Seeds of Success
Web Portal for Accessioning

2017 National Native Seed Conference
February 16, 2017
Washington, DC

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BG-BASE, Inc.
moneal@bg-base.com

Why a web portal? Some history

- *Oldest* SOS accession: August 28, 2000, ID931-DEBOLT2240, *Philadelpus lewisii*

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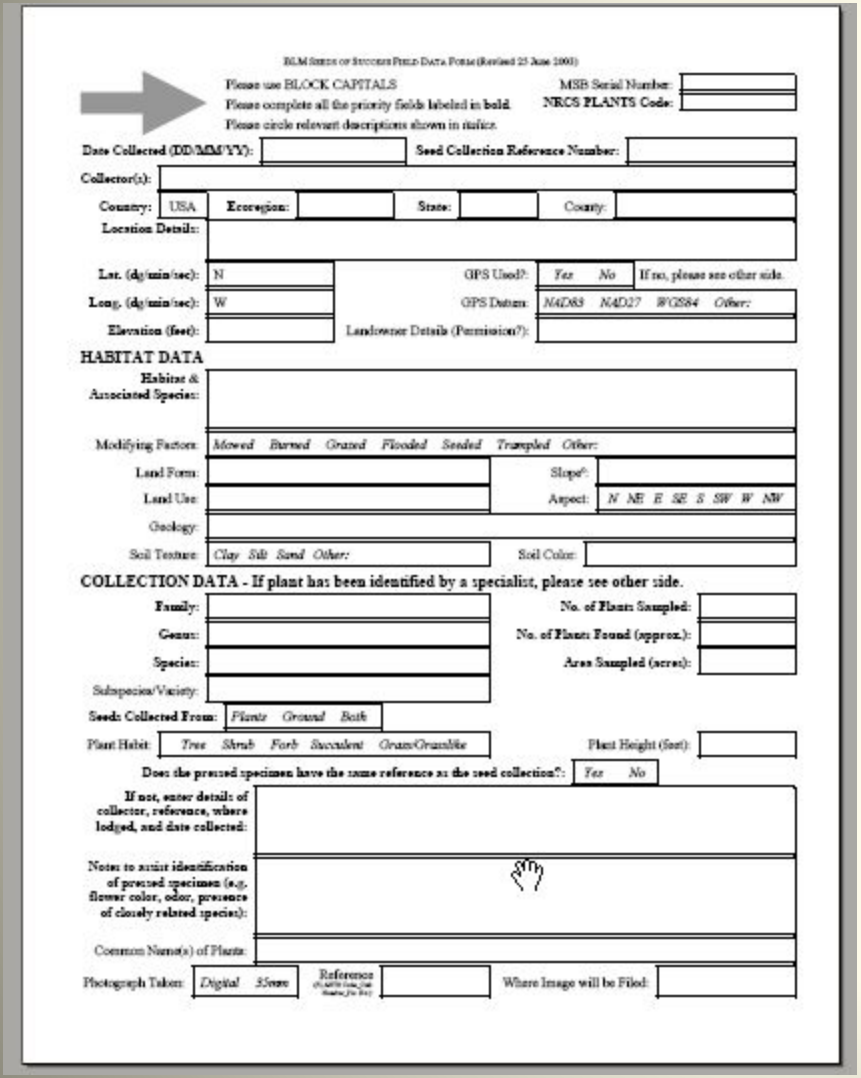
- First *databased* accession: June 8, 2006, CO932-1, *Heterotheca villosa*

Data captured by filling out forms in the field and sending to D.C.



BLM Seeds of Success Field Data Form (Revised 25 June 2003)

Please use BLOCK CAPITALS
Please complete all the priority fields labeled in **bold**.
Please circle relevant descriptions shown in italics.

MSB Serial Number:
NRCS PLANTS Code:

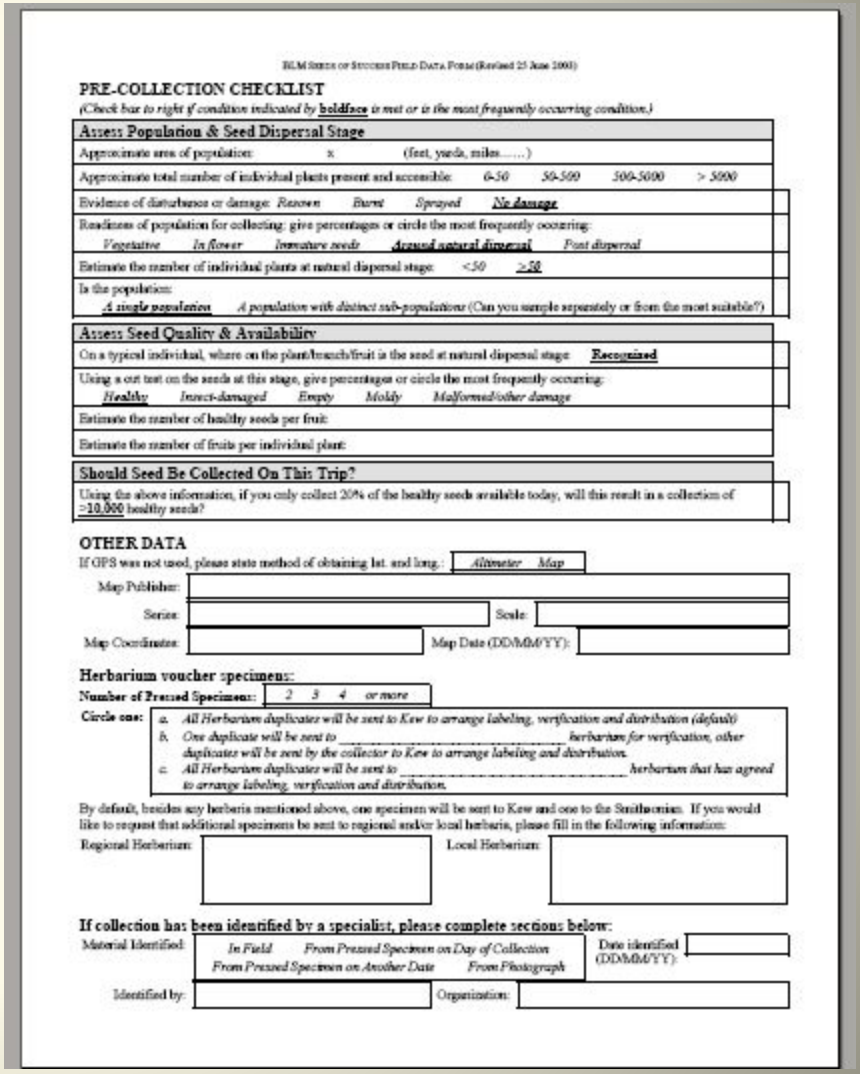
Date Collected (DD/MM/YY):
Seed Collection Reference Number:
Collector(s):
Country: USA
Ecoregion:
State:
County:
Location Details:
Lat. (dg/min/sec): N
GPS Used?: *Yes No* If no, please see other side.
Long. (dg/min/sec): W
GPS Datum: *NAD83 NAD27 WGS84 Other:*
Elevation (feet):
Landowner Details (Permission?):

HABITAT DATA

Habitat & Associated Species:
Modifying Factors: *Mowed Burned Grazed Flooded Seeded Trampled Other:*
Land Form:
Slope°:
Land Use:
Aspect: *N NE E SE S SW W NW*
Geology:
Soil Texture: *Clay Silt Sand Other:*
Soil Color:

COLLECTION DATA - If plant has been identified by a specialist, please see other side.

Family:
Genus:
Species:
Subspecies/Variety:
No. of Plants Sampled:
No. of Plants Found (approx.):
Area Sampled (acres):
Seeds Collected From: *Plants Ground Both*
Plant Habit: *Tree Shrub Forb Succulent Grass/Grasslike*
Plant Height (feet):
Does the pressed specimen have the same reference as the seed collection?: *Yes No*
If not, enter details of collector, reference, where lodged, and date collected:
Notes to assist identification of pressed specimen (e.g. flower color, odor, presence of closely related species):
Common Name(s) of Plants:
Photograph Taken: *Digital 35mm*
Reference
Where Image will be Filed:



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PRE-COLLECTION CHECKLIST

(Check box to right if condition indicated by **boldface** *is met or is the most frequently occurring condition.)*

Assess Population & Seed Dispersal Stage

Approximate area of population: x (feet, yards, miles……)

Approximate total number of individual plants present and accessible: *6-50 50-500 500-5000 > 5000*

Evidence of disturbance or damage: *Rainwash Burnt Sprayed* **No damage**

Readiness of population for collecting: give percentages or circle the most frequently occurring:
Vegetative In flower Immature seeds **Ripened natural dispersal** *Past dispersal*

Estimate the number of individual plants at natural dispersal stage: *<50* **>50**

Is the population:
A single population *A population with distinct sub-populations* (Can you sample separately or from the most suitable?)

Assess Seed Quality & Availability

On a typical individual, where on the plant/branch/fruit is the seed at natural dispersal stage: **Recognized**

Using a cut test on the seeds at this stage, give percentages or circle the most frequently occurring:
Healthy *Insect-damaged Empty Moldy Malformed/other damage*

Estimate the number of healthy seeds per fruit:

Estimate the number of fruits per individual plant:

Should Seed Be Collected On This Trip?

Using the above information, if you only collect 20% of the healthy seeds available today, will this result in a collection of **>10,000** healthy seeds?

OTHER DATA

If GPS was not used, please state method of obtaining lat. and long.: *Altimeter Map*

Map Publisher:
Series:
Scale:
Map Coordinates:
Map Date (DD/MM/YY):

Herbarium voucher specimens:

Number of Pressed Specimens: *2 3 4 or more*

Circle one:
a. *All Herbarium duplicates will be sent to Kew to arrange labeling, verification and distribution (default)*
b. *One duplicate will be sent to _____ herbarium for verification, other duplicates will be sent by the collector to Kew to arrange labeling and distribution.*
c. *All Herbarium duplicates will be sent to _____ herbarium that has agreed to arrange labeling, verification and distribution.*

By default, besides any herbaria mentioned above, one specimen will be sent to Kew and one to the Smithsonian. If you would like to request that additional specimens be sent to regional and/or local herbaria, please fill in the following information:

Regional Herbarium:
Local Herbarium:

If collection has been identified by a specialist, please complete sections below:

Material Identified: *In Field From Pressed Specimen on Day of Collection From Pressed Specimen on Another Date From Photograph*
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Identified by:
Organization:

“Quick, grab the decoder…”

Associated Species (Scientific Name):	SAVE-4, Salsola kali, Descurainia sophia, Cleome lutea
Ecological Site Description, Habitat Type and/or National Vegetation Classification :	Semi-desert sand Basin Big Sagebrush - HECORC
Location Details:	1st BLM road S. of Hanksville to right (W) of Henry mtns. access road. Continue 1.2 miles SW.

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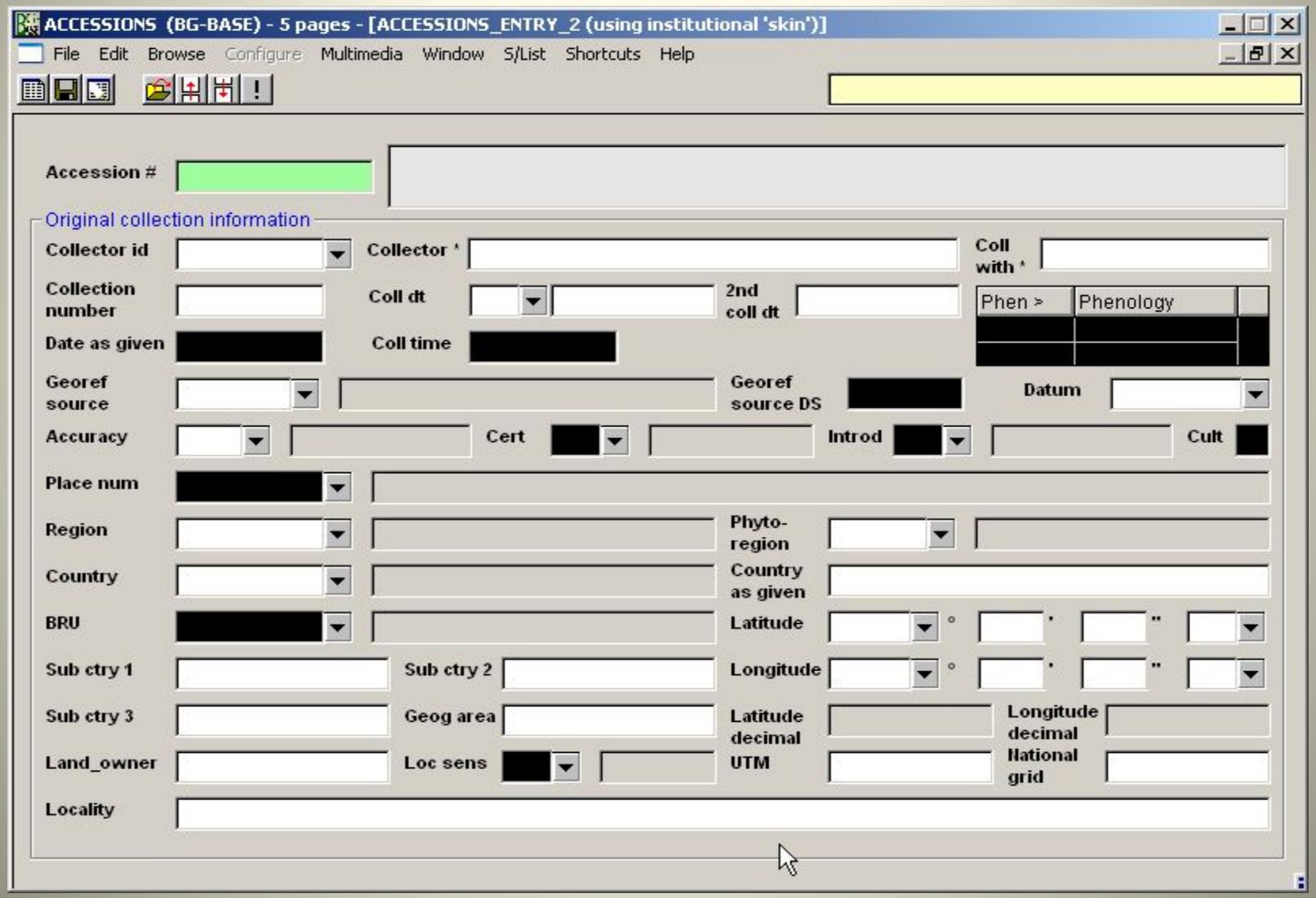
- 2009 Technology Improvement Project

Technology Improvement Project (2009)

- Rugged laptops and GPS units provided
- Capture data electronically in the field
- Data emailed to Washington, DC office
- Electronically incorporated in national SOS database

BG-BASE configured to capture data pertinent to SOS collecting teams . (Fields in black were turned off.)



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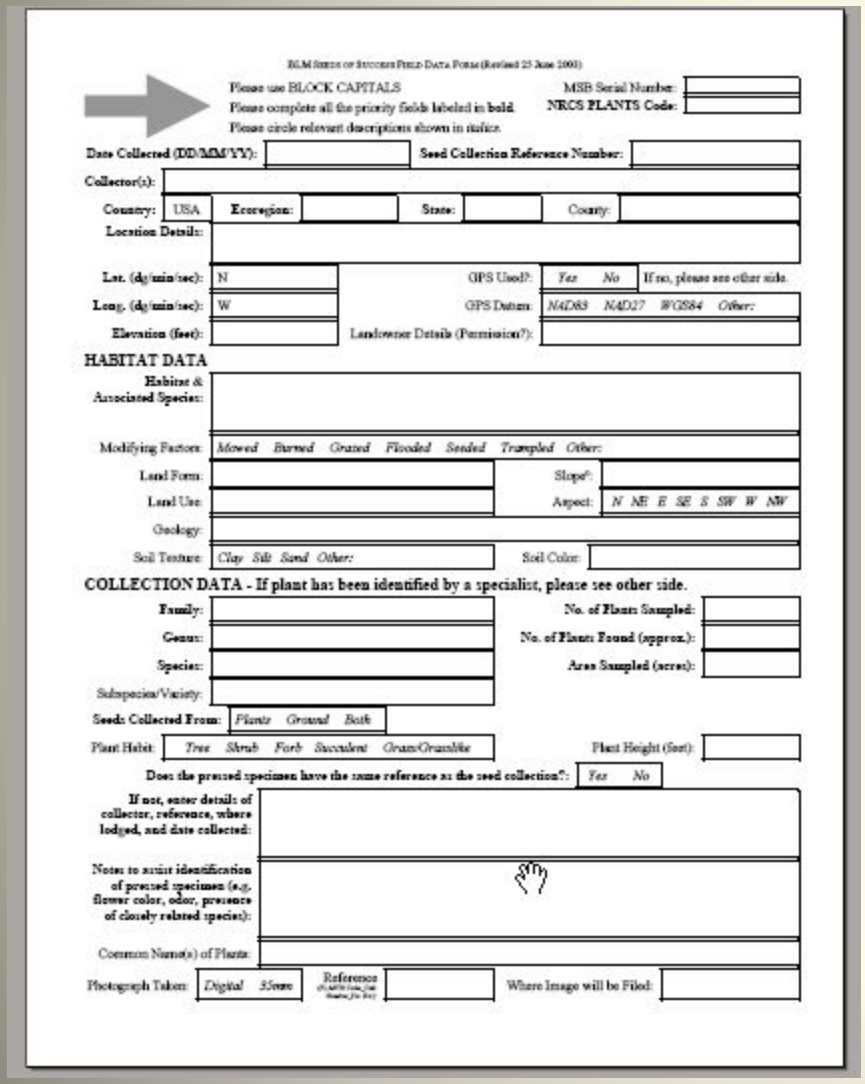

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Slope°:
Land Use:
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Geology:
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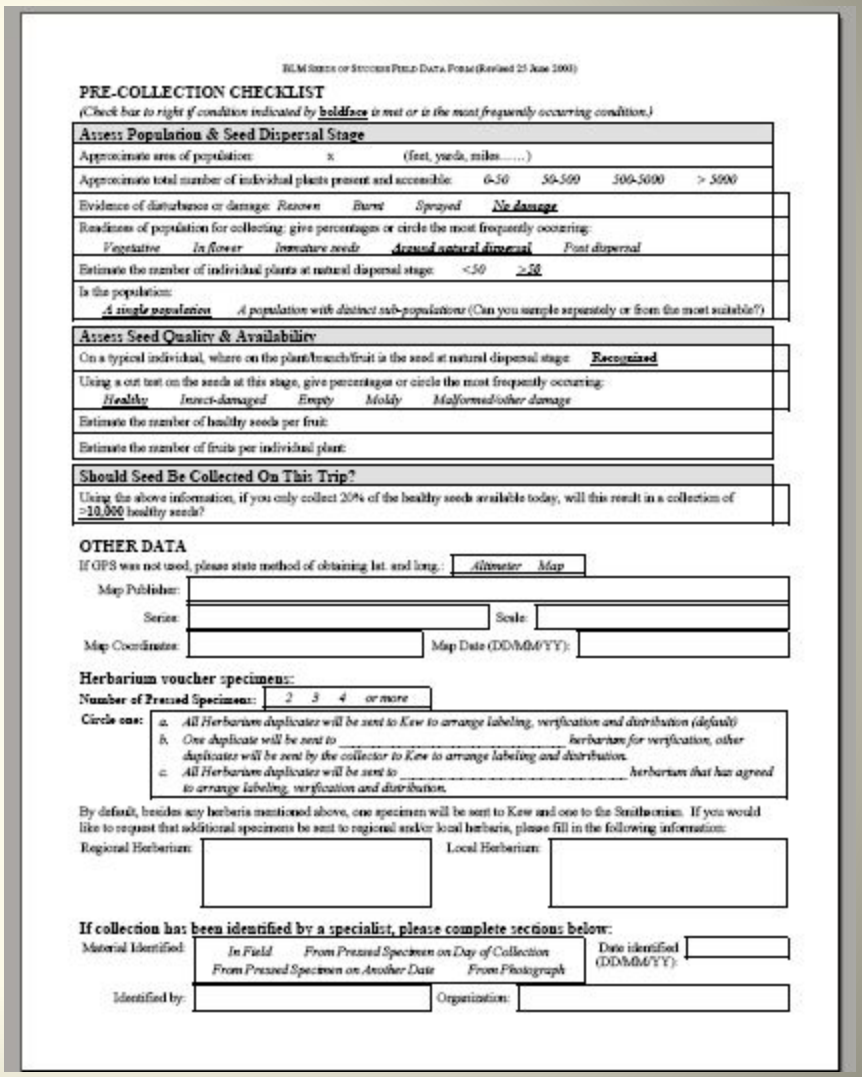

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- 2009 Technology Improvement Project
- 2016 SOS web portal goes live

Web-based accessioning

Facilitates entry of accession data directly into the SOS national database by the collectors of the material instead of having this data entry occur solely in the Washington D.C. office.

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- Available to any SOS partner with a web connection and granted access
- Interface customized specifically for the SOS program
- Data incorporated directly into the national database and then reviewed by SOS staff

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- Far less training needed than desktop *BG-BASE*, training can be done on-line

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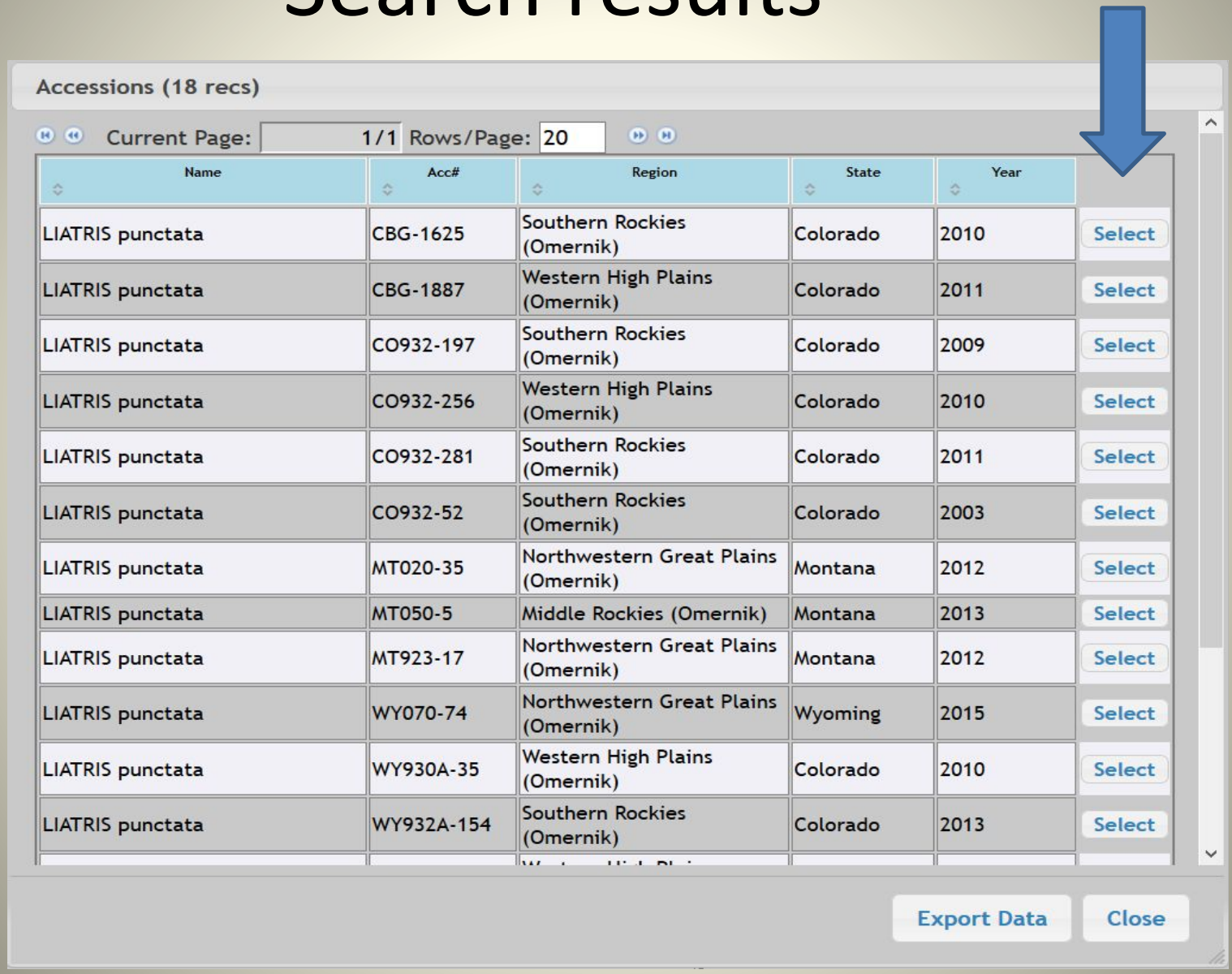
- Far less training needed than desktop *BG-BASE*, training can be done on-line
- On-line reporting tool more intuitive
- Web form can be accessed via tablets

Search criteria

Search results



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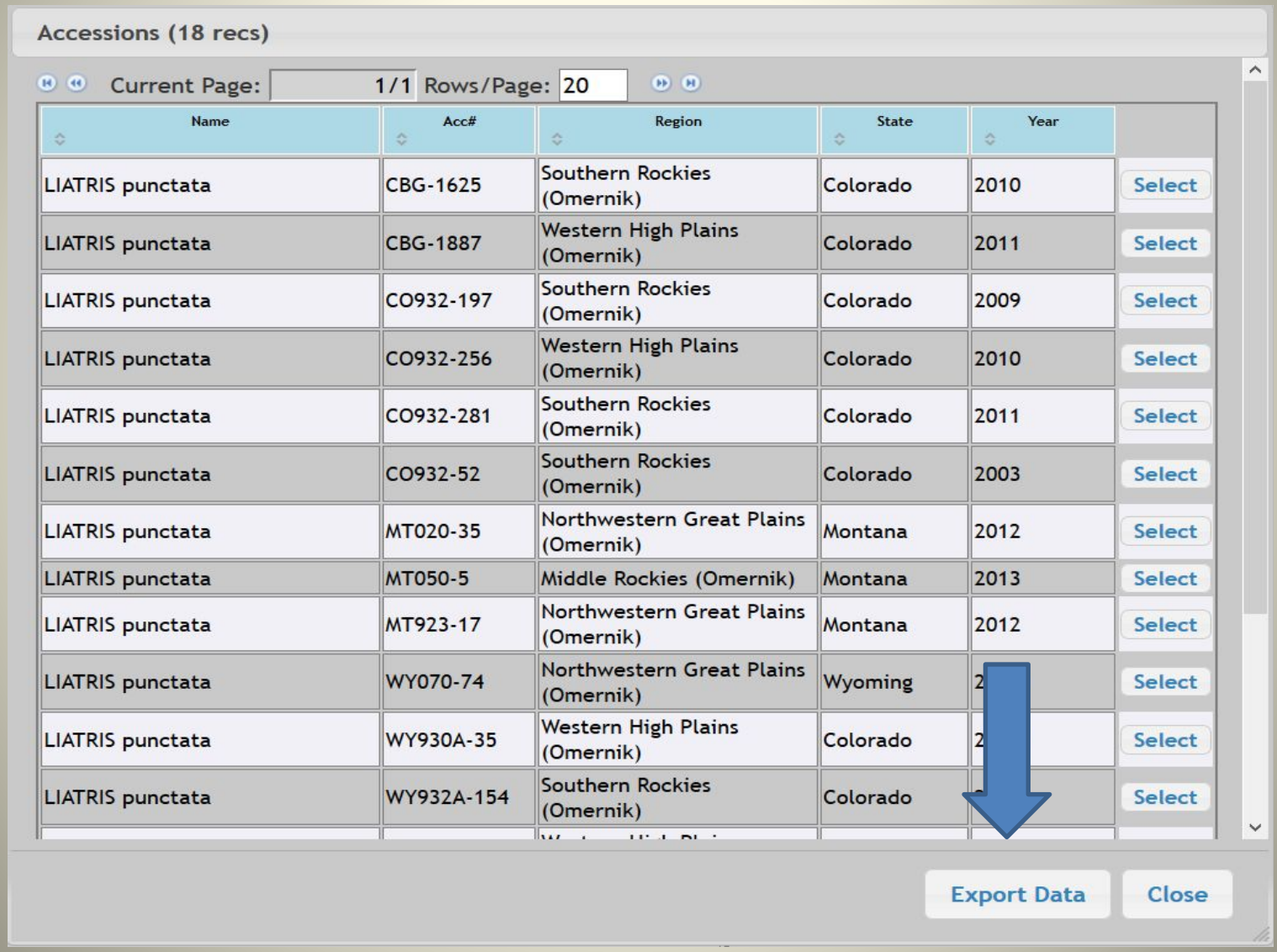

SEED COLLECTION REF. NUMBER: MT050-5 | Collector code: MT050 | Dillon Field Office

Date(s) Collected (MM/DD/YY): 09/11/2013 | Collector(s): Savage, K.

Collection Number: 5

Date range (free text): | Alt. Collection Number:

Collection Data

LIATRIS punctata

Genus or species or name code: 6297 Go

Family: ASTERACEAE | No. of Plants Sampled (min. 50): Height: ~0.5'

Genus: LIATRIS | No. of Plants Found (approx.): 2000

Species: punctata | Area Sampled (acres): 20

Rank (var/for/ssp): | Seeds Collected From: (•) Plants ( ) Ground ( ) Both ( ) Unk

Plant Habit: | Plant Height (feet):

Field Notes: ~400 plants sampled

Common Name(s) of Plant: dotted gayfeather | NRCS plants code: LIPU

Location Data

Ecoregion (Omernik III): 17E -- Middle Rockies (Omernik) | State: Montana | County: Madison

Subunit (BLM area, park, etc): | Area within subunit:

Land Owner: BLM and State | Non-BLM Permission Filed: ( ) Yes ( ) No ( ) N/A

Location Details: From Ennis, MT drive south on Hwy 287 for about 18 miles. Turn west towards McAfee Bridge and continue about 0.8 miles, just after crossing McAfee bridge turn left (south) and continue about 2.5 miles toward Ruby Creek Campground. Just past the campground is the collection site. The collection site extends up on to the Wall Creek State Wildlife Management Area.

Source Used: (•) GPS ( ) Map ( ) None | Accuracy: Exact (GPS) | Datum: (•) NAD83 ( ) NAD27 ( ) WGS84 ( ) Other

Lat. (dg/min/sec) 45 ° 3 ' 26.29 " N | Lon. (dg/min/sec) 111 ° 40 ' 10.38 " W Map

Elevation: 5536 | Elevation Unit: Feet

Habitat Data

Associated Species	HESPEROSTIPA comata	ERIOGONUM microthecum	PSEUDOROEGNERIA spicata	ANTENNARIA sp.
(Scientific Name):	POA secunda			

Habitat:

Modifying Factors: ☐ Mowed ☐ Burned ☐ Grazed ☐ Flooded ☐ Seeded ☐ Trampled ☐ Other

Land Form: River terrace Slope(degrees): 2 degrees °

Land Use: Aspect: ☐ N ☐ NE ☑ E ☐ SE ☐ S ☐ SW ☐ W ☐ NW

Geology: Mixed alluvium

Soil Texture: ☐ Clay ☐ Silt ☐ Sand ☐ Other Soil Color:

Herbarium Vouchers

Number of pressed specimens: 3

Date voucher was taken:

Herbaria receiving the specimens:

Specialist Identification

Identified by: In field

Location: ◉ In Field ○ From pressed specimen on day of collection ○ From pressed specimen on another date ○ From photograph

Date identified:

Current Collection Summary

COUNT_TAXA results

Results (press Alt-PrtScr to print)

Bureau of Land Management / PCA
BLM / PCA
Taxon count from the ACCESSIONS table
Selection criterion: entire table
12 February 2017

Code	Major taxon	Families	Genera	Species	Taxa	Accessions	Plants	Records
-	(undefined)	1	2	2	2	33	n/a	33
F	fern	2	2	2	2	2	n/a	2
G1	gnetophyte	1	1	6	6	20	n/a	20
G2	conifer	4	15	50	52	114	n/a	114
D	dicot	133	915	3,612	4,283	14,817	n/a	14,817
M	monocot	34	212	1,047	1,163	6,154	n/a	6,154
AN04	arthropod	1	1	1	1	1	n/a	1
	TOTAL	176	1,148	4,720	5,509	21,141	n/a	21,141

ca. 3000 of 21,141 accessions created using web portal

Where to from here?

- Faster searches and more search options
- Enhance data entry efficiency
  (record copy, field copy)
- Additional mapping options
- Continued data integrity checks
- Greater coordination / synchronization with other cooperators (PLANTS, GRIN, ???)
- Utilization of other modules in *BG-BASE*?

Where to from here?

Collection date / range
Omernik region / state
???

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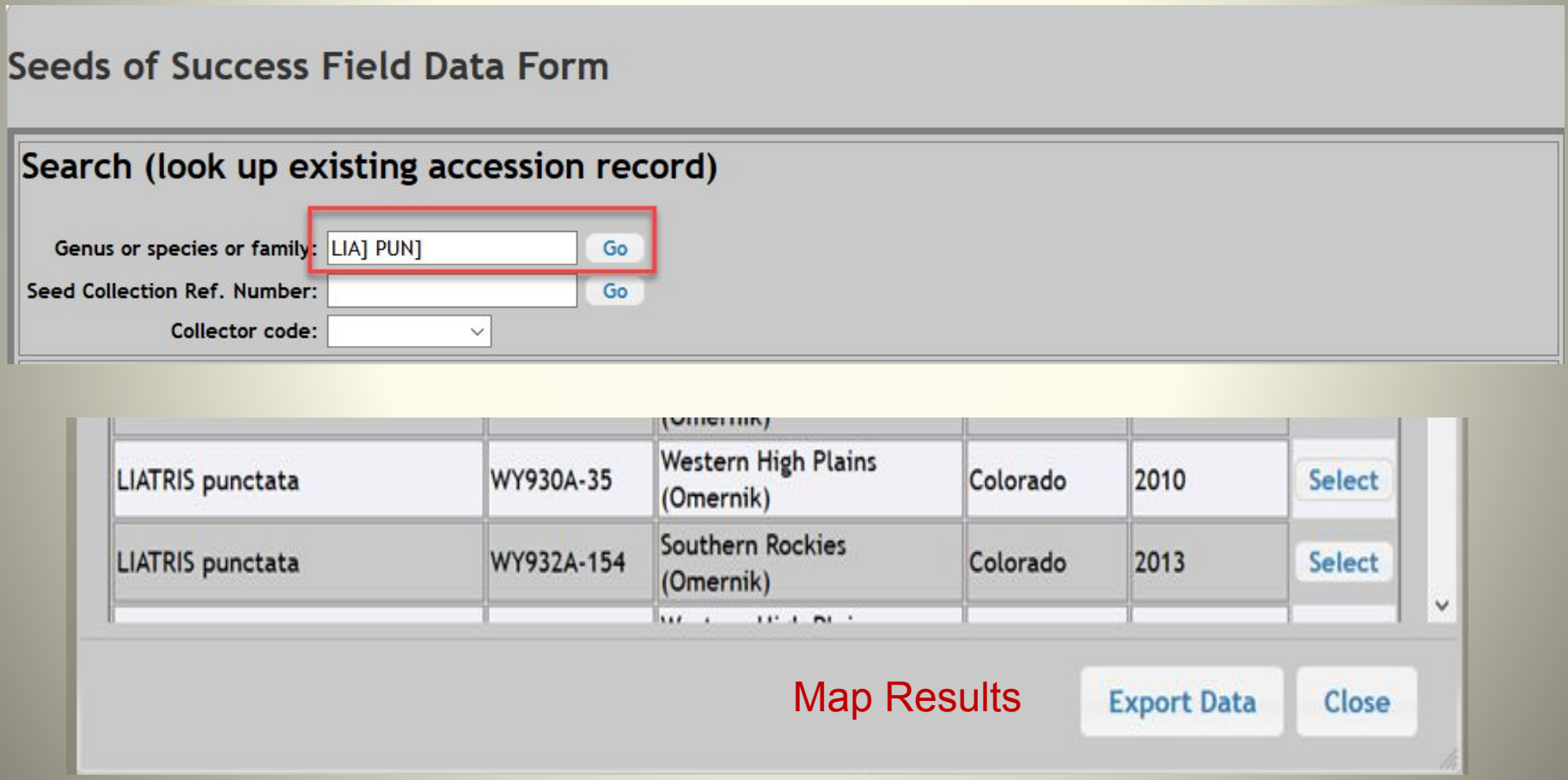

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- What else can *BG-BASE* do?

Habitat Data

Associated Species	HESPEROSTIPA comata	ERIOGONUM microthecum	PSEUDOROEGNERIA spicata	ANTENNARIA sp.
(Scientific Name):	POA secunda			

Habitat:

Modifying Factors: ☐ Mowed ☐ Burned ☐ Grazed ☐ Flooded ☐ Seeded ☐ Trampled ☐ Other

Land Form: River terrace Slope(degrees): 2 degrees °

Land Use: Aspect: ☐ N ☐ NE ☑ E ☐ SE ☐ S ☐ SW ☐ W ☐ NW

Geology: Mixed alluvium

Soil Texture: ☐ Clay ☐ Silt ☐ Sand ☐ Other Soil Color:

Herbarium Vouchers

Number of pressed specimens: 3

Date voucher was taken:

Herbaria receiving the specimens:

Specialist Identification

Identified by: In field

Location: ◉ In Field ○ From pressed specimen on day of collection ○ From pressed specimen on another date ○ From photograph

Date identified:

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What else can *BG-BASE* do?

Inventory Management

(Where is that Philadelphus seed collected in 2000?)

Location (first line is most recent) (when adding a new location, use Ctrl-N to create a blank line)

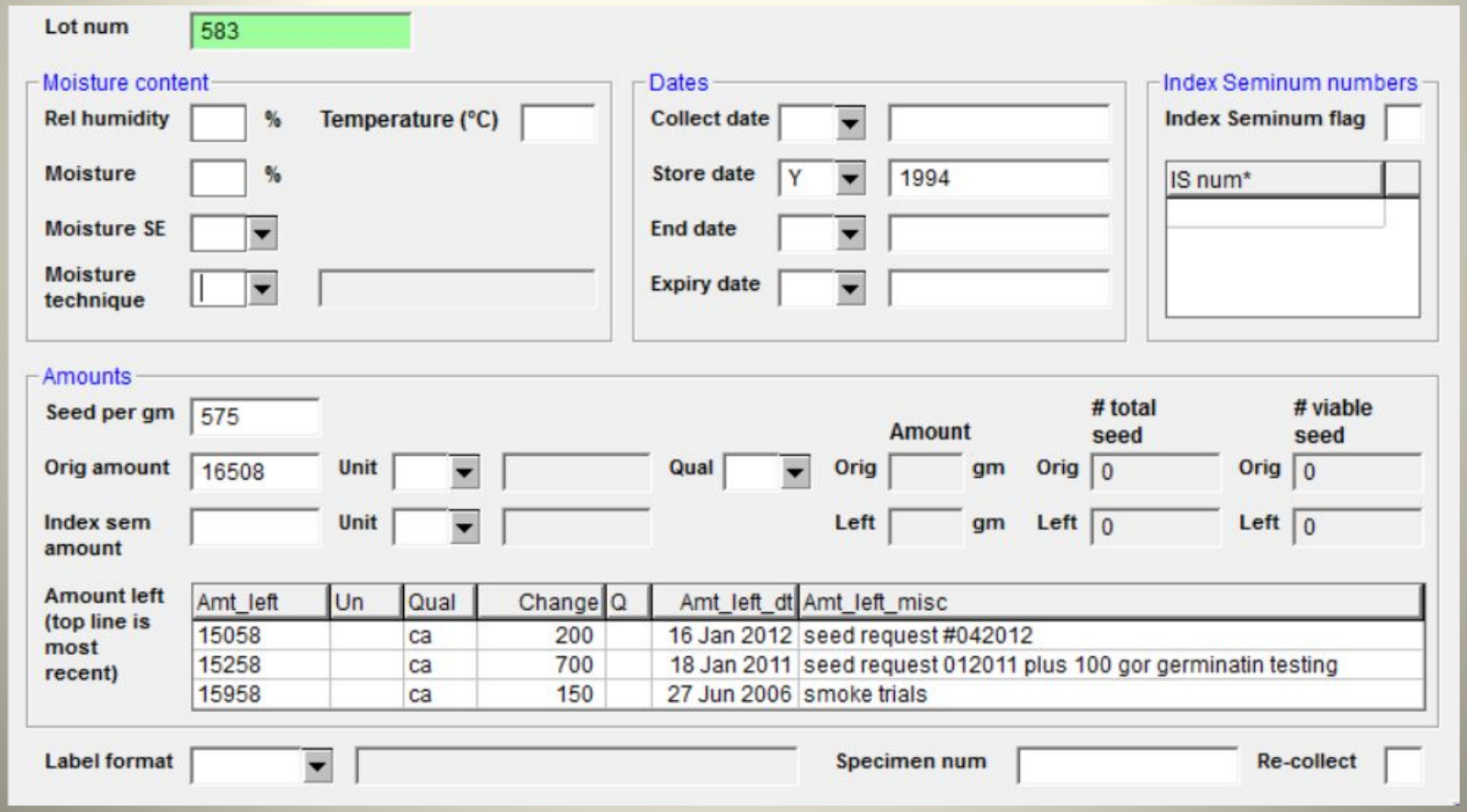
Code>	Location	Grid	X	Y	Z	C_t>	Change type	Q>	Plant date	#Plts
62	Jamaica Plain, Map 62	SW	756	293		M	moved	D	1 Apr 2009	1
EN	East Nursery, Dana Greenl	28-08				M	moved	M	Sep 2008	1
EN	East Nursery, Dana Greenl	28-16				M	moved	M	Jun 2007	1
SH	Shade House, Dana Greer	18-09-01				M	moved	M	Jul 2006	1
SH	Shade House, Dana Greer	18-20-01				M	moved	M	Jun 2004	1

Field checks /observations (first line is most recent) (when adding a new observation, use Ctrl-N to create a blank line)

Code>	Condition	Q>	Check dt	Rep >	Veg >	S>	C>	Check note	Check by >
G	good	D	21 May 2015	O				Moderate insect damage (chewed leaves);	Port, K., Wood, J
E	excellent	D	23 Sep 2013					2-4" inches annual growth; vigorous; sinigl	Priest, M.
G	good	D	19 Nov 2010		DA			Developing a new leader at about 1 m.	Port, K., Damery
G	good	D	22 Sep 2008					1.6 M	Kadis, I.
G	good	D	9 Aug 2007					1.1 M	Kadis, I.

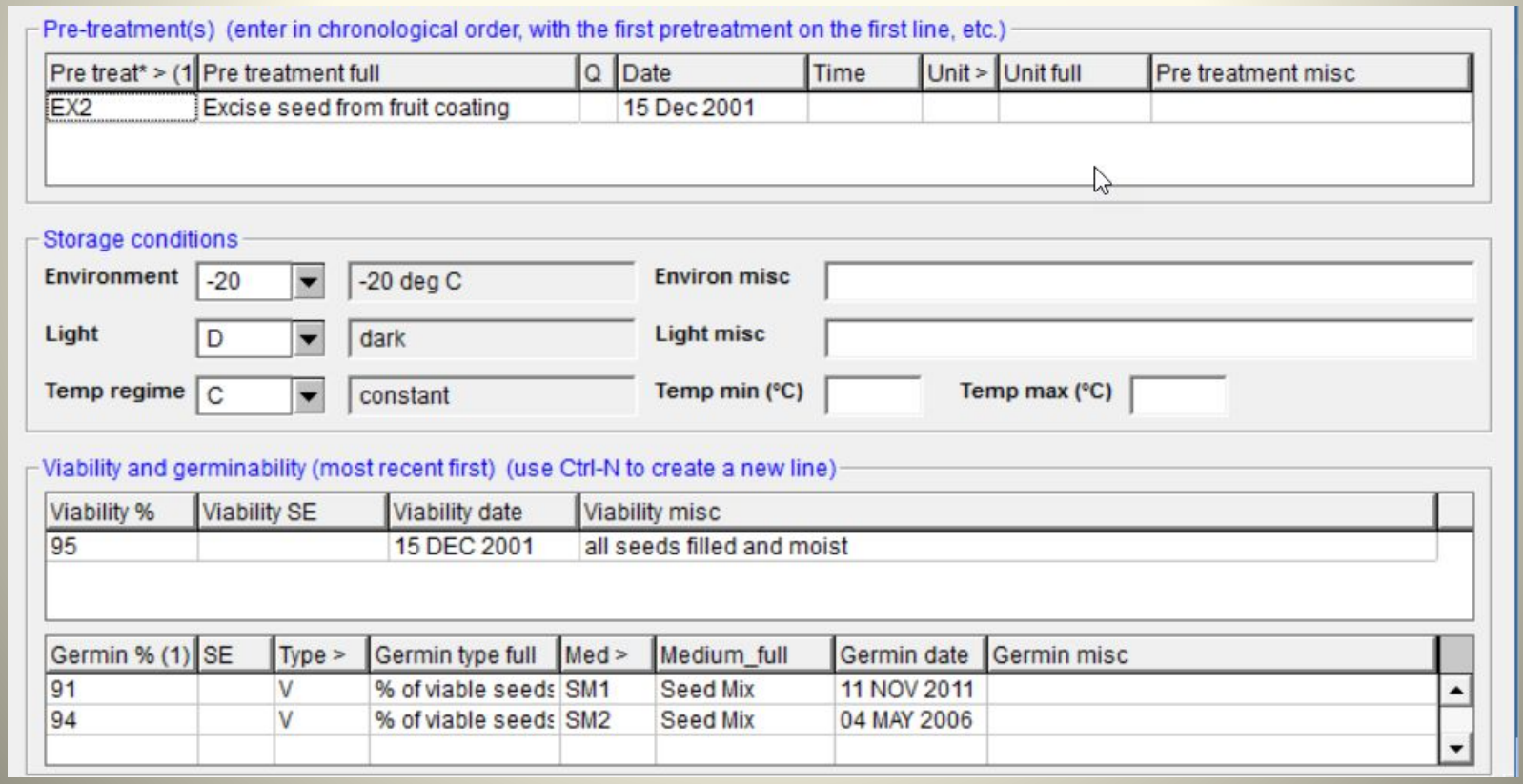
What else can *BG-BASE* do?

Seed Bank Management



What else can *BG-BASE* do?

Germination and Viability Testing Data



Pre-treatment(s) (enter in chronological order, with the first pretreatment on the first line, etc.)

Pre treat* > (1	Pre treatment full	Q	Date	Time	Unit >	Unit full	Pre treatment misc
EX2	Excise seed from fruit coating		15 Dec 2001				

Storage conditions

Environment	-20	-20 deg C	Environ misc	
Light	D	dark	Light misc	
Temp regime	C	constant	Temp min (°C)	Temp max (°C)

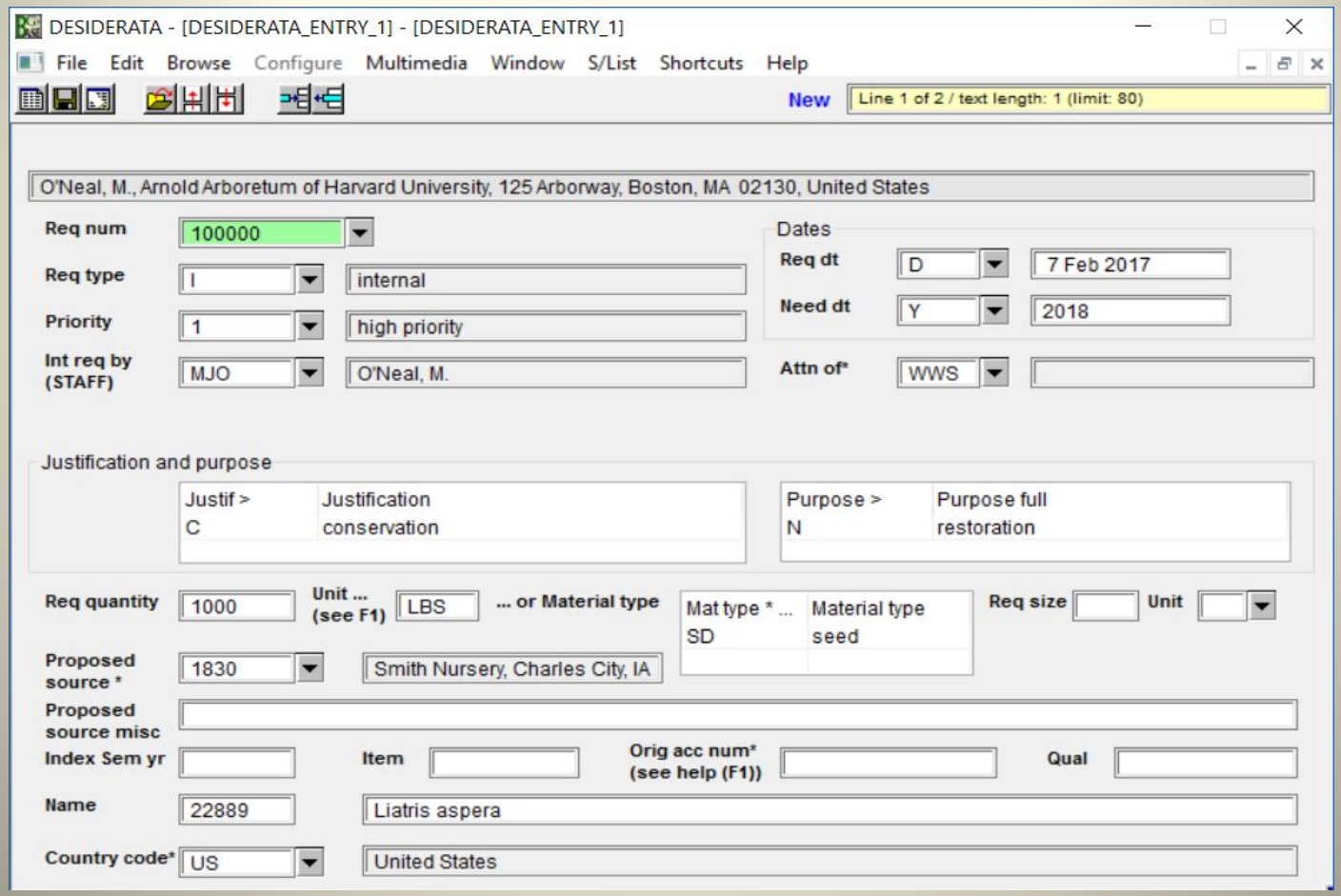
Viability and germinability (most recent first) (use Ctrl-N to create a new line)

Viability %	Viability SE	Viability date	Viability misc
95		15 DEC 2001	all seeds filled and moist

Germin % (1)	SE	Type >	Germin type full	Med >	Medium_full	Germin date	Germin misc
91		V	% of viable seeds	SM1	Seed Mix	11 NOV 2011	
94		V	% of viable seeds	SM2	Seed Mix	04 MAY 2006	

What else can *BG-BASE* do?

Desiderata / Requests for Material



Selected projects and collaborators

- Seeds of Success
- RBG Edinburgh Multisite Search
- BLM Recovery Plan Database
- *Flora Conservanda*
- RHS Plantfinder
- Seed Herbarium Image Project - Harvard *(SHIP)*

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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

NATIVE SEED NETWORK

Institute for Applied Ecology