

COLECCIONES DE LOS MUSEOS EN EL INTERNET Y EN LA SALA DE CLASES

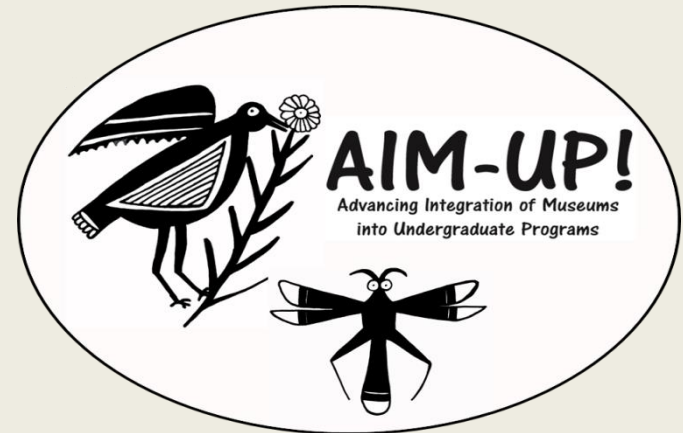
July 2013

Kayce Bell

J.L. Dunnum, F. Salazar-Miralles, J.A. Cook

Museum of Southwestern Biology

University of New Mexico



Educación, Formación y Investigación



Arctos
Multi-Institution, Multi-Collection Museum Database

Search Portals My Stuff About/Help

Access to 1,766,567 records

Search [Clear Form](#) [Use Last Values](#) See results as:

Type: any Require Tissues?

Identifiers Customize Show More Options

Collection: Alaska Lepidoptera
COA Birds
COA Eggs
COA Fishes Catalog Number:

Identification and Taxonomy Show More Options

Current Identification CONTAINS [\[Help \]](#)

Locality Show More Options

Any Geographic Element: [Select on Google Map](#)

Date/Collector Show More Options

Help | Collector or Preparator

Biological Individual Show More Options

Part Name: Define Add = for exact match

Usage Show More Options

Basis of Citation: Define


Media Show More Options

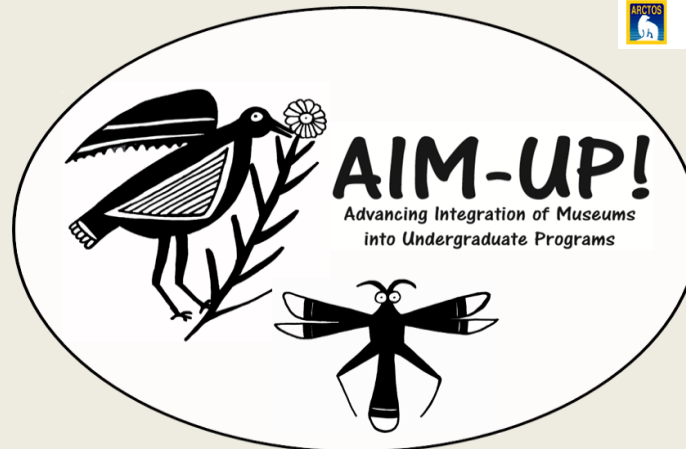
Media Type: Define

Relationships Show More Options

Relationship:

Search [Clear Form](#) [Use Last Values](#) See results as: Specimen Records

 [Data Providers](#)
[Report a bug or request support](#)



Colecciones de Historia Natural

- Escala de tiempo y en el espacio
- Integración
 - bióticos y abióticos
 - genómica, organismal y los ecosistemas
- Base de datos
- Proceso científico
 - experiencial o pasivo



Propeustas basadas en colecciones en la educación de pregrado

- Complejidad-múltiples enfoques
- Descubrimiento basado en la Web
- Vinculación de datos genómicos y muestras físicas



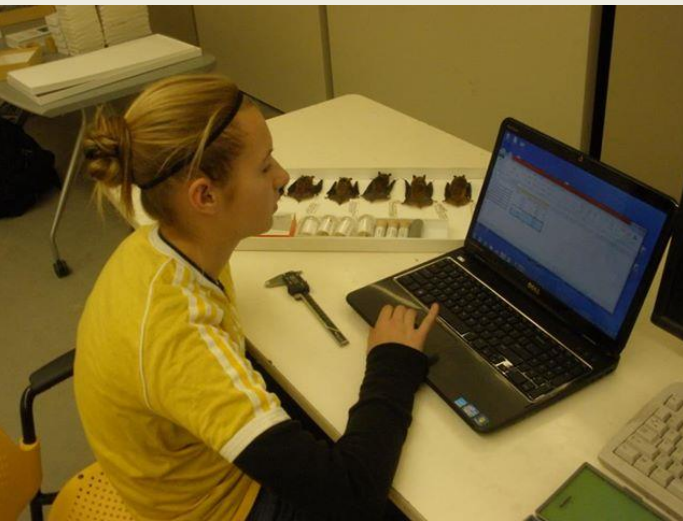
Datos de Colecciones de Historia Natural

- bases de datos accesibles por el internet
 - Global Biodiversity Information Facility
 - Taxonomic databases: MaNIS, Ornis, HerpNet, FishNet
 - Museum databases: Arctos (MVZ, UAM, MSB, many others), Field Museum, Smithsonian, American Museum of Natural History

Integrating in the Classroom

La integración en la sala de clases

- Los estudiantes pueden acceder y utilizar bases de datos
- Investigar preguntas de relevancia local
- Aprendizaje basado en la investigación



Retos



Pocos educadores (y menos alumnos) parecen saber:

- acerca de las colecciones de historia natural o su papel en el desarrollo de los conceptos clave
- cómo acceder a la información del museo
- cómo incorporar datos de especímenes en la enseñanza

Algunos retos más

Colecciones (y bases de datos) tienen limitaciones

Disponibilidad de muestras

Vista estrecha de posibilidades (sistemática)

Colecciones desarrollados para la investigación científica

Las bases de datos fueron desarrolladas para la manejo de colecciones, no la educación.

¿Cómo podríamos liberar el potencial de la enseñanza?



NSF-RCN

Research Coordinating Network

- Objetivo: crear nuevas direcciones en la investigación y la educación por la comunicación y la coordinación de actividades a través de las fronteras disciplinarias, organizativas, geográficas e internacionales.



Experiencias Pregradadas en Curaduría



Experiencias Pregradas en Trabajo de Campo





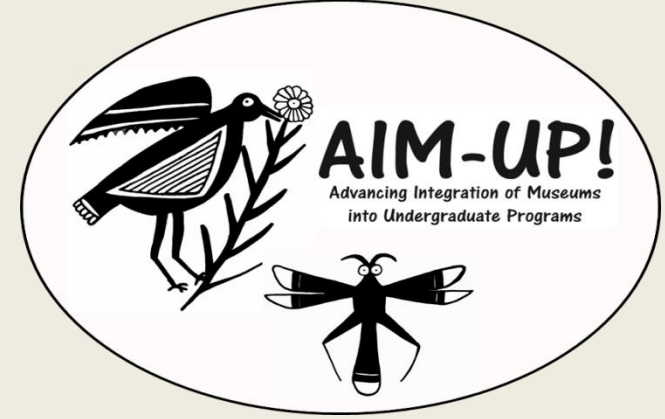
Aprendizaje de Pregrado a Través de Exposiciones

La investigación de pregrado y posgrado

Experiencias basadas en las colecciones

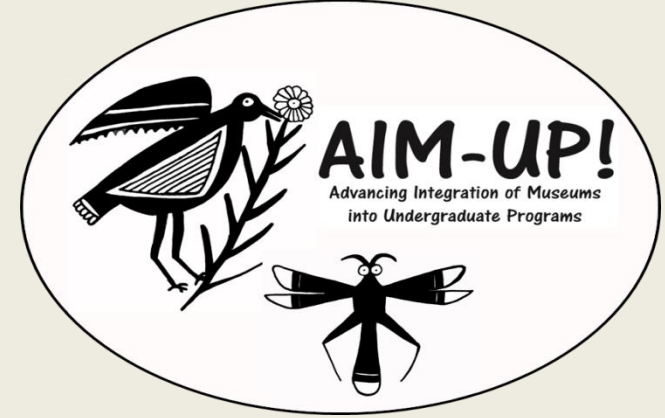


Ampliar Experiencias Tradicionales de Los Museos



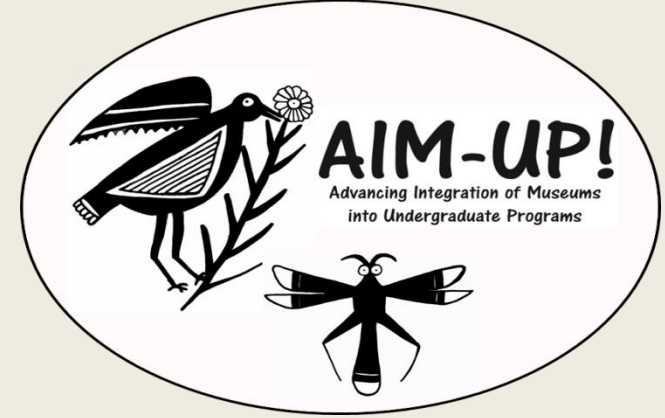
- Desarrollar nuevas formas de utilizar de las colecciones y los datos

Ampliar Experiencias Tradicionales de Los Museos



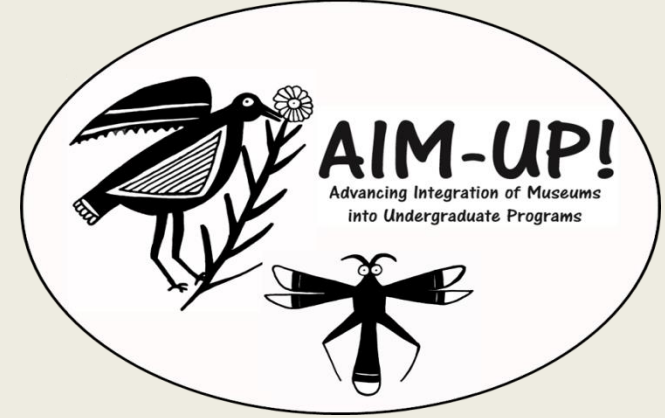
- Desarrollar nuevas formas de utilizar de las colecciones y los datos
- Aumentar la accesibilidad de las colecciones de historia natural a los educadores / el público a través de bases de datos.

Ampliar Experiencias Tradicionales de Los Museos



- Desarrollar nuevas formas de utilizar de las colecciones y los datos
- Aumentar la accesibilidad de las colecciones de historia natural a los educadores / el público a través de bases de datos.
- Asociarse con otros usuarios no tradicionales del museo (por ejemplo, investigadores del comportamiento, Geografía, Arte)

Ampliar Experiencias Tradicionales de Los Museos



- Desarrollar nuevas formas de utilizar de las colecciones y los datos
- Aumentar la accesibilidad de las colecciones de historia natural a los educadores / el público a través de bases de datos.
- Asociarse con otros usuarios no tradicionales del museo (por ejemplo, investigadores del comportamiento, Geografía, Arte)
- Desarrollar colaboraciones internacionales (en América Latina y en Español)

AIM-UP!--the network

22 Universities, Community & Tribal Colleges

5 Agencies and free-standing Museums

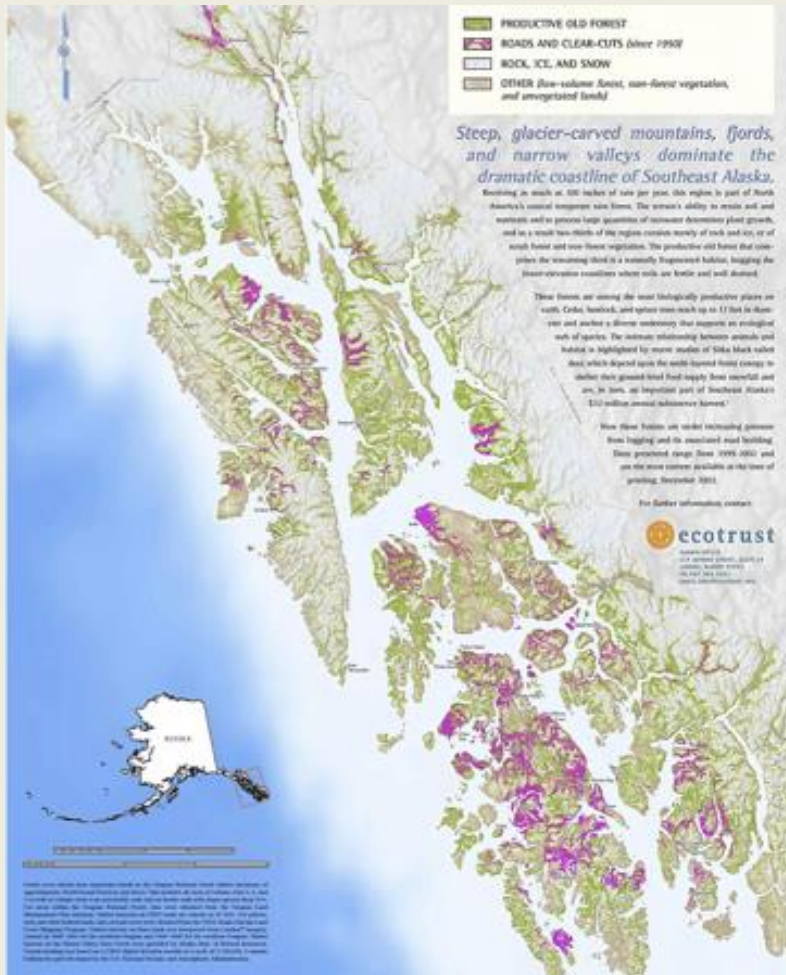
2 International

2 High Schools



Educational Modules

Island Biogeography: Species Richness Across a Northern Archipelago



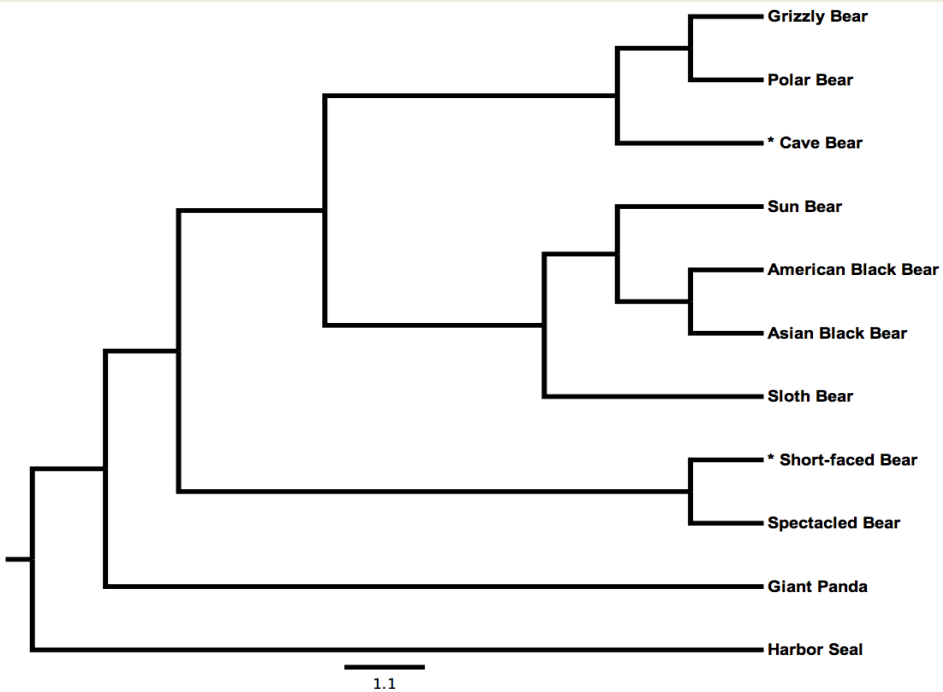
Key Concepts and Skills: Evolution & Ecology

- Body size on islands
- Competitive exclusion/release
- Isolation and Divergence
- Island biogeography

Conservation biology
Scientific process & hypothesis testing
Statistical methods
Management & analyses of large-scale databases

Educational Modules

Reading, Constructing, & Using Phylogenies



Key Concepts and Skills

Learn about scientific process

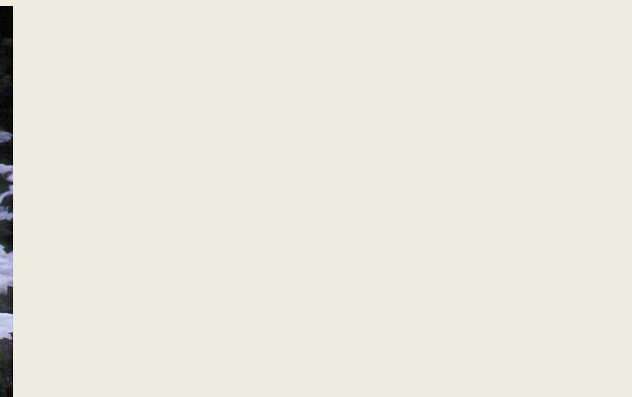
Gain appreciation for evolutionary connections across the Tree of Life

Interpret a phylogeny

Learn how phylogenetic trees are constructed

Introduce the different ways to study evolutionary relationships

Learn how comparative phylogenetics is used to understand the biology of organisms



Más Módulos Educativos

El cambio climático

Adaptable a la flora y fauna local

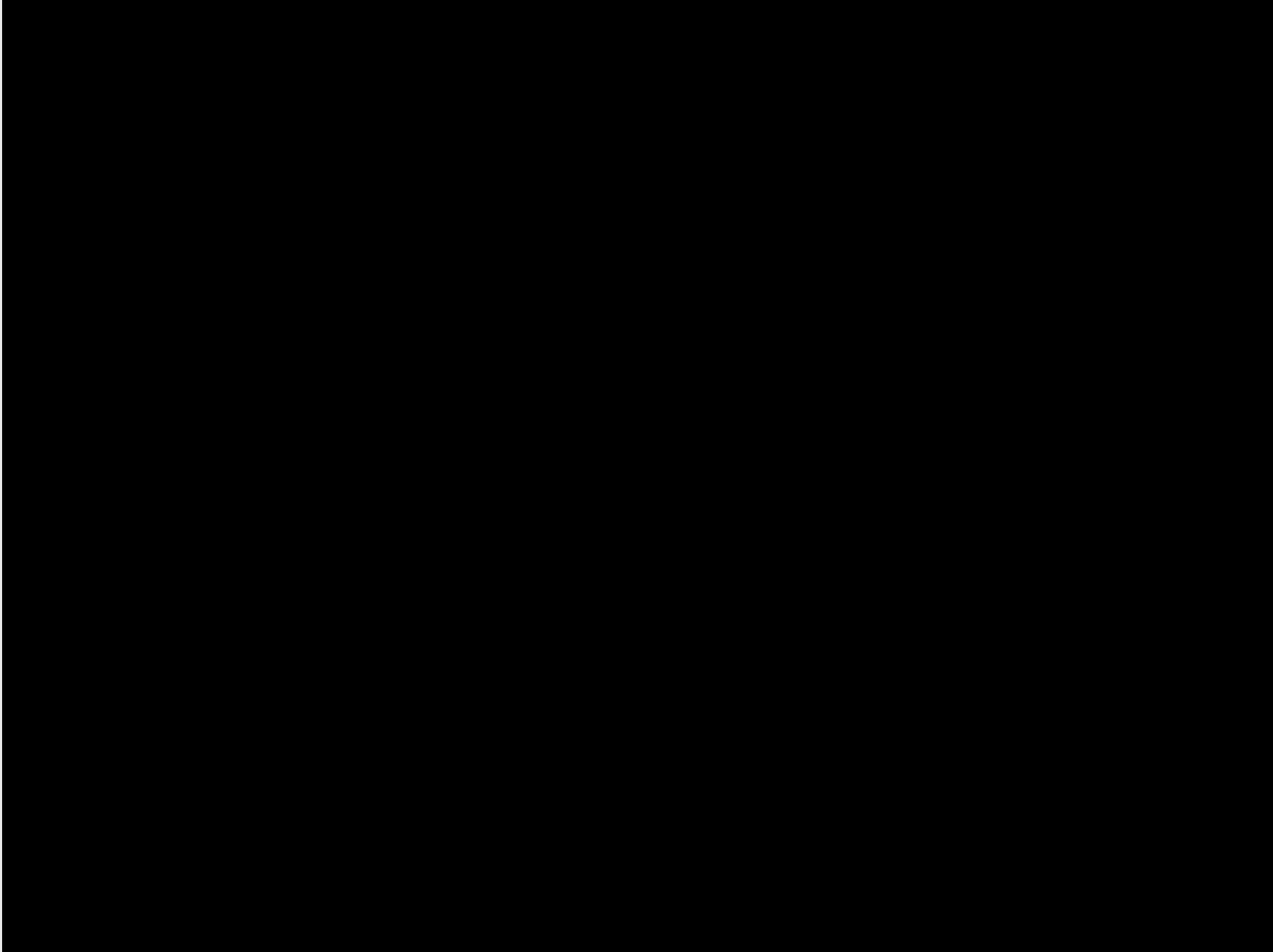
Actividades para otras disciplinas (arte, geografía, etc)

Ampliable - escuela secundaria y universitaria

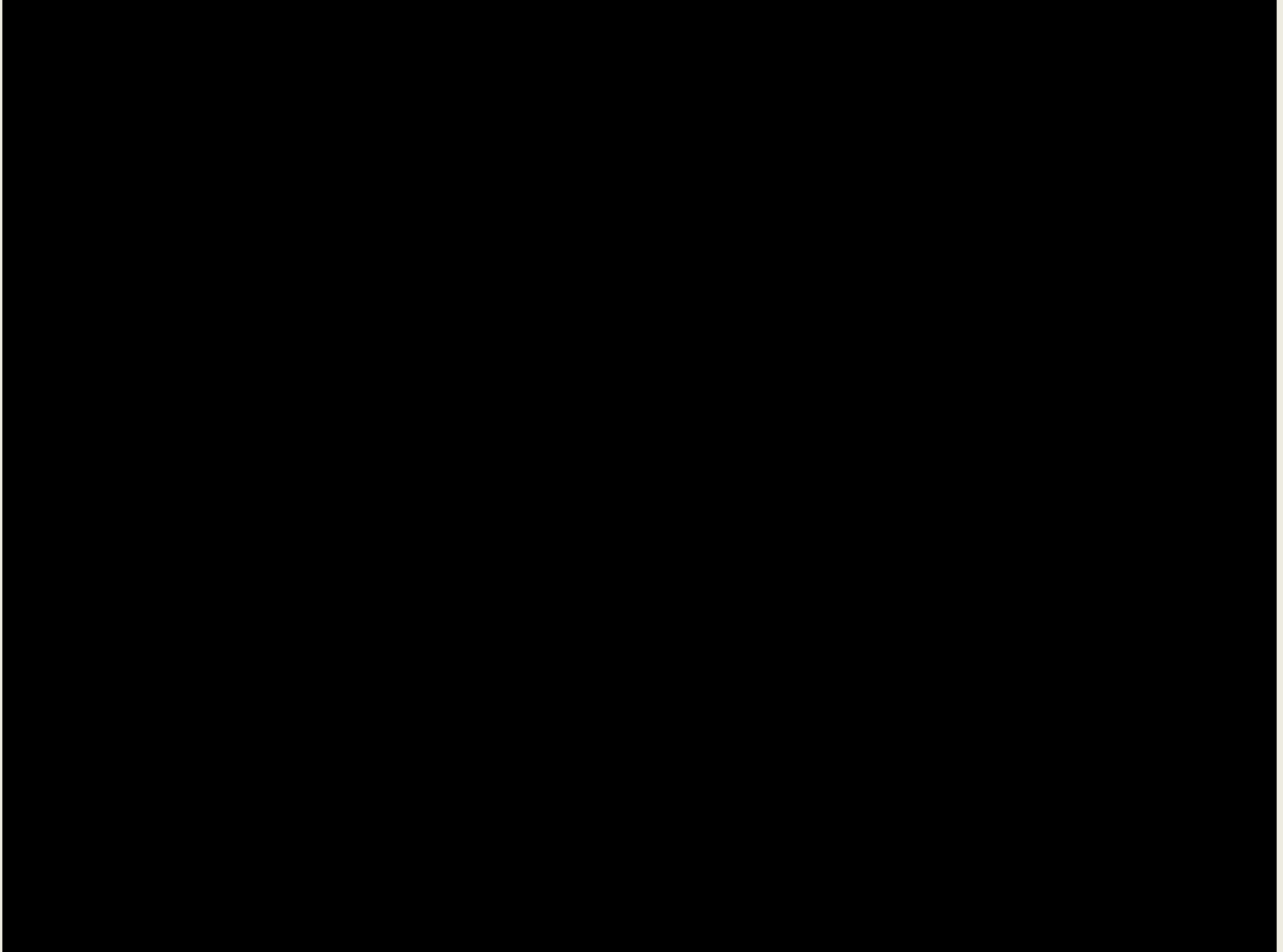
Desarrollar módulos en español



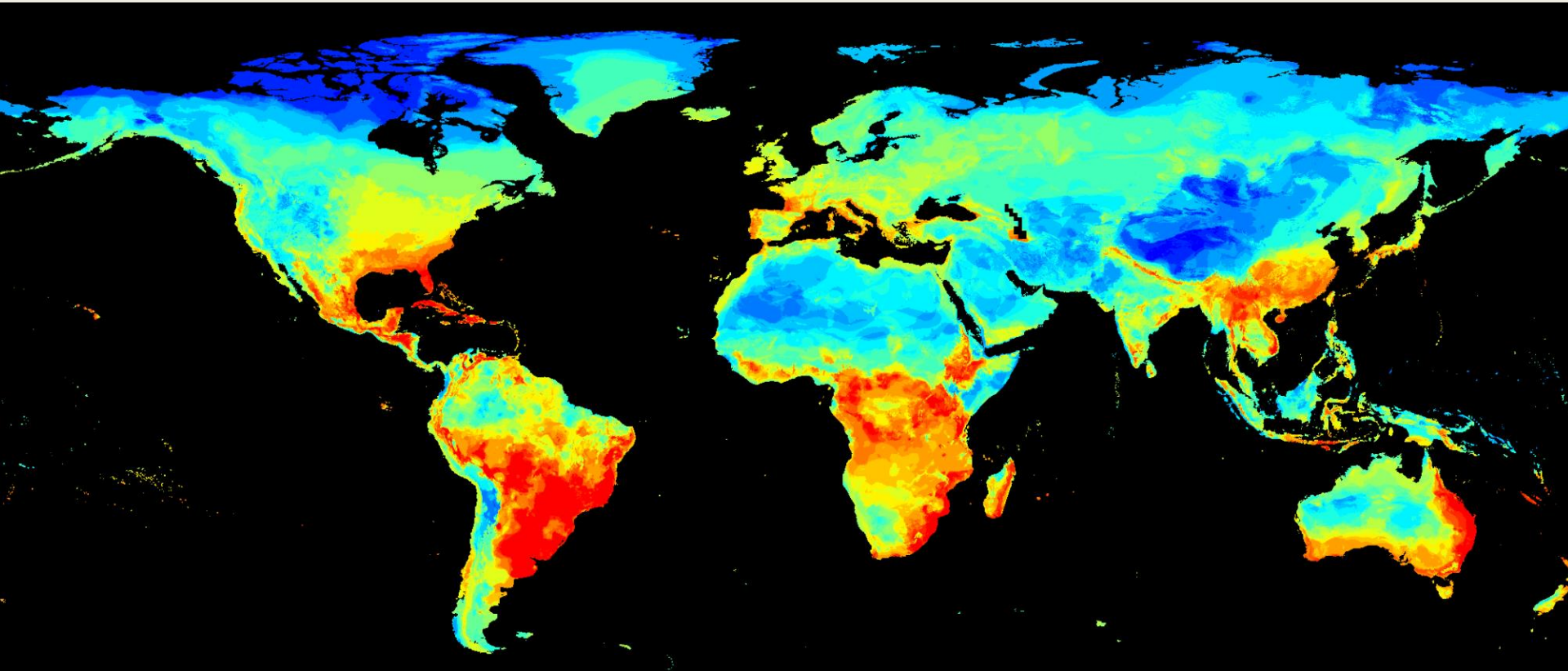
AIM-UP! www.aim-up.org



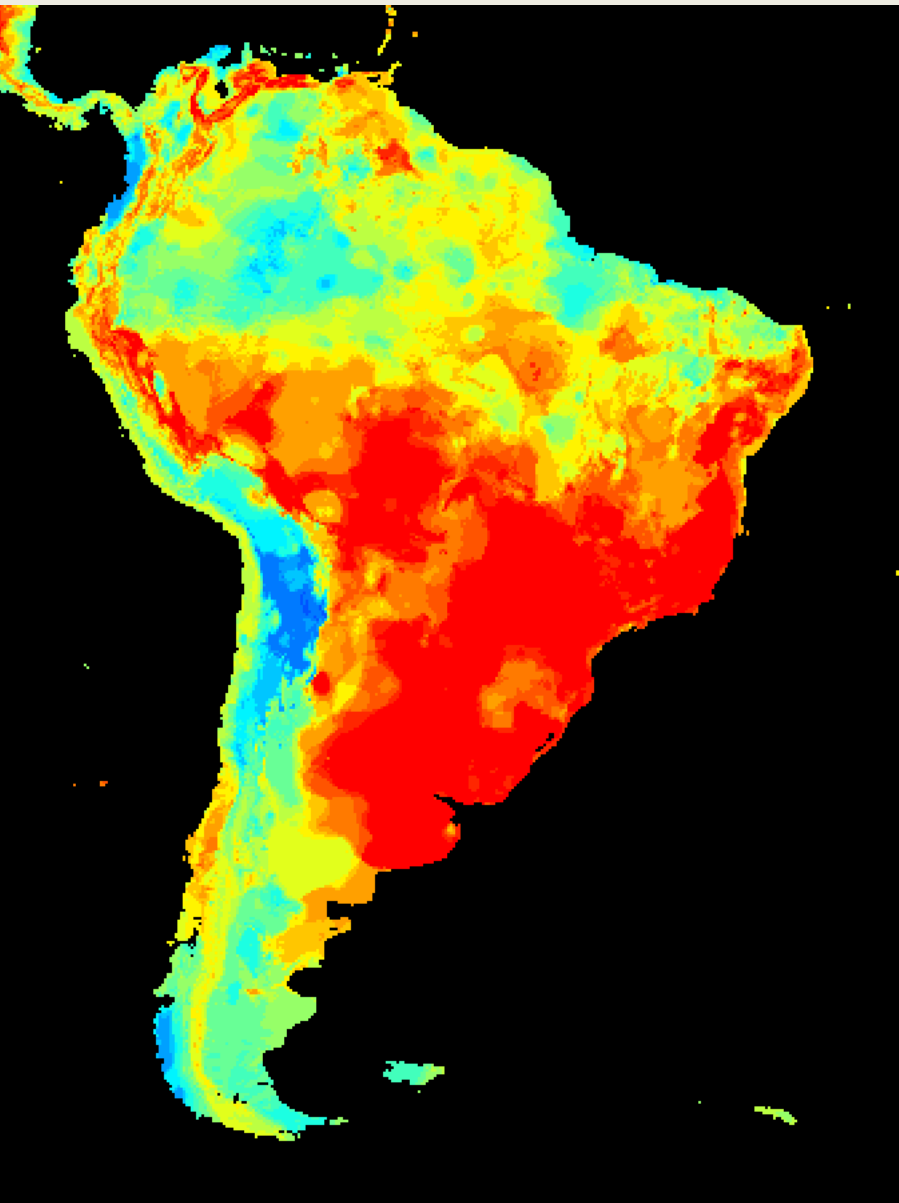
GBIF www.gbif.org



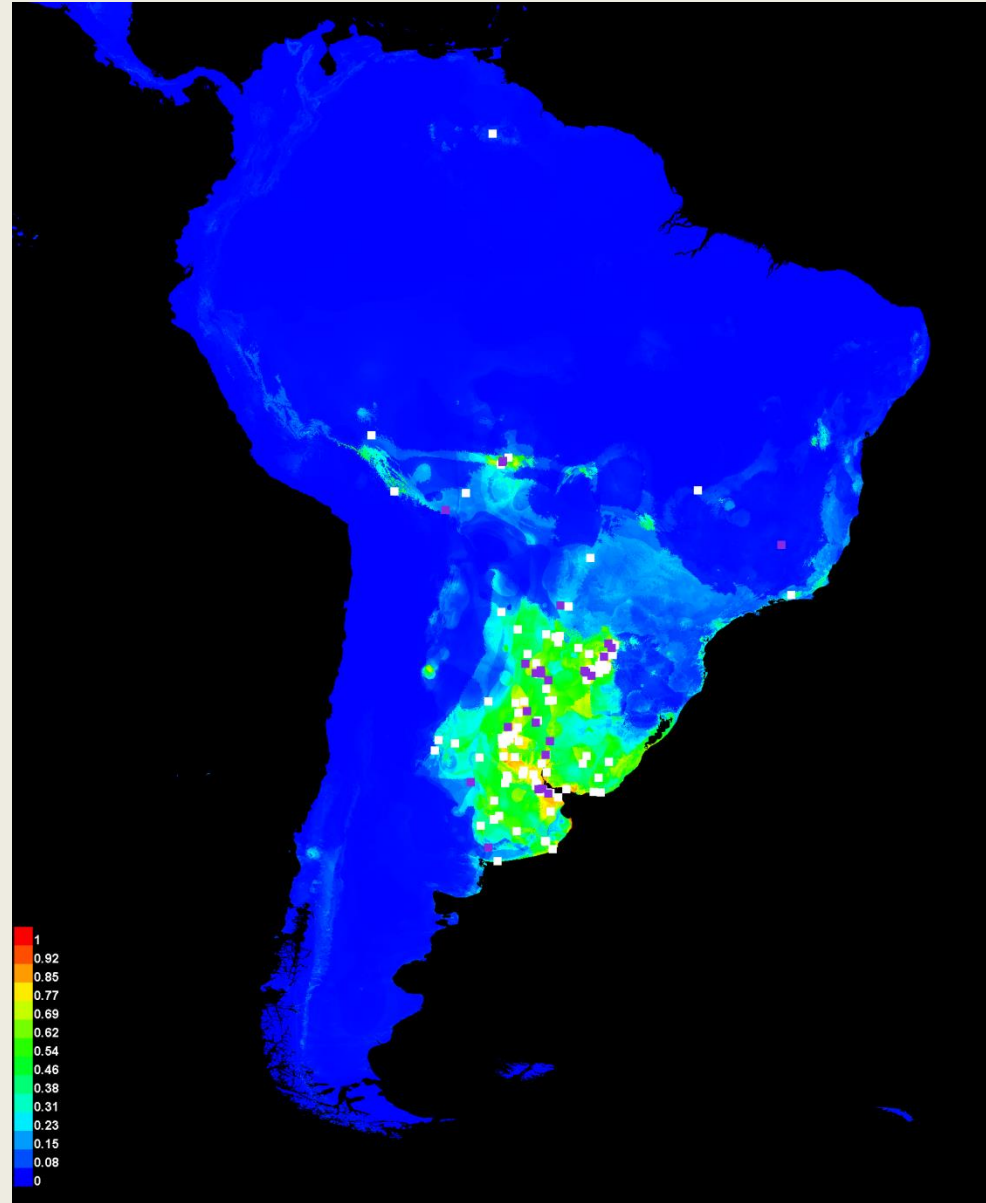
GBIF niche model for *Cavia aperea*



Cavia aperea

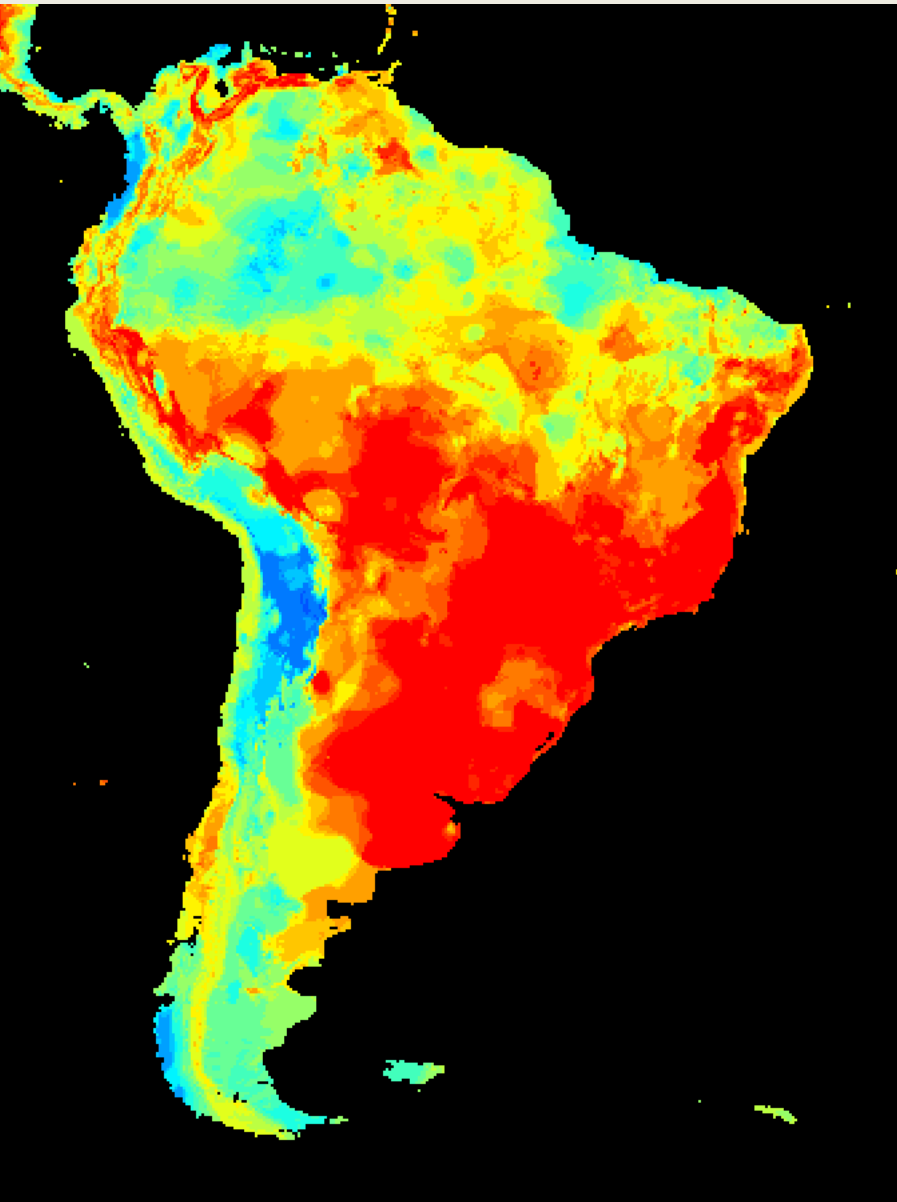


GBIF niche model



Maxent niche model

Cavia aperea

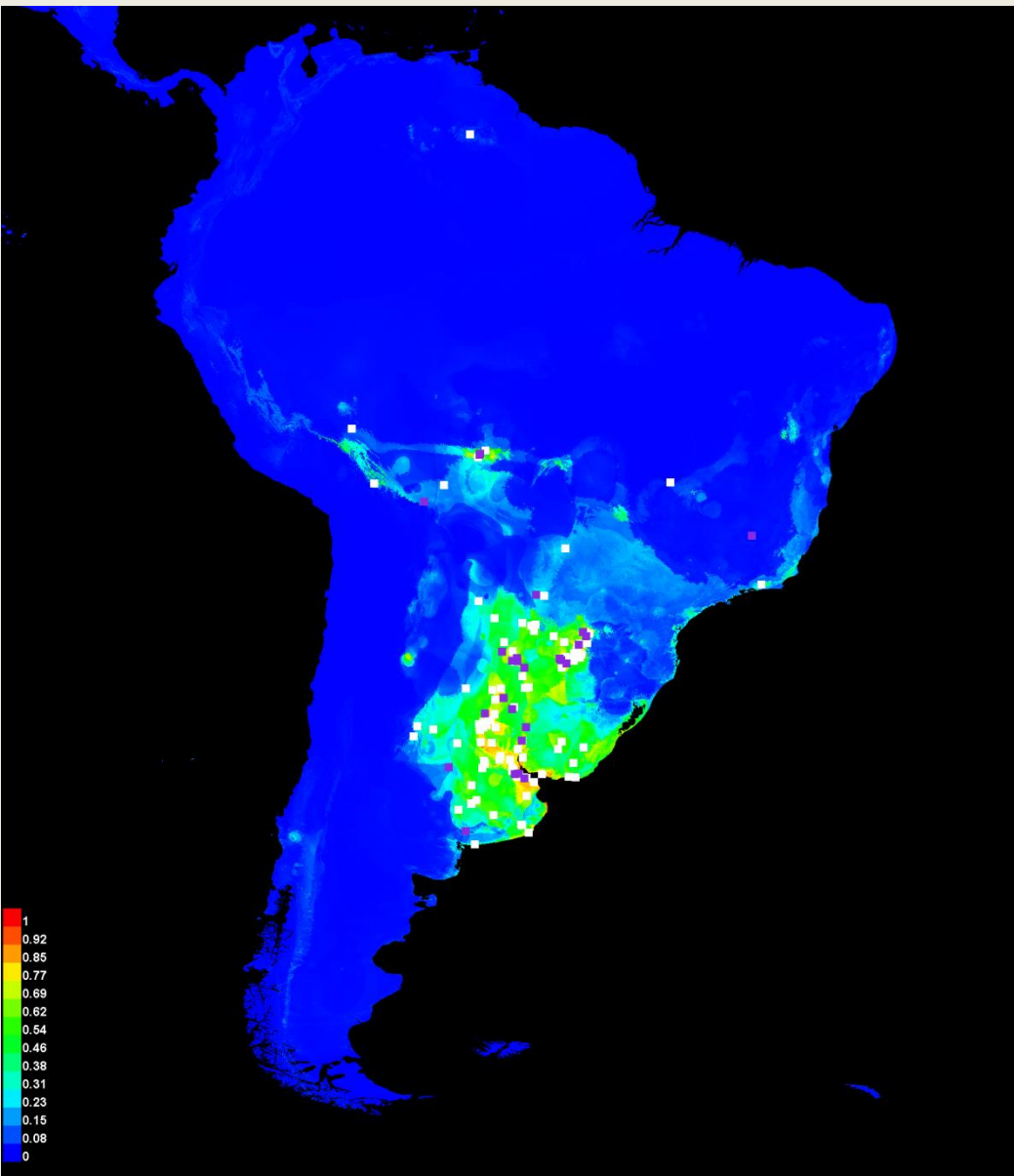


GBIF niche model



IUCN

Cavia aperea

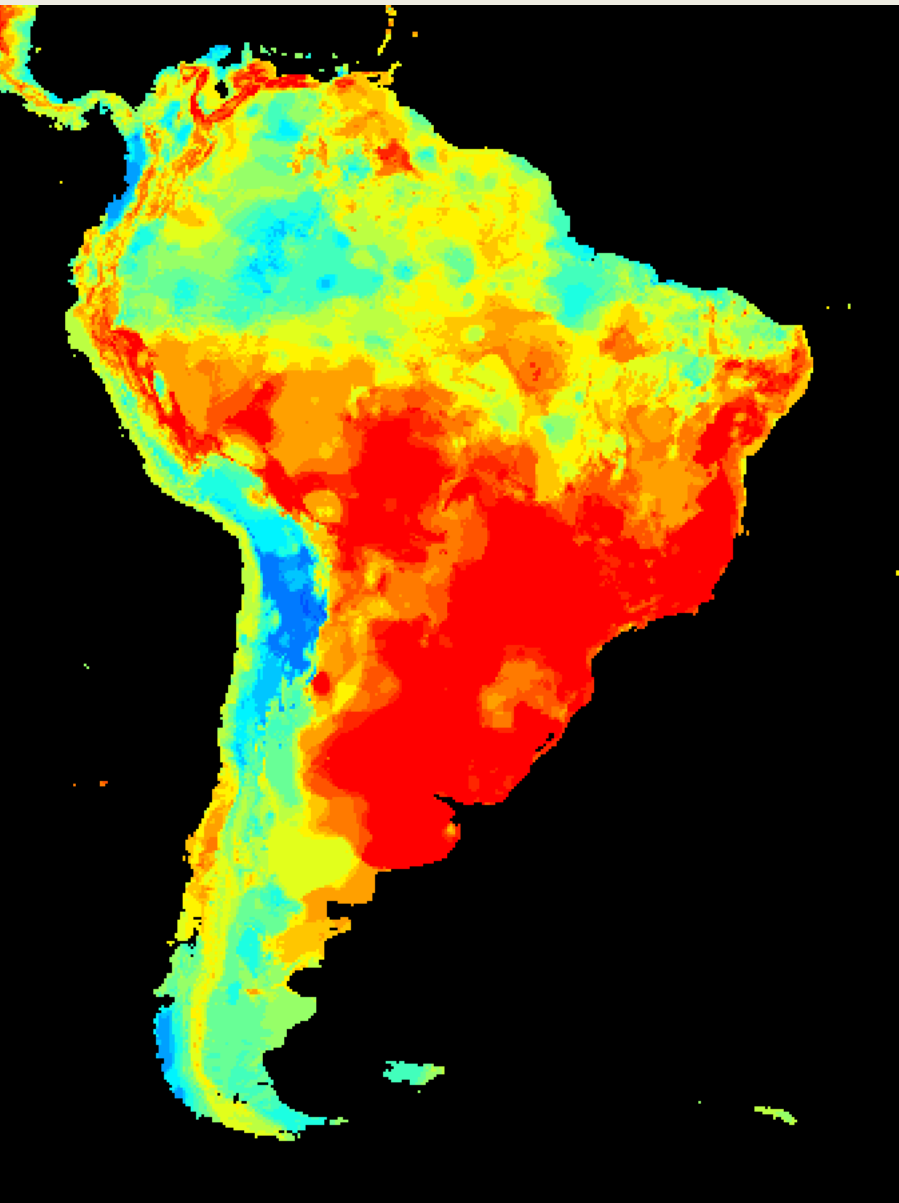


Maxent niche model

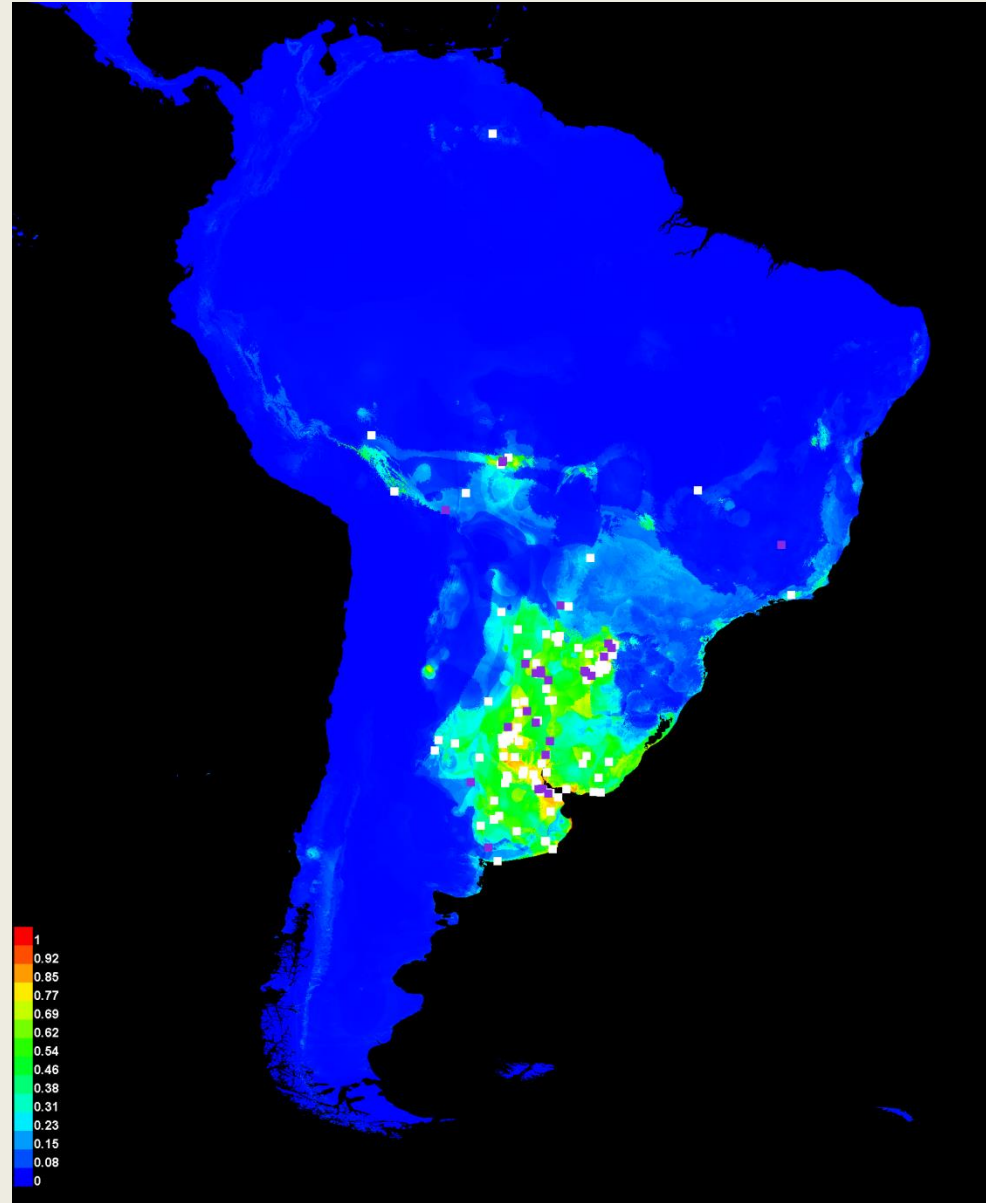


IUCN

Cavia aperea

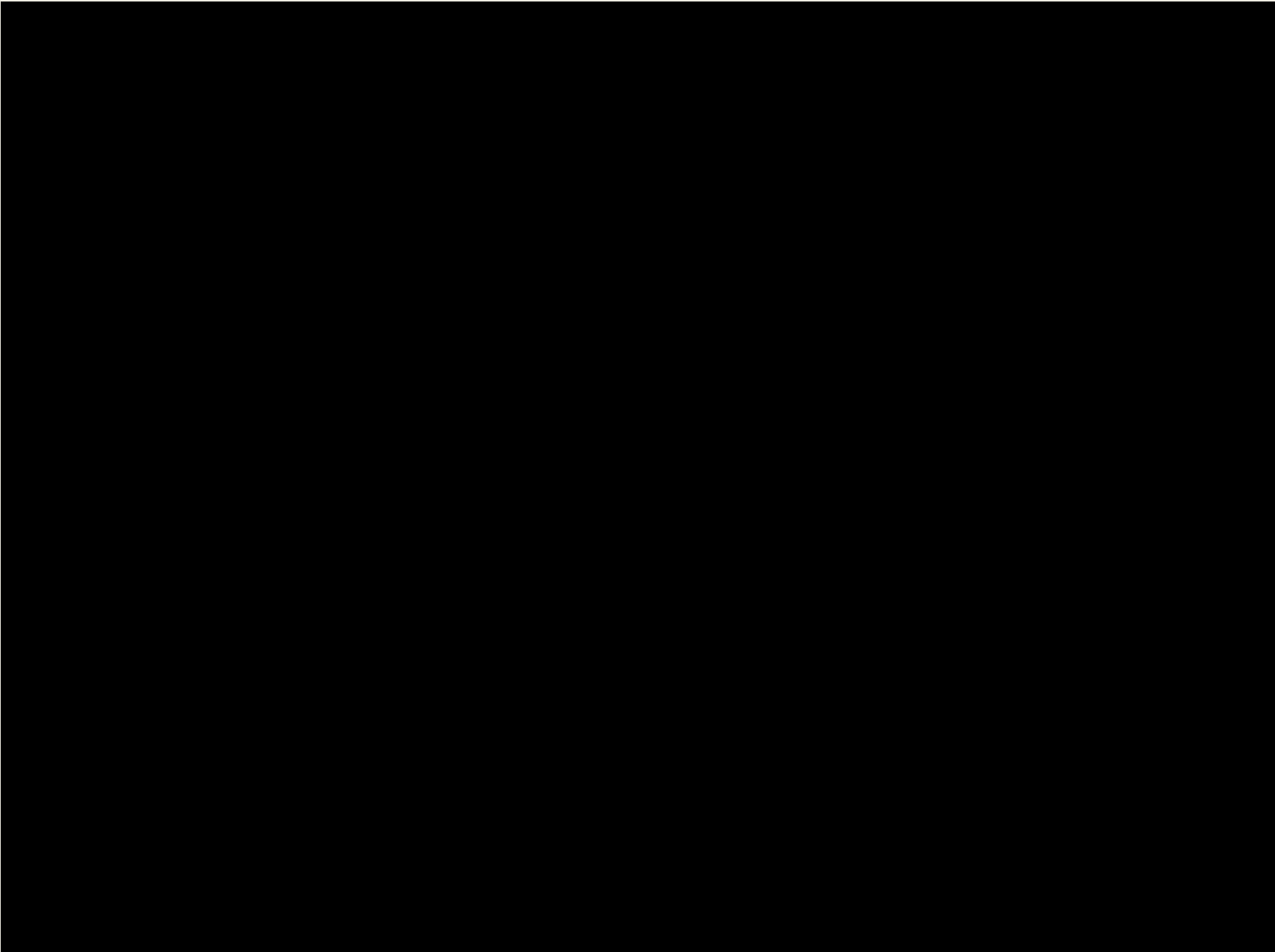


GBIF niche model



Maxent niche model

Arctos <http://arctos.database.museum/>



Other Biodiversity Resources

Map of Life, GenBank, Animal Diversity Web,
Tree of Life, iNaturalist, IUCN,

Map of Life

www.mappinglife.org

Search Go

Species Lists Radius 50 km Group Mammals

76 species of Mammals within 50 km of 0.747° S 123.003° E

List Images IUCN Download

Data type/source: Expert range map, IUCN Red List. All seasonalities.

Scientific Name	English Name	Order	Family	Rank	IUCN
▼ <i>Ailuropus ursinus</i>	Bear Cuscus, Bear Phalanger, Sulawesi Bear Cuscus	Diprotodontia	Phalangeridae	16	VU
▼ <i>Strigocuscus celebensis</i>	Small Sulawesi Cuscus, Little Celebes Cuscus, Small Cuscus	Diprotodontia	Phalangeridae	16	VU
▼ <i>Strigocuscus pelengensis</i>	Peleng Cuscus	Diprotodontia	Phalangeridae	16	LC
▼ <i>Macaca tonkeana</i>	Tonkean Macaque, Tonkean Black Macaque	Primates	Cercopithecidae	53	VU
▼ <i>Tarsius dentatus</i>	Dian's Tarsier, Diana Tarsier	Primates	Tarsiidae	56	VU

Base Map: Basic Political Roadmap Terrain Satellite

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Imagery ©2013 TerraMetrics - Terms of Use Report a map error

GenBank

www.ncbi.nlm.nih.gov

All Databases

Search

- NCBI Home
- Resource List (A-Z)
- All Resources
- Chemicals & Bioassays
- Data & Software
- DNA & RNA
- Domains & Structures
- Genes & Expression
- Genetics & Medicine
- Genomes & Maps
- Homology
- Literature
- Proteins
- Sequence Analysis
- Taxonomy
- Training & Tutorials
- Variation

Welcome to NCBI

The National Center for Biotechnology Information advances science and health by providing access to biomedical and genomic information.

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Get Started

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- [Downloads](#): Get NCBI data or software
- [How-To's](#): Learn how to accomplish specific tasks at NCBI
- [Submissions](#): Submit data to GenBank or other NCBI databases

Genetic Testing Registry

A portal to clinical genetics resources with detailed information about genetic tests and laboratories.

GO

1 2 3 4 5 6 7 8

Popular Resources

[PubMed](#)

[Bookshelf](#)

[PubMed Central](#)

[PubMed Health](#)

[BLAST](#)

[Nucleotide](#)

[Genome](#)

[SNP](#)

[Gene](#)

[Protein](#)

[PubChem](#)

NCBI Announcements

Now Available: NCBI Insights Blog!

28 Jan 2013

NCBI has just released a new blog called *NCBI Insights*. Blog posts will provide an insider's perspective to help users better

Come to the NCBI Discovery Workshops

Animal Diversity Web

<http://animaldiversity.ummz.umich.edu/>

Animal Diversity Web



University of Michigan
MUSEUM OF ZOOLOGY



- Home
- About Us
- About Animal Names
- Teaching Resources
- Special Collections
- Glossary
- Browse Animalia

Browse Animalia



← **REPTILIA** *Phrynocephalus mystaceus* →
turtles, snakes, lizards, and relatives Secret Toadhead Anana

[Take our survey!](#)
Help us improve the site!

Search ADW

Taxon Information

[Explore Data @ Quardvark](#)

[Search Guide](#)

ADW Mission

The Animal Diversity Web is an online database and encyclopedia of animal natural history, built through contributions from students, photographers, and many others.

It is a rich and flexible resource designed both as an encyclopedia for exploring biodiversity and for use in formal, inquiry-based education.

IUCN

<http://www.iucnredlist.org/>



The IUCN Red List of Threatened Species™

2013.1

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EXTINCT
EX



[A users' guide to The IUCN Red List web site](#)

03 April 2009 - In October 2008, the IUCN Red List web site was given a brand new look. The new site has more functionality than ever before. This also means that the site has more detailed search pages that... [more](#)



[The most traded wild mammal - the Pangolin - is being eaten to extinction](#)

24 July 2013 - The Chinese Pangolin (*Manis pentadactyla*), one of eight extant pangolins or scaly anteaters as they are also... [more](#)



[Moving Closer to Nature - Miyun Landscape, China](#)

18 July 2013 - Substantial efforts have been made over the last 30 or 40 years to reforest the Miyun landscape. These efforts were a response to the very urgent need to protect the Miyun reservoir and its... [more](#)



[Planting, protecting, and sharing: three indispensable links in mangroves conservation](#)

17 July 2013 - On a recent trip to Lang Co Lagoon in Thua Thien Hue Province, an MFF small grant project site, I met Nguyen Xuan Vinh who runs a local...



MULANJE CEDAR
Widdringtonia whytei

© Russ Clare



Amazing Species

Tree of Life

<http://tolweb.org>

home browse help features learning contribute about Search

TREE OF LIFE web project

Explore the Tree of Life

Browse the Site


- Root of the Tree
- Popular Pages
- Sample Pages
- Recent Additions
- Random Page
- Treehouses
- Images, Movies,...

Search

Learn about ...

Agaricales

(a group of fungi)



[image info](#)

The Agaricales, or euagarics clade, is a monophyletic group of approximately 8500 mushroom species...

[read more](#)

[more featured pages](#)

News

Darwin 200: the celebration continues...

[read more](#)

The Tree of Life Web Project (ToL) is a collaborative effort of [biologists and nature enthusiasts](#) from around the world. On more than 10,000 World-Wide-Web pages, the project provides information about biodiversity, the characteristics of

Resources and How to Contribute to Biodiversity Data

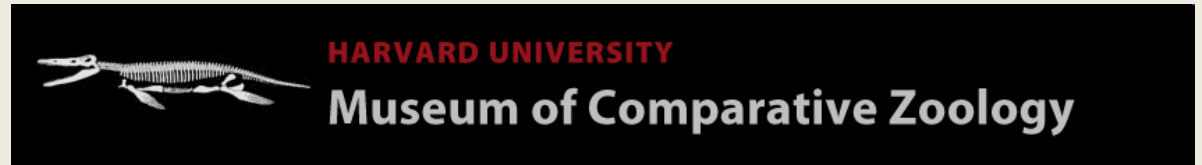
- Databases: <http://www.aim-up.org/resources/databases>
- Activities: <http://www.aim-up.org/educational-modules>
- Notes on Nature: <http://www.notesfromnature.org/>
- iNaturalist: <http://www.inaturalist.org/>

Funding and Participation

kayce.bell@gmail.com



National Science Foundation
Grant 0956129



University of New Mexico; University of Alaska, Fairbanks; Harvard University; University of California, Berkeley; Texas A&M University; City University of New York; Occidental University; University of Nevada, Reno; Arizona State University; University of Ohio; Florida Natural History Museum; University of Illinois, Champaign-Urbana; College of Southern Nevada; Northern Michigan University; University of Michigan; Massachusetts College of Liberal Arts; University of Colorado, Boulder; Denver Museum of Nature & Science; United States Geological Survey; United States Department of Agriculture; Universidad de la Republica

Research

Host-parasite evolution

