



Symbiota Collections of Arthropods Network (SCAN)
A Data Portal Built to Visualize, Manipulate, and Export
Species Occurrences

July 2012 to 2016



Symbiota *Promoting
Bio-Collaboration*



This project made possible by National Science Foundation Award EF 1207371





SCAN Digitization Goals

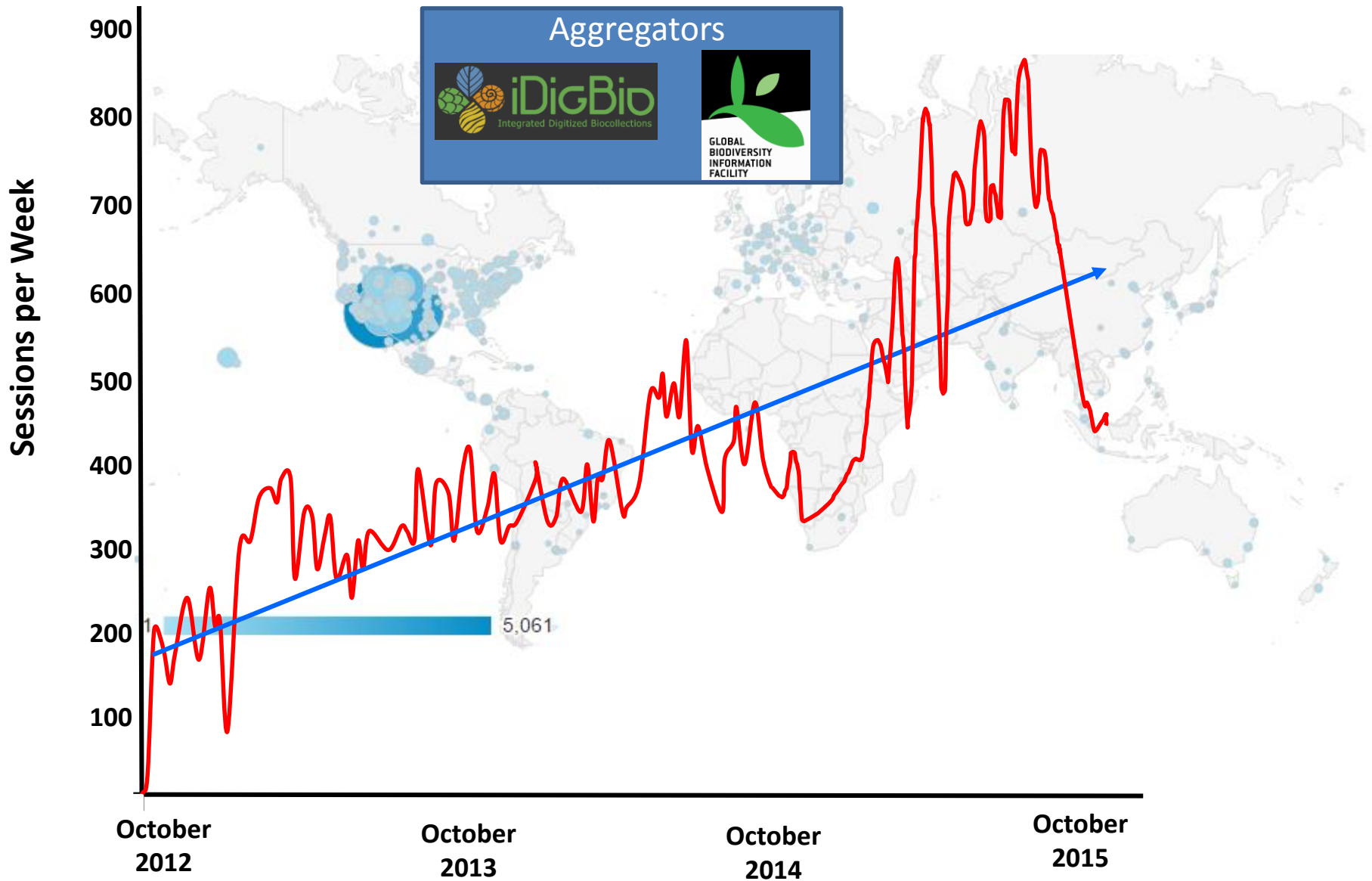
- Digitize **750,000 records** for Southwest ground-dwelling arthropods
- Produce **16,000 high-resolution images** of species

SCAN Progress

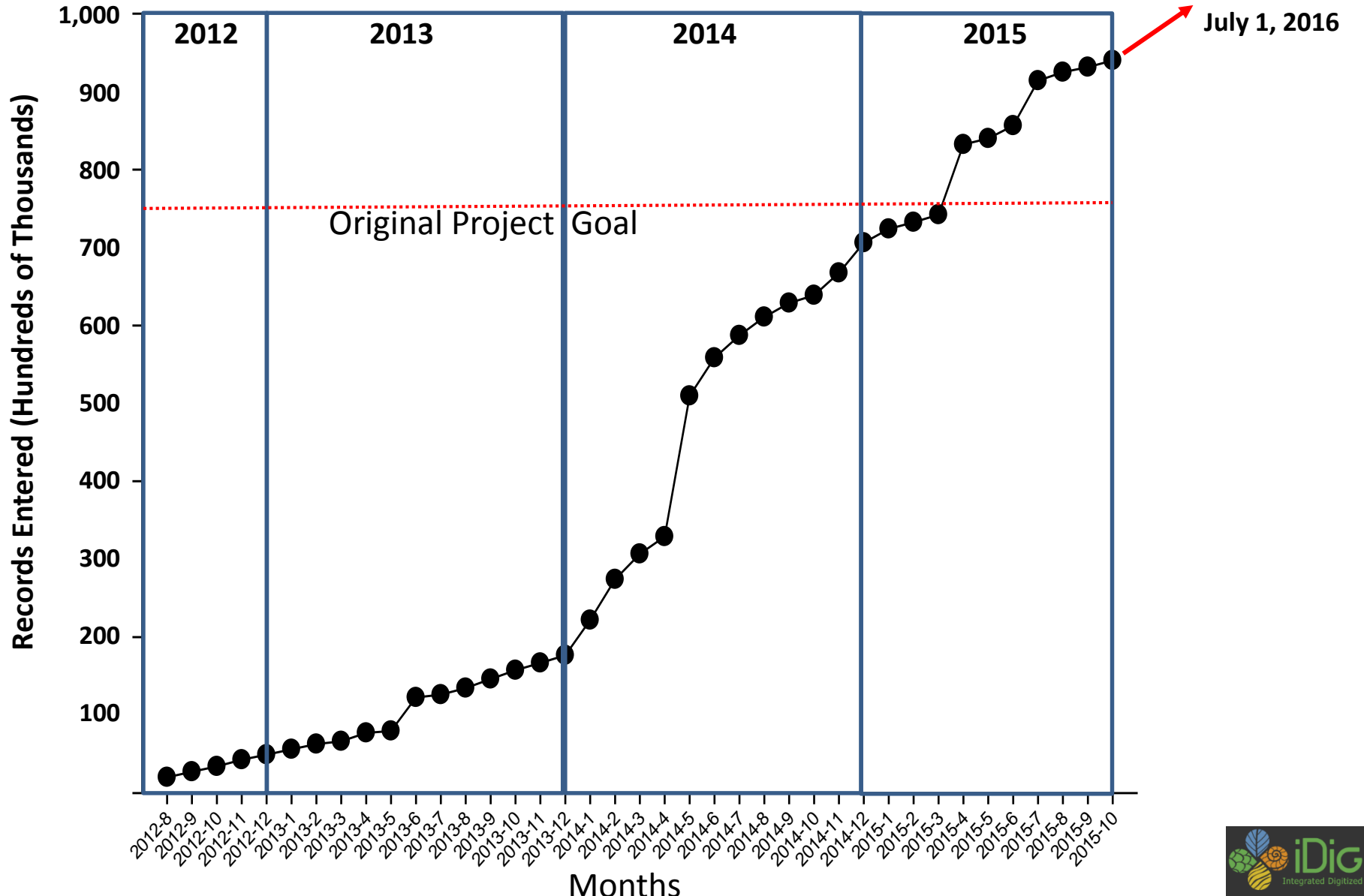
1. Exceeded target (**953,616** digitized records) 84% georeferenced, 53% identified
2. **21,551** high-res images, 177,484 specimen/label low-res images
3. **38** non-ADBC funded collections, **637,000** digitized records
4. Three PEN grants funded, two PEN proposals in review.
5. Education-outreach program launched (Basham, poster & workshop at this meeting)
6. Peer-reviewed publications (10) book chapters (2)



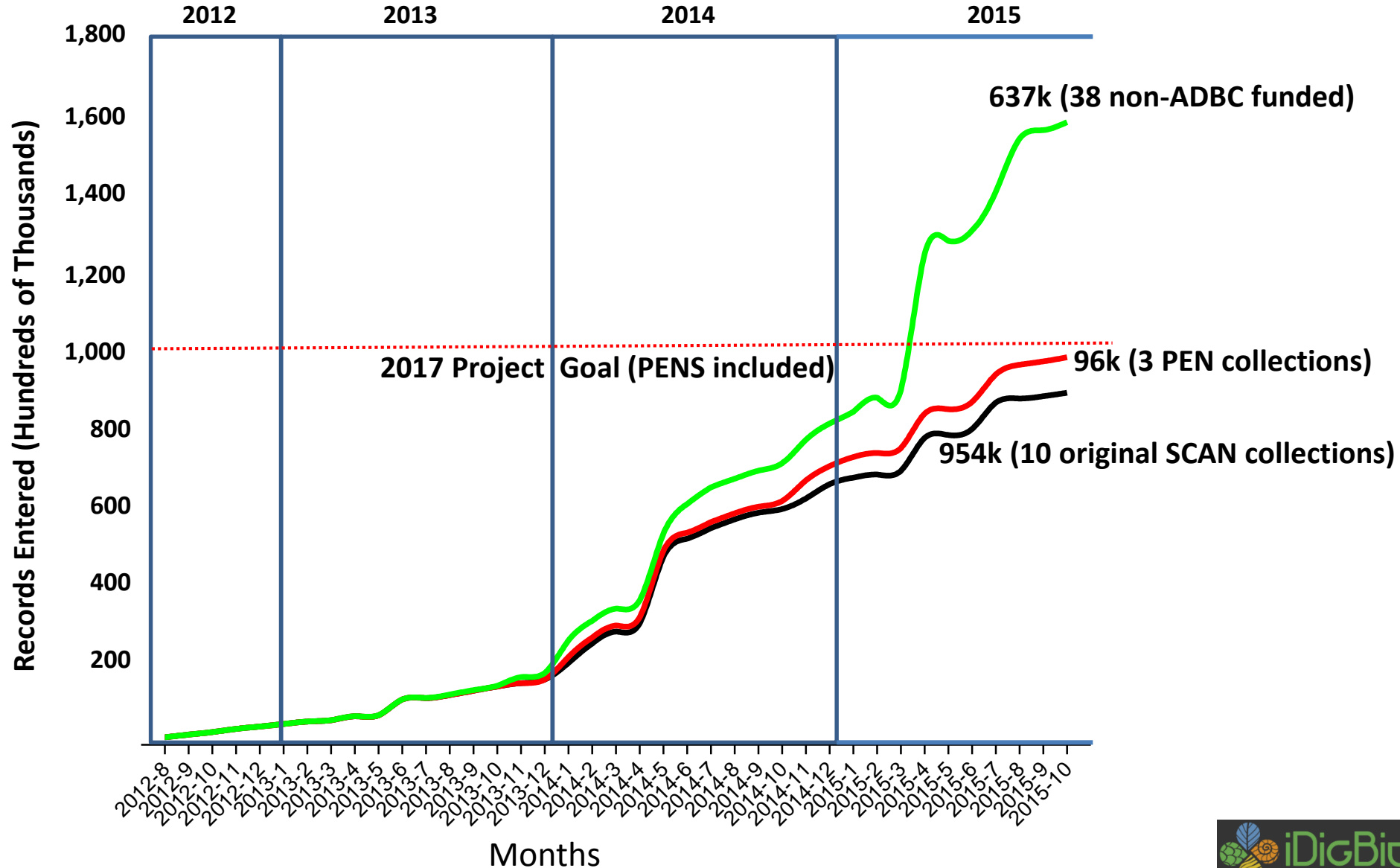
Consistent Growth of SCAN Portal (Google Analytics)



Digitization Rate of 10 Original SCAN Members

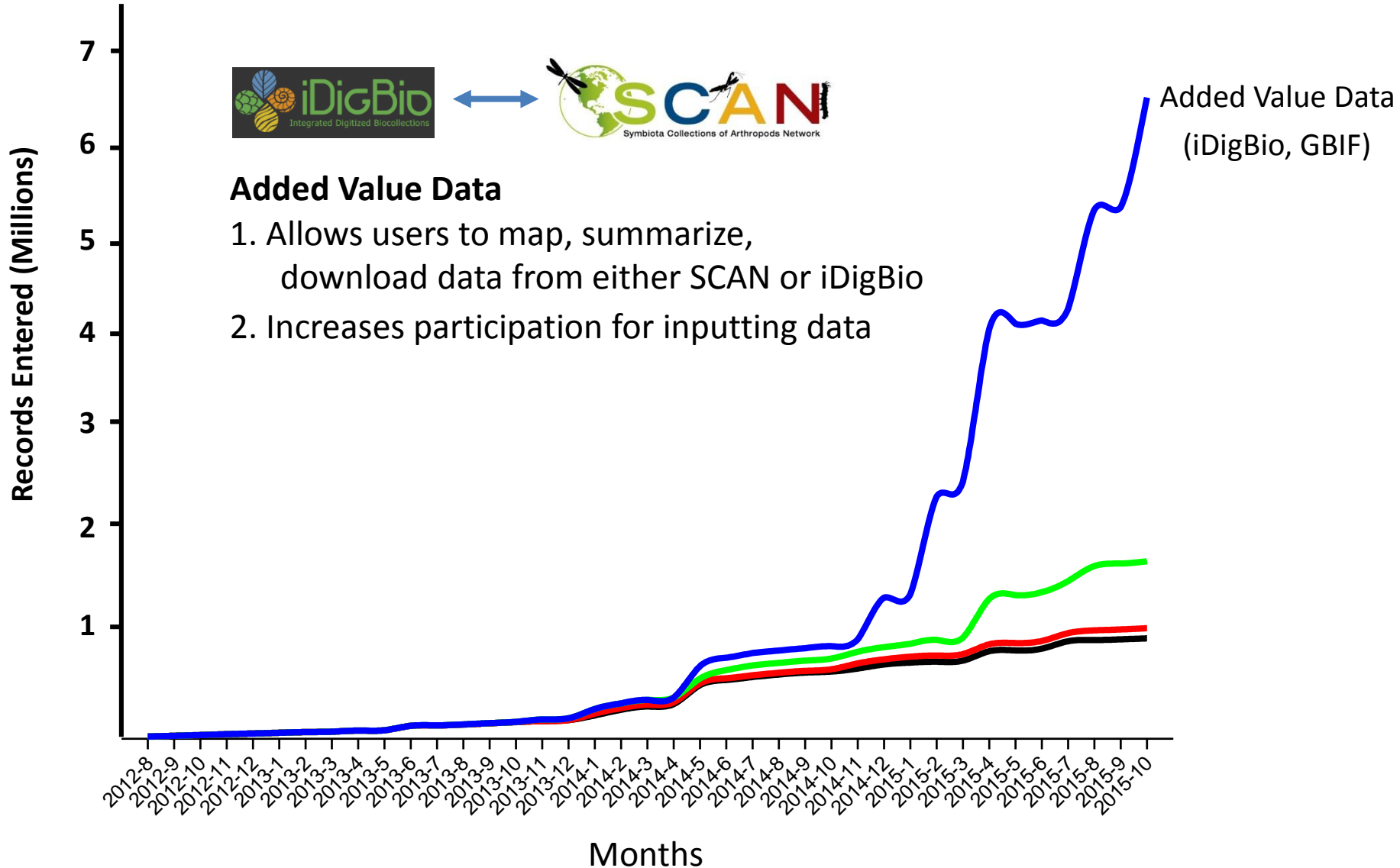


Broader Impact Digitizing: 1.68 million



Towards a Complete Arthropod Portal

6,148,133 specimen records served



Using Digitized Data for Arthropod Research:

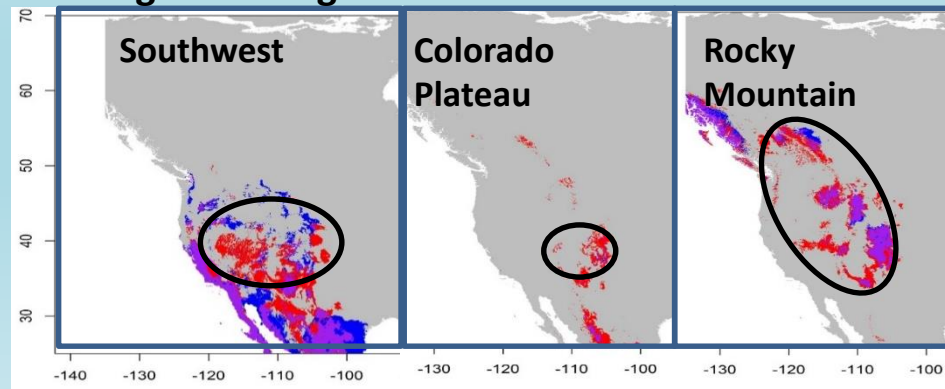
Taxonomy

- ✦ Promoting all taxonomically based publications.
 1. Digitized records increases awareness of specimen availability and will aid in the incorporation of data into manuscripts.

Ecology (Ecological Niche Modeling)

- ✦ Understand ecological constraints on past, present and future distributions of arthropods and ecological associations.

Climate Change Impacts on Wolf Spiders (*Pardosa*)
Does region of origin matter?



Challenges in Using Digitized Data for Arthropod Research

Taxonomy

- ✦ Working towards critical mass: 250 million specimens in North American collections , <10 million digitized (~4%)
- ✦ Need better linkages with publications & publishing data sets (e.g., Arctos)

Ecology (Ecological Niche Modeling)

- ✦ Arthropod occurrence data resides primarily in museum collections
- ✦ 51% of specimens in North American collections identified to species
- ✦ 10% of North American arthropod species have “enough” occurrence data (n=30)
- ✦ Arthropods comprise ~65% of described species, only 15% of climate impact studies

Opportunities to Use Digitized Data for Arthropod Research:

- ❖ Focus on North America – United States > Canada > Mexico
- ❖ 5-25 thousand species can be modeled today! (10 to 30 records per species)
- ❖ Key Groups with data

* **Bees**- 2,500-4000 species

Ants- 1,200-2000 species

* **Lepidoptera** (Butterflies & Moths)- 1,900-3000 species

* Carabid ground beetles- 867-1,200 species

* Spiders - 700-1,400 species

* **Mirid** plant bugs - 700-1,200 species (Tri-Trophic TCN)

Scarab beetles- 700-1,200 species

Hidden gem obscure groups: ~20

* Research Interests beginning

Underline indicates a priority group for SCAN

Goals: Final Year and Beyond



1. Promote “research-ready” data (i.e., >30 records per species) for 1,000s of target taxa
2. Achieve 90% identification of specimens digitized to species within five years of project end.
3. Continue inclusion of Broader Impact collections (e.g., DOD, BLM, LTER).
4. Implement 9 more sustainability plans for original collaborators.



A screenshot of the SCAN website interface. The top navigation bar includes links for Home, Search, Images, Fauna Projects, Statistics, Other Networks, Work with SCAN, Symbiota, and Contact. The main content area features a title 'Symbiota Collections of Arthropods Network (SCAN): A Data Portal Built to Visualize, Manipulate, and Export Species Occurrences' and a list of important features. A featured image of a beetle is shown with a caption: 'Listronotus vitticollis. Image by: Chelsey Tellez.' The footer includes the NSF logo and the iDigBio logo.



Home Search Images Fauna Projects Statistics Other Networks Work with SCAN Symbiota Contact



Welcome Neil! My Profile Logout Sitemap

Symbiota Collections of Arthropods Network (SCAN): A Data Portal Built to Visualize, Manipulate, and Export Species Occurrences

The Symbiota Collections of Arthropods Network (SCAN) grew from the Southwest Collections of Arthropods Network TCN (Thematic Collections Network) funded by the National Science Foundation. The data portal houses arthropod occurrence records from the original Southwest Collections of Arthropods Network as well as an ever-growing number of collections. These additional collections are drawn from a much wider selection of geographic locations and arthropod taxa. We expect that eventually SCAN will include data for all arthropod taxa and from anywhere in North America. SCAN is built on Symbiota, a web-based collections database system that is used for other taxonomic data portals, including (Symbiota Portals).

Important features of all Symbiota databases include:

1. Easy web-based data entry.
2. Download entire datasets in two clicks.
3. Map georeferenced records in two clicks.
4. Upload high-resolution images & create species profile pages.
5. Design custom species lists for any locality at multiple scales.
6. Develop educational games with data.
7. Create taxonomic keys.

The key organizational feature is that each museum or project is listed as a separate collection, so that one database group does not interfere with another. End users can select all "collections", or just a subset. We are incorporating Filtered Push to enhance the capacity of far-flung experts to contribute identifications and annotations of data that may be shared across the network.

This website is the central data portal for SCAN; all other project information can be found at <http://scan1.acs.ufl.edu/>, including How-To-Guides and network updates. Our database is currently focused on ground-dwelling arthropods, but our goal is to expand to any arthropod group. SCAN will promote a North American Arthropod Database and more focused thematic data portals for specific taxa (e.g., weevils) and geographically-delineated portals.



This project made possible by National Science Foundation Award EF 1207371

