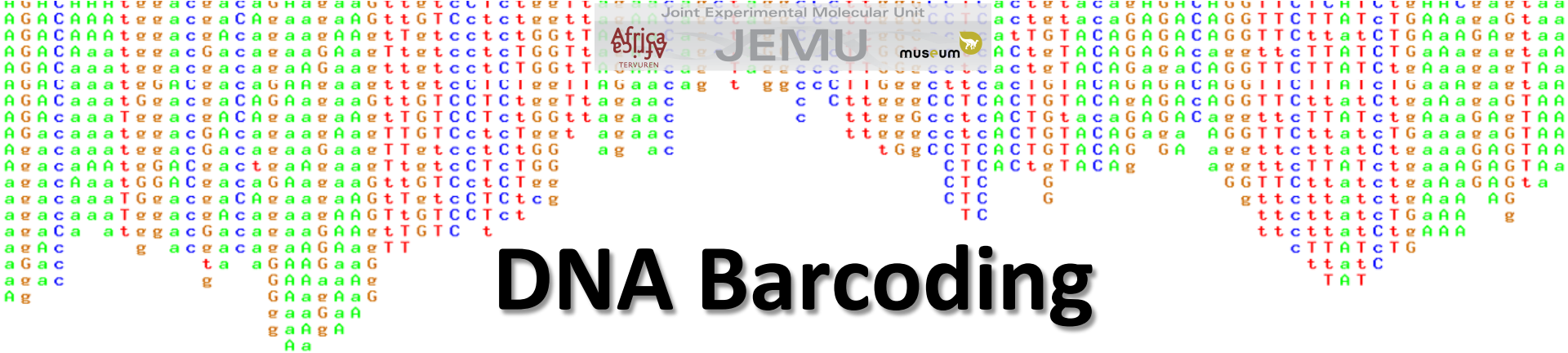


Background DNA sequence visualization (A, C, G, T) forming a large, stylized shape.

BeBoL: the Belgian Network for DNA Barcoding

Nathalie SMITZ
<http://bebol.myspecies.info>





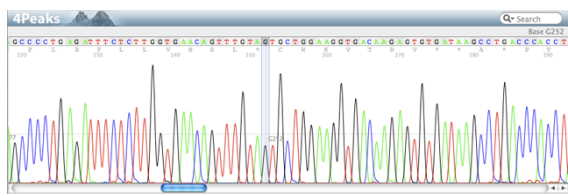
DNA Barcoding

→ Species identification using a short section of DNA from a standardized region of the genome

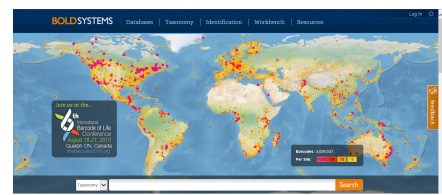
Unknown sample



Astraptes fulgerator



Four unique states
Over 600 positions



<http://www.boldsystems.org/>
Blast to a reference
database



Network = 27 partners



Vrije
Universiteit
Brussel



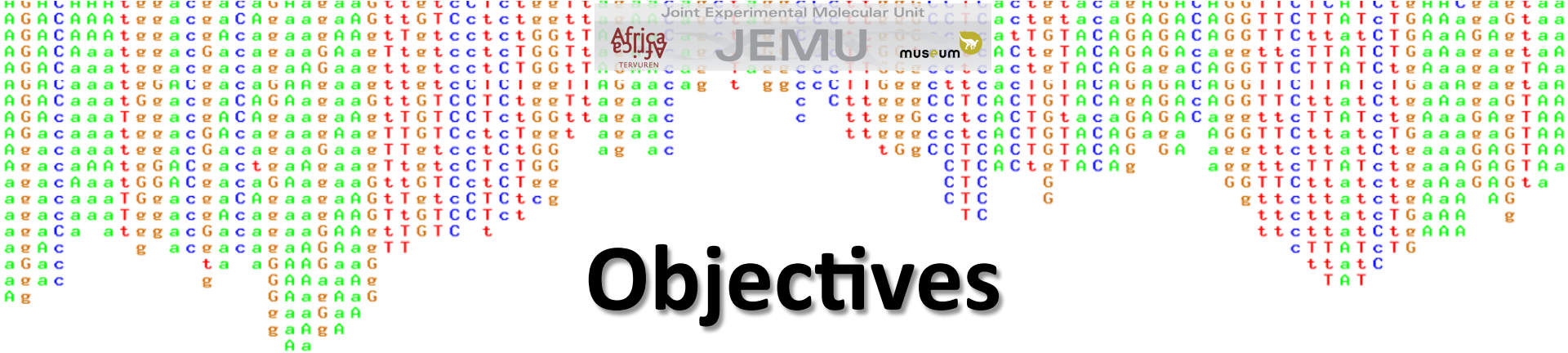
Botanic Garden
Meise



KU LEUVEN

CONSORTIUM FOR THE BARCODE OF LIFE





Objectives

- coordinate the efforts and develop knowledge in the field of molecular systematics and DNA barcoding;
- exchange expertise and provide training opportunities in this respect (ex. Workshop, Symposia, etc.);
- stimulate joint research activities in which molecular systematics and DNA barcoding are essential for resolving taxonomic and phylogenetic problems (ex. Joint project application, etc.);
- centralize and integrate DNA barcoding activities in Belgium within the international frameworks of CBOL, ECBOL and iBOL, TBI, QBOL, etc.





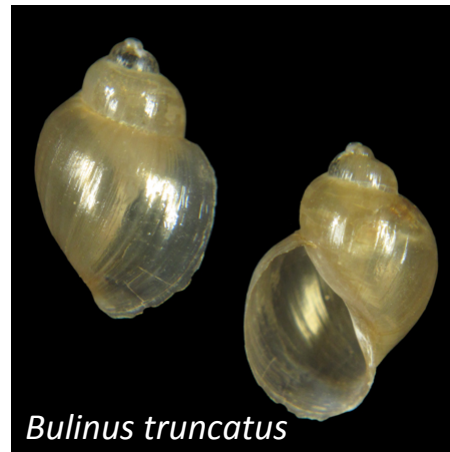
Budget

- no separate budgets for “pure” DNA barcoding activities
- all DNA barcoding activities are part of other research activities (including those of BeBol, FWO and JEMU)

Ex. Snail species identification (JEMU project) / population genetic study



Bulinus globosus



Bulinus truncatus



Research focus

→ DNA barcoding in a variety of organisms

COI (most metazoans) and ***matK*** or ***rbcl*** (plants)

But also:

- nuclear rDNA in Platyhelminthes (UHasselt, RMCA, RBINS)
- trnH-psbA and ITS2 for plants of the family Hydrocharitaceae (VUB)
- ND2 and H3 in terrestrial Gastropods (RBINS, UAntwerp)





Main DNA barcoding partnerships developed in the network:

- **Reptiles:** RBINS, UAntwerp
- **Forensic animals:** NICC, RBINS, RMCA
- **Bacteria and Fungi:** UGhent (Laboratory for Microbiology), UCL, RMCA, RBINS
- **Platyhelminthes:** UHasselt, KULeuven, RMCA, RBINS
- **Nematoda:** UGhent (Marine Biology Group), RBINS
- **Gastropoda:** RBINS, RMCA, UAntwerp, INBO
- **Acari:** UAntwerp, RBINS, ITM
- **Lepidoptera:** RMCA, INBO, UAntwerp;
- **Trichoptera:** UAntwerp (Ecophysiology, Biochemistry and Toxicology Group), RBINS
- **Hymenoptera and Isoptera:** ULB, RBINS
- **Diptera:** RMCA, RBINS, NICC, ITM, CRA-W
- **Amphipoda** RBINS, UCL
- **Fishes:** RMCA, RBINS, KULeuven
- **Mammals** (including forensics): UAntwerp, RMCA, RBINS, NICC



Research focus

→ DNA barcoding of problematic samples

- museum material, forensic / nature conservation research samples (RMCA, RBINS, KULEuven and CBOL, MOLCOL project)
- good practices for DNA sample and data storage, establishment of DNA collections (collaboration with NICC, INBO, UGhent (Marine Biology Group), UHasselt, FUNDP, ITM, CRC, and CRA-W)





Research focus

→ Improving and developing new statistical and software tools for DNA barcoding data

- RMCA, RBINS (both with the JEMU team), UAntwerp

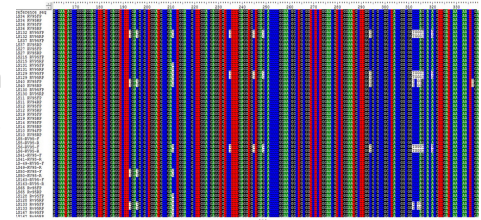
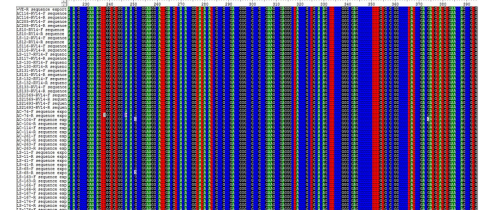
- Workshops:

2013: ViBRANT tools for the DNA taxonomist (Brussels)

2014: Variant Discovery in Next-Generation Sequencing Data (Brussels)

2014: Genetic Analysis Using R (Leuven)

2014: Genome Analysis ToolKit (Brussels)



A more exhaustive list of BeBoL Network activities is available on
the **BeBoL website** (<http://bebol.myspecies.info>).



Research focus

→ Exploring Next Generation Sequencing (NGS) for DNA barcoding

KULEuven, RBINS, RMCA, INBO and UGhent with KULEuven and UAntwerp acting as NGS core facilities

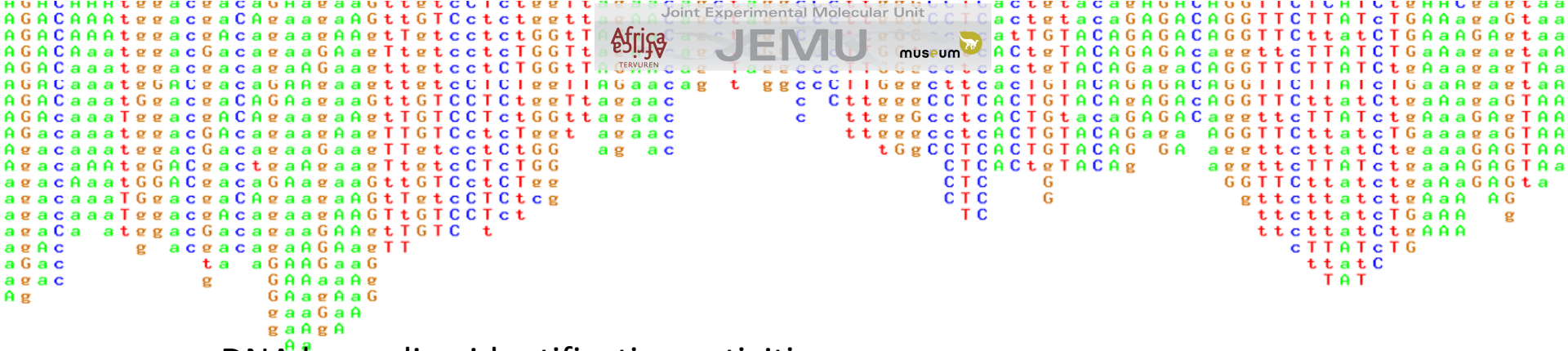
Ex. Targeted Amplicon Sequencing on syphrid





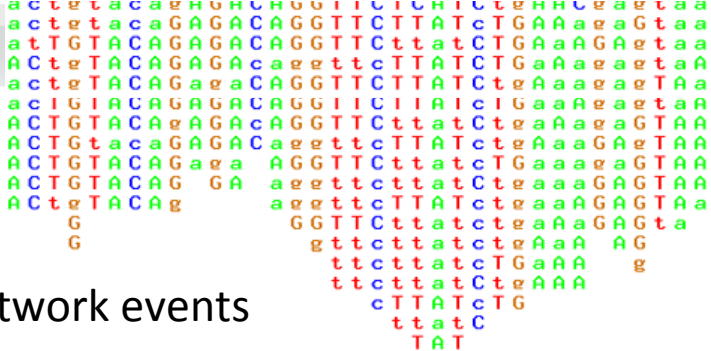
Contact Information:
thierry.backeljau@naturalsciences.be
marc.de.meyer@africamuseum.be

- Financed by the Fund for Scientific Research – Flanders (FWO) (2011-2015)
- Financially administrated by the University of Antwerp - Evolutionary Ecology Group (T. Backeljau)
- Daily management by RBINS (Brussels; T. Backeljau) and RMCA (Tervuren; M. De Meyer)
- Most of the organisational network tasks executed by the “Joint Experimental Molecular Unit (JEMU)”



DNA barcoding identification activities:

- JEMU-RMCA, DNA barcoding identifications of bird remnants at request of the Belgian Air Force (2011-2015)
- participation in ringtest of DNA barcoding identification of *Eisenia fetida* (earthworms) in ecotoxicological testing (EBI: Eisenia Barcoding Initiative)
- DNA barcoding of introduced banana slugs in The Netherlands
- barcoding of tephritid fruit flies for several NPPO's in Africa
- + isolated requests of DNA barcoding ID (from FPNI Belgium, from the Laboratory of the General Administration of the Customs and Taxes (Brussels, Belgium), from Dr. Jocelyn Riggins (Royal Veterinary College, London, UK), ...



• •

ZooKeys 365 (2013) Special Issue
ZT Nagy, T Backeljau, M De Meyer, K Jordaens



<http://jemu.myspecies.info>

Contact us Report abuse Log in

Joint Experimental Molecular Unit (JEMU)

Search... SEARCH

All Taxonomy

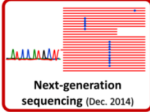
HOME HIGHLIGHTS RESEARCH RESOURCES COLLABORATIONS ORGANISATION EVENTS CONTACT

Welcome to JEMU

The Joint Experimental Molecular Unit (JEMU) is an integrated research infrastructure funded by the [Belgian Science Policy](#) and supported by the [Royal Belgian Institute of Natural Sciences](#) (RBINS, Brussels) and the [Royal Museum for Central Africa](#) (RMCA, Tervuren). JEMU aims at supporting scientific research on natural history collections in the fields of DNA barcoding, phylogeny reconstruction and archiving biological specimens.



Highlights



Next-generation sequencing (Dec. 2014)



Genetics of African Cape buffalo (Nov. 2014)



DNA barcoding Belgian mosquitoes (Sep. 2014)

Research



Research projects

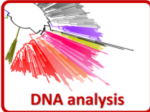


Publications

Resources and expertise



Primer database



DNA analysis



Infrastructure

Collaborations



BeBoL
Belgian Network for DNA Barcoding



ECBOL
Third European Conference for the Barcode of Life (Brussels, 2012)

Organisation



Integrated unit



Lab guidelines

http://bebol.myspecies.info

Belgian Network for DNA Barcoding

HOME JOINT PUBLICATION LITERATURE PAST EVENTS

Search... SEARCH

All Taxonomy

Welcome to the Belgian Network for DNA Barcoding

The Belgian Network for DNA Barcoding aims at establishing a research network that provides an integrated and multidisciplinary molecular systematic and DNA barcoding task force. The network will:

1. coordinate the efforts and knowledge in the field of molecular systematics and DNA barcoding in Belgium
2. exchange experience and provide training opportunities for people in the field of molecular systematics and DNA barcoding
3. stimulate joint research in animal and plant groups where molecular systematics and DNA barcoding plays a pivotal role
4. centralize and integrate DNA barcoding activities in Belgium in international initiatives such as the Consortium for the Barcode of Life (CBOL), the European Consortium for the Barcode of Life (ECBOL) and the International Barcode of Life project (IBOL).

BeBol is supported by:



BeBol encourages publishing in the [European Journal of Taxonomy \(EJT\)](#), an international, fully electronic and Open Access journal, which complies with the EU Gold Open Access rules and Zookeys:



Joint publication by BeBol



The special issue entitled "DNA barcoding: a practical tool for fundamental and applied biodiversity research" has been published in Zookeys. This is a joint publication by the FWO research community "Belgian Network for DNA barcoding" (BeBol) and includes, among others, contributions of members of the BeBol network and participants of the [ECBOL3 conference](#). All articles are available on the [website of Zookeys](#) with open access. The complete special issue (one single pdf file) is also available [here](#).

BeBol at the 5th International Barcode of Life Conference



The network and the activities of BeBol were presented at the 5th International Barcode of Life Conference in Kunming, China, 27-31 October 2013.

Past events



BeBol supports the organisation of scientific workshops or symposia. Please regularly visit this website to be informed of upcoming events. The following events were organised by BeBol since 2013: [Workshop: Genetic Analysis using R](#) (27-31 October 2014); [Workshop: Variant Discovery in Next-Generation Sequencing \(NGS\) Data](#) (24-26 June 2014); [Mini-Symposium: Comparative Barcoding](#) (20 June 2014); [DNA in forensics 2014](#) (14-16 May 2014); [Symposium: next generation sequencing applications in science](#) (21 October 2013, Brussels); [Workshop: ViBRANT tools for the DNA taxonomist](#) (11 June 2013, Brussels); [Symposium: metabarcoding of environmental samples](#) (19 April 2013, Brussels).

Common scientific interest



Molecular systematic studies provide biologists, and particularly taxonomists, with a wealth of data that enable a far better assessment and understanding of Earth's biodiversity, than hitherto was possible with traditional, morphology-based approaches. As such, molecular systematics plays a pivotal role in (1) the recognition, identification and classification of taxonomic units, (2) the assessment of patterns of inter- and intraspecific biodiversity, and (3) the reconstruction of the historical and spatial relationships among taxonomic entities.

Members of the network



Here is the list of the current members of the Belgian network for DNA Barcoding. If your research unit conducts projects related to DNA Barcoding, you are welcome to contact us. All members briefly presented their activities at the informal meeting "Towards a Belgian network of DNA barcoding laboratories" organized by JEMU on June 28th 2010.