

Social Insects Specialist Group (SSC/IUCN) / Antbase.org

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Introduction

Social insects are running our world. They are among the ecologically most important organisms in the world (e.g. pollinators, invasive species, biomass), and their social life style allows to test many hypothesis related to social life style. At least 30,000 publications on ants alone appeared, covering more than 11,700 species known to science (of ca 21,000 expected).

However, information on social insects is highly scattered in thousands of books and serials, and thus extremely tedious to compile. This is especially the case for information on the biodiversity of SI, which are, despite their ecological importance, hardly used in today's conservation.

antbase.org has been created in 2000 as ant specific daughter of the Social Insects World Wide Web (SIWeb). SIWeb is an initiative of the Social Insects Specialists Group (SISG) of the World Conservation Union (IUCN) and IUSISI to promote the conservation of the species by making their data available to conservation practitioners.

All its data is in public domain.

Biological information can be decomposed into individual data blocks, such as observations, publications, DNA-sequences or names. All the blocks can be linked by the name of the species they belong to, and individual data sets can be created independently, and later linked.

Goal

antbase.org is an initiative to make ant related information digitally accessible to bridge gaps between disciplines as well as to make ant data accessible for non-SI scientists, such as conservation managers or molecular biologists.

The main goals are to answer the following basic questions:

- What social insect is it? (Identification and gateway to specific information)
- What is known about species / taxon x? (Gateway to taxon specific data)
- What species is living in Y? (Biodiversity at a given site).

Call for participation

We would like you to help us to speed up and finish the digitization of ant (or social insects related) information. If you find this Site or those of other ant information providers, such as FORMIS or the Ant Image Database (Japan) useful, please consider to participate in this endeavor. Possible contributions can be to cross exam our system for errors, to work out specific areas which are not yet or incompletely covered (e.g. catalogue of bees), such as distribution records, special bibliographies, imagery or publications. Unlimited access and archival of the data will be guaranteed. Please contact any of the responsible webmasters via their Sites.

Strategy

To provide access either onsite or via external sites, a complete and continuously updated name server including all published names of the ants of the world has been created, since biological data can be linked through the unique scientific name of an organism.

To provide complete, reliable data with sources acknowledged.

To accomplish its goals, antbase/SISG is providing

- data (see data sets),
- building tools to find and link to outside databases,
- organizing workshops to resolve specific problems and to
- include the best possible outside advice,
- liaise with other similar initiatives,
- participate in political discussions to allow unhindered access to data,
- to plan specific outreach actions.

Current projects

Online Ant Name Server. Provide access to all ant names; finished, continually updated; In collaboration with Hymenoptera Name Server.

Bill Brown Digital Library. Provide access to all the ca 3,500 publications covering primary systematics; Collaborators: Schultz (USA), Abdel-Diem (Egypt). Funded by Atherton Seidel Foundation, Smithsonian, 95% finished.

XML. OCR and mark up systematics publications for mining; prototype finished, proposal submitted. Main collaborator: Digital library, American Museum of Natural History, Ohio State University, and University of Karlsruhe.

The Virtual Congo Ants. Develop a digital gateway to all the ant data of the Congo Basin, including specimen records, images, full text publications. In collaboration with AMNH; main collaborator Tom Moritz, AMNH and funded through Mellon Foundation.

Leaf Litter Ant Sample Bank. To provide a repository for ant (and wasp) sample data matrices allowing to submit and retrieve data sets. Implemented and currently tested.

Ant Distribution Database. Provide online access to georeferenced ant specimen records, including detailed habitat records (e.g. using TM satellite imagery).

Collaborators: Sofia Campiolo (BR), Jacques Delabie (BR) and Hamish Robertson (ZA) and Christian Lauk > 10,000 Afrotropical and > 1,500 daeineses databased; funded by private donors.

Red Listing of Ants. Assess the status of Red-listed ants. Collaborators: Sofia Campiolo; in process; partially funded.

Access to Keys. Providing links to identification keys and their digital full text versions. Main collaborator: Christian Lauk, voluntary work.

Frozen Ant Collection. Provide the online link to the Smithsonian Frozen Ant Collection. PI Ted Schultz; in preparation.

Digital Ant Image Library.

Access to digital type imagery of ants. PI Brian Fisher, antweb.org, and links to other existing resources

Promotion of the Biodiversity Commons Concept. Promote free digital access to biodiversity related data. Main collaborator: Tom Moritz, AMNH

Public Awareness. Contribution to news media are thought to promote new developments in the domain.

Databases (antbase.org resident)

Taxonomic database: completed March 2002, continually updated variant ant species names.

Bill Brown Digital Reprint Library: Provide access to all the publications covering primary systematics; at the moment 3,580 publications or 77,000 pages online linked as single page pdf documents, or full text documents (also available through FORMIS)

Image database: Access to > 650 images of ants.

Glossaries: Torre Bueno Glossary of Entomological Terms; Harris's Glossary of surface terminology.

Specimen distribution. Access to >12,000 georeferenced ant specimen records, plus non-georeferenced type specimens records.

Leaf Litter Ant Sample Bank. Access to sample data sets; complementary to the published ant manual

West African Ants. Knowledge base, including keys and line art. Maintained by Brian Taylor.

Databases (links to external sites provided and updated)

FORMIS. Online bibliography including >30,000 references, some of them linked to full text if available. Maintained by Sanford Porter et al.,

Virtual Congo Project. Among other includes all the ant data covering the AMNH Congo expedition. Digital Library at the American Museum of Natural History.

GenBank.

Frozen ant collection Frozen tissue collection at Smithsonian Institution to deposit and retrieve ant samples for molecular studies. Ted Schultz

Regional projects. Japanese Ant Image Database; Australian ants; Costa Rican Ants

Taxonomic databases. supplier of ant taxonomic data to GBIF, ITIS

Workshops organized

The All Workshop. Ilhéus, Brazil, August 1996. 26 Participants to develop a standard protocol to sample the ants of the leaf litter. Funded by US-NSF, AMNH, EO Wilson Fund and other small grants. Results: One book, one special edition and Web site.

The Virtual Congo Ant Workshop. New York, October 2000. (Co-organizer) 17 participants to develop a mark up schema for systematics literature. Funded by AMNH and Mellon Foundation. Results XML mark up schema Taxon-X, test bed of marked up ant literature.

The Virtual Social Insect Symposium. Sapporo, July 2002. 7 invited speakers to outline the virtue of a global ant knowledgebase, its current status, future developments and to solicit input from the IUSISI community. Funding: none. Results ?

Applications developed

Standard Protocol to Assess and Monitor ant diversity. A standard protocol has been developed and published in collaboration with 26 scientists from around the world (Agosti, Majer, Alonso & Schultz, 2000. Ants. Smithsonian Institution Press), and a corresponding Web site designed accessible through antbase.org

Mark-up schema for systematics publications. A XML mark up schema Taxon-X to access and mine systematics publications has been developed in collaboration with the Digital Library Project at the AMNH, partially funded by the Mellon Foundation, and the US NSF and German DFG.



Coverage

Scientific reviews. Antbase.org has been reviewed in the News Section of Nature (Nature 417:222 (2002)), Science' Newswatch (Science 295: 2183) and the headlines of IUCN.org

Press. Articles on Antbase.org have been printed in journals around the world as well as online news channel such as CNN.COM

Publications. Agosti, D., and Johnson, N.F. 2002. Taxonomists need better access to published data. Nature 417: 222.



Goals 2008

Provide access to all possible systematics publications in full text. In collaboration with Ted Schultz

Make all modern revisions in XML accessible and searchable

Develop the daeineses as tools for biodiversity assessment and management. In collaboration with Brian Fisher.

Develop two biodiversity hotspot regions (Madagascar & Atlantic Forest) complete digital record. Make all the existing information online accessible, including imagery, literature, distribution, red-listing

Develop identification tool boxes. Provide access to key literature and decide on implementing interactive tools.

Implement Biodiversity Commons for ants. Produce an agreement between with the publishers to make all the ant systematics, and if possible all publications related to biodiversity freely accessible for the scientific community.

Redlisting of ants. Develop plan to assess all the world's ants.

Get one position funded

Organization

Content: Donat Agosti and Norman F. Johnson, USA

Databases and design: Norman F. Johnson, USA

Home: American Museum of Natural History, New York and Ohio State University, Columbus Ohio, USA

Software: HTML, Pearl scripts, Oracle8i

Contributors: Worldwide (see box below)

Original data provider for: IUSISI and SSC-IUCN

Data provider for other initiatives: Species 2000; Species Survival Commission, IUCN; ITIS (GBIF); Species Tool Kit (ALL-Species); Species Information Service, SSC - IUCN

Funding: NSF, AMNH, OSU, PEET, various contributions

Statistics

Funded: 1996

Antbase hits: Maximum > 200,000 hits per month.

Ant-names included:

>11,000 valid species,

> 18,000 published names

Bibliographic ant references included: >3,500

Collaborators and contributors: > 80

Datasupplier: GBIF, ITIS, GenBank

Collaborators and contributors

Barry Bolton, C. Roberto F. Brandão, Alfred Buschinger, Bill Brown, James M. Carpenter, Cédric A. Collingwood, Jacques Delabie, Genady M. Dlussky, Wolfgang Dorow, Katsuyuki Eguchi, Graham Elmes, Xavier Espadaler, Fernando Fernandez, Robert Guesten, Hiroami T. Imai, Rudy Kohout, Annette Pfister-Kutter, Sebastian Lacau, John Latkic, John T. Longino, William P. Mackay, Jonathan Majer, Uli Maschwitz, Alexander Radchenko, Fabrizio Rigato, Hamish Robertson, Stefan Schöndl, Roy Seelinger, Alberto Tisani, James C. Trager, Phil S. Ward, Ruediger Wehner, Edward O. Wilson, Xu Zhenghui, Seiki Yamane, Shanyi Zhou, Tom Moritz, Brian Fisher, Brian Taylor, Christian Lauk, David Gladstein, Rick Harris, Staffan Lindgren, Stefan Cover, Manfred Verhaag, Sanford Porter, Roberto Keller, Ted Schultz, Mahmood Abdel-Diem, Mostafa Risk, Sassan Saatchi, Sofia Campiolo, Kye Hechland, Kevin Nixon, Terry McGlynn, Robert Colwell, Luciana Musetti, Klaus Dumpert, Klemens Boehm, Carsten Bruehl, Daniel Cherix, Alicia De La Cruz, Ralf Duckstein, John F. Fellows, Brian Heterick, Ivan Petrov, Maurice Lepage, Rainer Neumeier, Pete Siegel, Torsten Wappler.