

## Core Facilities

### Overview

Although Argentina has capacity in place to produce DNA sequences in several research institutes and universities, a high throughput facility dedicated to DNA barcoding is still lacking (a large facility is currently at the National Institute of Agriculture INTA, but it is not barcode dedicated). As mentioned above, CONICET decided to allocate about 400K dollars to build 5 DNA barcode dedicated laboratories with capacity to produce PCR products at a relatively large scale (using 96-well plates). The list of institutions where these labs are located is presented below. The main objective is to warrant the amplification of the barcode region from 40K specimens per year, and also to help processing materials from other countries of the region if needed.

Institution	Specimen collection	Sequencing	Informatics / database	Curation
MACN - CONICET	YES (21 national collections of fauna and flora)	NO in house Sequencing at BIO/CCDB	Collection databases in Access, compliant with Darwin Core standards. Exit through GBIF, IABIN and SNDB (Sistema Nacional de Datos Biológicos) portals.	20 K barcode specimens per year
IBONE - CONICET	YES (Plants and Fungi)	NO in house Sequencing at BIO/CCDB		2-5 k barcode specimens per year
CENPAT - CONICET	YES (about 6 collections)	NO in house Sequencing at BIO/CCDB		2-5 k barcode specimens per year
INIBIOMA – CONICET	YES (Fungi and Lichens)	NO in house Sequencing at BIO/CCDB		2-5 k barcode specimens per year
ESTACIÓN BIOLÓGICA NÁGERA - CONICET	YES (Marine fishes)	NO in house Sequencing at BIO/CCDB		2-5 k barcode specimens per year

## 9: LIST OF KNOWN BARCODING PROJECTS AND ASSOCIATED RESEARCHERS IN COUNTRY / REGION

### Overview

Participation of Argentina is particularly significant in the global campaigns aimed to build the barcode libraries. So far, the largest contribution has been on birds, marine fishes, bees and spiders. Thanks to the increase in the support by CONICET and the IDRC project, this contribution will grow rapidly in other groups of invertebrates, particularly in arthropods. The Richard Lounsbury grant is supporting the spread of the geographic coverage of bird and arthropod sampling, including all departments in Bolivia.

List of barcode projects supported by the iBOL Argentina Fund:

- Survey of Patagonian lizards for its genetic identification using iBOL
- Evolution of the neotropical "neobatrachia" : integrating molecules, morphology and the fossil record
- Macrocrustaceans of continental environments of Argentina. Crustacea Decapoda
- Birds of the Monte: contributing with the DNA barcodes and the identification of species
- Native freshwater fishes of Patagonia
- Non-marine "Turbellaria" (Platyhelminthes) from Argentina
- DNA Barcoding Argentine Marine Fishes
- Fungi and lichens from protected areas of Northern Argentina
- Collection of plant samples from Argentinean species of Sapindaceae, Malvaceae y Asteraceae
- DNA Barcode for Coleoptera and Heteroptera from Argentinean Mesopotamia and Pampas
- Genetic identification of wildlife species
- Jellyfish population explosions: a consequence of altered marine ecosystems?
- Freshwater fishes of Argentina
- Mammal collection of the IADIZA (Arid Zones Research Institute - CONICET)
- Spatial and temporal patterns of macrobenthic organisms and physic and chemical characteristics of the water column and soft sediments in two estuaries from Buenos Aires province: the effects on the microphytobenthos
- Marmosine marsupials and Sigmodontine rodents from southern Patagonia (Chubut and Santa Cruz, Argentina)
- Free-living marine Nematodes collection for genetic studies
- Taxonomy and biogeography of the Tertiary and Recent species of the family Mytilidae (Bivalvia: Pteriomorphia) from Argentina
- iBOL Project of Gastropods from coastal shallow areas
- DNA barcodes for Argentinean pollinators: survey of wild bees in the Chaco and Monte
- Biodiversity of aquatic insects of arid zones of Argentina
- Taxonomy and phylogeny of spiders
- Population status of Phalacrocoracidae species in the coast and endorheic basins of Argentina.
- Biodiversity of the order Agaricales (Basidiomycetes) in northwestern Argentina
- Ecoepidemiology of Arboviruses (Flavivirus, Alphavirus, Bunyavirus) and their vectors in northern and central Argentina
- Bats of northern Argentina: Systematics, Distribution and Ecology
- Phylogeny and phylogeography of freshwater fishes from Misiones and Corrientes (Argentina)
- Morphometric and genetic analysis of freshwater silversides from the Paraná-Plata basin in Argentina (Atheriniformes, Atherinopsidae)
- Wetland arthropods of the western south Atlantic
- Subtidal and intertidal Polyplacophorans, Gastropods and Bivalves of Argentina
- Ants of the Argentine desert and monte: contribution to the iBOL project (International Barcode of Life project)
- Tissue collection from Argentine Dung beetles (Coleoptera: Scarabaeidae)

- Evaluation of rotifer, cladocer and copepod diversity in the Río de la Plata basin
- Barcoding marine macroalgae from northern Patagonia (Argentina)
- Diphyllbothrium spp. in the Patagonian Andes: prey galaxiids and salmonids in the transmission of this zoonosis
- Collection of mammals from northeastern Argentina
- Fishes from lower Paraná River
- DNA barcoding of Argentine fish species
- Collection of plant samples of Angiosperms with emphasis in species of Cactaceae and Solanaceae from La Rioja and Catamarca
- Systematics, phylogeny, and phylogeography of the Patagonian frogs *Atelognathus patagonicus* and *Atelognathus praebasalticus* using morphology and molecules
- Molluscs and Nemertean of the Patagonic coast
- Molecular barcode for Coleoptera and Hymenoptera identifications from Mesopotamia and Pampean areas of Argentina
- Turbellaria (Platyhelminthes) from Argentina
- Heteroptera from Northeastern Argentina
- Biosystematic studies of American species of Sapindaceae, Malvaceae-Grewioideae and Ophioglossaceae (Pteridophyta)
- Evaluation of habitat fragmentation on the distribution, abundance and genetic structure in endangered mammals in Northeastern Argentina
- DNA barcodes of the Birds of Argentina and Bolivia
- Conservation Genetics in wildlife species
- Identification of hosts and parasites associated with myxohaline environments from Buenos Aires Province, Argentina
- Freshwater fishes of Argentina: Pampean and Great Rivers Provinces
- Barcode for the identification of lizards of the *Phymaturus* and *Homonota* genera and Leiosaurini clade from Argentina
- Collection and genomic DNA extraction of free-living Marine Nematodes Enoplida from Patagonian coasts
- Echinoderms iBOL project of the Mar Argentino
- DNA barcodes of the Argentine Lepidoptera: Building a tool for species identification, discovery and biodiversity monitoring

**More than 100 researchers, postdocs and students are directly involved in these barcode-related projects.**

Below is a brief description of some of the major barcode projects of Argentina

No	Institution / PI	Taxa	Purpose	Funding	Management
1	MACN-CONICET  PIs Pablo Tubaro and Darío Lijtmaer	Birds	To obtain the tissue collections, vouchers and DNA barcodes of the ca. 1,000 species of birds of Argentina. This project is currently expanding to include the ca. 1,500 bird species of Bolivia (only 53% of the species are shared with Argentina).	CONICET  Richard Lounsbery Foundation  IDRC  University of Buenos Aires  BIO/CCDB	About 10 people (including 4 researchers and several fellows from CONICET ) actively participate in this project doing field work and preparing specimens. This project also received material from birdwatchers and wildlife personnel from National Parks Administration. People form the Colección Boliviana de Fauna, La

			More than 700 bird species from Argentina and bolivia have been barcoded so far.		Paz, is actively participating.
2	MACN-CONICET PI Pablo Tubaro	Lepidoptera	<p>To produce the reference collections (tissues + vouchers) and DNA barcodes of diurnal and nocturnal butterflies and microlepidopterans from Argentina and neighbouring countries. To associate eggs and larvae with adults, and to identify host plant species.</p> <p>So far about 350 species of diurnal butterflies have been collected, representing about 30% of the already described diversity of Argentina. Hundreds of nocturnal butterflies and microlepidopterans have also been collected and are currently being processed.</p>	CONICET IDRC	This is a rather new project started in December 2010. One technician with expertise in butterfly taxonomy was hired and 2 researchers and several fellows from CONICET are actively participating.
3	MACN-CONICET  PIs Arturo Roig, Pablo Tubaro	Bees	<p>The focus of this project are the wild species of bees (Apidae).</p> <p>Currently this project is being expanded to include other groups of parasitoid wasps (Braconidae).</p>	CONICET University of York  IDRC	This is a collaboration with Laurence Packer (Univ. of York, Canada), and involves at this moment the master theses of Natalia Veiga, an Argentinean student from Packer´s lab.
4	MACN-CONICET PI Martín Ramirez	Arachnids	This project started with the study of materials from Panamá gathered as part of an international	CONICET IDRC University of	Several people from MACN are participating.

			<p>project of DNA barcoding and biodiversity supported by the BBVA Bank. About 1,700 spider specimens were barcoded at BIO/CCDB and now is concentrating in species from Argentina, Bolivia and Chile</p>	Buenos Aires	
5	<p>UNIVERSIDAD DE MAR DEL PLATA – CONICET</p> <p>PI Juan Díaz de Astarloa</p>	Fishes	<p>To collect and barcode the 500 species of marine fishes and 470 species of freshwater fishes of Argentina</p> <p>The subproject corresponding to marine fishes is advanced, with about 30% of the species already captured and barcoded. Initially collections were deposited at the INIDEP (National Institute of Fisheries) but now are being deposited at the Estación Biológica Nágera, always under the direction of Dr. Astarloa and his team. He is also collecting freshwater fishes, although other researchers from CONICET are also collecting specimens and depositing materials at the Museo de la Plata.</p>	<p>CONICET</p> <p>IDRC</p>	<p>Several people (including CONICET researchers and students) are participating</p>
6	<p>IBONE-CONICET</p> <p>PI María Elena Ferrucci</p>	Plants	<p>Principal focus is on species of Sapindaceae, Malvaceae and Asteraceae</p>	CONICET	<p>This project is based on the Instituto de Botánica del Noreste (IBONE) that holds one of the largest herbaries of the country and a DNA laboratory. This</p>

					collection also includes material from Bolivia. Duplicates of the tissue samples are being deposited at MACN.
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