Service
- Bureau of Land Management
- NM and AZ Departments of Transportation
- US Fish and Wildlife Service
- Pueblo and Tribal Resource Managers
- National Parks Service
- Bureau of Reclamation
- Army Corps of Engineers
- NM Energy, Mineral and Natural Resources
- AZ State Land Department
- Restoration contractors and NGOs

For more information about the Southwest Seed Partnership:
<http://appliedeco.org/southwest-program/>



Native Seed
Production
with the

Southwest
Seed
Partnership



Native Seed is in Demand

Restoration in the Southwest could be more successful with a reliable and diverse supply of ecologically appropriate native seed. By starting with locally-collected wild seed that captures genetic diversity, we can transfer beneficial adaptations to restored populations and improve long-term restoration success. Commercial producers currently offer a very limited selection of native species and tend to sell cultivars rather than wild sourced material from our local ecoregions. The Southwest Seed Partnership (SWSP) is working to address this market gap and improve the supply of appropriate native seed.

How does the SWSP support farmers? WE:

- 1) Provide a bridge between buyers and growers of native seed - pooling and communicating demand, and helping buyers find seed for sale.
- 2) Collect wild native seed, verify/test seed zones, and build appropriate accessions for grow-out.
- 3) Establish production contracts with farmers, eventually making germplasm available for growing on speculation.
- 4) Conduct research to inform production.
- 5) Provide native seed workshops and training.
- 6) Work to ensure high seed quality, such as coordinating with NM and AZ seed certification.
- 7) Write grants to help facilitate tribal nurseries and new farmers.

Growing Native Seed

Production of native seed crops that intentionally have higher levels of genetic diversity can be more challenging than traditional crops as they can lack uniformity and information about best cultivation and harvesting practices. This sector is ideal for pioneering growers who enjoy research and want to develop new knowledge in an emerging field. The SWSP recognizes the value added quality of locally-appropriate native seed and educates potential buyers about the benefits of this premium product.

Join us at our SWSP Stakeholder Meetings and help shape the program.

Federal, state, and local land managers buy native seed for restoration projects, and there is a growing demand for locally-adapted native seed. Few seed companies in our region have responded to this demand - native seed farmers are in short supply.

For more information or to participate in the SWSP, please contact the **Institute for Applied Ecology**
 Melanie Giesler, melanie@appliedeco.org
 Cameron Weber, cameron@appliedeco.org



Forbs (wildflowers) and native grasses provide valuable habitat for a diversity of pollinators and beneficial insects.

Preliminary Approach



Large scale, established
Familiar grasses and forbs



Small-medium scale

Test cultivation of new
species, pollinator plots,
nursery production



Lack: Not all land managers educated about merits of diversity and local seed

Access Adaptive Seed for Restoration with the Southwest Seed Partnership

Successful restoration projects rely on the establishment of native plant communities to heal and stabilize ecosystems and support critical wildlife habitat. Land managers need native seed that is genetically appropriate for their restoration sites. Seed from other regions can be a waste of resources. The Southwest currently has few native seed producers able to provide land managers with a diversity of appropriate, locally-sourced seed. The Southwest Seed Partnership (SWSP) is working to address this challenge through a coordinated approach, connecting land managers with native seed producers.

The Southwest Seed Partnership seeks buyer-members who want access to locally-sourced adaptive, affordable native seed. Your needs will inform how this program grows and what seed will be available.



SWSP seed expected by 2020 for the following native species:

- Achnatherum hymenoides*
- Indian ricegrass
- Asclepias speciosa*
- showy milkweed
- Asclepias subverticillata*
- horsetail milkweed
- Bouteloua curtipendula*
- sideoats grama
- Bouteloua gracilis*
- blue grama
- Heterotheca villosa*
- hairy false goldenaster
- Sphaeralcea angustifolia*
- copper globemallow
- Sphaeralcea coccinea*
- scarlet globemallow
- Sporobolus airoides*
- alkali sacaton
- Sporobolus cryptandrus*
- sand dropsseed

Join us for SWSP Stakeholder Meetings and help shape the program.

For more information about the Southwest Seed Partnership: <http://appliedeco.org/southwest-program/>

“Know where your seed comes from” “Request seed tests”

Benefits to land manager partners include:

- Help finding native seed for sale.
- Communicate to growers which species are most needed and quantities.
- Updated information about adaptive native seed producers and nurseries.
- Inform restoration research needs.
- Share knowledge about successful revegetation approaches and identify knowledge gaps.
- Conduct research to inform restoration and revegetation success.
- Provide native seed workshops and training.
- Work to ensure high seed quality by coordinating with NM and AZ seed certification.

Native Seed Sources

Southwest Seed – Dolores, CO
Barnert Seed Company – Muleshoe, TX
Curtis & Curtis Inc. – Clovis, NM
Plants of the Southwest – Santa Fe & Albuquerque, NM

Native Nursery Stock Producers

Santa Ana Native Plants – Pueblo of Santa Ana, NM
HydraAquatic – Albuquerque, NM
Lone Mountain Native Plants – Silver City, NM
Plants of the Southwest – Santa Fe & Albuquerque, NM



Native seed production cycle. Source: National Seed Strategy for Rehabilitation and Restoration, 2015-2020.



Solution

Outreach to land managers
Stronger policy language: NM DOT changed seed purchasing requirements to prioritize local, native seed

For more information or to participate in the SWSP, please contact the Institute for Applied Ecology
Melanie Gaiser, melanie@appliedeco.org
or Cameron Weber, cameron@appliedeco.org



Lack: Seed Transfer Zone Data



Solution

Common Garden

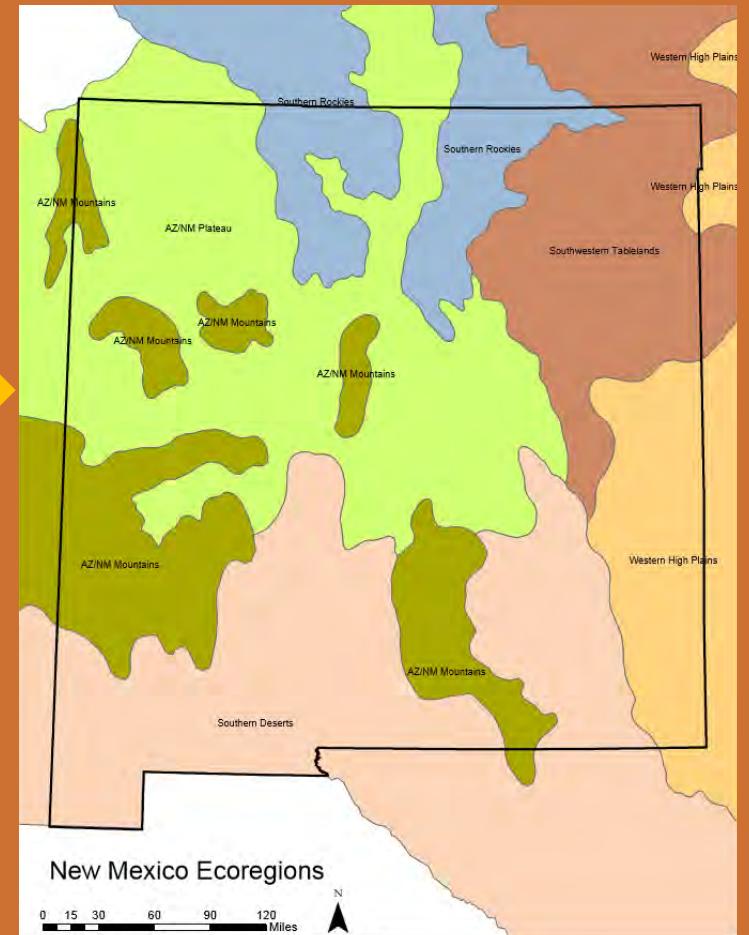
Seed Zone Mapper Tool

Expert Feedback

Provisional Seed Zones

Genetic studies

Life history traits



Lack: Foresight of future seed needs plus seed for emergency needs

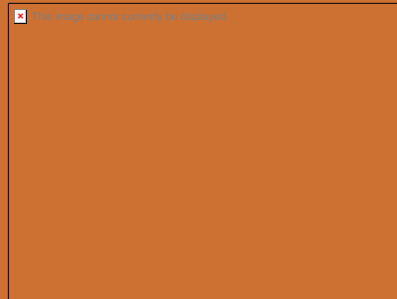


Collection
1-2 years



Cultivation 2 + years

First harvest
1-4 years
(Best yield 2-4 years)



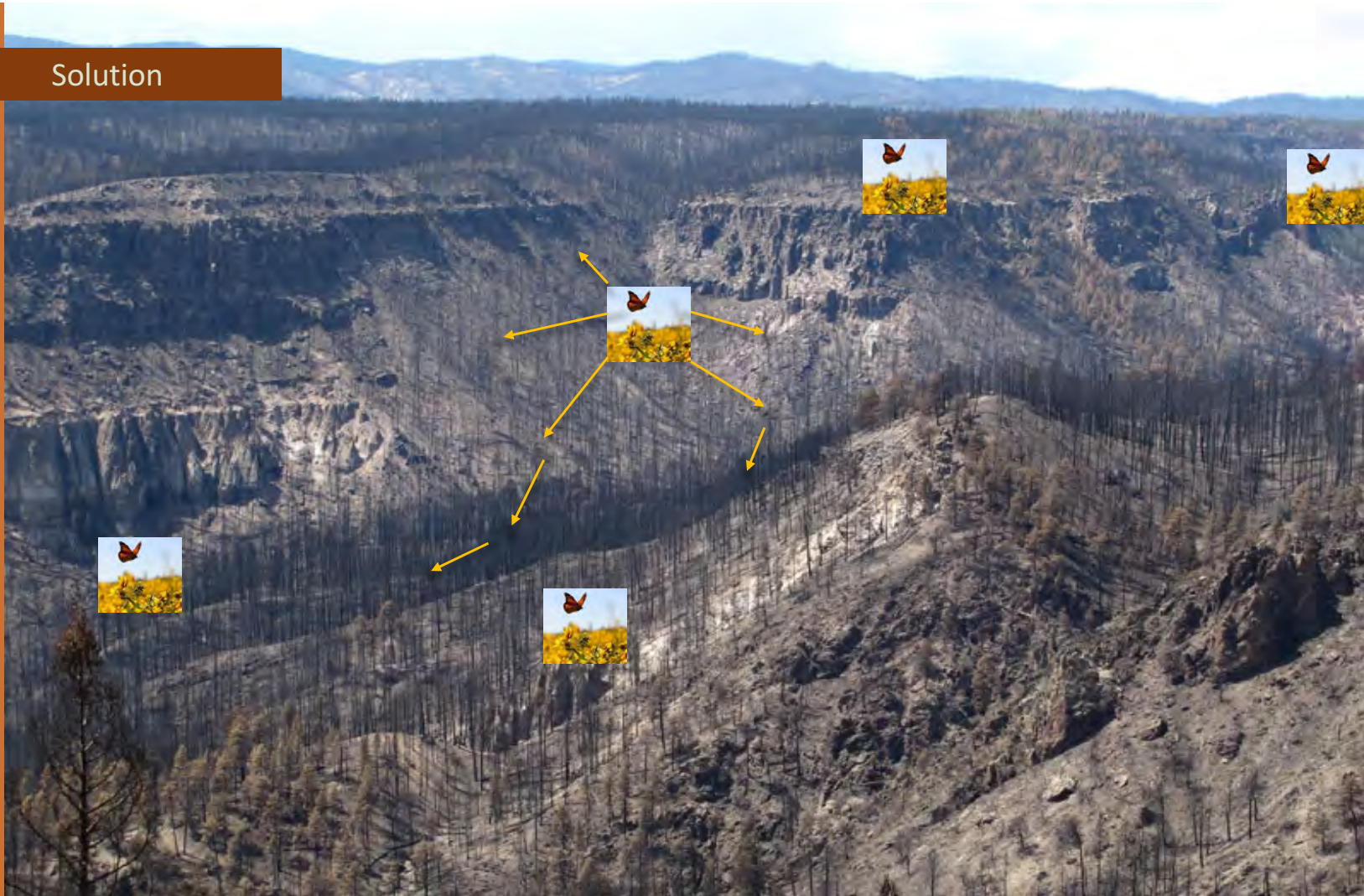
Solution

Plan 5 years ahead

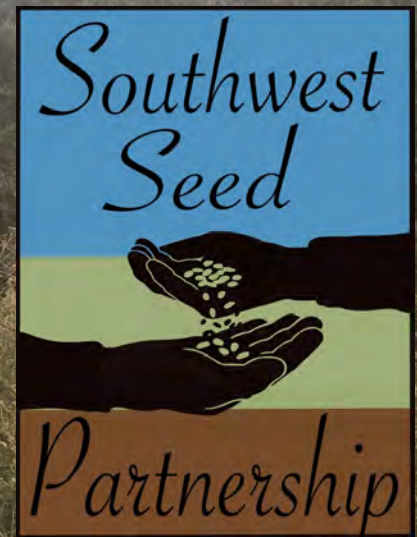
Seed available
in 4-10 years
for projects



Solution



Thank You





The preceding presentation was delivered at the

2017 National Native Seed Conference

Washington, D.C. February 13-16, 2017

This and additional presentations available at <http://nativeseed.info>

