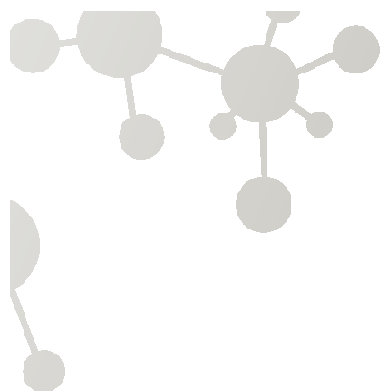


Welcome to CIBIO!

FCT Fundação para a Ciência e a Tecnologia



RESEARCH NETWORK

Biodiversity and Evolutionary Biology





Mission Statement

Brief history

Advance scientific knowledge

in the field of biodiversity and evolutionary biology

Improve and Integrate

taxonomic and biogeographic knowledge at different scales

Use Scientific Data

from wild and domestic breeds to improve species management

Apply scientific knowledge

to propose conservation priorities and management tools

Provide top level MSc & PhD programs

in evolutionary and conservation biology

Foster public awareness,

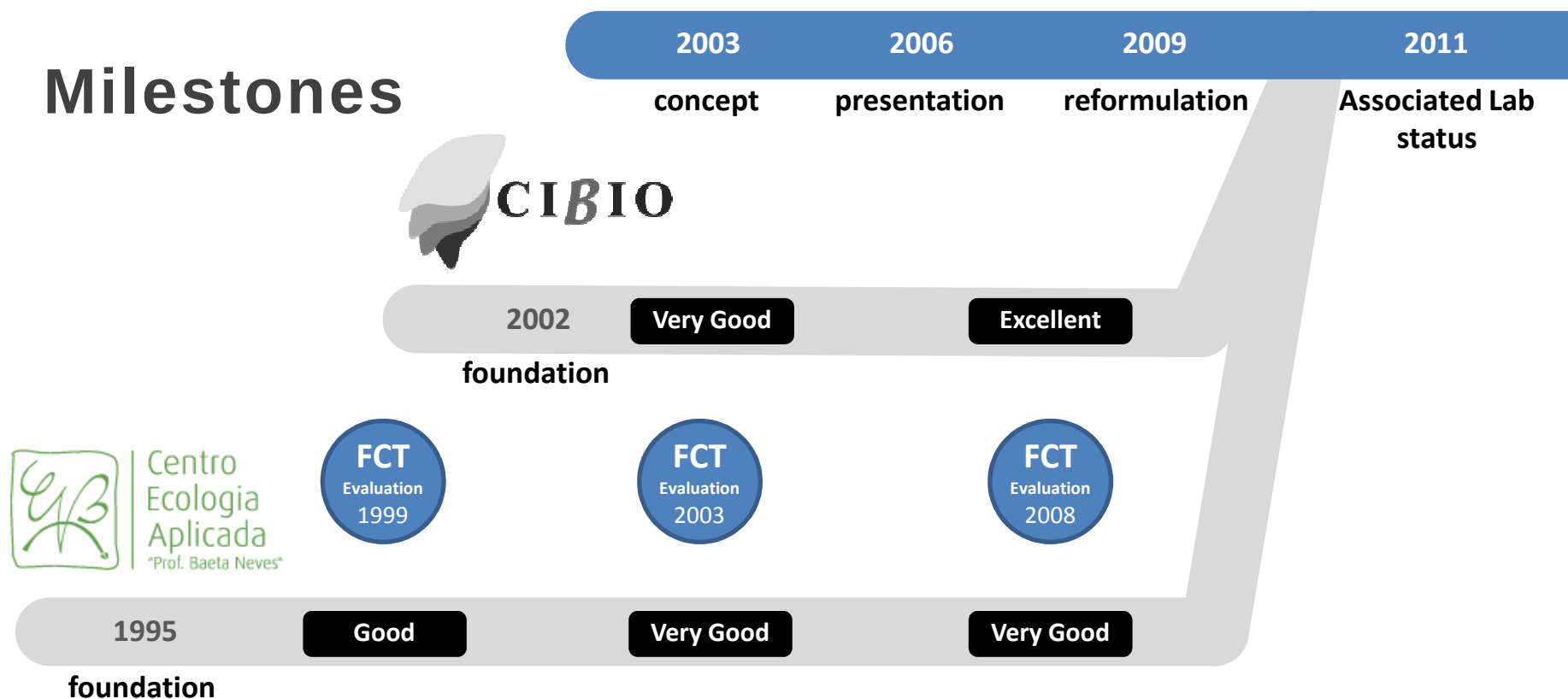
understanding and appreciation of biodiversity

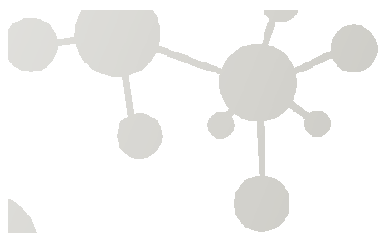


Brief history



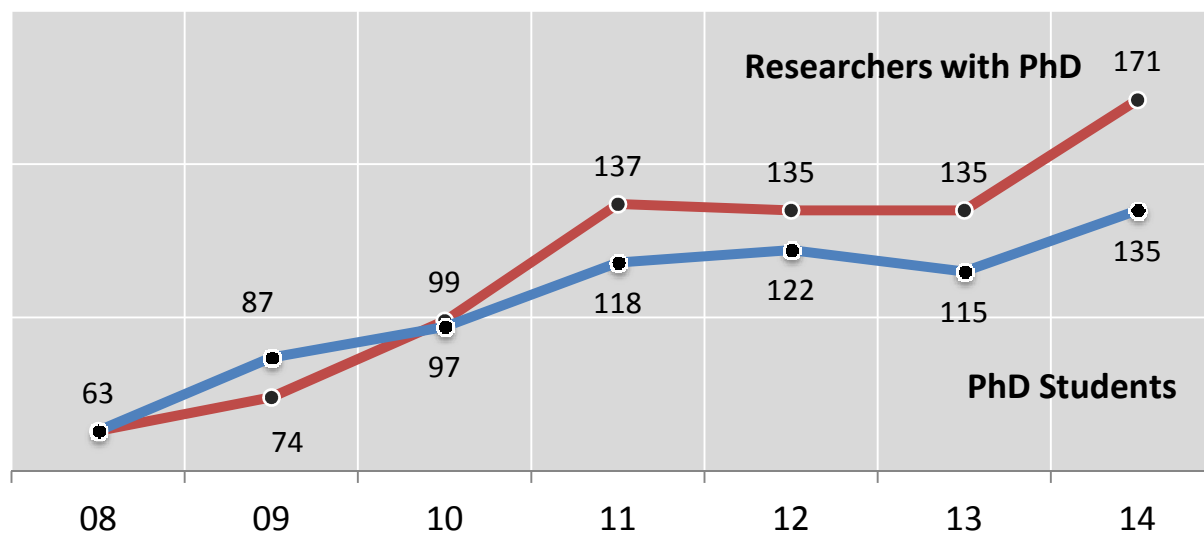
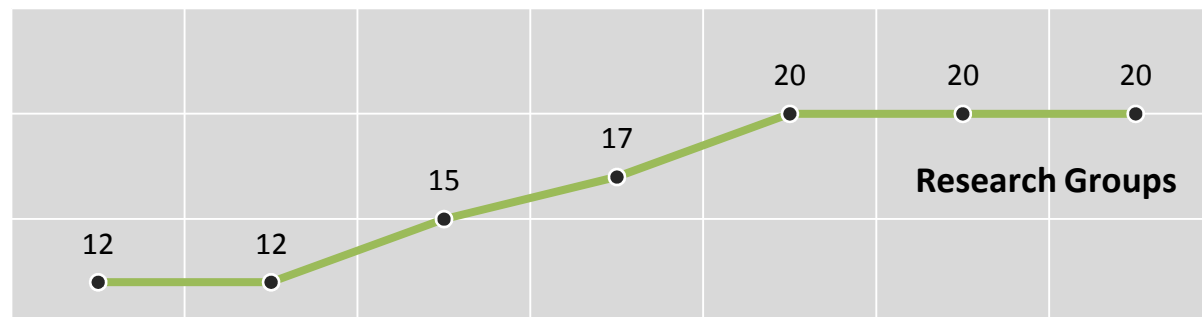
Milestones

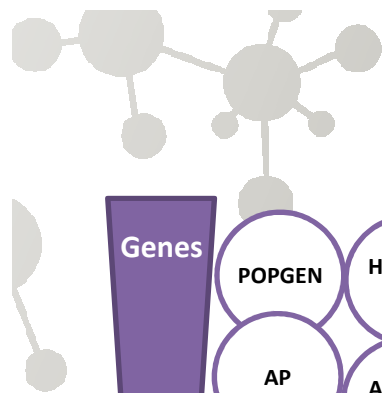




Human Indicators

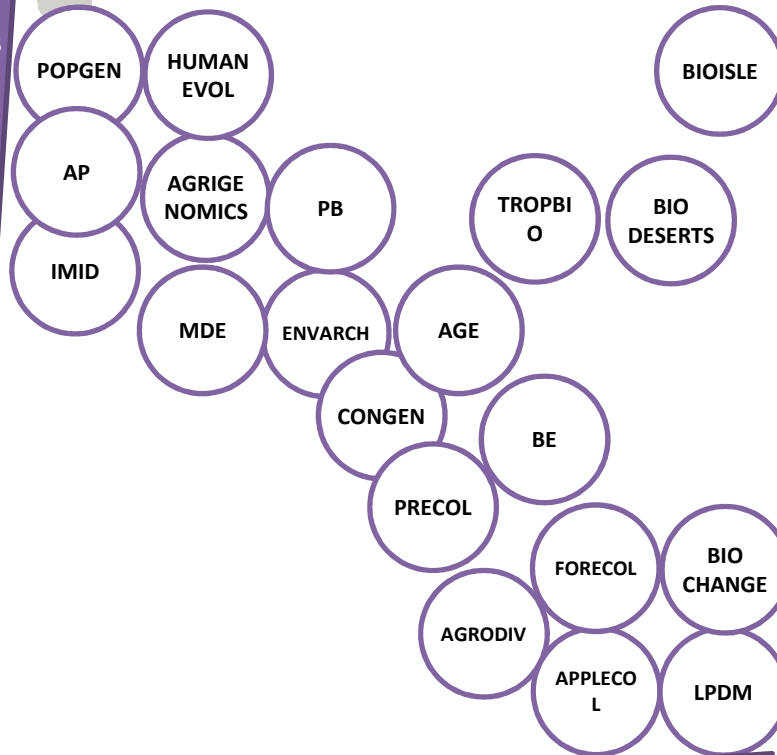
Brief history





Research Groups

Genes



Landscapes

AP

Applied Phylogenetics

POPGEN

Population Genetics, Hybridization and

Speciation

AGRIGENOMICS

Livestock Genomics and Conservation

IMID

Immunogenetics, Microbes and Infectious

Diseases

HUMANEVOL

Human Evolutionary Genetics

MDI

Microbial Diversity and Evolution

PB

Plant Biology

ENVARCH

Environmental Archaeology

CONGEN

Conservation Genetics and Wildlife

Management

BE

Behavioural Ecology

AGE

Ecology and Evolution of Aquatic Organisms

TROPBIO

Tropical Biology

BIODESERTS

Biodiversity of Deserts and Arid Regions

AGRODIV

Biodiversity of Agricultural and Forest

Ecosystems

BIOISLE

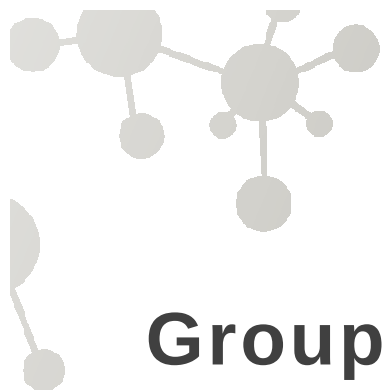
Biodiversity and Islands

APPLECOL

Applied Population & Community Ecology

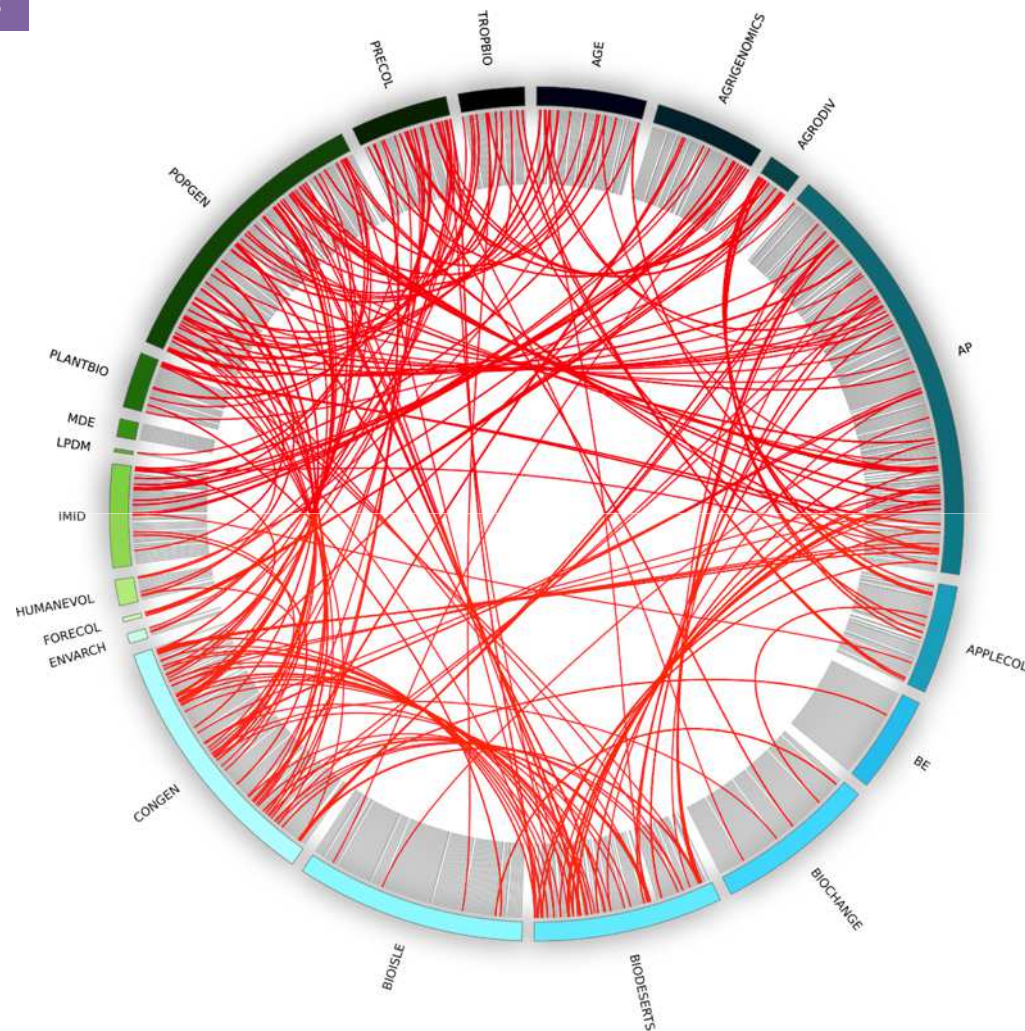
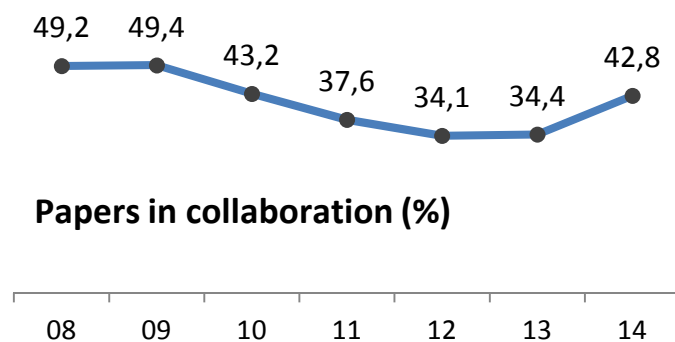
PRECOL

Predictive Ecology

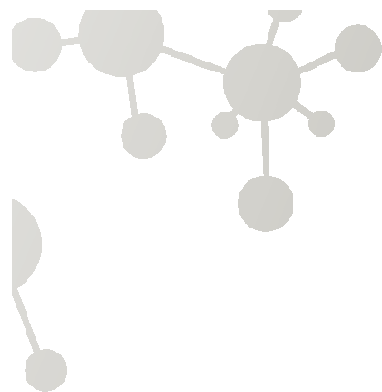


Research Groups

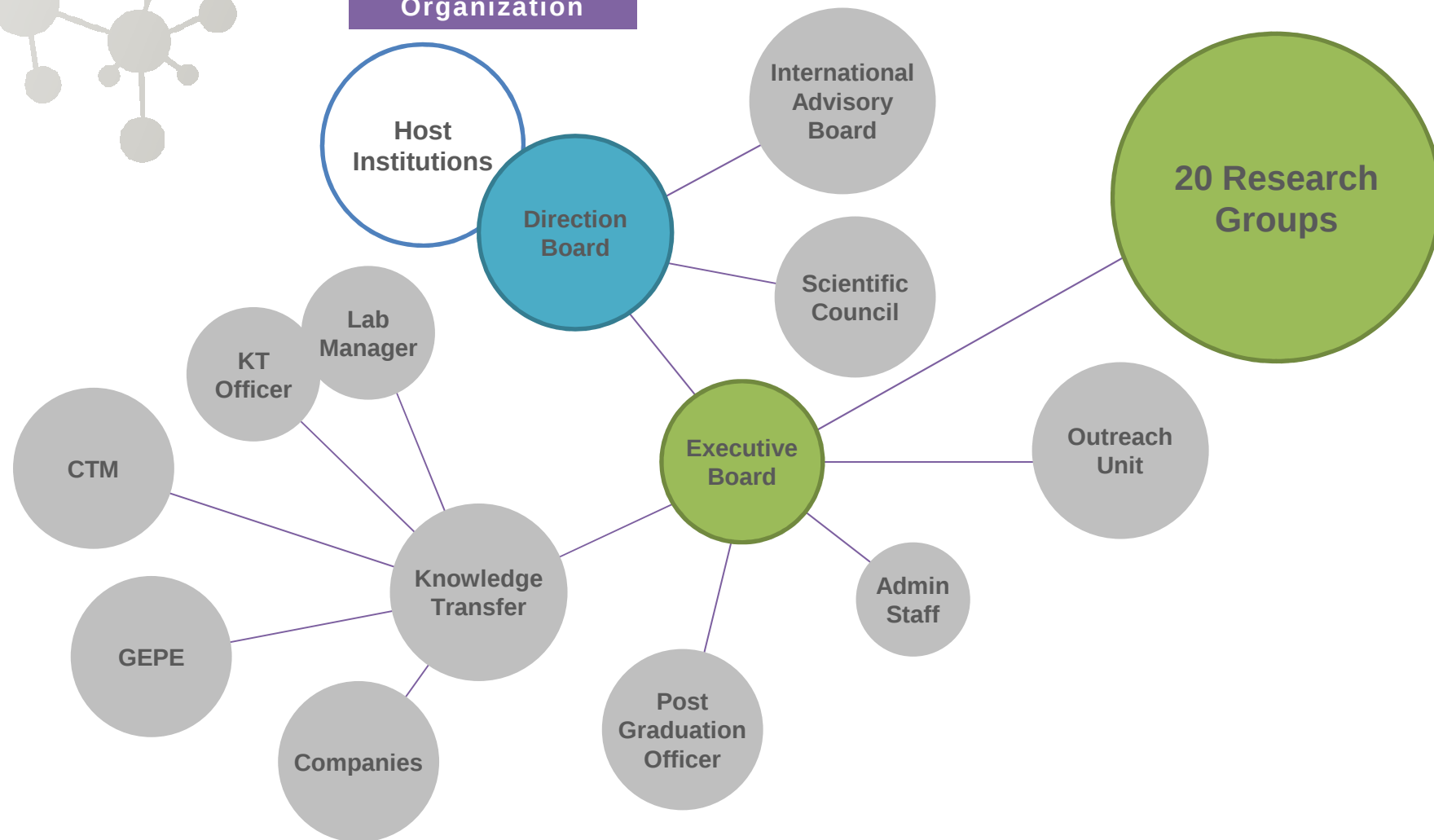
Group Collaboration







Organization





Released simultaneously 29 August 2014

[illegible]MOLECULAR
BIOLOGY AND
EVOLUTIONnature
climate change

Science

[illegible][illegible]



Impact of Research

REVIEW

Chromosomal speciation revisited: rearranging theory with pieces of evidence

Raf Fajó^{1,2} and Arnold Honeis^{1,2}

¹Departament de Genètica i Evolució, Institut de Ciències del Cosmos, Universitat de Barcelona, 08028 Barcelona, Spain; ²Programa de Pós-graduação em Genética e Evolução, Instituto de Física de Carlos de Faria, Universidade Federal do Rio de Janeiro, 21941-900 Rio de Janeiro, Brazil

Received 12 November 2013; revised 10 January 2014; accepted 11 January 2014; published online 22 January 2014; DOI:10.1002/jcb.22701

The argument that chromosomal rearrangements play a role in speciation has been revisited recently. In this review, we discuss the evidence for and against the role of chromosomal rearrangements in speciation. We start by reviewing the evidence for the role of chromosomal rearrangements in speciation, focusing on the role of chromosomal rearrangements in the evolution of the *Drosophila* species. We then discuss the evidence against the role of chromosomal rearrangements in speciation, focusing on the role of chromosomal rearrangements in the evolution of the *Arabidopsis* species. We conclude that the evidence for the role of chromosomal rearrangements in speciation is weak, and that the evidence against the role of chromosomal rearrangements in speciation is strong.

Key words: chromosomal rearrangements; speciation; *Drosophila*; *Arabidopsis*; chromosomal speciation

Chromosomal rearrangement and speciation

Chromosomal rearrangements (CRs) are changes in the structure of chromosomes that can lead to speciation. CRs can be classified into two main types: structural rearrangements (SRs) and numerical rearrangements (NRs). SRs include inversions, translocations, and deletions. NRs include polyploidization and aneuploidy. CRs can lead to speciation by creating reproductive barriers between populations. For example, CRs can lead to changes in gene expression, which can lead to changes in phenotype and fitness. CRs can also lead to changes in the structure of the genome, which can lead to changes in the rate of evolution. CRs can also lead to changes in the organization of the genome, which can lead to changes in the function of genes. CRs can also lead to changes in the organization of the genome, which can lead to changes in the function of genes.

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The importance of chromosomal speciation

Chromosomal speciation is the process by which CRs lead to the formation of new species. Chromosomal speciation can occur in a variety of ways. For example, CRs can lead to changes in gene expression, which can lead to changes in phenotype and fitness. CRs can also lead to changes in the structure of the genome, which can lead to changes in the rate of evolution. CRs can also lead to changes in the organization of the genome, which can lead to changes in the function of genes. CRs can also lead to changes in the organization of the genome, which can lead to changes in the function of genes.

Chromosomal speciation and the evolution of the *Drosophila* species

The *Drosophila* species are a group of insects that are widely distributed around the world. They are known for their role in the study of genetics and evolution. The *Drosophila* species are known for their role in the study of genetics and evolution. The *Drosophila* species are known for their role in the study of genetics and evolution.

Chromosomal speciation and the evolution of the *Arabidopsis* species

The *Arabidopsis* species are a group of plants that are widely distributed around the world. They are known for their role in the study of genetics and evolution. The *Arabidopsis* species are known for their role in the study of genetics and evolution. The *Arabidopsis* species are known for their role in the study of genetics and evolution.

Chromosomal speciation and the evolution of the *Arabidopsis* species

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[illegible][illegible]

Abstract

Background: The genus *Thymus* (Lamiaceae) includes many of the most important medicinal plants in the world. The genus is distributed in the Mediterranean region, and in particular in the Iberian Peninsula. The genus is characterized by a high degree of variability, and this has led to a large number of synonyms and to a complex taxonomic situation. The aim of this study was to clarify the taxonomic status of the genus *Thymus* in the Iberian Peninsula, and to provide a key to the identification of the species.

Methods: A total of 100 specimens of *Thymus* from the Iberian Peninsula were analyzed. The specimens were identified by morphological and molecular data. The molecular data were obtained by sequencing the *trp* gene, which is a highly variable marker for the genus. The results were compared with the data obtained from the morphological analysis.

Results: The results of the molecular analysis showed that the specimens of *Thymus* from the Iberian Peninsula belong to 10 different species. The species identified were *Thymus serpyllifolius*, *Thymus praecox*, *Thymus capitatus*, *Thymus zosterifolius*, *Thymus pulegioides*, *Thymus vulgaris*, *Thymus serpyllifolius*, *Thymus praecox*, *Thymus capitatus*, and *Thymus zosterifolius*. The morphological analysis confirmed the results of the molecular analysis.

Conclusions: The results of this study show that the genus *Thymus* in the Iberian Peninsula is composed of 10 different species. The key provided in this study can be used to identify the species of the genus.

Keywords: *Thymus*, Lamiaceae, Iberian Peninsula, medicinal plants, taxonomy, molecular data, morphological data, *trp* gene.

Trends in Ecology & Evolution

MOLECULAR ECOLOGY
 (includes phylogeography)

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**BIOLOGICAL
REVIEWS**

Volume 85, Part 1
January 2010, pp. 1–10

**Journal of the
Royal Society
Open Science**

Unravelling biodiversity, evolution and threats to conservation in the Sahara-Sahel

Jean C. Ray, ^{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120,121,122,123,124,125,126,127,128,129,130,131,132,133,134,135,136,137,138,139,140,141,142,143,144,145,146,147,148,149,150,151,152,153,154,155,156,157,158,159,160,161,162,163,164,165,166,167,168,169,170,171,172,173,174,175,176,177,178,179,180,181,182,183,184,185,186,187,188,189,190,191,192,193,194,195,196,197,198,199,200,201,202,203,204,205,206,207,208,209,210,211,212,213,214,215,216,217,218,219,220,221,222,223,224,225,226,227,228,229,230,231,232,233,234,235,236,237,238,239,240,241,242,243,244,245,246,247,248,249,250,251,252,253,254,255,256,257,258,259,260,261,262,263,264,265,266,267,268,269,270,271,272,273,274,275,276,277,278,279,280,281,282,283,284,285,286,287,288,289,290,291,292,293,294,295,296,297,298,299,300,301,302,303,304,305,306,307,308,309,310,311,312,313,314,315,316,317,318,319,320,321,322,323,324,325,326,327,328,329,330,331,332,333,334,335,336,337,338,339,340,341,342,343,344,345,346,347,348,349,350,351,352,353,354,355,356,357,358,359,360,361,362,363,364,365,366,367,368,369,370,371,372,373,374,375,376,377,378,379,380,381,382,383,384,385,386,387,388,389,390,391,392,393,394,395,396,397,398,399,400,401,402,403,404,405,406,407,408,409,410,411,412,413,414,415,416,417,418,419,420,421,422,423,424,425,426,427,428,429,430,431,432,433,434,435,436,437,438,439,440,441,442,443,444,445,446,447,448,449,450,451,452,453,454,455,456,457,458,459,460,461,462,463,464,465,466,467,468,469,470,471,472,473,474,475,476,477,478,479,480,481,482,483,484,485,486,487,488,489,490,491,492,493,494,495,496,497,498,499,500,501,502,503,504,505,506,507,508,509,510,511,512,513,514,515,516,517,518,519,520,521,522,523,524,525,526,527,528,529,530,531,532,533,534,535,536,537,538,539,540,541,542,543,544,545,546,547,548,549,550,551,552,553,554,555,556,557,558,559,560,561,562,563,564,565,566,567,568,569,570,571,572,573,574,575,576,577,578,579,580,581,582,583,584,585,586,587,588,589,590,591,592,593,594,595,596,597,598,599,600,601,602,603,604,605,606,607,608,609,610,611,612,613,614,615,616,617,618,619,620,621,622,623,624,625,626,627,628,629,630,631,632,633,634,635,636,637,638,639,640,641,642,643,644,645,646,647,648,649,650,651,652,653,654,655,656,657,658,659,660,661,662,663,664,665,666,667,668,669,670,671,672,673,674,675,676,677,678,679,680,681,682,683,684,685,686,687,688,689,690,691,692,693,694,695,696,697,698,699,700,701,702,703,704,705,706,707,708,709,710,711,712,713,714,715,716,717,718,719,720,721,722,723,724,725,726,727,728,729,730,731,732,733,734,735,736,737,738,739,740,741,742,743,744,745,746,747,748,749,750,751,752,753,754,755,756,757,758,759,760,761,762,763,764,765,766,767,768,769,770,771,772,773,774,775,776,777,778,779,780,781,782,783,784,785,786,787,788,789,790,791,792,793,794,795,796,797,798,799,800,801,802,803,804,805,806,807,808,809,810,811,812,813,814,815,816,817,818,819,820,821,822,823,824,825,826,827,828,829,830,831,832,833,834,835,836,837,838,839,840,841,842,843,844,845,846,847,848,849,850,851,852,853,854,855,856,857,858,859,860,861,862,863,864,865,866,867,868,869,870,871,872,873,874,875,876,877,878,879,880,881,882,883,884,885,886,887,888,889,890,891,892,893,894,895,896,897,898,899,900,901,902,903,904,905,906,907,908,909,910,911,912,913,914,915,916,917,918,919,920,921,922,923,924,925,926,927,928,929,930,931,932,933,934,935,936,937,938,939,940,941,942,943,944,945,946,947,948,949,950,951,952,953,954,955,956,957,958,959,960,961,962,963,964,965,966,967,968,969,970,971,972,973,974,975,976,977,978,979,980,981,982,983,984,985,986,9}

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MOLECULAR ECOLOGY

EARTH-SCIENCE

REVIEWS

Current Biology

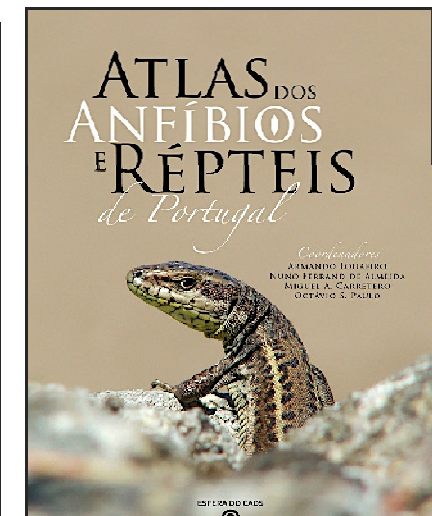
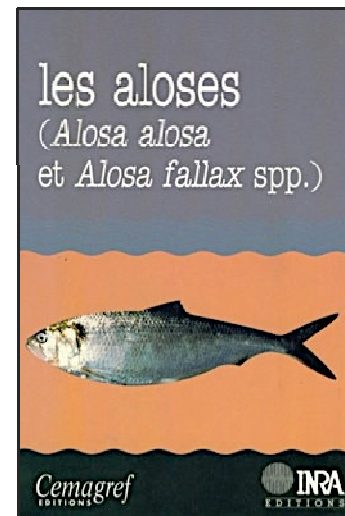
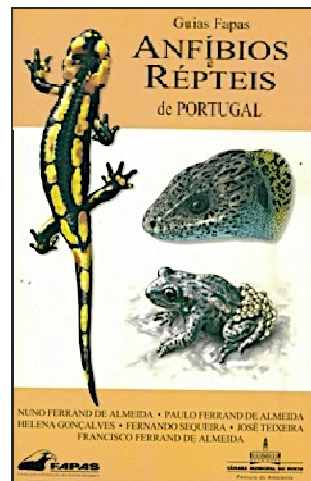
BIOLOGICAL REVIEWS

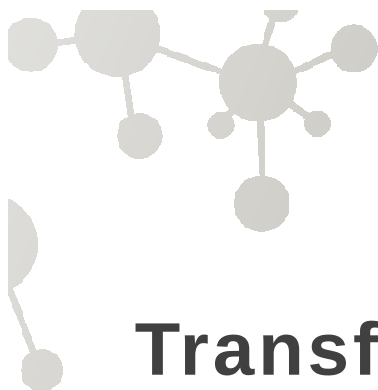


ANNUAL REVIEW
OF ECOLOGY,
EVOLUTION, AND
SYSTEMATICS

Impact of Research

Books Conservation





Impact of Research

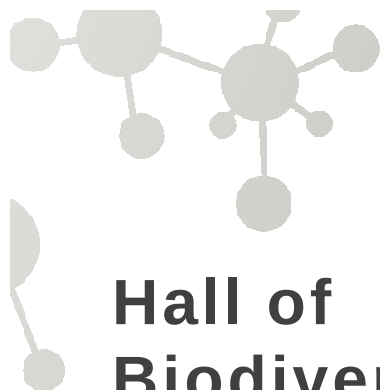
Transfer Technology

variety of services to the community, through contracts with enterprises and other public and private entities

CTM
provides Molecular
& Genetic Expertise
& Services

GEPE
provides Ecological
Expertise & Services





Hall of Biodiversity

U.PORTO

MUSEUS

MUSEU
DE HISTÓRIA
NATURAL
DA UNIVERSIDADE
DO PORTO

Outreach

4 M€ grant (2012-14)

May 2015 Symbolic opening
Feb 2016 Museum Centenary
Inauguration Hall of Biodiversity
Jun 2017 ECSITE Conference

ecsite





Strategic Programme

Infrastructures

PORBIOTA

8.9 M€ (2.5 InBIO)

e-Infrastructure for Information, Research and Services
on Portuguese Biodiversity, Ecosystems and Biological
Resources

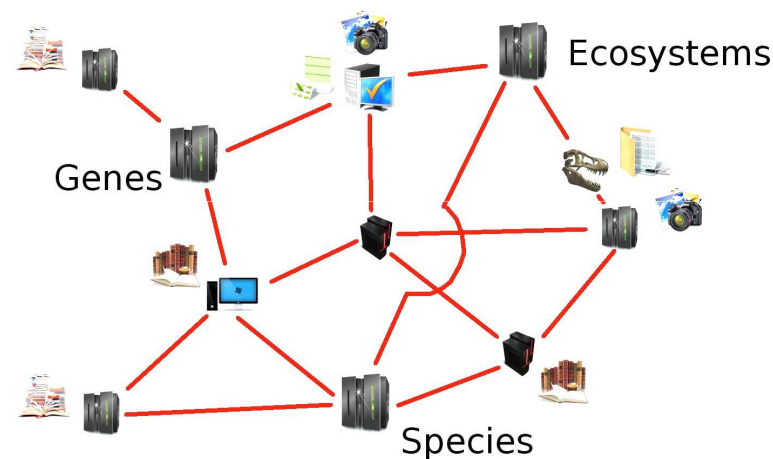


CIBIO New-Gen



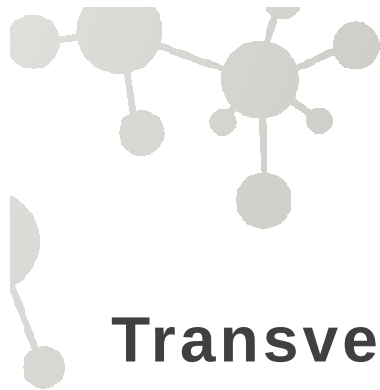
*Next Generation
Sequencing platform*

3.6 M€



GenomePortugal

Next Generation Sequencing 9 M€ (1.1 InBIO)



Transversal Positions

Strategic Programme

Bioinformatics & Biology of Genomes

POPGEN

HUMAN
EVOL

BIOISLE

AP

AGRIGE
NOMICS

PB

TROPBI
O

BIO
DESERTS

IMID

MDE

ENVARCH

AGE

Environmental Genomics

CONGEN

BE

PRECOL

Eco-informatics & Computational Ecology

FORECOL

BIO
CHANGE

AGRODIV

APPLECO
L

LPDM



Strategic Programme

Internationalization

Twin Labs

Morocco
Cape Verde
Brasil
São Tomé and Príncipe



ISCED-Huíla
ANGOLA





Strategic Programme

Advanced Training Doctoral Programs



In 2013

12 PhD scholarships

- 235 applications
- 40% foreign applicants
- 30 countries

In the next 4 years:

- 36 PhD scholarships (FCT)
- 16 PhD scholarships for Angolan citizens

SusFOR

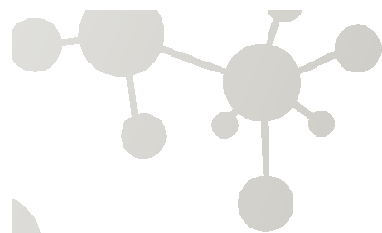
In 2013

8 PhD scholarships

- 52 applications
- 2 foreign grantees

In 2014

- 8 PhD scholarships
- 36 applications
- 2 foreign grantees



Strategic Programme

**Human
resources**

Companies
3

EU + Regional
Projects
26

IF
13

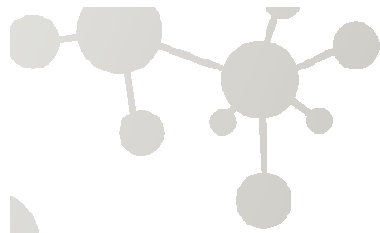


Basic FCT
Funds
12

Invited
Chairs
10



REN 
Redes Energéticas Nacionais



EDP Biodiversity Chair

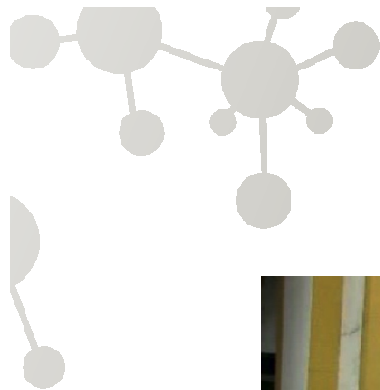


New research group

Developing applied population and community ecology



Invited Prof. Pedro Beja, at University of Porto (Portugal)



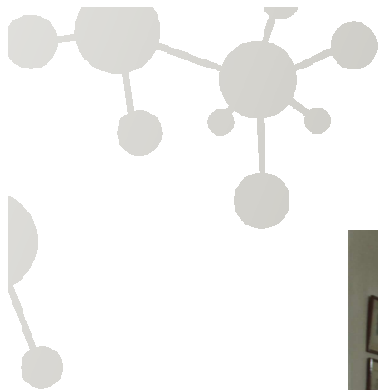
DELTA Biodiversity Chair



Invited Prof. Miguel Araújo, at University of Évora (Portugal)

15 postdoctoral fellows, 2 doctoral students and 8 technicians



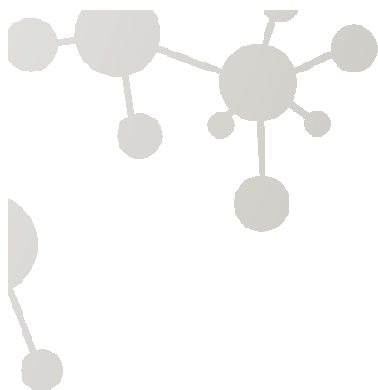


REFER Biodiversity Chair

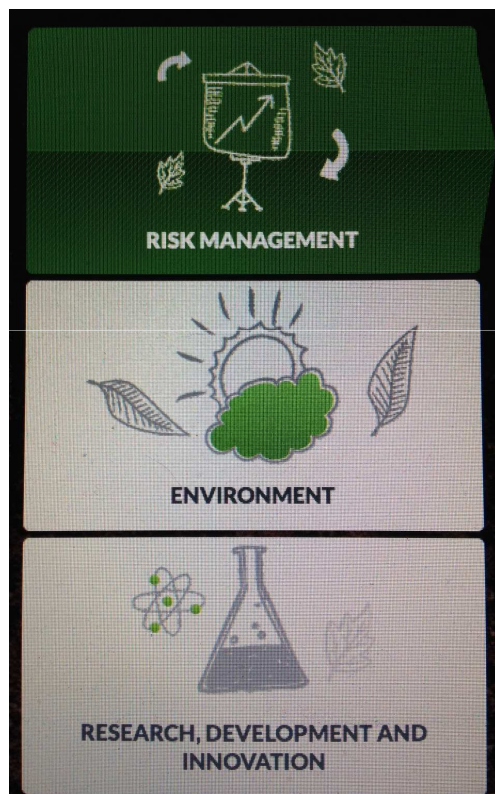


CÁTEDRA
BIODIVERSIDADE
REFER

Invited Prof. David Vieites at MNCN – CSIC (Spain)



REN Biodiversity Chair



To be announced (early 2015)