

Wildland Restoration and Seeding in Utah



Danny Summers
Habitat Restoration Coordinator
Utah Division of Wildlife Resources



Division of Wildlife Resources

Resource Goal

- Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat
- Recognizes the importance of properly functioning habitat.
- This goal can be achieved by using native and/or introduced plant materials.
- State Wildlife Action Plan (2015) recognizes need to increased supply of native plant materials

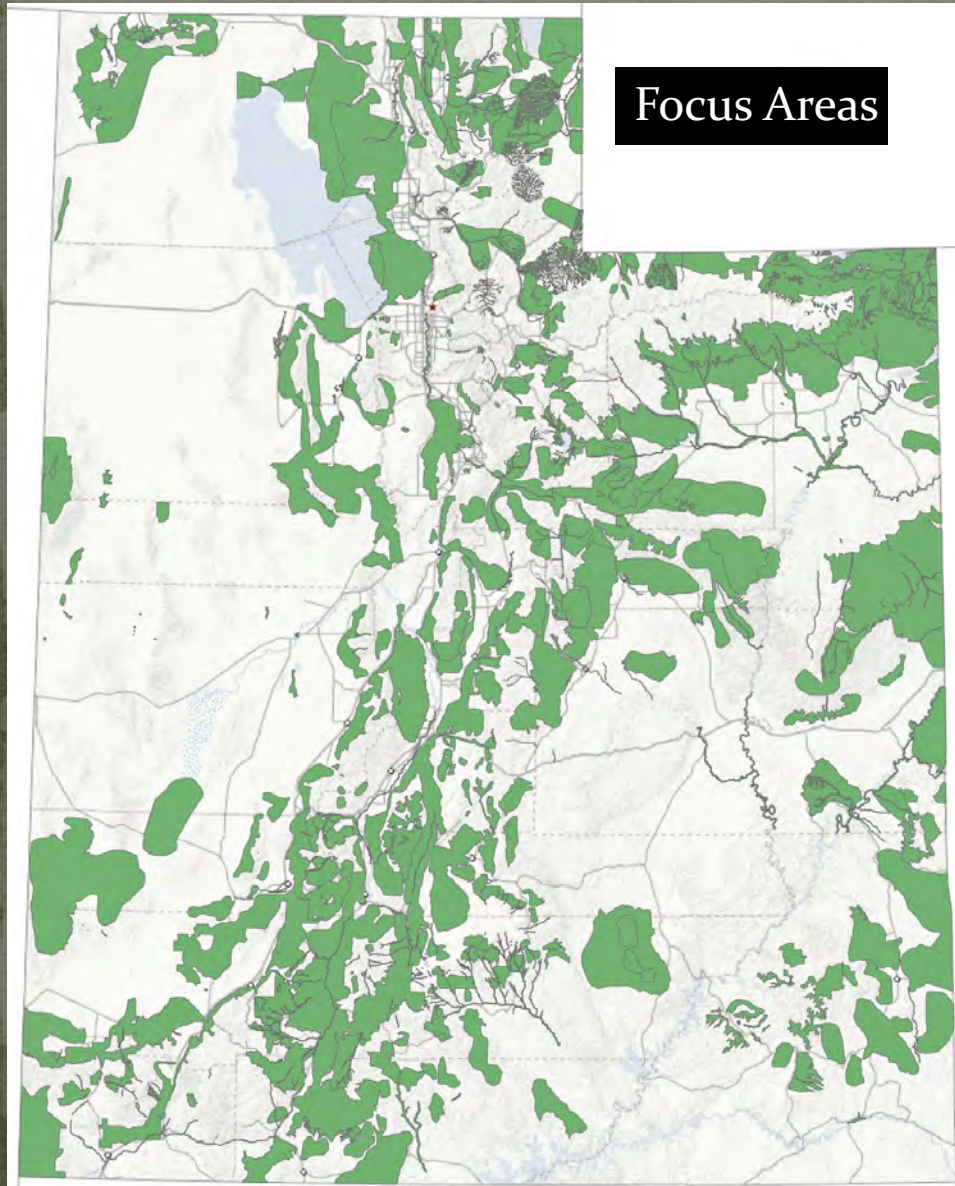
Major Threats

- Loss, Degradation, Fragmentation of Habitat Due to -
 - Human population expansion/development
 - Poorly managed grazing
 - Pinyon/juniper expansion – loss of understory
 - Sagebrush over-maturity, lack of age class diversity
 - loss of understory, risk of stand replacement event
 - Disruption of natural fire cycle = catastrophic wildfire
 - Invasive species
 - Aspen decline

Utah Watershed Restoration Initiative

- A Watershed, Cross-Boundary, Solutions Oriented Partnership
- Collaborative-Proactive Effort
- Common Core Goals
 - Wildlife and Biological Diversity
 - Water Quality and Yield for all Uses
 - Opportunities for Sustainable Uses
- Locally Led Teams Develop and Implement Projects
- Partners Include: USFS, BLM, SITLA, USFWS, NRCS, NPS, UDAF, Farm Services Agency, Private Landowners, Sportsman Groups, Academia, Local Governments, Industry, Energy, Etc.

Watershed Restoration Initiative



- Goal of 100,000 acres treated annually
- 1.3 million acres treated since 2004
- \$179 million invested since 2004
- Numerous treatment methods, habitat types, and objectives
- wri.utah.gov

Funding Cycle

- January 1 – Proposals due for upcoming fiscal year
- January, February – Regions present and rank projects
- March 1 – Regional rankings are due
- March, April, May – Proposal funding
 - DNR watershed, BLM, FFSL, Habitat Council, BRFAC, Sportsman Groups (ECP), Oil and Gas Mitigation, etc.
- Early May – Funded project list distributed
- July 1 – Funds available, project completion – 1 year
- Carry-over projects evaluated/approved each year
- Throughout year – Cooperator grants/agreements

WRI Partnership Services through UDWR

- 5 Habitat Biologist (DWR Regional Offices)
- 4 Farm Bill Biologist (NRCS Offices)
- 2 Coordinators (Fiscal and DB Management)
- Vegetation Monitoring (Adaptive Management)
- Accounting and contracting
- Archaeology services
- Great Basin Research Center

Great Basin Research Center and Seed Warehouse

- Short and Long Term Research
- Plant Materials Development
 - Wildland and Agricultural Test Facilities and Common Gardens
 - Grass, Forb, Browse (primarily native species)
 - Great Basin Native Plant Project
 - UP Project
- Restoration Equipment
 - Maintenance and Repair
 - Development of New Technology and Techniques
 - Transport and Setup
- Seed Resources
 - Bulk Ordering and Long Term Storage – Reduces Costs
 - Seed Mix Development
 - Custom Mixing, Bagging

DWR Seed Warehouse History

- Habitat restoration and research since 1950's
 - Modest warehouse facilities
- Modern warehouse constructed in 2004
- Warehouse expansion finished in 2010
 - 17,100 ft² increased to 26,000 ft²
- Increased storage capacity from 650,000 lbs to 1.2 million lbs
 - (cold storage primarily for sagebrush and kochia seed increased from 50,000 to 150,000)

What Seed Should We Buy?

- Project location
 - Site potential
 - Ecological Site Description
 - Pinyon/Juniper Field Guide, R & R, etc.
 - Current vegetation – invasive species
- Project Objectives
 - Wildlife species of concern – Greater sage-grouse, mule deer, elk, etc.
- Seed Availability
 - If we know what you desire we will ask for it specifically
- Cooperators/funding sources/land manager
 - Mandates, policies, guidelines
- Budget/Cost

Great Basin Province

Antelope Bitterbrush	<i>Purshia tridentata</i>	Source identified Great Basin Province ¹
Sulfur Flower Buckwheat	<i>Eriogonum umbellatum</i>	Source identified Great Basin Province ¹
Green Ephedra	<i>Ephedra viridis</i>	Source identified Great Basin Province ¹

¹ Seed lots bid as Source Identified Great Basin Province should be collected from sites in Utah and Nevada located within the Great Basin Province

SOURCE IDENTIFIED SEED



Species Name: Eriogonum umbellatum
 Common Name: Sulphur Buckwheat
 Germplasm ID, Gen.: _____, G0
 G0 County, State, Elev.: Wasatch, UT, 7951 ft
 G0 Indigenous? No Cert. #: WC-0315213
 G0 Natural Track? No Lot #: ERUM-G0689

The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws.

SOURCE IDENTIFIED SEED



Species Name: Purshia tridentata
 Common Name: Antelope Bitterbrush
 Germplasm ID, Gen.: _____, G0
 G0 County, State, Elev.: Elko, NV, 5600-6600 ft.
 G0 Indigenous? No Cert. #: WC-10413
 G0 Natural Track? No Lot #: 13008

The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws.

SOURCE IDENTIFIED SEED



Species Name: Ephedra viridis
 Common Name: Green Ephedra
 Germplasm ID, Gen.: _____, G0
 G0 County, State, Elev.: Utah, UT, 6300-7500 ft
 G0 Indigenous? No Cert. #: WC-9139
 G0 Natural Track? No Lot #: 12004

The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. No warranty is expressed or implied as to the fitness for particular purpose or performance of the seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws.

•UTAH CROP IMPROVEMENT ASSOCIATION•

•Utah State University, 4855 Old Main Hill, Logan, Utah 84322-4855 (435)797-2082 • www.utahcrop.org

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES



•Utah State University
 MEMBER OF

•Utah State University
 MEMBER OF

Colorado Plateau

Inland Saltgrass	<i>Distichlis spicata</i>	Source identified Colorado Plateau ⁵
------------------	---------------------------	---

⁵ Seed lots bid as Source Identified Colorado Plateau should be collected from sites in Utah and Colorado located within the Colorado Plateau.

SOURCE IDENTIFIED SEED



Species Name:	<i>Distichlis spicata</i>
Common Name:	Inland Saltgrass
Germplasm ID, Gen.:	____, G0
G0 County, State, Elev.:	Uintah, UT, 5100 ft.
G0 Indigenous? No	Cert. #: WC-13712
G0 Natural Track? No	Lot #: DIST-UC

The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CATEGORY of certified seed. No warranty is expressed or implied as to the fitness for particular purpose or performance of the seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws.

•UTAH CROP IMPROVEMENT ASSOCIATION•

•Utah State University, 4855 Old Main Hill, Logan, Utah 84322-4855 (435)797-2082 • www.utahcrop.org

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES



Releases

Muttongrass	<i>Poa fendleriana</i>	Source Identified UP Ruin Canyon
Sandberg Bluegrass	<i>Poa secunda</i>	Source Identified UP/Colorado Plateau
Sulfur Flower Buckwheat	<i>Eriogonum umbellatum</i>	Source Identified UP Burn Canyon
Indian Ricegrass	<i>Achnatherum hymenoides</i>	Select Class White River

SOURCE IDENTIFIED SEED



Species Name *Poa secunda*
 Common Name Sandberg Bluegrass
 Germplasm ID, Generation UP/Colorado Plateau, G3 of 4
 G0 Site State, County, Elev. CO, Montrose, 6890 ft.
 G3 Site State, County, Elev. WA Lincoln, 1788 ft.
 Lot number BFI-9-151886171
 Natural? Yes
 G0 Indigenous? Yes

Certificate No. 9469

The seed in this container, with label properly
 Requirements and Standards established by
 certified seed. Compliance (any warranty, ex
 seed sample analysis. This tag must be acc
 more information contact: WSDA - Seed Pro

Disclaimer S

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

SOURCE IDENTIFIED SEED



COLORADO SEED GROWERS ASSN
 COLORADO STATE UNIVERSITY
 FT. COLLINS, COLORADO 80523

Labeler SOUTHWEST SEED INC. 2014-0377 06/14 Date Tested
 Scientific Name POA FENDLERIANA 95.06% Pure Seed
 Common Name MUTTONGRASS 0.01% Weed Seed
 County/State/Elev. MONTEZUMA CO-6200 FT G3 MONTEZUMA/CO-6200 FT 0.00% Other Crop
 Germplasm ID/Gen RUIN CANYON G3 4.93% Inert
 Cert#/Lot# S13-9-4 % Germination
 Slope/Soil SILTY CLAY LOAM 72% T2 % Dormant Seed or Hard Seed
 Net Wt. 50 LBS % Total Viable

This certification is made by the CSU Seed Certification Service, authorized by the Board of Governors of the Colorado State University System (the Board), pursuant to C.R.S. (Colorado Seed Act), as amended. Notice to Buyer: Disclaimer of Warranties and Limitation of Damages (May not be altered or amended in any container are from a lot of seed which the grower represented as having been produced, inspected and conditioned in accordance with the Seed Grower Association and the CSU Seed Certification Service. The Grower identified above is the "Seller" and warrants that the seed to which

SOURCE IDENTIFIED SEED

Species Name *Eriogonum umbellatum*
 Common Name Sulfur Buckwheat
 Germplasm ID, Generation UP/Burn Canyon G1 of 4
 Lot number BFI-11-10216790
 Site State, County, Elev. - G0 CO - San Miguel 7949'
 Site State, County, Elev. - G 1 WA - Grant 1250'
 Natural? Yes
 G0 Indigenous? Yes
 Number: 1,147,306



Seed Program
 Dept. of Agriculture
 Yakima, Washington 98902
 AGR 651-4658Z

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

SELECTED SEED

Species Name *Achnatherum hymenoides*
 Common Name Indian Ricegrass
 Germplasm ID, Generation White River G4 of 5
 Lot number 1570-1
 Site State, County, Elev. - G0 UT-Cache-4500'
 Site State, County, Elev. - G 4 WA-Franklin-1000'
 Natural? Yes
 G0 Indigenous? Yes



Seed Program Number: 1,173,128
 Dept. of Agriculture
 Yakima, Washington 98902
 AGR 651-4658Z

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

Grower Communication

Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	Source identified Antelope Island/Eagle Mountain
Bottlebrush squirreltail	<i>Elymus elymoides</i>	Source identified Central Utah

SOURCE IDENTIFIED SEED



Species Name: Elymus elymoides
Common Name: Bottlebrush Squirreltail
Germplasm ID, Gen.: _____, G0
G0 County, State, Elev.: Juab, UT, 5011 ft.
G0 Indigenous? No Cert. #: WC-239
G0 Natural Track? No Lot #: CU906

The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the SOURCE IDENTIFIED CLASS of certified seed. No warranty is expressed or implied as to the fitness for particular purpose or performance of the seed. This tag must be accompanied by a seed analysis label to comply with state and federal seed laws.

•UTAH CROP IMPROVEMENT ASSOCIATION•

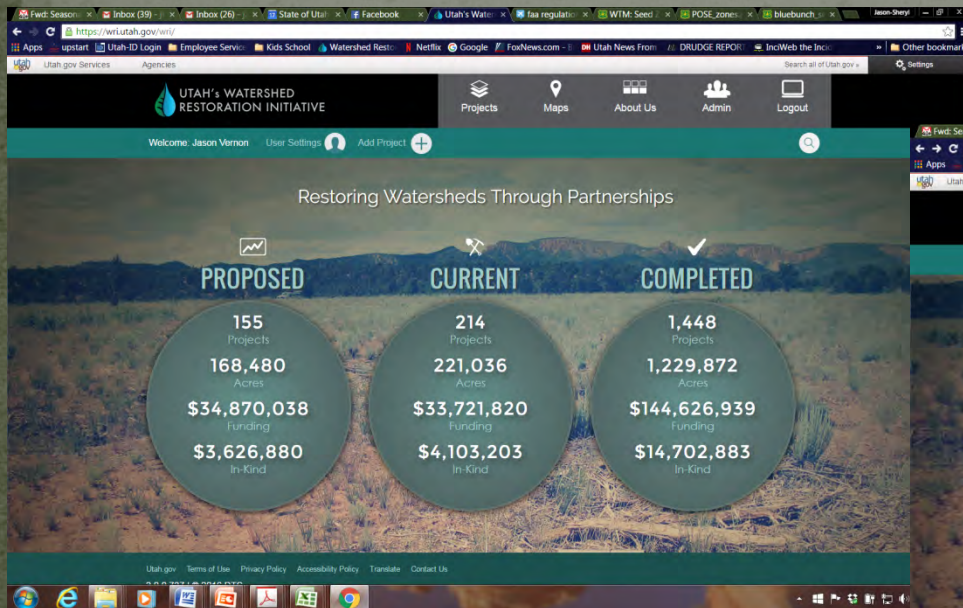
•Utah State University, 4855 Old Main Hill, Logan, Utah 84322-4855 (435)797-2082 • www.utahcrop.org

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES



Seed Acquisition and Purchasing

- Project managers develops desired seed mix
 - Seed mix workbook
- GBRC state bidding process
 - In 2015, 110+ species and or varieties/sources



Beef Basin Phase I
Region: Southeastern
ID: 2939
Project Status: Completed

Map This Project | Export Project Data | Admin Edit

Seed

[Add Seed File](#) | [Upload Template](#) | [Download Template 01/27/2016](#)

Provider	File Name	Type	
DWR-GBRC	BeefBasinSagebrush.xls	Seed Mix	✗
DWR-GBRC	BeefBasinSeedMix1.xls	Seed Mix	✗
DWR-GBRC	Beef Basin File_2939.pdf	Seed Invoice	✗
DWR-GBRC	Beef Basin Sagebrush_2939.pdf	Seed Invoice	✗
DWR-GBRC	Beef Basin_2939.pdf	Seed Invoice	✗

Utah.gov | Terms of Use | Privacy Policy | Accessibility Policy | Translate | Contact Us

2:59 PM 3/17/2016

Home Insert Page Layout Formulas Data Review View Acrobat

Cut Copy Paste Format Painter Clipboard

Arial 10 Font

Wrap Text Merge & Center Alignment

General Number

Normal Bad Good Neutral Styles

Insert Delete Format Cells

E10 0

4		Project Name	Beef Basin			Acres	Budget	Habitat Treatment	Approximate Date Needed			
5		Database #	2939			1,292						
6												
7												

	Seed: Common Name	Seed: Scientific Name	Variety	Bulk Pounds per acre	PLS Pounds per acre	Cost per pound	Total Pounds	# Seeds/lb	Average PLS	# of Viable Seeds/sq foot	Total Cost	
8	Sand Dropseed	Sporobolus cryptandrus		0.1	0.08	\$3.60	129.2	5,298,000	83.57	10.16	\$465.12	
9	Needle and Thread	Stipa comata		0.5	0.41	\$20.95	646	115,000	81.38	1.07	\$13,533.70	
10	Indian Ricegrass	Oryzopsis hymenodonta		0.5	0.46	\$4.15	646	141,000	91.32	1.48	\$2,680.90	
11	Sandberg Bluegrass	Poa secunda		0.5	0.44	\$5.97	646	925,000	88.15	9.36	\$3,856.62	
12	Palmer Penstemon	Penstemon palmeri		0.25	0.20	\$9.07	323	610,000	80.19	2.81	\$2,929.61	
13	Scarlet Globemallow	Sphaeralcea coccinea		0.25	0.21	\$53.82	323	500,000	85.39	2.45	\$17,383.86	
14	Sainfoin	Onobrychis viciifolia		0.25	0.23	\$2.45	323	30,000	91.28	0.16	\$791.35	
15	Winterfat	Ceratoides lanata		0.5	0.15	\$7.16	646	56,700	29.38	0.19	\$4,625.36	
16												
17												
18	Fourwing Saltbush	Atriplex canescens		1	0.42	\$7.72	1292	52,000	41.77	0.50	\$9,974.24	
19	Sagebrush, Wyoming	Artemisia tridentata wyomingensis				\$11.01		2,500,000	19.47			
20												
30			Total Pounds	4,974							Total	\$56,240.76
31			Bulk lbs/acre	3.85								
32			PLS lbs/acre	2.59								
33			Dollars/acre	\$ 43.53								
34			Live seed/ft ²	28.18								

Notes

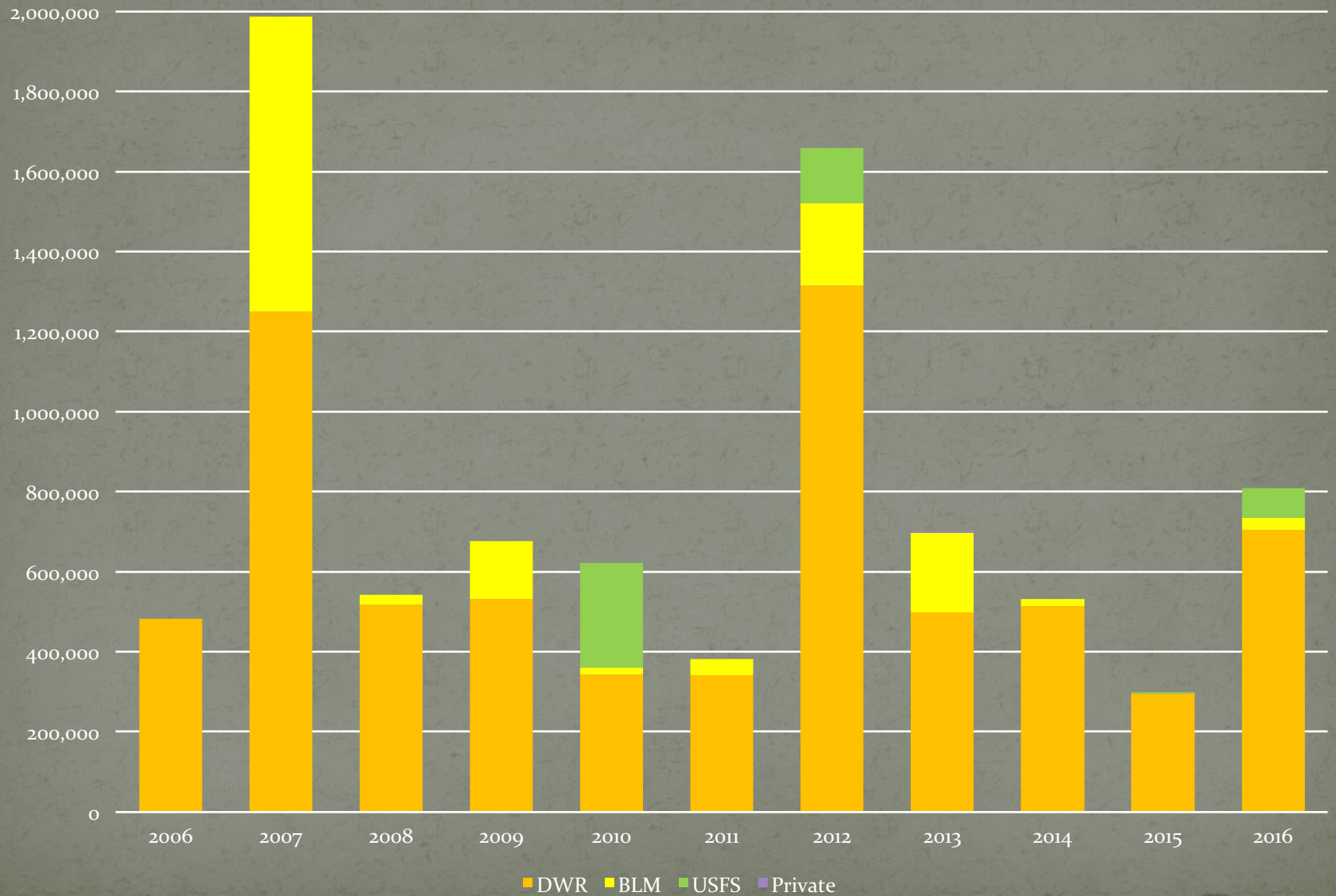
Sagebrush needs to be separate for aerial seeding. Would prefer Needle and Thread grass Source Identified from the Colorado Plateau.

Microsoft Excel ribbon showing tabs: Home, Insert, Page Layout, Formulas, Data, Review, View, Acrobat. The ribbon includes various toolbars for font, alignment, number, styles, and editing.

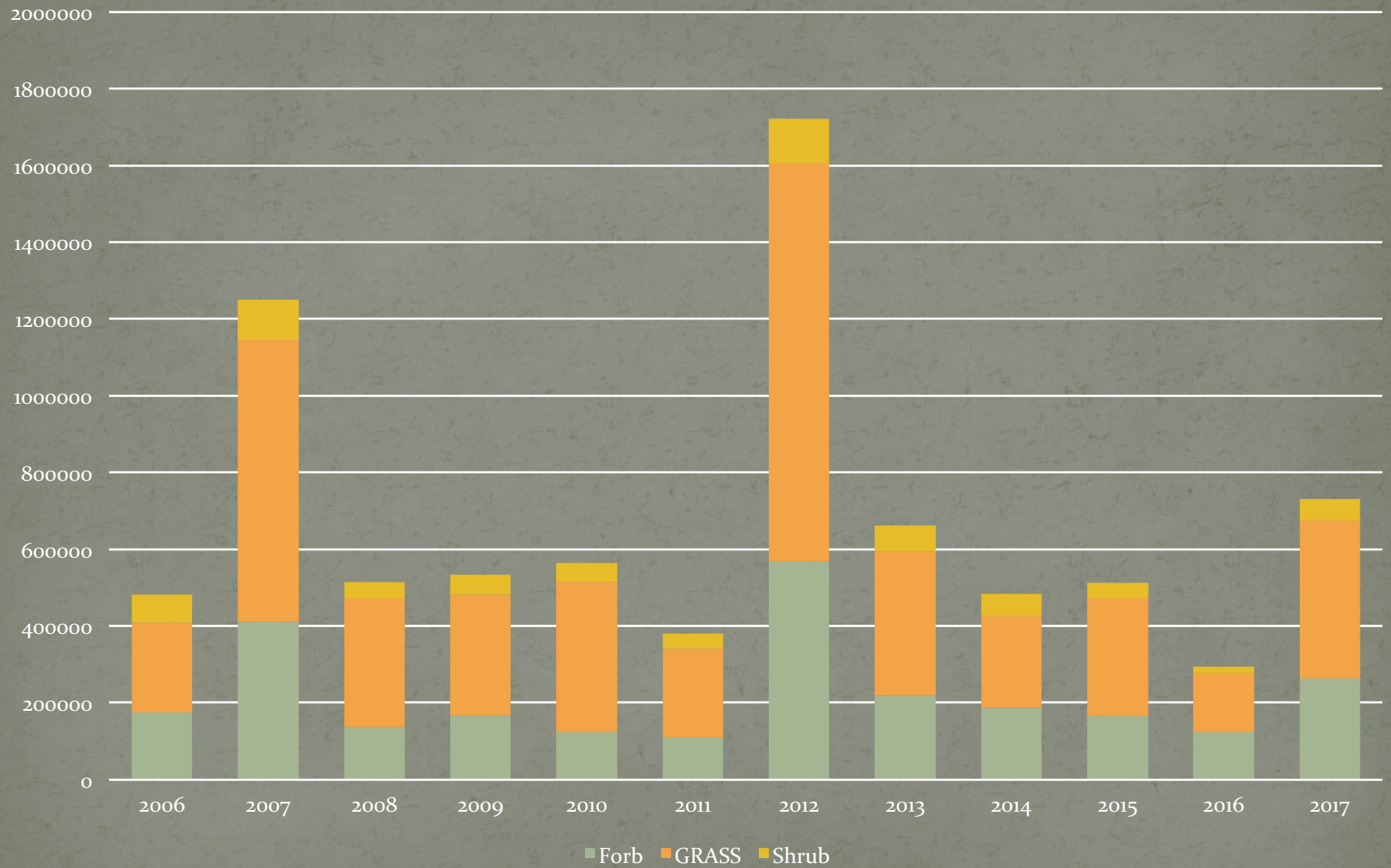
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	Seed Kind	Scientific Name	Variety/Source Requested	Item Number	Delivery Date	Origin	Cert. Class*	Indicate Variety offered or Source ID Location (County, State) Required	Quantity Needed Bulk lbs	Quantity Offered Bulk lbs	% Germ.	% Purity	Minimum Accepted PLS %	% PLS	Bulk Price per Pound	Approx. Dollar Value	PLS Price per Pound
1																	
257	Muttongrass	<i>Poa fendleriana</i>	Source Identified UP Ruin Canyon	37	14 days ARO	CO	SID	UP Ruin Canyon	500	350	87%	93.42%	80	81.28%	\$22.200	\$7,770	\$27.315
258	Muttongrass	<i>Poa fendleriana</i>	Source Identified UP Ruin Canyon	37	Sept 2 2015	CO	SI	Montezuma	500	150	72%	95.00%	80	68.40%	\$21.700	\$3,255	\$31.725
259	Muttongrass	<i>Poa fendleriana</i>	Source Identified UP Ruin Canyon	37		CO	SI	Ruin Canyon, Montezuma	500	500	86%	93.42%	80	80.34%	\$27.316	\$13,658	\$34.000
260	Muttongrass	<i>Poa fendleriana</i>	Source Identified UP Ruin Canyon	37	8/1/2015	CO	Service	Uncertified/no SID tags	500	500	92%	95.06%	80	87.46%	\$30.610	\$15,305	\$35.001
261	Sandberg Bluegrass	<i>Poa secunda</i>	Select Class Mountain Home	38	8/1/2015	OR	SELECT	Mountain Home	4,000	20,000	90%	95.99%	80	86.39%	\$2.950	\$59,000	\$3.415
262	Sandberg Bluegrass	<i>Poa secunda</i>	Select Class Mountain Home	38	Prompt	WA	S		4,000	5,500	90%	99.67%	80	89.70%	\$3.790	\$20,845	\$4.225
263	Sandberg Bluegrass	<i>Poa secunda</i>	Select Class Mountain Home	38	9/2/2015 or 7 days after	ID	SID	Mountain Home	4,000	2,800	94%	97.34%	80	91.50%	\$4.500	\$12,600	\$4.918
264	Sandberg Bluegrass	<i>Poa secunda</i>	Sourced identified UP Colorado	39	9/2/2015 or 7 days after PO	WA	SID	Vale	2,000	10,000	94%	98.00%	80	92.12%	\$4.100	\$41,000	\$4.451
265	Sandberg Bluegrass	<i>Poa secunda</i>	Sourced identified UP Colorado	39	9/2/2015 or 7 days after PO	WA	SID	High Plains	2,000	10,000	94%	98.00%	80	92.12%	\$4.100	\$41,000	\$4.451
266	Sandberg Bluegrass	<i>Poa secunda</i>	Sourced identified UP Colorado	39	9/2/2015 or 7 days after PO	WA	SID	UP/Colorado Plateau	2,000	3,000	96%	98.51%	80	94.57%	\$7.500	\$22,500	\$7.931
267	Sandberg Bluegrass	<i>Poa secunda</i>	Sourced identified UP Colorado	39	7/31/2015	WA	SI	UP Colorado, Montrose CO	2,000	2,000	83%	98.51%	80	81.76%	\$7.650	\$15,300	\$9.356
268	Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	Certified Anatone release	40	2-Sep-15	ID	CERT	Anatone	20,000	2,000	86%	94.00%	80	80.84%	\$4.440	\$8,880	\$5.492



Seed Distributed by GBRC Warehouse



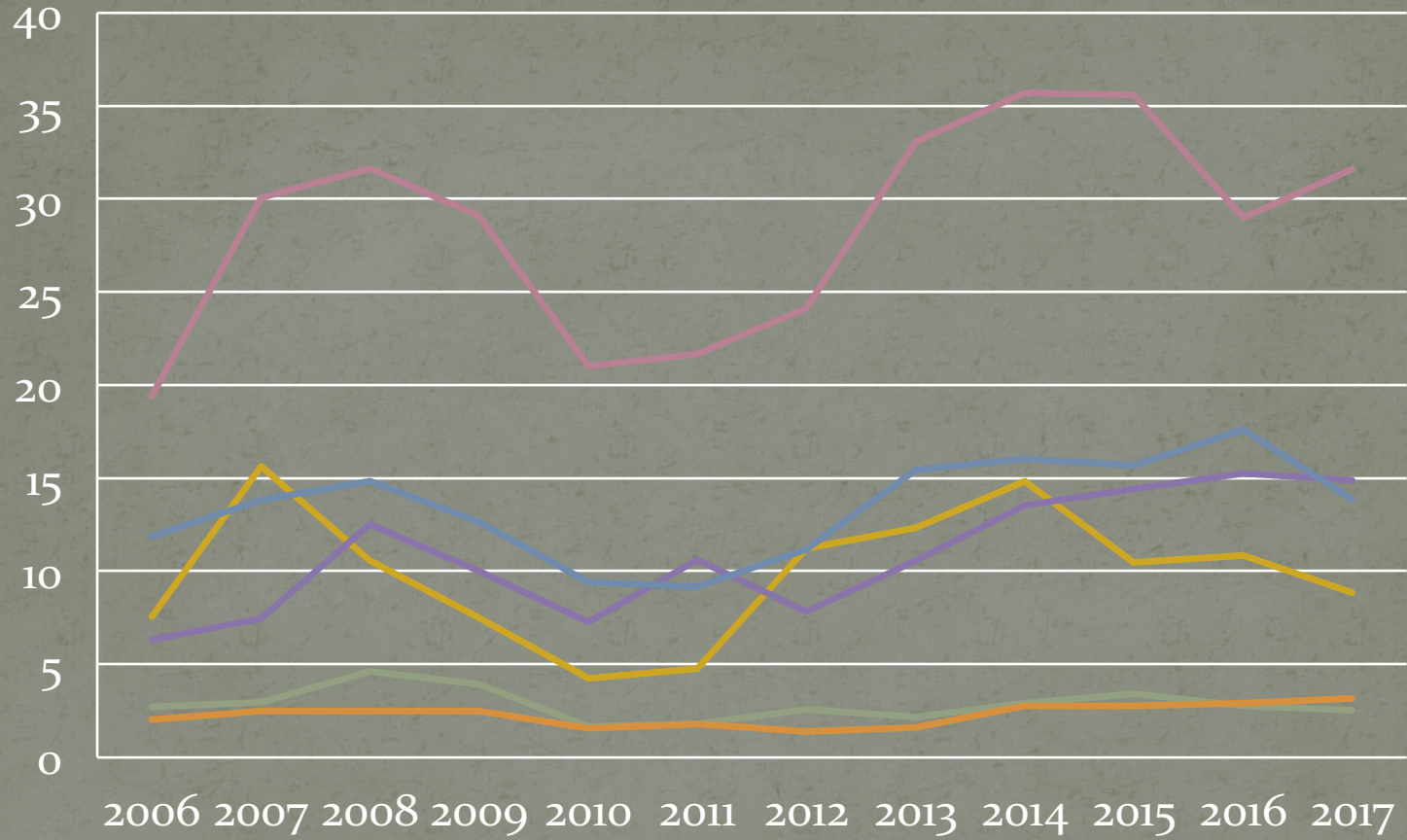
Seed Distributed by Life Form



How We Make Decisions

- Project location
 - Site potential
 - Ecological Site Description
 - Pinyon/Juniper Field Guide 3 phases (Tausch et al 2009)
 - Current vegetation – invasive species
- Scale
 - Statewide effort – Use funding wisely
 - Emergency fire rehabilitation
 - Supply and demand market
 - Bluebunch wheatgrass, Basin wildrye, Fourwing saltbush, Palmer penstemon, Rocky Mountain penstemon
- Funding Cycle
- Cost

Price Comparison



Fiscal Year

- Introduced - Forb
- Introduced - GRASS
- Introduced - Shrub
- Native - Forb
- Native - GRASS
- Native - Shrub

Challenges to Using Native Species

- Cost
 - 1st thing to get cut to save money—especially forbs
- Availability
 - Market supply—especially in fire years
- Seeding techniques
 - May not coincide with current large scale efforts—especially forbs
- Perceptions of “Good” vs. “Bad”
- Perceptions of success
 - Track history and comfort level
 - Establishment and persistence
 - How long until “success” is determined

Priority Native Species

- Target specific plant communities
 - Sagebrush Steppe/Desert
 - Pinyon/Juniper

- Target specific wildlife species
 - State Wildlife Action Plan (SWAP)
 - Sage-grouse, mule deer, elk

Species	Common Name
<i>Agoseris grandiflorum</i>	Bigflower Agoseris
<i>Agoseris hetrophylla</i>	Annual Agoseris
<i>Balsamorhiza hookeri</i>	Hooker's Balsamroot
<i>Balsamorhiza sagitatta</i>	Arrowleaf Balsamroot
<i>Crepis accumianta</i>	Tapertip Hawksbeard
<i>Crepis intermedia</i>	Intermediate Hawksbeard
<i>Enceliopsis nudicalis</i>	Nakedstem Sunray
<i>Eriogonum ovalifolium</i>	Cushion Buckwheat
<i>Hesperostipa comata</i>	Needle and Thread Grass
<i>Heliomeris multiflora var. nevadensis</i>	Nevada Showy Goldeneye
<i>Ipomopsis aggregata</i>	Scarlet Gillia
<i>Linum lewisii</i>	Lewis Flax
<i>Lomatium nudicaulis</i>	Barestem Biscuitroot
<i>Lupinus argenteus</i>	Silvery Lupine
<i>Lupinus arbustus</i>	Longspur Lupine
<i>Lupinus prunophyllus</i>	Hairy Bigleaf Lupine
<i>Lupinus sericeus</i>	Silky Lupine
<i>Penstemon pachyphyllus</i>	Thickleaf Beardtongue
<i>Sphaeralcea coccinea</i>	Scarlet Globemallow
<i>Sphaeralcea grossulariifolia</i>	Gooseberryleaf Globemallow
<i>Sphaeralcea munroana</i>	Munroe's Globemallow
<i>Sphaeralcea parvifolia</i>	Small-flower Globemallow

Division of Wildlife Resources

Resource Goal

- Expand wildlife populations and conserve sensitive species by protecting and improving wildlife habitat
- Managers make the best choices with information and tools available.
- UDWR will continue to develop native plant materials for the Great Basin and Colorado Plateau.
- Continue to work with private industry to provide needed materials to restore functioning wildlands

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>

