

Southern Rockies Seed Network



Ecotypic Plant Materials Production

Friends of Ravenous Bees

A Seminal Program of



Fort Collins Based Non-profit

To develop enduring restoration solutions for our lands and waters through the creation of diverse public-private partnerships.

Board of Directors

Richard Alper, Suzanne Bassinger, Jennifer Kovecses (CPRW),
Mark Paschke (CSU), David Piske, Randy Mandel (Golder)
Jeremy Sueltenfuss (CNHP), Kristina Hufford (UW), & Bob Tate.

One Simple Reason



*Unmet Need Among
Partners*

Who owns this shirt?

From a History of Exotics...

Reclamation & Replanting

Russian olive (1900's), tamarisk (1930's), kudzu (1930's), crown vetch...

Native Cultivars

NRCS plant materials centers (stimulated by the 1930's dust bowl – SCS Division of Nurseries). 1960's/70's began to see native cultivars widely available for reclamation.



Ecological Restoration & Ecotypes

- Federal Native Plant Conservation Memorandum of Understanding of 1994 (renewed in 2014)
- Executive Order 13112 (Invasive Species, 1999)
- Native Plant Conservation Initiative National Strategy (1995)
- 2014 Presidential Memorandum on Pollinators



What is an Ecotype?

Ecotypic Seed

Seeds from a genetically distinct geographic population within a species adapted to specific environmental conditions.

Source Identified Seed

One of 6 Classes: Source-Identified propagating materials are seed, seedlings or other propagating materials collected from natural stands, seed production areas or seed fields where no selection or testing of the parent population has been made.

Governing Authority

CO Seed Growers Association
CO seed certification standards, 2012



Generalized provisional seed zones for native plants.

Ecological Applications, 24(5), 2014, pp. 913-919.

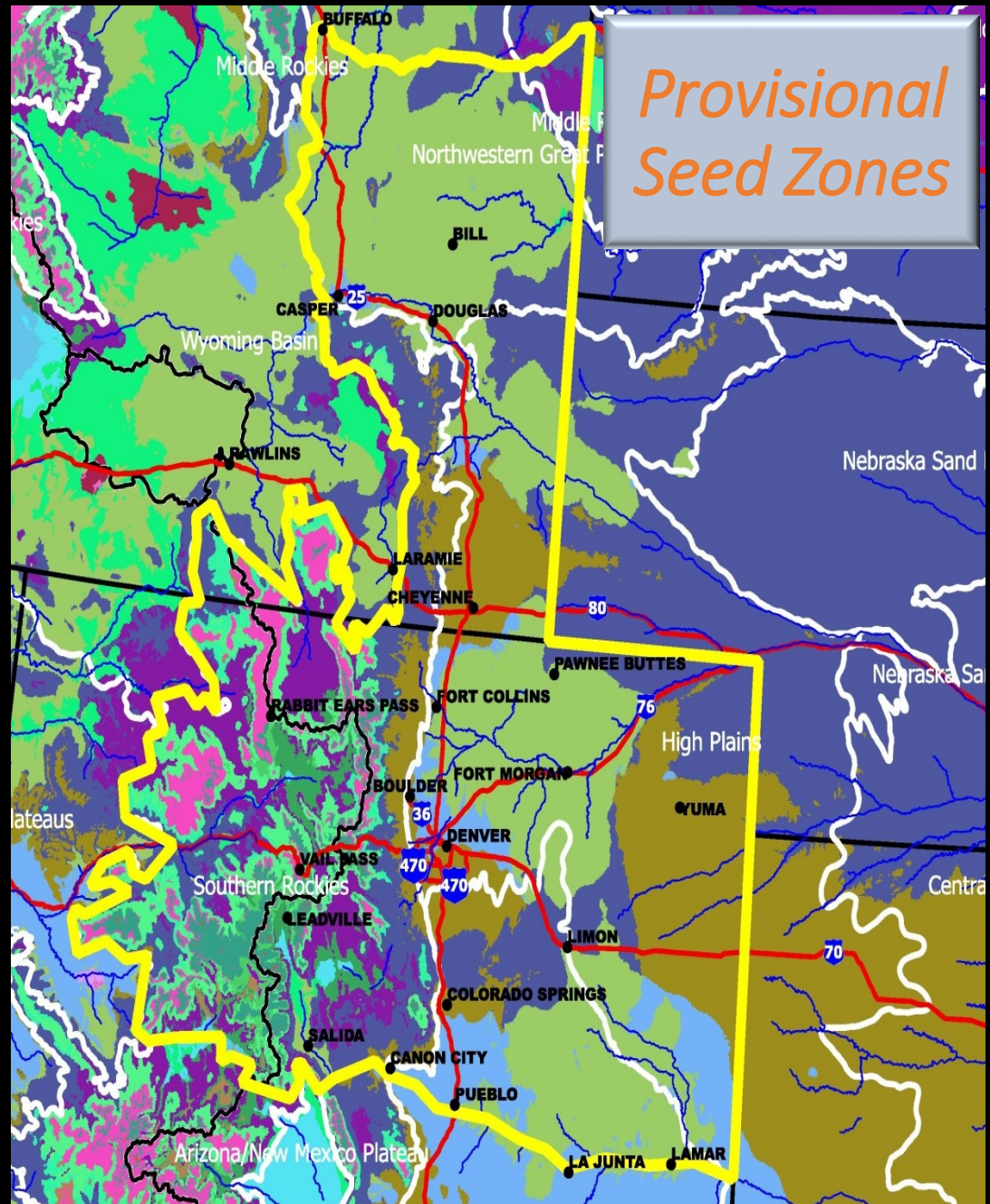
Andrew Bower, Bradley St. Clair, and Vicky Erickson.

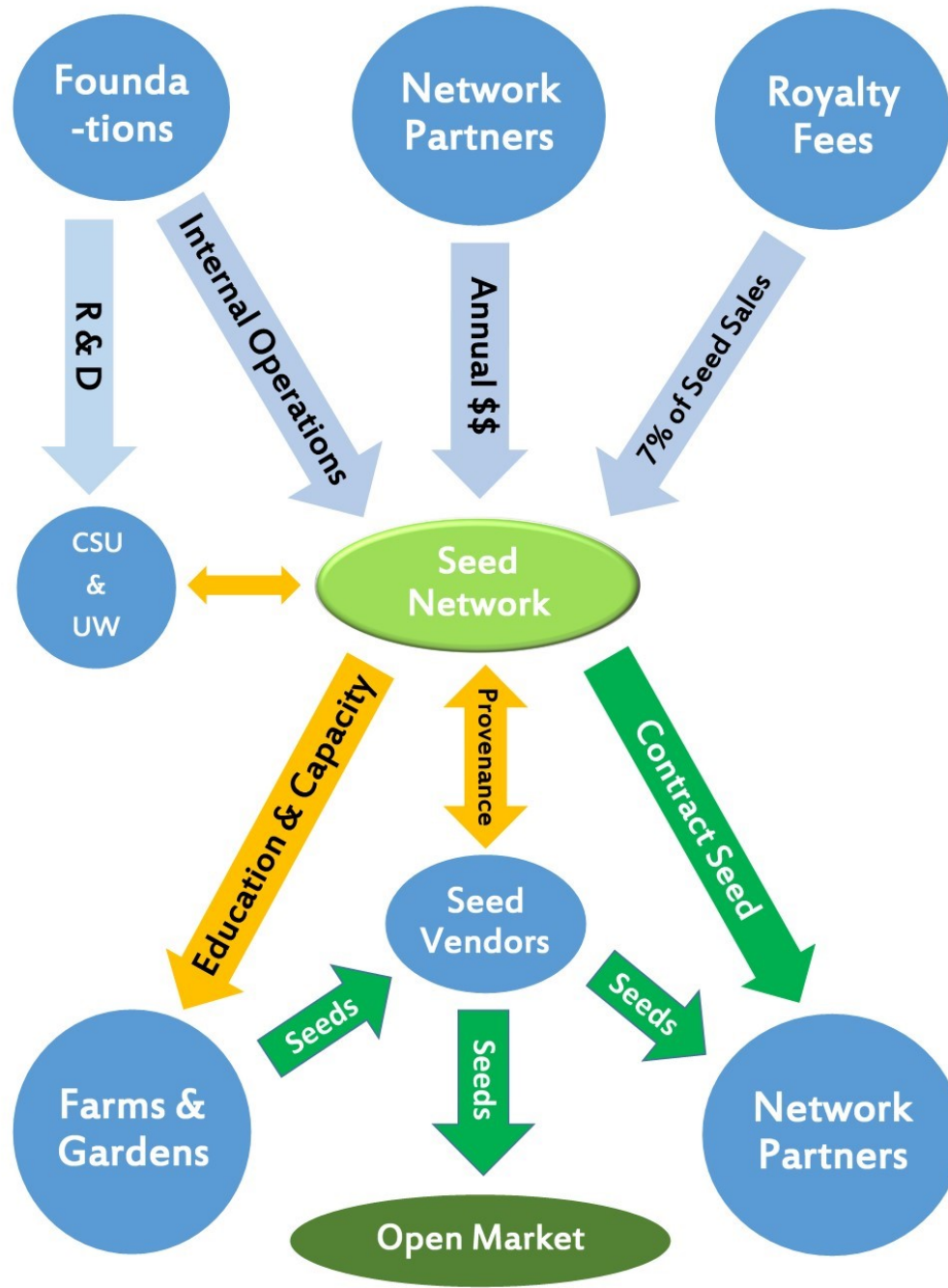
- Aridity factor (min. winter temps + annual heat:moisture index) AND Superimposed Omernik's Level III Ecoregions to define seed zones that are similar climactically yet different ecologically.

- ***GOAL: Help support the selection/development of well-adapted and ecologically appropriate plant materials for restoration/recl.***

- ***64 Provisional Seed Zones for the US***

- ***16 Provisional Seed Zones in our Geographic Scope.***







Two Basic Products

Work Horse Species
(ecotypic version of existing
cultivars)

New Species for Restoration
(not currently available in the
marketplace)

Addressing Production Capacity



A Model for Financial Sustainability for an Industry in Need

Importance of Provenance & Branding



Randy Mandel, Golder

A Model for Financial Sustainability for an Industry in Need

Power of Partnerships/Collaborations

Interested Partners

- AloTerra Restoration Services
- Applewood Seed Company -- NEW
- Arapaho-Roosevelt National Forests & Pawnee National Grasslands
- Bounty County Parks & Open Space
- Bureau of Land Management, Colorado Office
- Bureau of Land Management, Utah Office -- NEW
- Bureau of Land Management, Wyoming Office
- City of Boulder, Open Space and Mountain Parks -- NEW
- Coalition for the Poudre River Watershed -- NEW
- Colorado Department of Transportation -- NEW
- Colorado Natural Heritage Program -- NEW
- Colorado Plateau Native Plant Initiative -- NEW
- Colorado State Forest Service Nursery -- NEW
- Colorado State University -- NEW
- Denver Botanic Gardens (DBG)
- Denver Mountain Parks -- NEW
- Golder Associates, Inc.
- High Plains Environmental Center -- NEW
- Med Bow Routt Ntl. Forest & Thunder Basin Ntl. Grasslands -- NEW
- Natural Resources Conservation Service
- Pawnee Buttes Seed, Inc. -- NEW
- Rocky Mountain National Park
- Society for Range Management -- NEW
- University of Wyoming -- NEW
- US Fish and Wildlife Service
- U.S. Geological Survey -- NEW
- Western Native Seed Company -- NEW
- White River National Forest
- Wildlands Restoration Volunteers
- Larimer County Department of Natural Resources -- NEW

Potential Partners

- Arapaho National Wildlife Refuge
 - Biodiversity Institute (University of Wyoming)
 - Center for Protected Areas Management
 - Coalition for the Upper South Platte
 - Colorado Department of Agriculture
 - Colorado Division of Reclamation Mining and Safety
 - Colorado Native Plant Society
 - Colorado Oil and Gas Conservation Commission
 - Colorado Parks and Wildlife (Multiple programs)
 - Colorado Natural Areas Program
 - Colorado Seed Lab
 - Gardens on Spring Creek
 - Oil & Gas Industry Representatives
 - Pike-San Isabel National Forests
 - Rocky Mountain Bird Observatory
 - Southern Plains Land Trust
 - The Nature Conservancy, Laramie Foothills Cons. District
 - US Forest Service - Region 2
 - Upper Colorado Environmental Plant Center
 - Volunteers for Outdoor Colorado
 - Wyoming Department of Transportation
 - Wyoming Department of Environmental Quality
 - Wyoming Natural Heritage Database (University of Wyoming)
- * Dozens of Local and Regional Open Space Programs & Land Trusts

What Makes a Partner (a partner)?

Agencies, Companies, and Non-profits whose mission support use of Ecotypic Seed

(Assist in marketing, networking, and growing the network)

Provide Key Resources to the Network

(revenue or in-kind services/products)

Growing seed, distributing/selling seed

(they utilize their existing business operation to support the collection, production, storage, and distribution of seed)



How Partners are Involved in the Network?

Advisory Board

(Semi annual meetings and online surveys)

Technical Advisory Committee

(regular meetings and online communications)

Provide Valuable Resources

(funding, seed storage, collection sites, staff resources)



A few accomplishments in 2015

7 Willow Harvest and Seed Collections

Plant Materials Collection Training

Remnant Plant Population ID Training

Training in Ecological Restoration

Collection Permits/Authorization: City of Boulder, Boulder County, Larimer County, Town of Estes Park, Denver Mountain Parks, City of Longmont.

Interns and Employees (Erica Cooper)

Friends Of Ravenous Bees



Why?

Biological Diversity

Fill niches that weeds would

*Resilience of a restored plant
community*

Post-flood Restoration

Ecotypes & Pollinators



Friends Of Ravenous BeeS

("S" is for syrphid flies)



“Often considered the second most important group of pollinators after wild bees.”

Syrphid Flies (Sweat bees, hoverflies, flower flies of the family Syrphidae)

Some species are saprotrophs, eating decaying plant and animal matter in the soil or in ponds and streams. Other species are insectivores and prey on aphids and other plant-sucking insects.

Current Pollinators in Production cycle

Riparian woodies: Salix lucida, S. bebbiana, S. ligulifolia, S. exigua, S. irrorata, Populus angustifolia, Prunus virginiana.

*Silene acaulis (moss campion) & Saxifraga flagellaris
- Denver Mountain Parks*

*Developing/Supporting growers
network for container stock and seed*

*Pooled demand for woodies and
herbaceous plant materials*





Asclepias latifolia



Isolation cages

Economically priced seed – typical characteristics

High seed yield. Easy to propagate, grow, harvest, and clean. Use normal harvesting equipment.

Examples: *Penstemon strictus*, *Ratibida columnifera*, *Lewis Flax*, *Dalea purpurea*, *Helianthus annuus*



High cost seed – typical characteristics

Complicated or difficult to propagate, grow, harvest (i.e. hand-pick over time, vacuum, requires expensive/atypical machinery), and/or clean. Low seed yield.

Examples: *Machaeranthera tanacetifolia*, *Berlandiera lyrata*, *Liatris punctata*

How (seed or container)?



■ *Aquilegia
coerulea*



■ *Geranium
viscosissimum*



■ *Polemonium
foliosissimum*



■ *Symphyotrichum
laeve*

Randy Mandel (Golder Associates) and John Proctor (USFS Botanist)

Volunteers collecting moss campion seed on Mt. Evans





Plant the Grass and the Forbs will Come??

- Or -

Plant the Forbs and the Grass will Come??

December 3rd Annual Meeting

Educational Sessions

SRSN Annual Report

Strategic Planning

Help grow the network!

Featuring

Andrew Bower

Provision Seed Zones of
the United States

Kristina Hufford

University of Wyoming

Randy Mandel

Golder Associates

Rick Novak

Colorado Seed Growers
Association



Thank You



www.synergy3.org

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