

Emergence of



SCAN
Southwest Collections of Arthropods Network

Based on the Symbiota Software Platform and Filtered Push Technology for Remote Specimen Identifications

Nico Franz¹, Neil Cobb², Paul Heinrich², Edward Gilbert³ & Paul Morris⁴

Sandra Brantley, UNM, using parts with permission, March 2013

- ¹ School of Life Sciences, Arizona State University
- ² Merriam-Powell Center, Northern Arizona University
- ³ Symbiota Virtual Biota Software Project, Tucson
- ⁴ Museum of Comparative Zoology, Harvard University

ECN Annual Meeting 2012 – Knoxville, TN

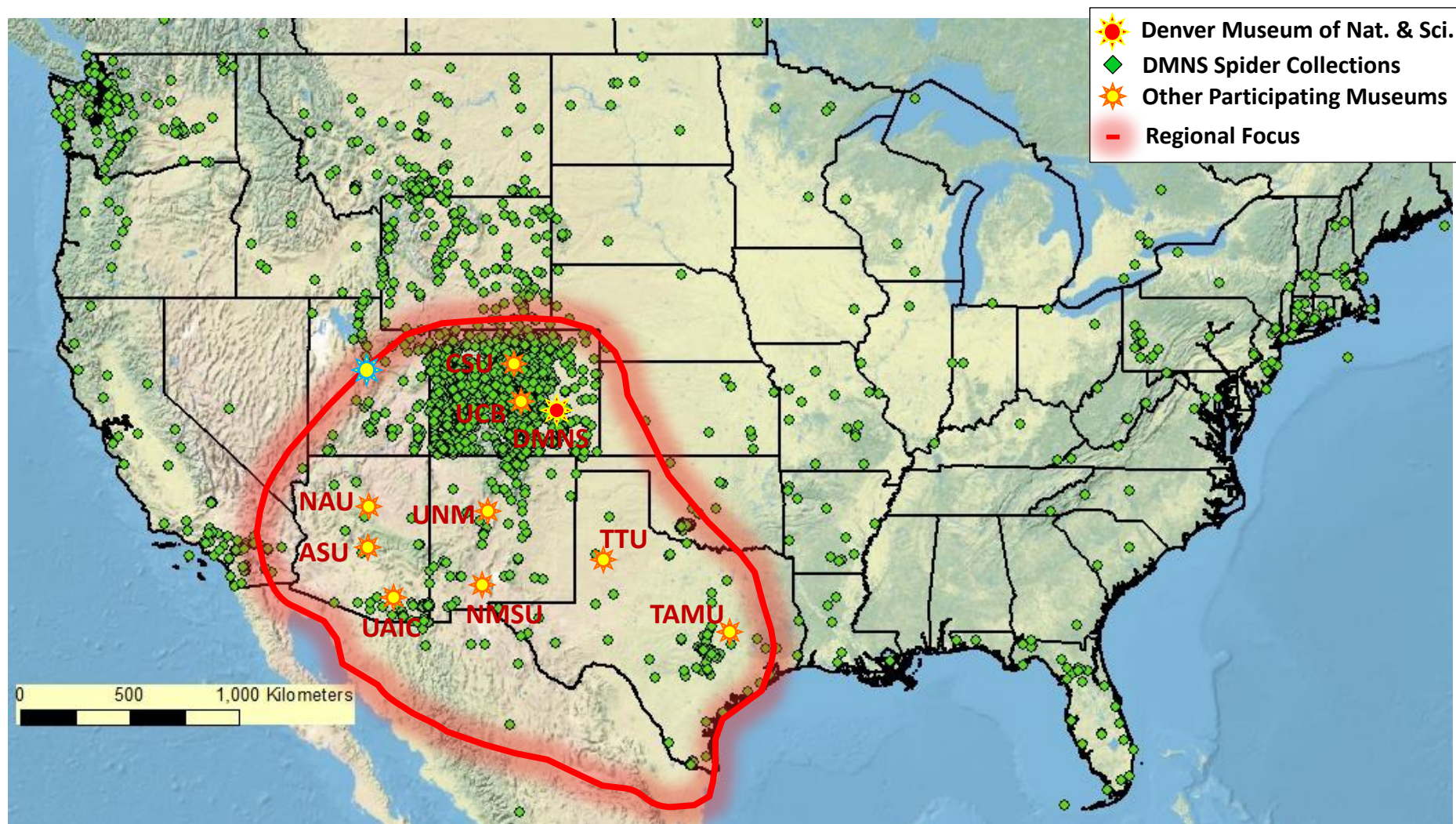
November 10, 2012

SCAN team at the 1st All-Hands Meeting, August 15-16, 2012 (ASU)



- | | | | | |
|-------------------------|-----------------------|--------------------------|---------------------------|---------------------------------------|
| 1 Riley Nelson (BYU) | 6 Shawn Clark (BYU) | 11 Paula Cushing (DMNS) | 16 James Hanken (MCZ) | 21 Scott Bundy (NMSU) |
| 2 Deane Bowers (UCB) | 7 Paul Heinrich (NAU) | 12 Wendy Moore (UA) | 17 Gene Hall (UA) | 22 Ed Gilbert (Symbiota) |
| 3 Frank Krell (DMNS) | 8 Graeme Davis (NMSU) | 13 Sangmi Lee (ASU) | 18 Brian Heinold (CSU) | 23 Rod Spears (Specify) |
| 4 Nico Franz (ASU) | 9 John Oswald (TAMU) | 14 Quentin Wheeler (ASU) | 19 J. Colkendolpher (TTU) | 24 Roy Larimer
(Visionary Digital) |
| 5 Sandra Brantley (UNM) | 10 Neil Cobb (NAU) | 15 Ed Riley (TAMU) | 20 Paul Morris (MCZ) | |

SCAN (original member) collections and geographic scope *



* **BYU & MCZ SW Ants** in the works to join the network (also via possible NSF-PEN support)
More reciprocal networking in planning – Arthropod TCNs, CalBug, SEINet, CONABIO, etc.

SCAN – Apart...

UNM

ASU

TAMU

NMSU

UA

NAU

TTU

DMNS

CSU

UCB





[Home](#) >> Collections

..and yet together.

Select Collections to be Searched

Specimens

Select/Deselect all Collections



Arizona State University Hasbrouck Insect Collection (ASU) [more info](#)

C.P. Gillette Museum of Arthropod Diversity (CSU) [more info](#)



Colorado Plateau Museum of Arthropod Biodiversity (NAU) [more info](#)



Denver Museum of Nature and Science (DMNS) [more info](#)



Museum of Southwestern Biology, Division of Arthropods (UNM) [more info](#)



New Mexico State Collection of Arthropods (NMSU) [more info](#)



NPS-CPMAB (NAU) [more info](#)



Texas A&M University Insect Collection (TAMU) [more info](#)



Texas Tech University - Invertebrate Zoology (TTU) [more info](#)



University of Arizona Insect Collection (UA) [more info](#)



University of Colorado Museum of Natural History Entomology Collection (UCB) [more info](#)



Rationale

- The Southwest is **diverse, not as well documented** as other U.S. regions
- Collections are mostly small- to medium-sized, and have **different taxonomic emphases**, historical and contemporary patterns of activity, **levels of identification, digitization**, etc.
- Average distance among collections is ~ 480 miles, thus **little integration**

Rationale

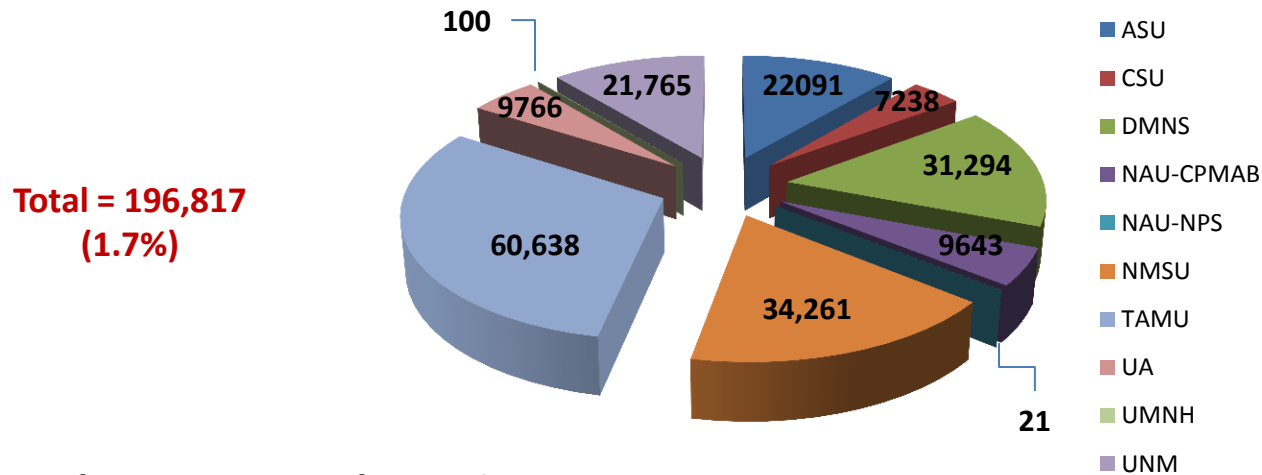
- The Southwest is **diverse, not as well documented** as other U.S. regions
- Collections are mostly small- to medium-sized, and have **different taxonomic emphases**, historical and contemporary patterns of activity, **levels of identification, digitization**, etc.
- Average distance among collections is ~ 480 miles, thus **little integration**
- Digitization focus is on arthropods commonly collected with pitfall traps: arachnids, centipedes, millipedes, beetles, cockroaches, ants, wasps
- **Relative emphasis of quality over quantity**, both for databasing and imaging
- **Symbiota** as unifying network platform; **Filtered Push** for remote IDs
- **"By taxonomists, for taxonomists"** but not exclusively
- A range of applied scientific and outreach projects will emerge through SCAN

Specific goals – specimens to be databased, imaged, identified

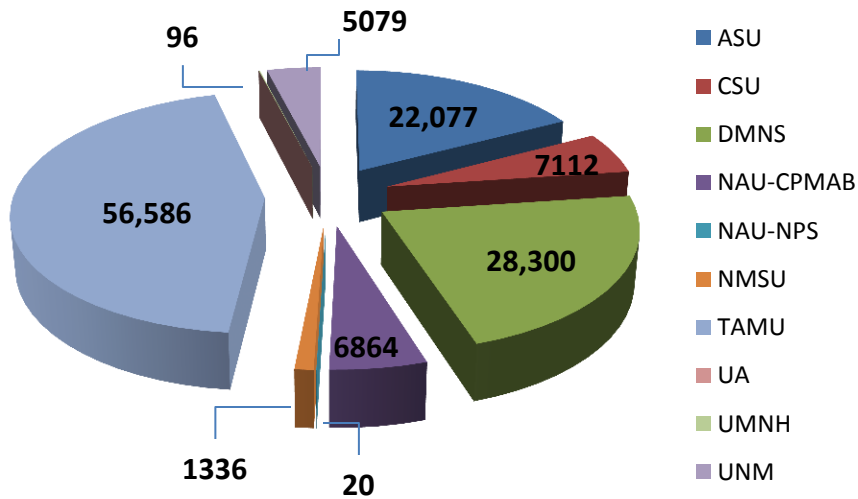
	Entire Collection				
Institution	Collection Size (Specimens)	# of Species	Database System	# of Specimens Imaged	# of Specimens Cataloged
Arizona State University	700,000	12,000	Symbiota	275	0
Colorado State University	2,650,000	40,000	Symbiota	0	100,000
Denver Museum of Nature & Science	1,346,000	25,000	KEMU	120	30,000
New Mexico State University	150,000	8,000	Symbiota	0	25,000
Northern Arizona University	250,000	8,500	Symbiota	750	12,000
Texas A&M University	2,600,000	43,700	TAMU	2,000	491,000
University of Arizona	2,000,000	35,000	Symbiota	5,000	5,000
University of Colorado at Boulder	700,000	14,500	Symbiota	0	80,000
University of New Mexico	120,000	10,000	Symbiota	850	30,500
Texas Tech University	1,000,000	7,500	Specify	1,200	65,000
Total or Mean	11,516,000	20,420	10	10,195	838,500

Where are we right now? ⇒ specimens on-line, georeferencing

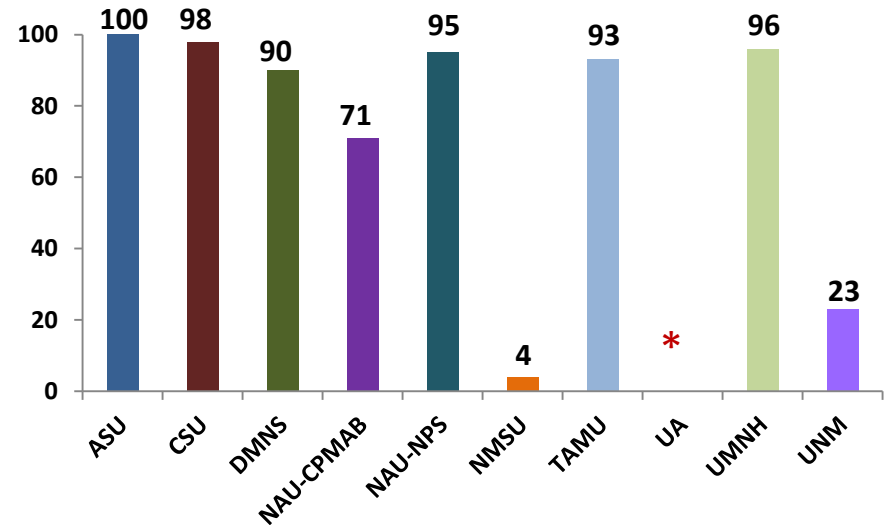
of specimens databased



of specimens georeferenced



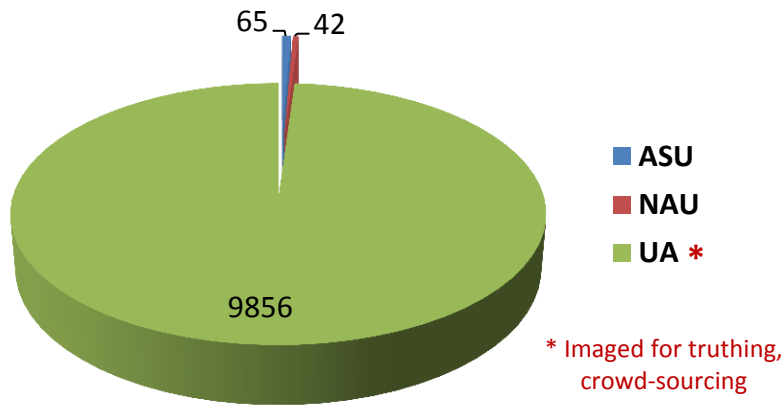
% of specimens georeferenced



* Will use crowd-sourcing

Where are we right now? ⇒ images on-line

of images uploaded



- Most collections upgraded to the **VisDig** Passport II system
- Activities just ramping up, need coordination / promotion of iDigBio HUB-compliant **imaging / annotation standards**
- NAU pioneered **imaging course – How-To Videos** on-line at <https://nau.edu/Merriam-Powell/Biodiversity-Center/How-To-Videos/>



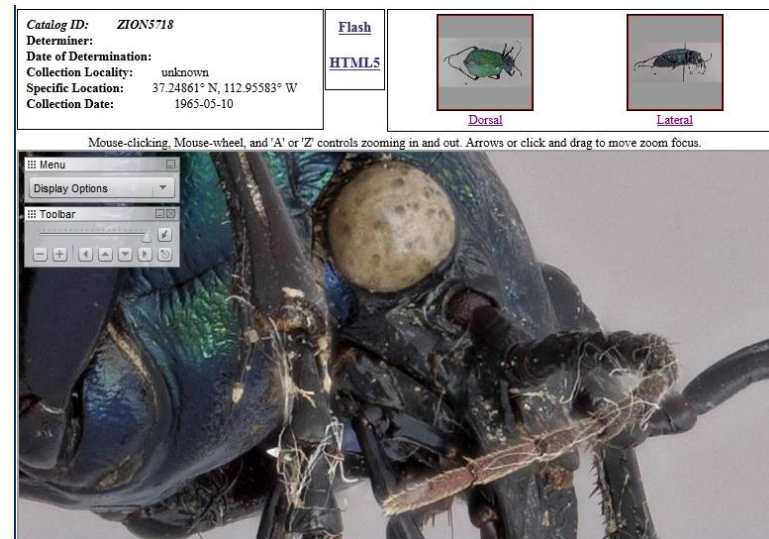
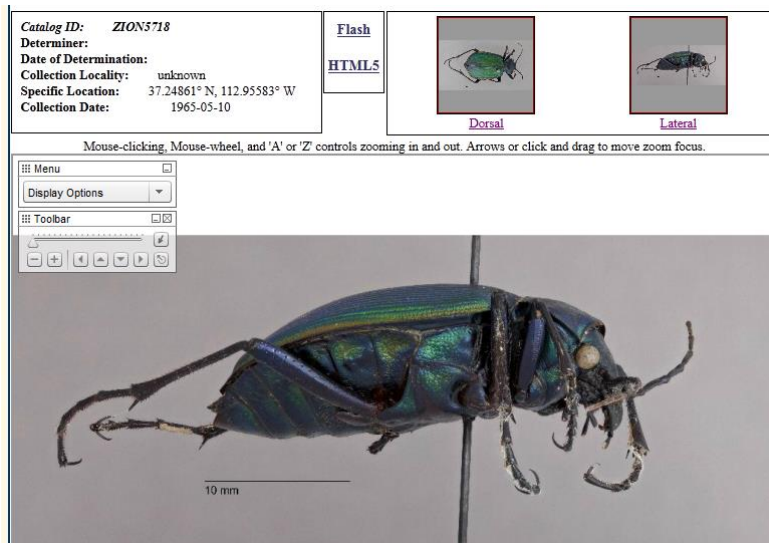
http://symbiota1.acis.ufl.edu/imglib/scan/ASU/201209/ASUHIC0007185_habitus_lat.jpg
<http://symbiota1.acis.ufl.edu/scan/portal/collections/individual/index.php?occid=363465>



http://symbiota1.acis.ufl.edu/imglib/scan/ASU/201211/ASUHIC0000914_habitus_dor_0.jpg
<http://symbiota1.acis.ufl.edu/scan/portal/collections/individual/index.php?occid=9349>

SCAN in the near future

- **Finish integration of all SCAN collections** in the Symbiota portal
- Set up and ramp up **imaging**, while adopting / optimizing HUB standards; writing **protocols**
- Implement and optimize **Filtered Push capabilities** for identification and taxonomic coordination
- **Expand our networking** to interface with others (collections, TCN's, etc.)



<http://symbiota1.acis.ufl.edu/scan/portal/index.php>

