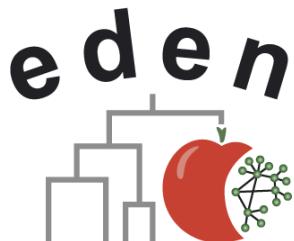


**<http://ifiscuib.es/EDEN>**

January 2007 – December 2009

# Ecological Diversity and Evolutionary Networks

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University of the Balearic Islands  
Palma de Mallorca, Spain  
(+ CSIC, Spanish Higher  
Research Council)

<http://www.imedea.uib.es>

<http://ifisc.uib.es>



<http://ccmar.ualg.pt/maree/>

Laboratory of Computational Engineering  
Helsinki University of Technology

<http://www.lce.hut.fi/>

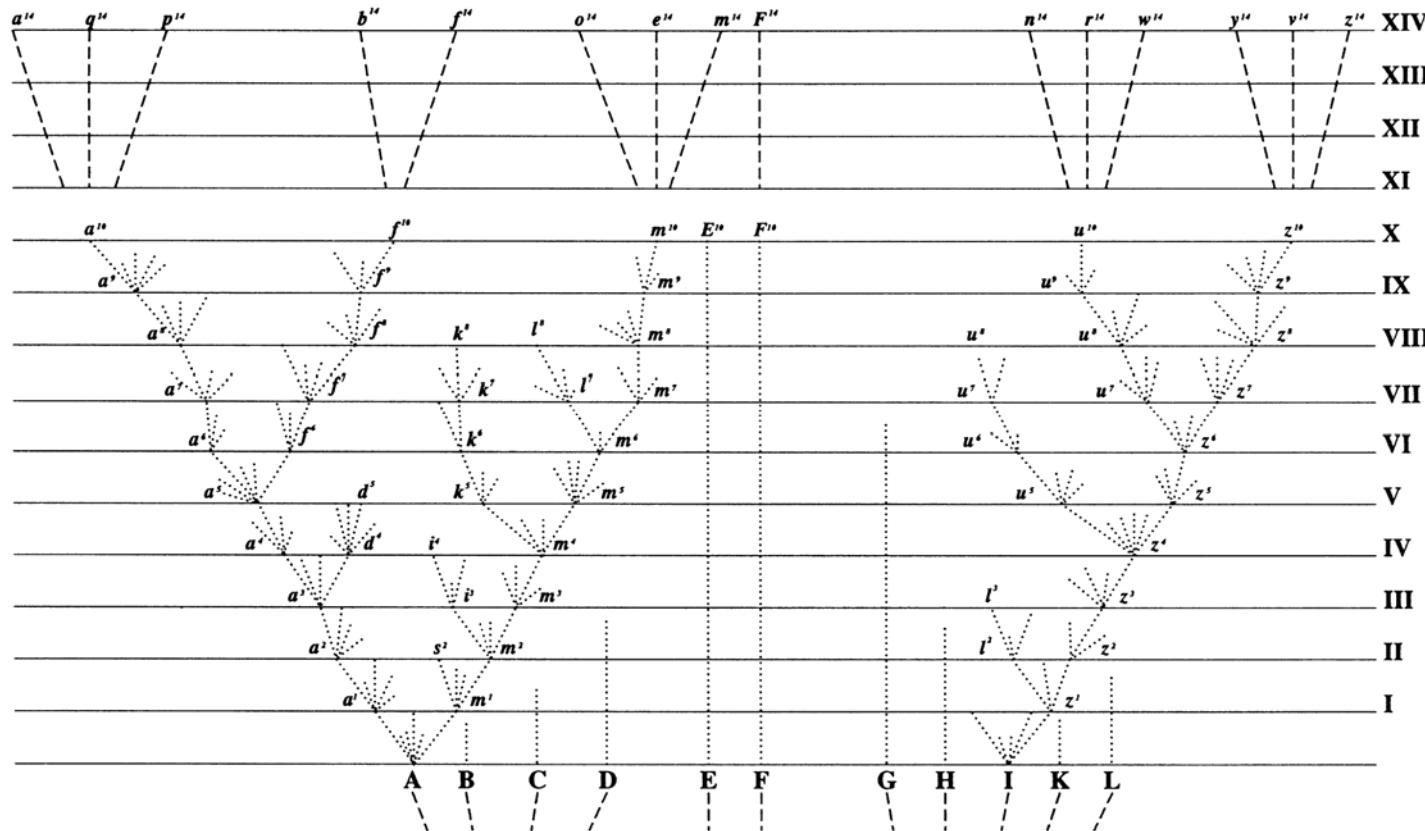


UNIVERSITÄT LEIPZIG

Institute for Computer Science, Bioinformatics Group  
Leipzig, Germany

<http://www.bioinf.uni-leipzig.de/>



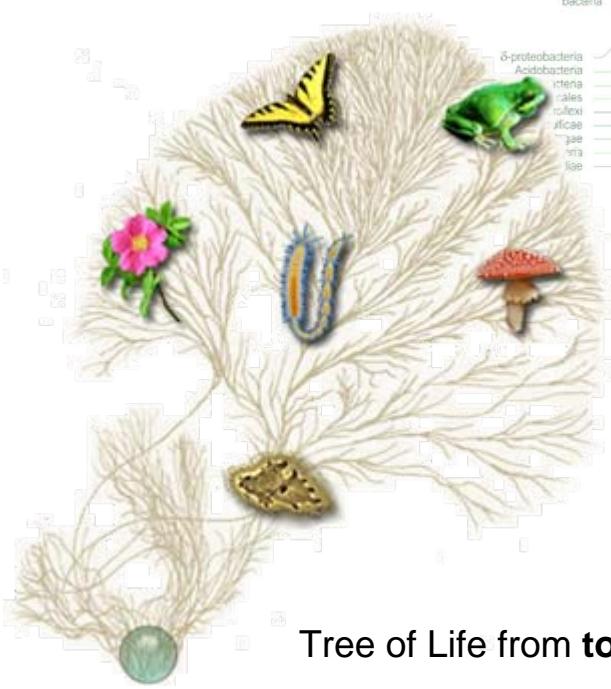


*Charles Darwin in On the Origin of Species, 1859*

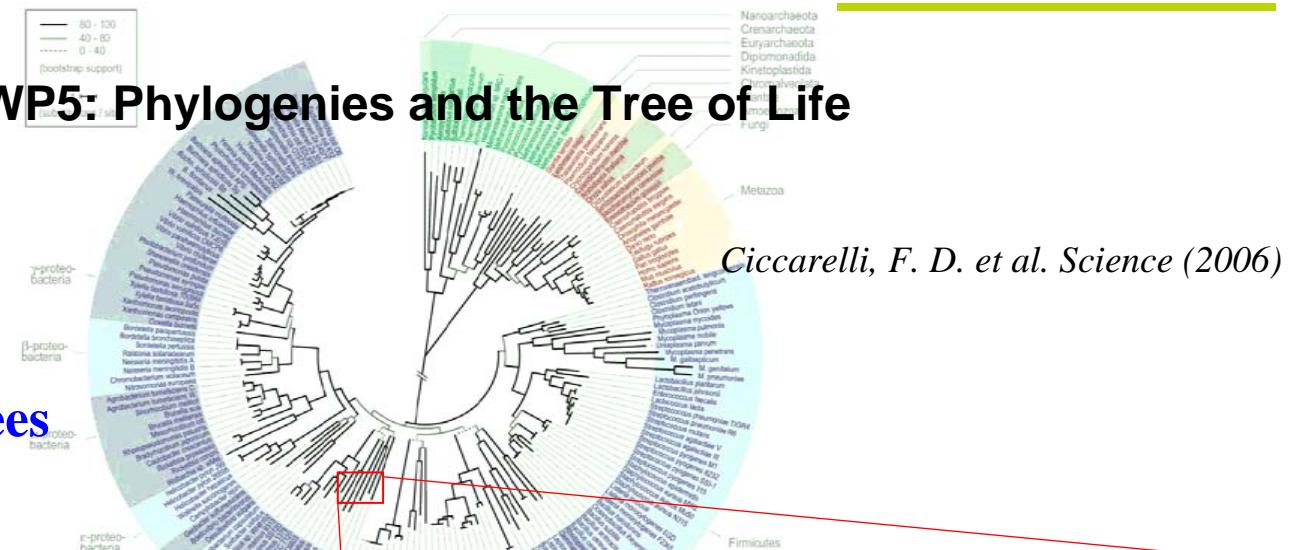


# WP5: Phylogenies and the Tree of Life

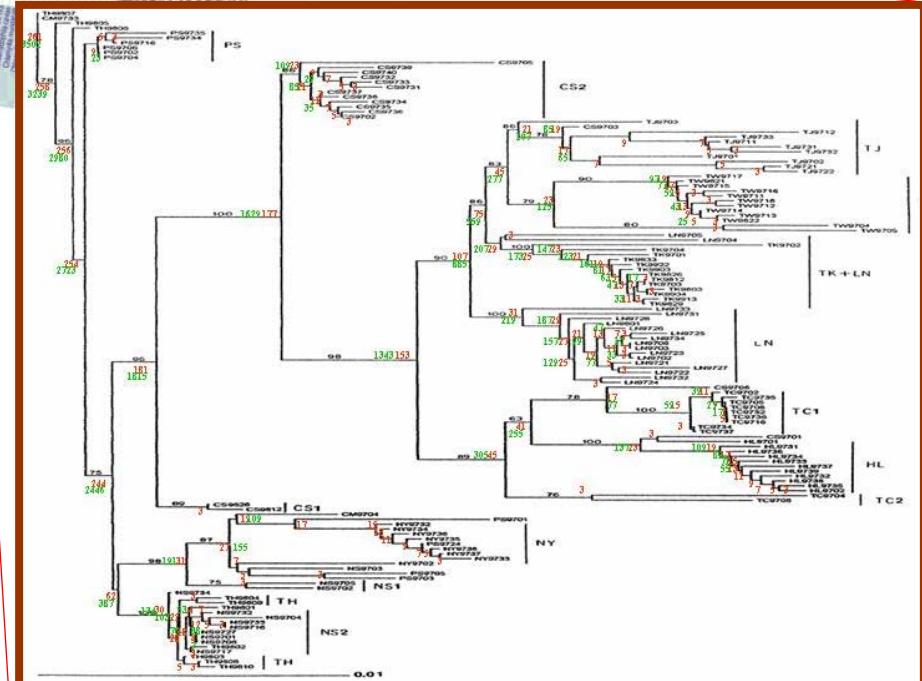
# The “Tree of Life” and phylogenetic trees

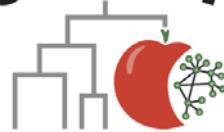


Tree of Life from tolweb.org

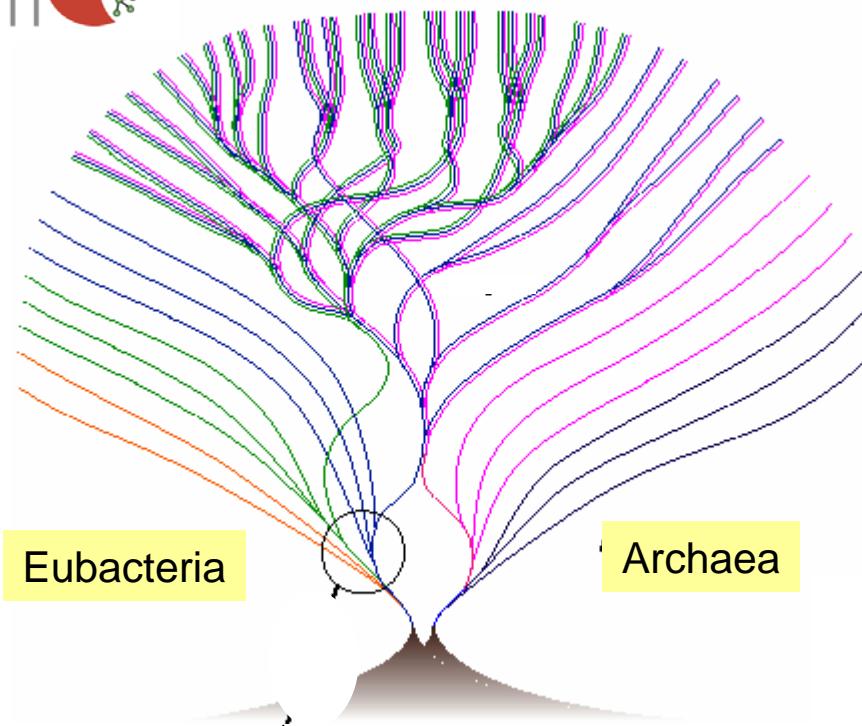


Ciccarelli, F. D. et al. *Science* (2006)



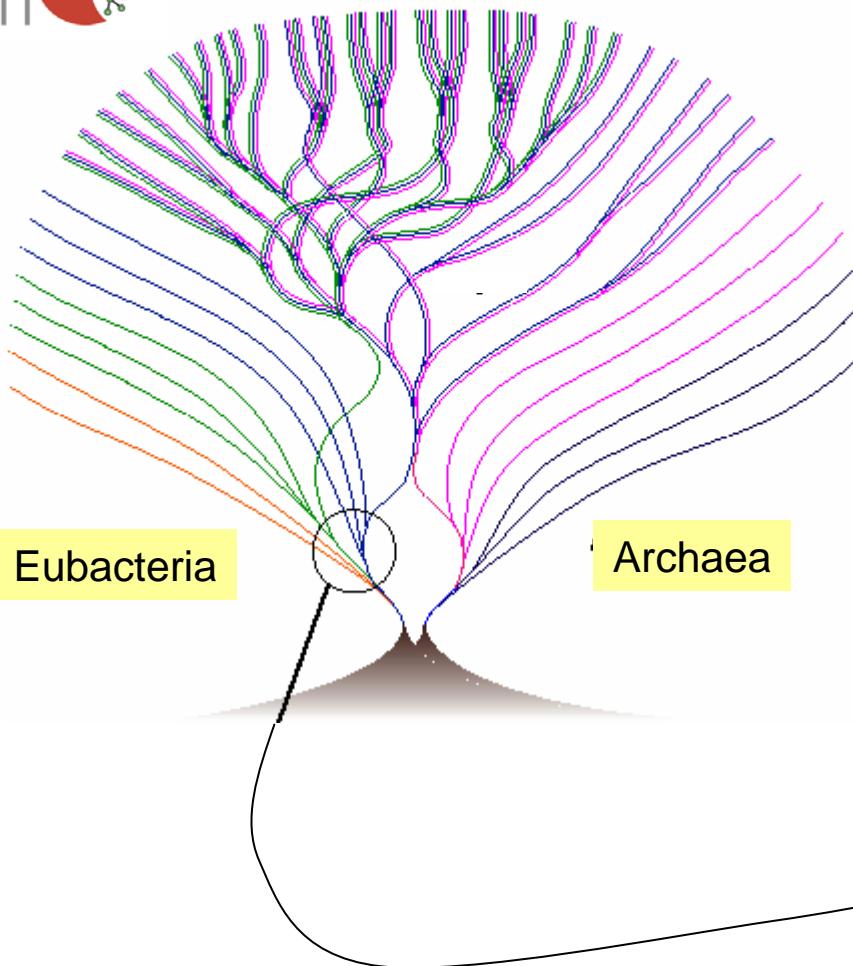


Eukaryotes



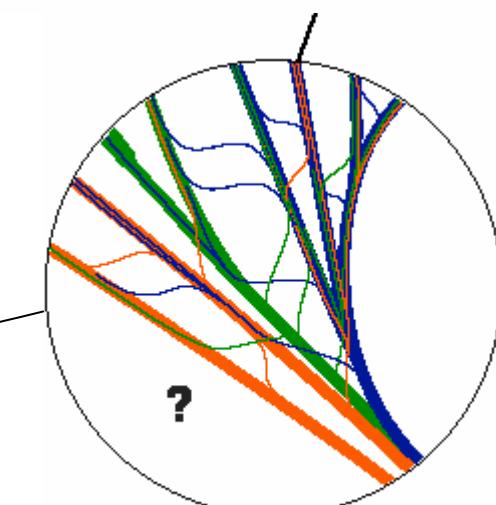
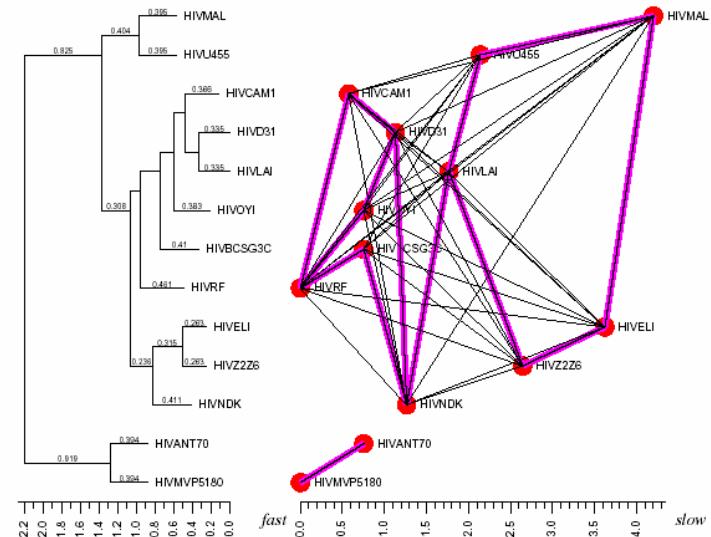


Eukaryotes



Eubacteria

Archaea

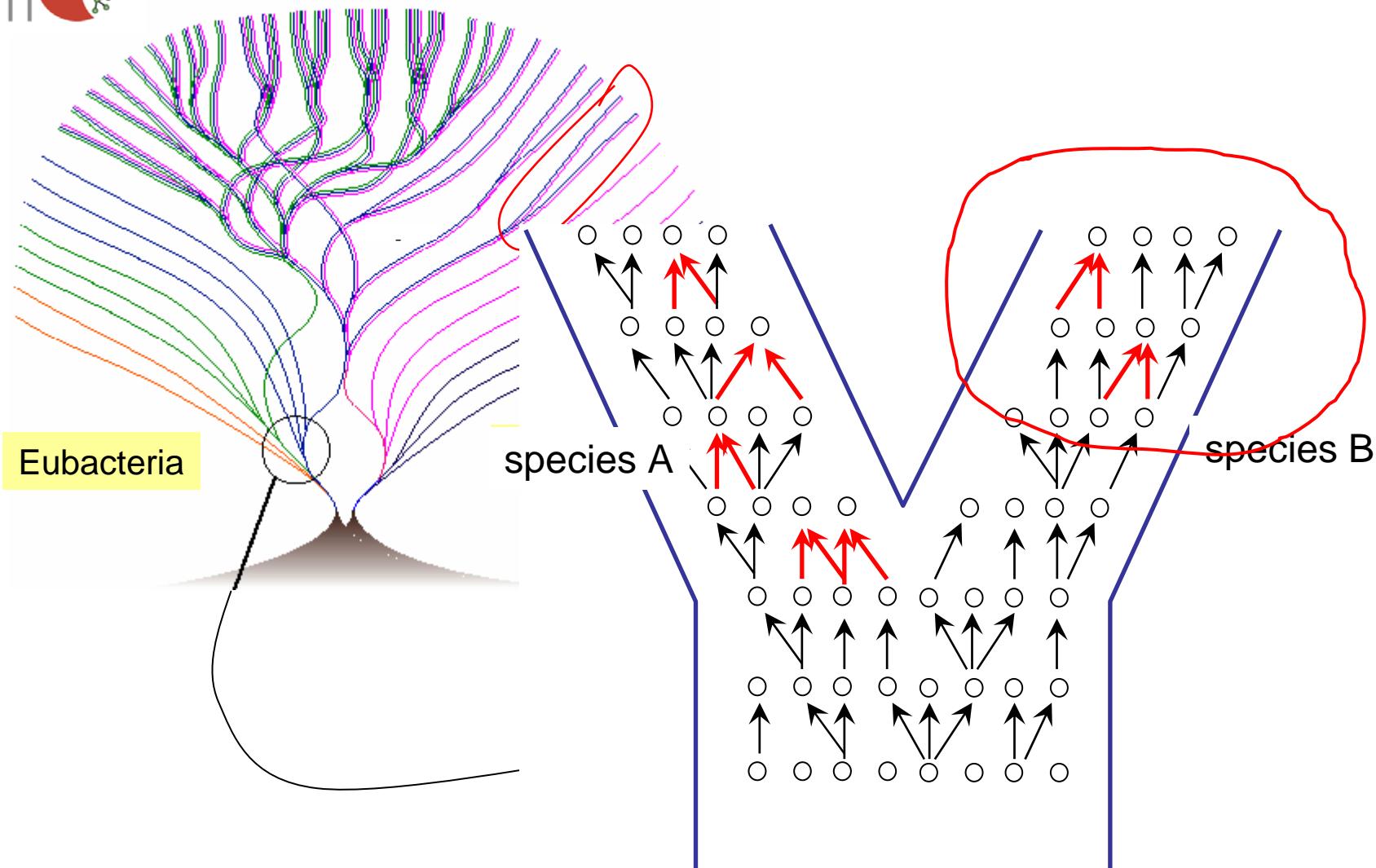


## WP5: Phylogenies and the Tree of Life

W. Martin, BioEssays 21.2, 1999



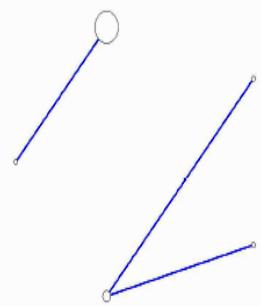
Eukaryotes



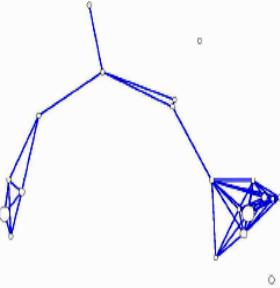
Eubacteria

## INTRAPOPULATION GENET NETWORKS

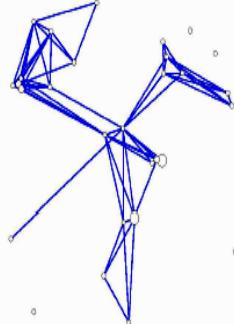
Es Castell (Cabrera)



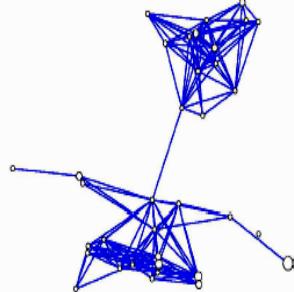
Cala Jonquet (Iberian Peninsula)



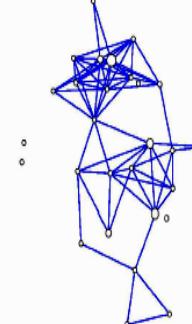
Azzura (Sicily)



Roquetas (IP)



Cavallets (Ibiza)



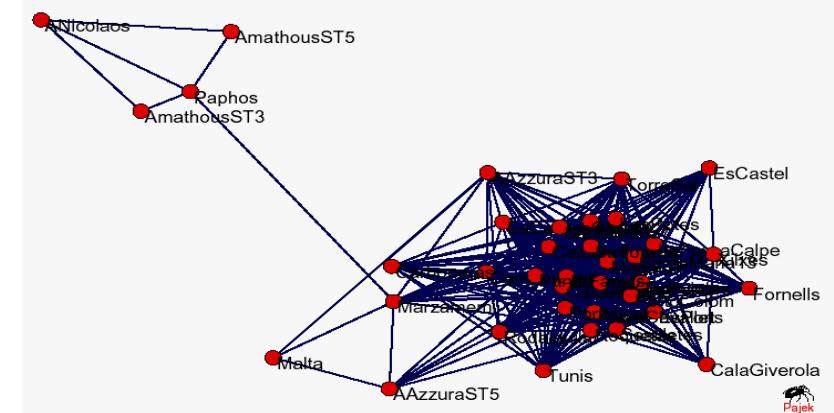
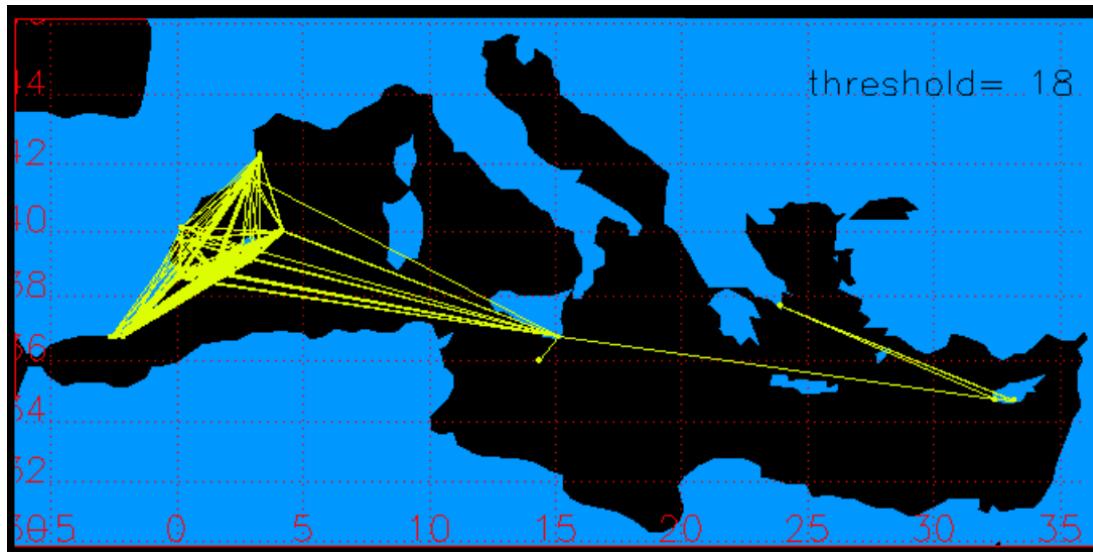
Rodalquilar (IP)



**WP4: Population ecology networks**

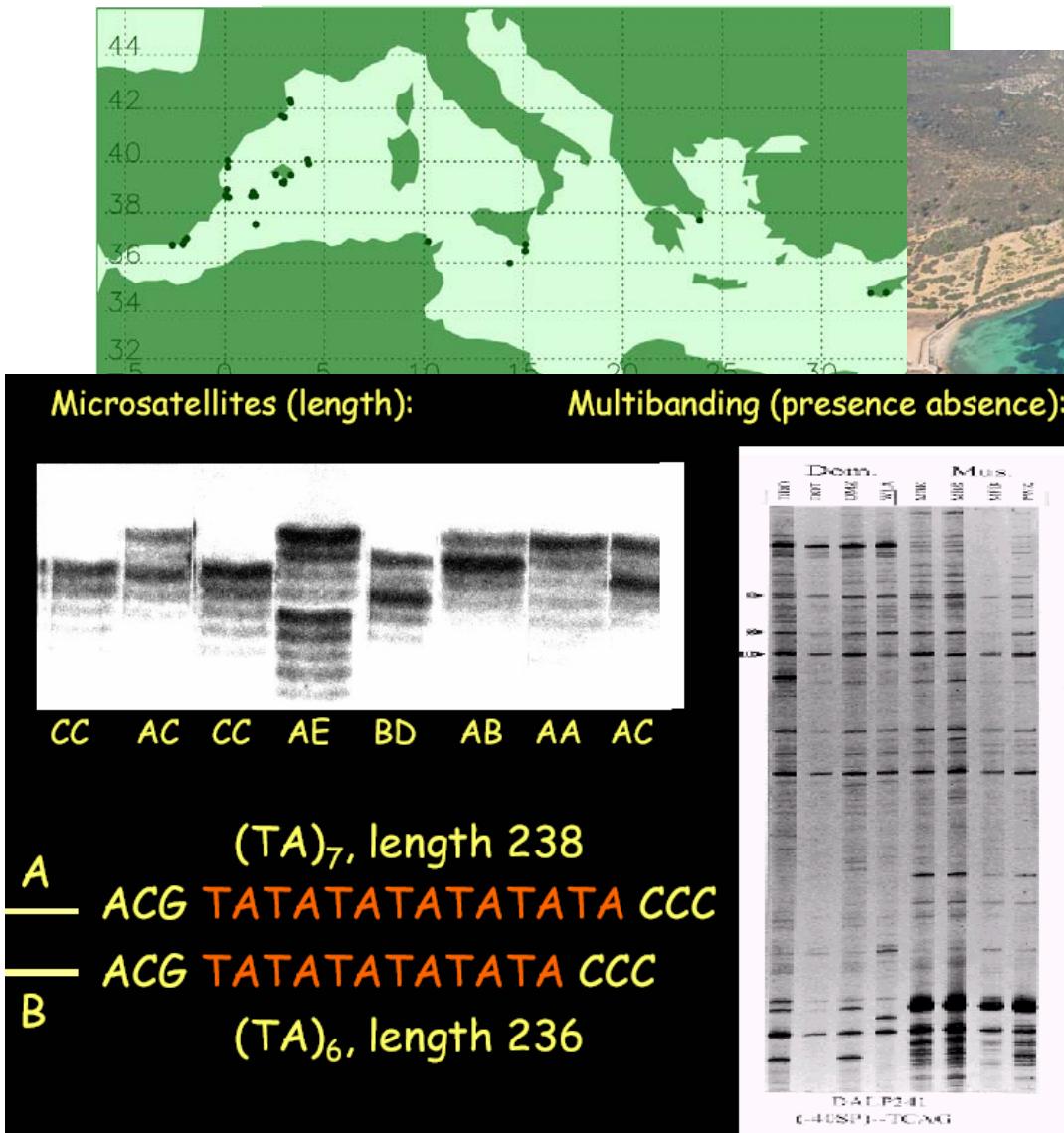
# NETWORKS OF GENETIC SIMILARITY

## Interpopulation case

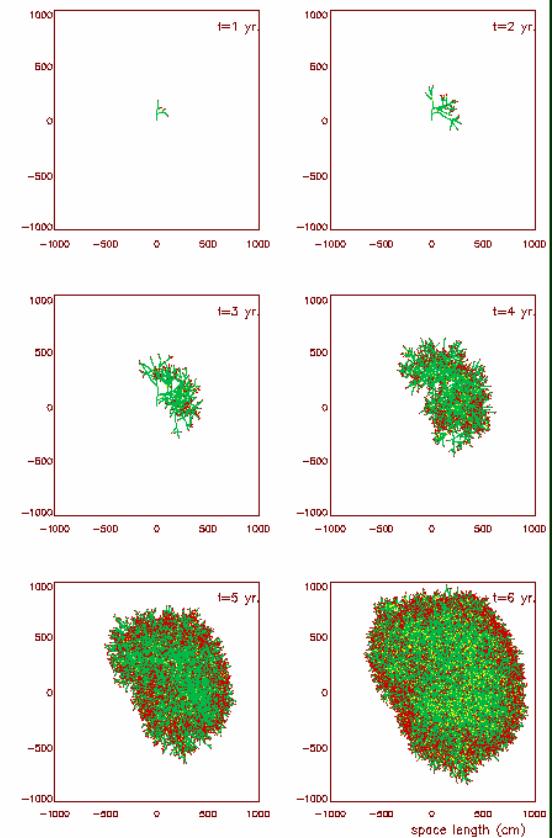
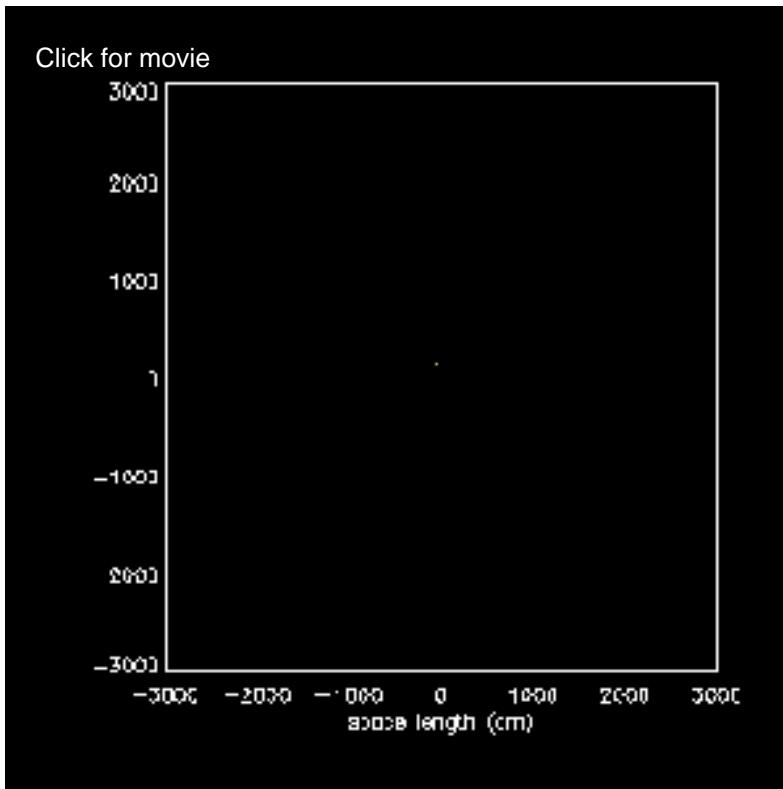
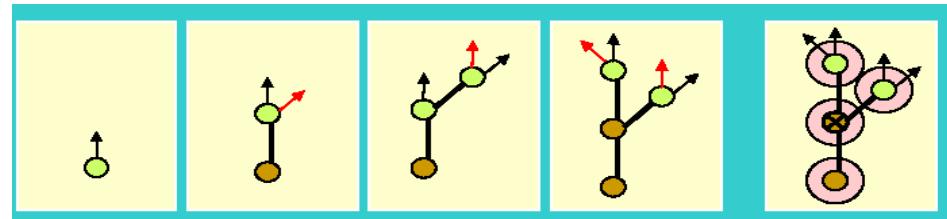


# WP4: Population ecology networks

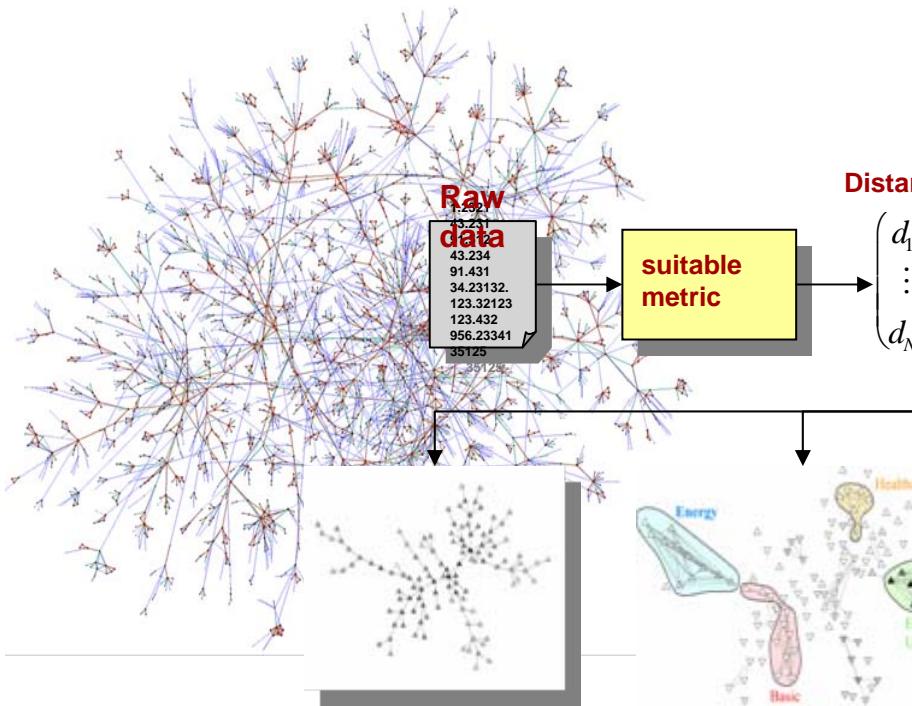
## WP1: Data collection



MODELS OF SEAGRASSES GROWTH  
 (T. Sintes et al., OIKOS, 108, 165 (2005))



WP3: Dynamical and spatiotemporal modelling



Minimal spanning trees

Thresholded networks

Distance matrix

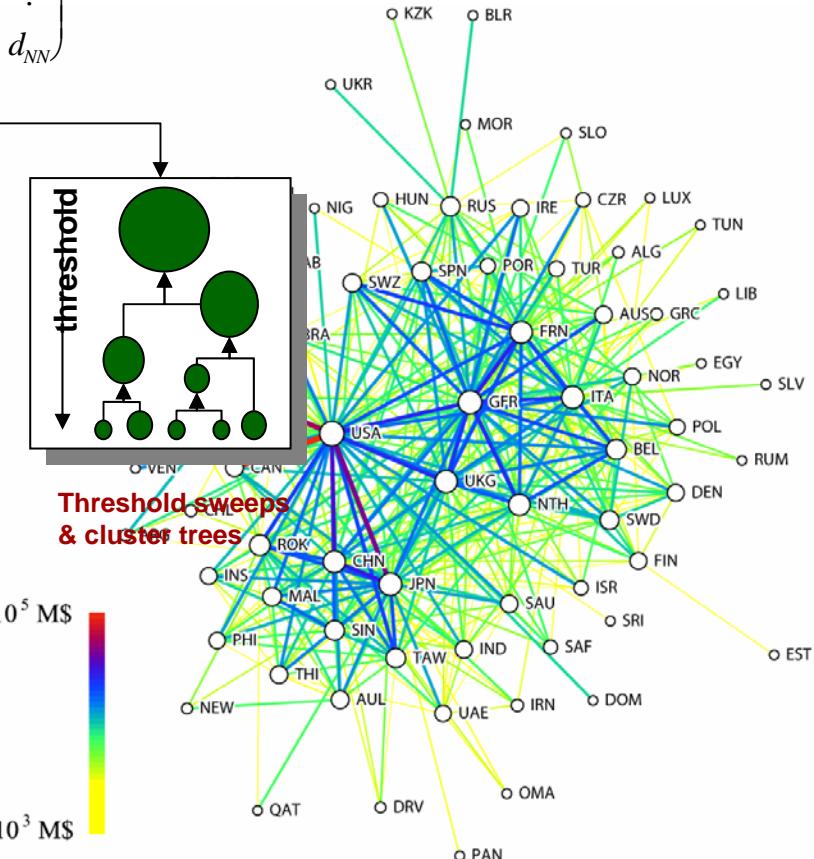
$$\begin{pmatrix} d_{11} & \cdots & d_{1N} \\ \vdots & \ddots & \vdots \\ d_{NI} & \cdots & d_{NN} \end{pmatrix}$$

threshold

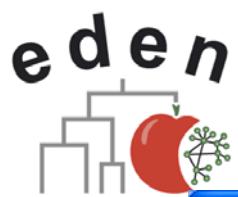
Threshold sweeps  
& cluster trees

$4 \times 10^5$  M\$

$2 \times 10^3$  M\$



## WP2: Network theory Toolbox



EDEN project home - Mozilla Firefox

File Edit View History Bookmarks Tools Help

IMEDEA

EDEN project home

European Commission 6th Framework Programme NEST-Pathfinder, Tackling Complexity in Science

# Ecological Diversity and Evolutionary Networks EDEN

home

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The EDEN project

EDEN (Ecological Diversity and Evolutionary Networks) is a research project supported by the New and Emerging Science and Technology programme ([NEST](#)) of the [6th Framework Programme](#) of the European Commission, under the [NEST-Pathfinder Complexity](#) initiative. It started on 1st January 2007 and will run for three years.

Here is a [descriptive Fact Sheet](#) of the project prepared by the EC services

The EDEN objectives

Biological systems and their highly organized constituents are paradigms of Complexity. The study of Complex Networks, representing interactions among components, has become central in the science of Complex Systems.

The EDEN proposal aims at considering in depth the representation of ecological and evolutionary relationships among biological entities -organisms, populations, taxa- in terms of networks by developing methods to construct them from genetic data and by expanding the toolbox for their analysis. Evolutionary relationships between species are usually represented in phylogenies, i.e. evolutionary trees. Interspecific genealogies and

Done

<http://ifisc.uib.es>