

# Using Digitized Collections Data in Entomological Research

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## Natural History Collections

John Herschel – *Natural Philosophy* (1831) “... not the job of a naturalist to just collect facts, but to coordinate facts into theory and general law..”



# Thematic Collections Networks (NSF-ADBC)



InvertNet



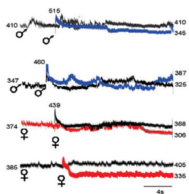
Tri-trophic TCN



Fossil Insect Collaborative



InvertEBase






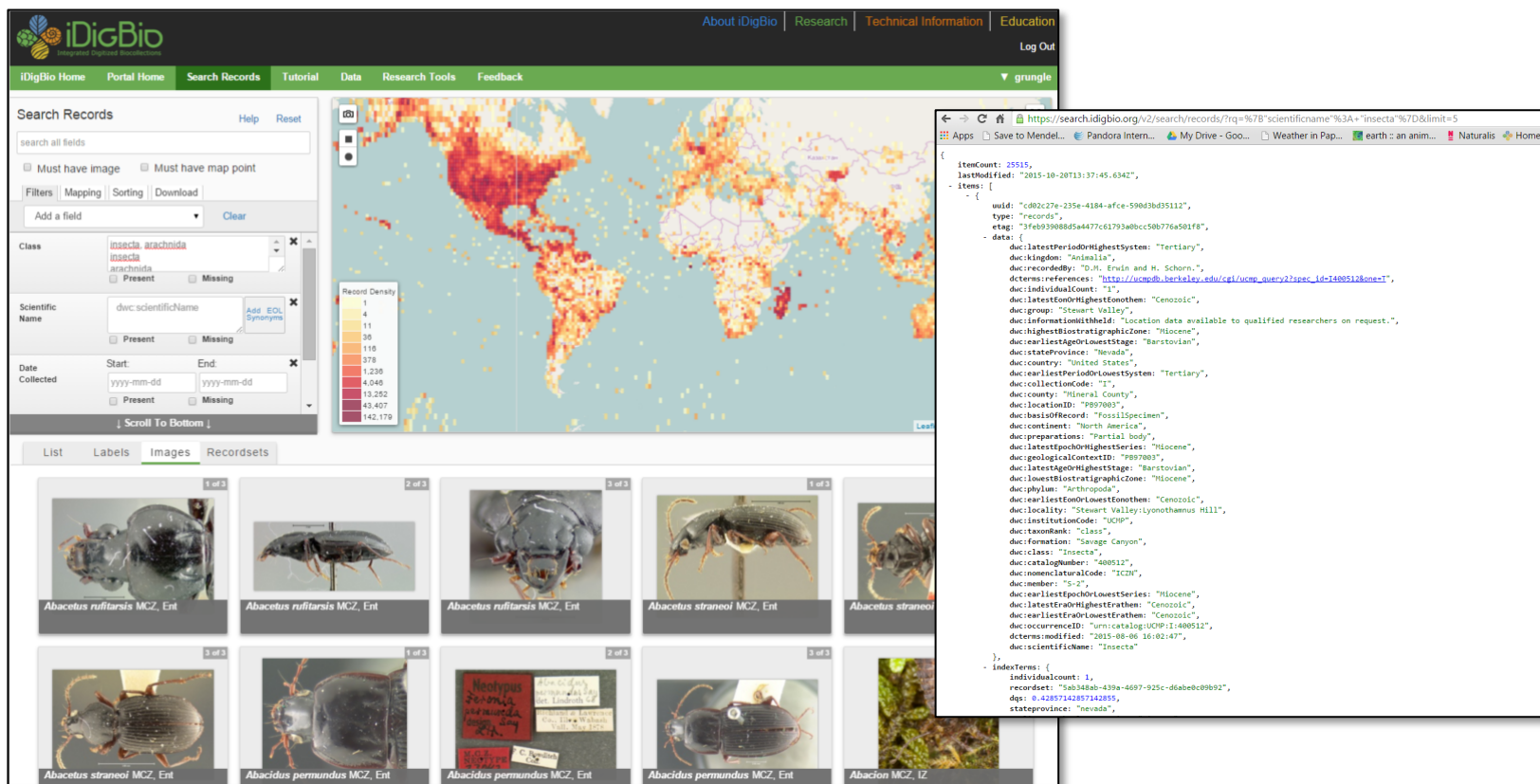
Vouchered Animal Communication  
Signals



Southwest Collections of Arthropods  
Network (SCAN)

# iDigBio Portal & API <https://www.idigbio.org/portal/search>

-  6.7 million specimens (as of November 2015)
-  ~125 recordsets
-  fossils and preserved specimens



The screenshot displays the iDigBio portal search interface. At the top, there are navigation links for 'About iDigBio', 'Research', 'Technical Information', and 'Education'. Below this is a search bar and a navigation menu with options like 'Portal Home', 'Search Records', 'Tutorial', 'Data', 'Research Tools', and 'Feedback'. The main search area includes filters for 'Class' (insecta, arachnida), 'Scientific Name' (duc:scientificName), and 'Date Collected'. A world map shows record density with a color scale from 1 to 142,179. Below the map is a list of specimen images and their details, including species names like *Abacetus rufitarsis* and *Abacetus straneoi*.

```

{
  itemCount: 25515,
  lastModified: "2015-10-20T13:37:45.634Z",
  items: [
    {
      uid: "cd02c27e-235e-4184-afce-590d3bd35112",
      type: "records",
      etag: "3feb939088d5e4477c61793a0bcc506776a501f8",
      data: {
        duc:latestPeriodOrHighestSystem: "Tertiary",
        duc:kingdom: "Animalia",
        duc:recordedBy: "D.A. Erwin and M. Schorn",
        duc:references: "http://ucmpd.berkeley.edu/cgi/wcmp_query2?spec_id=1490512&one=1",
        duc:individualCount: "1",
        duc:latestEonOrHighestEonOther: "Cenozoic",
        duc:group: "Stewart Valley",
        duc:informationWithheld: "Location data available to qualified researchers on request.",
        duc:highestBiogeographicZone: "Miocene",
        duc:earliestEpochOrLowestStage: "Barstovian",
        duc:stateProvince: "Nevada",
        duc:country: "United States",
        duc:earliestPeriodOrLowestSystem: "Tertiary",
        duc:collectionCode: "1",
        duc:county: "Mineral County",
        duc:locationID: "P897803",
        duc:basisOfRecord: "FossilSpecimen",
        duc:continent: "North America",
        duc:preparations: "partial body",
        duc:latestEpochOrHighestSeries: "Miocene",
        duc:geologicalContextID: "P897803",
        duc:latestAgeOrHighestStage: "Barstovian",
        duc:lowestBiogeographicZone: "Miocene",
        duc:phylum: "Arthropoda",
        duc:earliestEonOrLowestEonOther: "Cenozoic",
        duc:locality: "Stewart Valley-Lyonthamus Hill",
        duc:institutionCode: "UCMP",
        duc:taxonRank: "class",
        duc:formation: "Savage Canyon",
        duc:class: "Insecta",
        duc:catalogNumber: "400512",
        duc:nomenclaturalCode: "ICZN",
        duc:members: "1",
        duc:earliestEpochOrLowestSeries: "Miocene",
        duc:latestEonOrHighestEonOther: "Cenozoic",
        duc:earliestEonOrLowestEonOther: "Cenozoic",
        duc:occurrenceID: "urn:catalog:UVP:1:400512",
        duc:terms:modified: "2015-08-06 16:02:47",
        duc:scientificName: "Insecta"
      }
    },
    {
      indexTerms: {
        individualCount: 1,
        recordset: "5ab348ab-439a-4697-925c-d6abec09092",
        dqs: "0.42857142857142855",
        stateProvince: "Nevada"
      }
    }
  ]
}

```

# Global Biodiversity Information Facility - GBIF

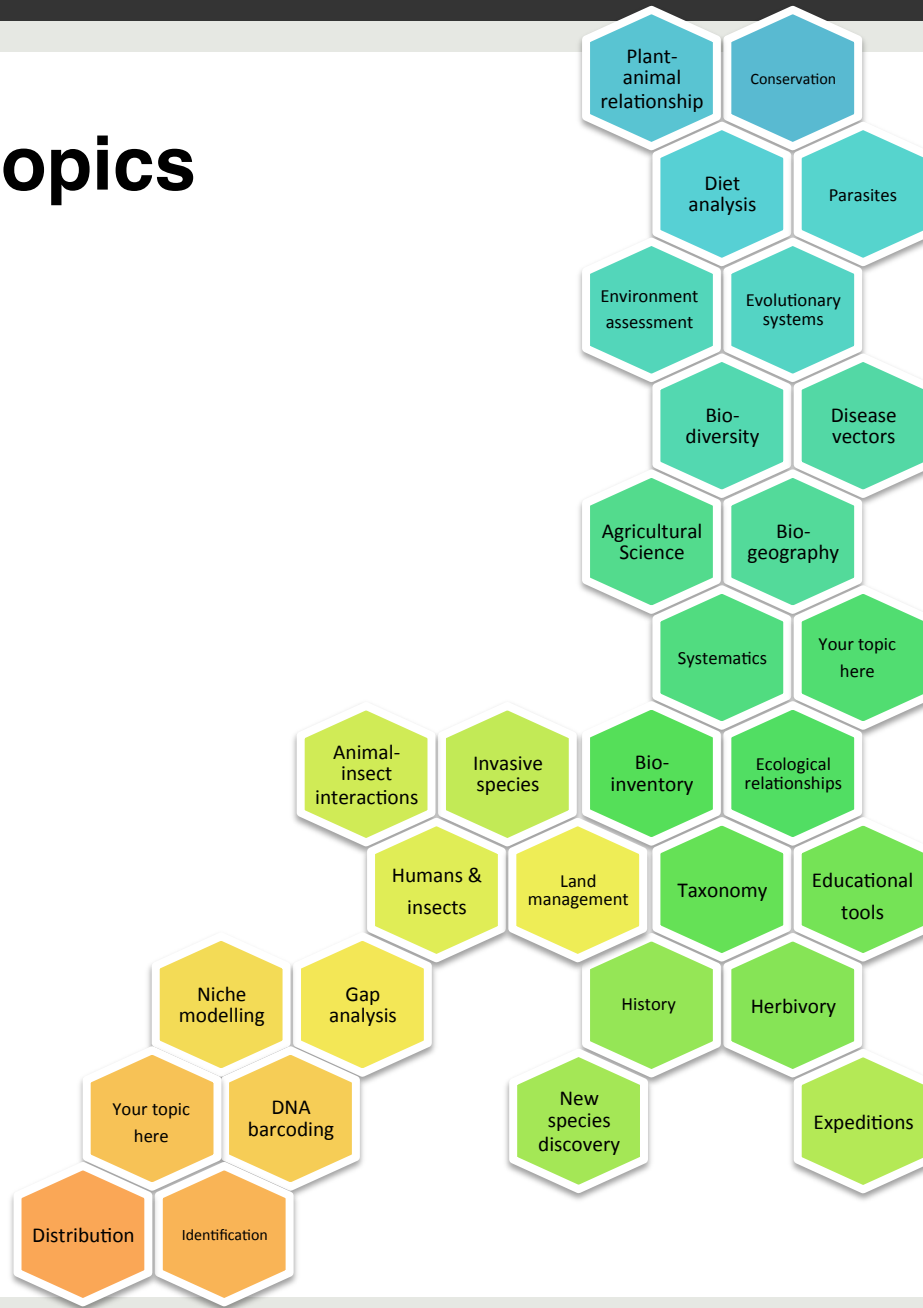


- 46 million occurrences
- 20.8 million specimens
- Data aggregated from around the global
- Taskforce to accelerate data discovery

## Get creative!

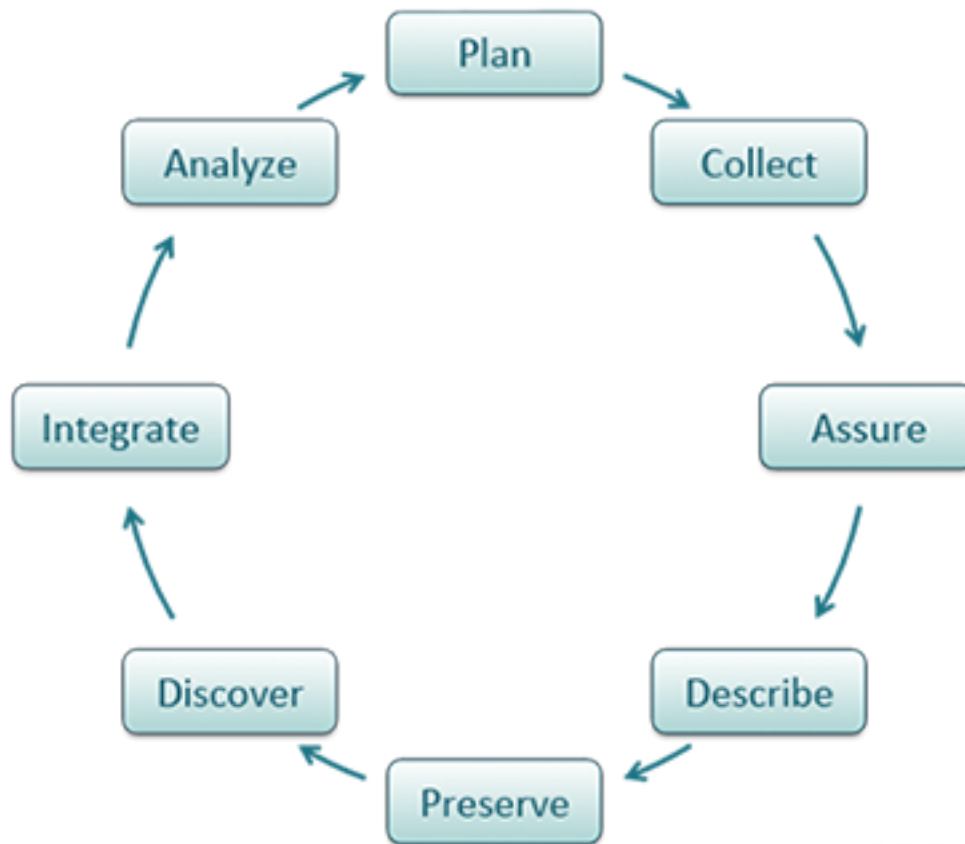
- Catalog cards, field note books, maps
- Diaries, published & unpublished literature, old floppy disks...

# Research topics





# Data Life Cycle – best practice





# How can you help the digitization effort?

- 🐛 Database a collection, image a draw, georeference specimens from your favorite locality...
- 🐛 Help to improve data quality – follow best practices
- 🐛 Contribute to collections – financially and providing gold standard specimens
- 🐛 Provide adequate attribution
- 🐛 Document how digitization is positively affecting collection use - sustainability

# Got data?



[www.idigbio.org](http://www.idigbio.org)



[facebook.com/iDigBio](https://facebook.com/iDigBio)



[twitter.com/iDigBio](https://twitter.com/iDigBio)



[vimeo.com/idigbio](https://vimeo.com/idigbio)



[idigbio.org/rss-feed.xml](http://idigbio.org/rss-feed.xml)



<webcal://www.idigbio.org/events-calendar/export.ics>

## Recent chaos and confusion

- ▣ Why kill & collect? Aren't photographs enough?
- ▣ Recent publication using photograph as type
- ▣ Specimens remain the gold standard for species description