

















The pilot project of the European Reference Genome Atlas (ERGA) initiative

Generate reference genome assemblies of **European eukaryotic species** across the tree of life, including threatened, endemic, and keystone, as well as species important to agriculture, fisheries, pests, and to ecosystem function and stability.

Total species ~ 200K, endangered ~ 20%

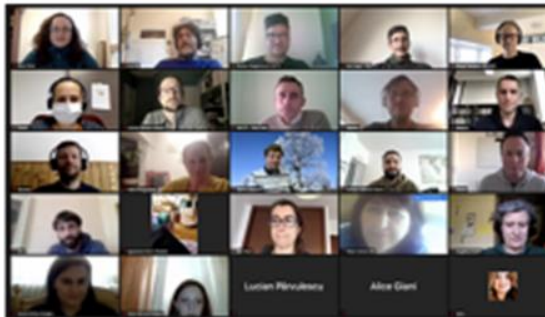
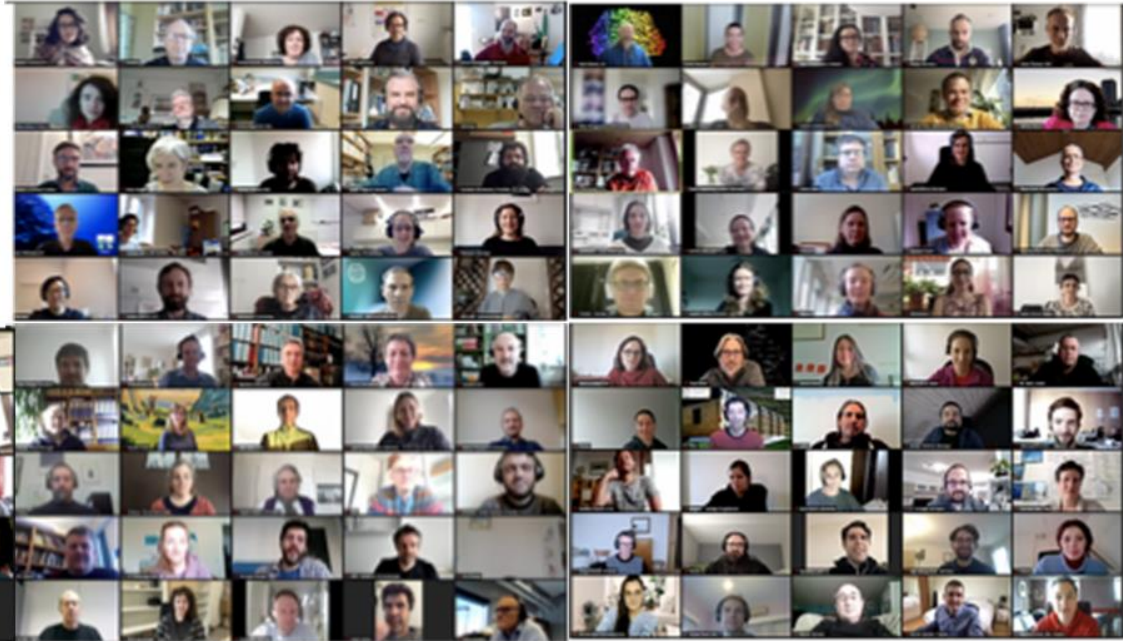
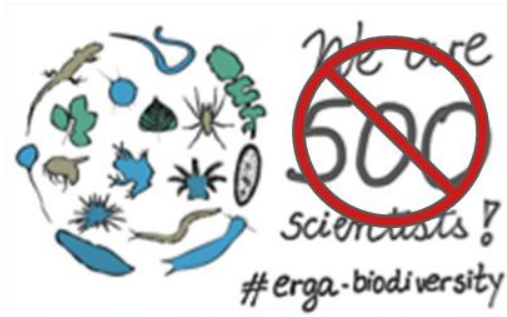
-  48% shrubs
-  42% trees
-  37% freshwater fishes
-  29% grasshoppers
-  25% amphibians
-  22% non-marine mollusks
-  20% reptiles
-  20% ferns
-  18% beetles
-  15% mammals
-  13% birds
-  9% bees
-  9% butterflies
-  7.5% marine fishes

Source: 
IUCN 

erga-biodiversity.eu

Follow: @erga_biodiv

>600 Members & growing!



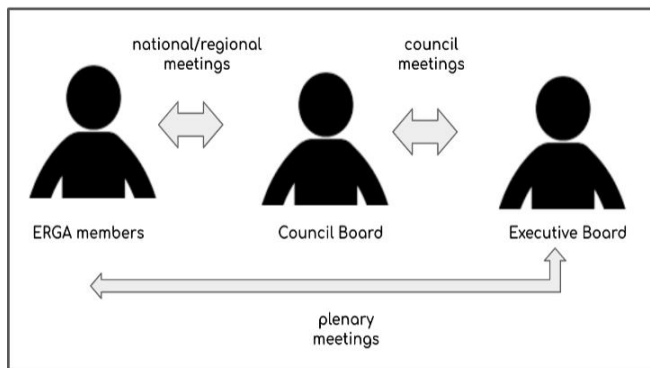
A bottom-up initiative

Follow: @erga_biodiv



Dr Claudio Ciofi, (Vice Chair), Italy
 Dr. Camila Mazzoni, Chair, ERGA, Germany.
 Dr Robert Waterhouse, (Vice Chair), Switzerland

Council



Two Council Representatives
 per country

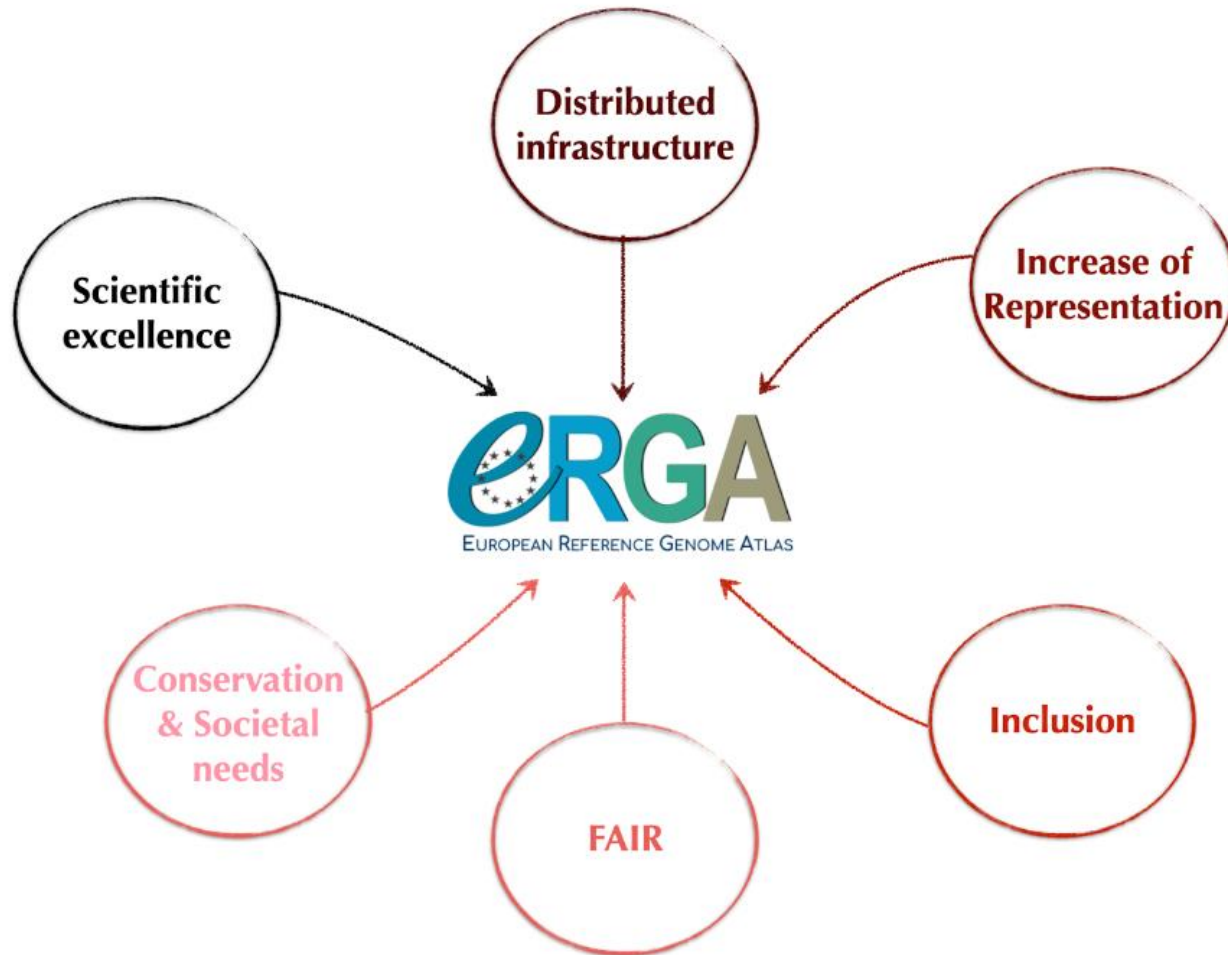
Belgium@erga-biodiversity.eu

Hannes Svardal (U. Antwerp)
 Alice Mouton (U. Liege)

Committees



Follow: @erga_biodiv



Follow: [@erga_biodiv](https://twitter.com/erga_biodiv)

The ERGA Pilot Project

Goal : Complete at least one high quality reference genome for a species suggested by each ERGA associated country to test our distributed model of reference genome establishment



Ann Mc Cartney

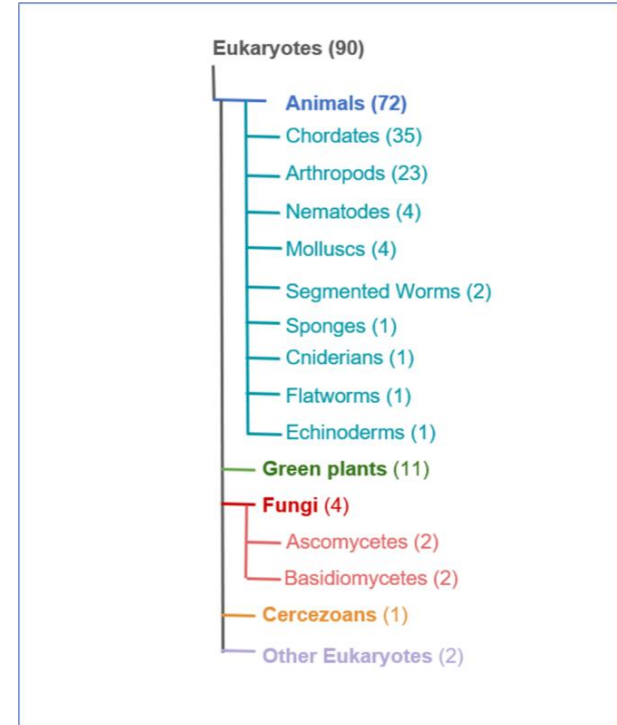
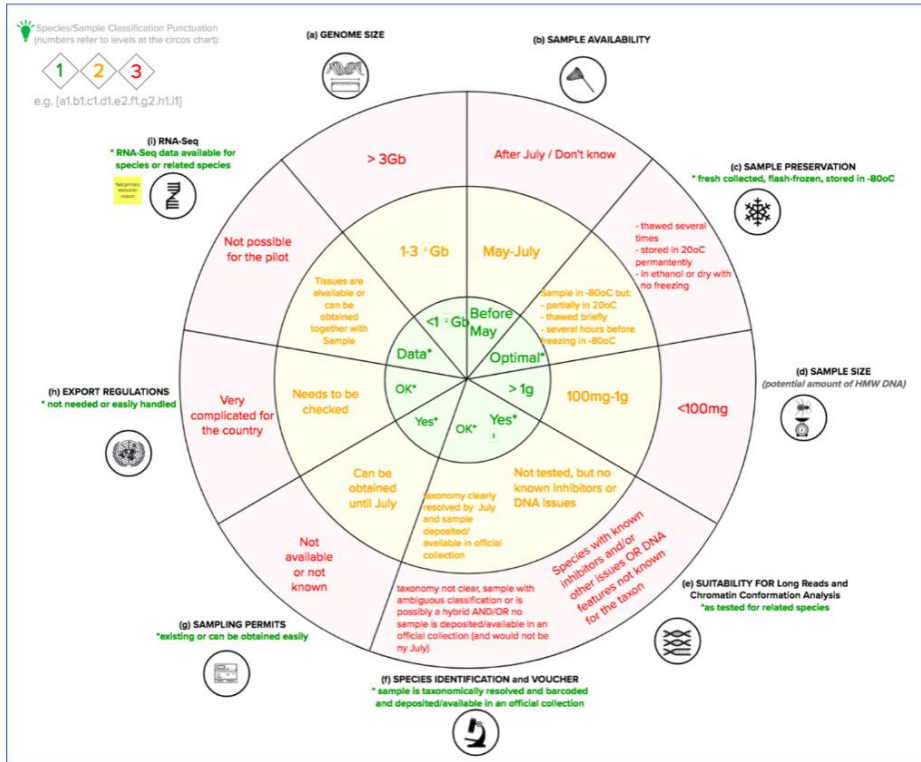


Alice Mouton



Giulio Formenti

The ERGA Pilot Project



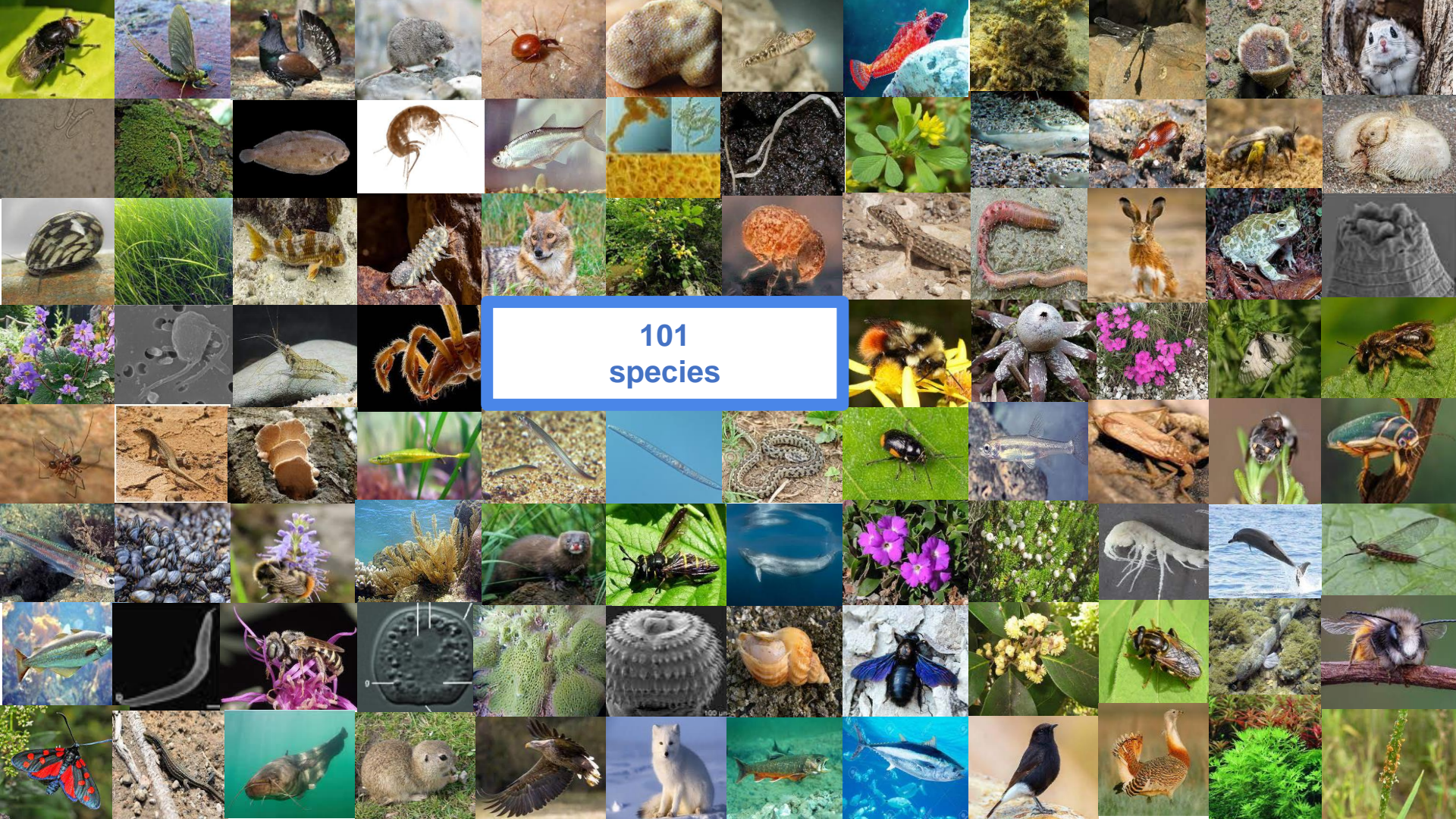
Complete list of species on <https://goat.genomehubs.org/projects/ERGA>

High Quality Reference Genomes

Reference Quality Genomes that meet EBP Standards

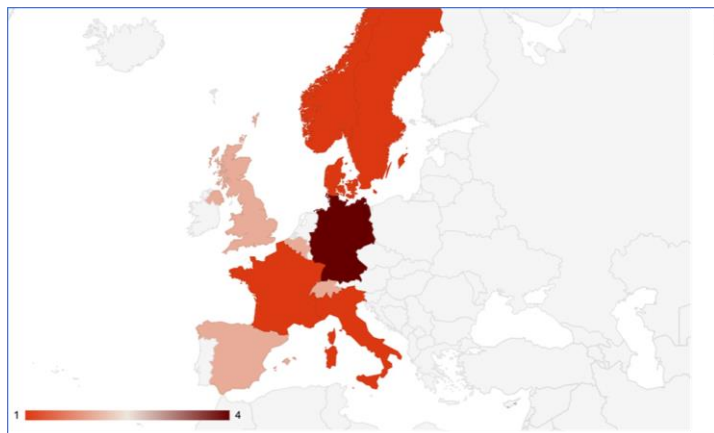


<https://www.earthbiogenome.org/assembly-standards>



101
species

Pan-European Sequencing Centre Support



Centro Nacional de Análisis Genómico (Spain)



Earham Institute (UK)



University of Florence (Italy)



Functional Genomics Center Zurich (Switzerland)



Genoscope (France)



GIGA-Genomics core facility (Belgium)



Lausanne Genomic Technologies Facility (Switzerland)



Max Planck Institute Dresden (Germany)



NGS Competence Center Tübingen (Germany)



SciLifeLab (Sweden)



Vlaams Instituut voor Biotechnologie - Antwerp (Belgium)



WGCC - Cologne, Düsseldorf, Bonn (Germany)



Next-Generation Sequencing Platform - Bern (Switzerland)



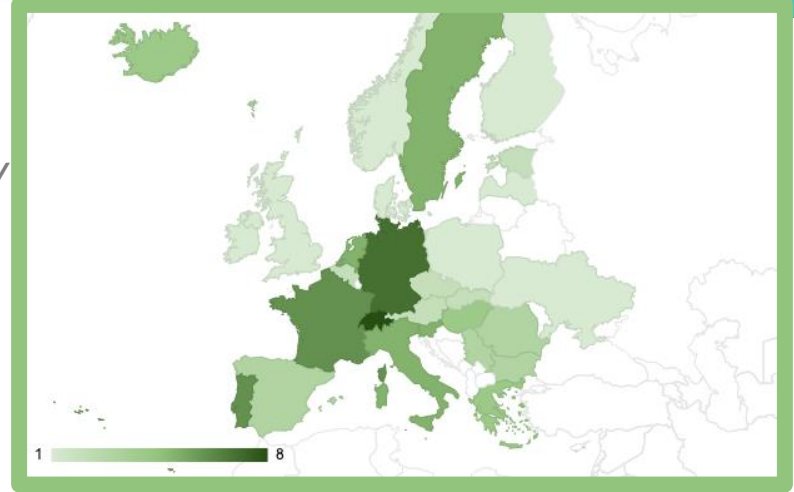
Norwegian Sequencing Centre (Norway)



Wellcome Sanger Institute (UK)

Transborder Multidisciplinary Genome Teams

- 1) Sample collector and/or sample provider
- 2) Taxonomy classification and/or vouchering
- 3) Sample ambassador/*coordinator and usually*
- 4) Wet-lab processing
- 5) Computational resources and/or support
- 6) Genome assembly and/or curation
- 7) Genome annotation and/or genome analysis



Sample contributors

Genomics for all – Genomics by all!

Biodiversity of birds, amphibia, reptiles and fish

Biodiversity of Birds,
Amphibia, Reptiles and Fish

■ High Biodiversity
■ Medium Biodiversity
■ Low Biodiversity



■ Higher Income
■ Upper Middle Income
■ Lower Middle Income
■ Lower Income
■ No Information



GNI per Capita

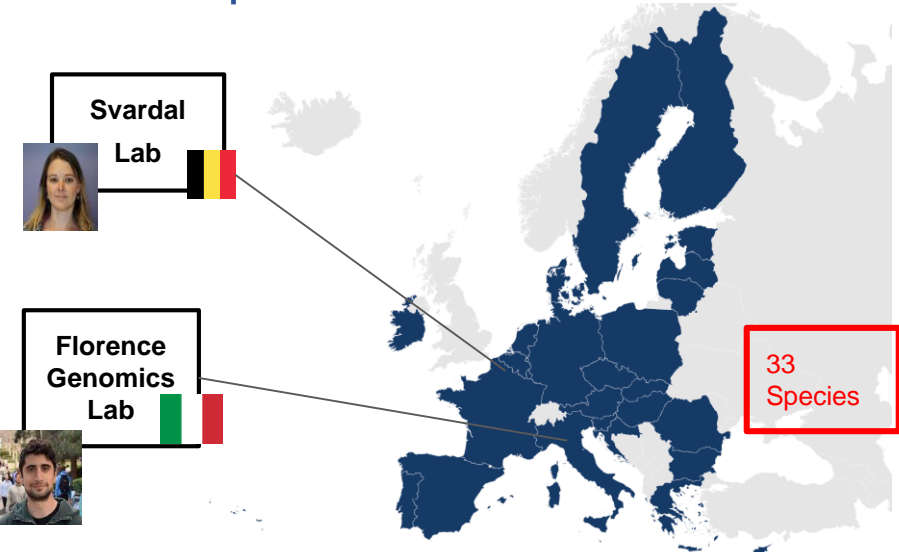
■ 4.7% GDP
■ 2.5% (1.9) GDP
■ 0.2% GDP



R&D Expenditure
(%GDP)

** Biodiversity Stats based on [Source: Plant data is from the World Conservation Monitoring Centre of the United Nations Environment Programme \(UNEP-WCMC\), 2004. Species Data. Fish: Fishbase; Birds: Birdlife International; Amphibians: AmphibiaWeb; Mammals: IUCN; Reptiles: the Reptile Database.](#) GNI an R&D Stats based off World Bank.

RNA sequence Coordination Centres



HiC Coordination Centres



Genevieve Diedericks (Svardal lab)

Genevieve
Diedericks



"
The Pilot has given me the opportunity to refine my **troubleshooting** and **wet lab skills** on an array of organisms and tissue types.
"

Genevieve @DiedericksGen
Postdoc @UAntwerpen @UAFunMorph

⇒ Agilent Webinar on the 24th October 4PM
Select Science webinar

Henrique Leitão (Svardal lab)

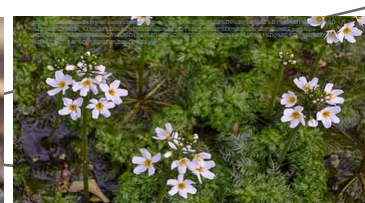
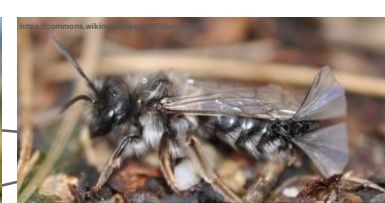
Henrique
Leitão



"
Working on the ERGA pilot project has been a fantastic opportunity to learn **new skills** in the dry/wet lab and to **collaborate with colleagues all over Europe** to generate new genomic resources for biodiversity research across a diverse range of species.
"

Henrique Leitão @hgleitao,
PhD student @UAntwerpen

=>7th October Pilot session 2pm,
Biodiversity genomics
conference



European green toad

Grey-backed mining bee with a Twisted wing parasite

Water violet

Granada hare

Red-black triplefin

Black wheatear

Species	Common name	Class	HiC	RNA-seq	Tissues extracted from
<i>Knipowitschia panizzae</i>	Dwarf goby	Fish	x	x	Brain, Liver, Spleen, Muscle, Gonad, Gills
<i>Mullus barbatus</i>	Red mullet	Fish	x	x	Brain, Liver, Spleen, Muscle, Gonad, Gills
<i>Tripterygion tripteronotum</i>	Red-black triplefin	Fish	x	x	Brain, Liver, Spleen, Muscle, Gonad, Gills
<i>Cryptocephalus barii</i>	Leaf beetle	Insecta		x	Whole beetle
<i>Hottonia palustris</i>	Water violet	Dicotyledonae	x	x	Old buds, young buds, flowers, leaves
<i>Stylops ater</i>	Twisted-wing parasite	Insecta	x	x	Whole insect
<i>Parnassius mnemosyne</i>	Clouded Apollo	Insecta	x	x	Body of butterfly
<i>Salvelinus alpinus</i>	Arctic charr	Fish	x		Brain, Liver, Spleen, Muscle, Gonad, Gills
<i>Bufo viridis</i>	European green toad	Amphibian		x	Lung, Liver, Spleen, Pancreas, Kidney, Heart, Muscle, Skin
<i>Spinachia spinachia</i>	Sea stickleback	Fish		x	Fins, Internal organs, Gills, Brain & eyes
<i>Lepus granatensis</i>	Granada hare	Mammal	x	x	Lung, Liver, Spleen, Kidney, Testis
<i>Oenanthe leucura</i>	Black wheatear	Bird	x	x	Blood
<i>Theodoxus fluviatilis</i>	River nerite	Gastropoda	x		Foot
<i>Andrena vaga</i>	Grey-backed mining bee	Insecta	x	x	Whole insect
<i>Acanthodactylus schreiberi</i>	Schreiber's fringe-fingered lizard	Reptile		x	Brain, Kidney, Liver, Muscle



Mullus barbatus, red mullet



Genome Team

Henrique Leitão
Genevieve Diedericks
Tim De Pooter
Geert Joris
Mojca Strazisar

Maximilian Wagner
Violin Raykov
Nina Dzhembekova
Hannes Svardal
Petya Ivanova



Tripterygion tripteronotum, red black triplefin



Genome Team

Henrique Leitão
Genevieve Diedericks
Maximilian Wagner
Tim De Pooter
Geert Joris

Mojca Strazisar
Domen Trkov
Lovrenc Lipej
Marcelo Kovacic
Hannes Svardal





Knipowitschia panizzae (Adriatic dwarf gobby)



Genome Team

Henrique Leitão
Genevieve Diedericks
Maximilian Wagner
Tim De Pooter
Geert Joris

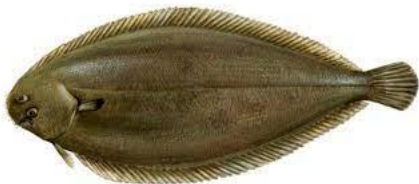
Mojca Strazisar
Domen Trkov
Lovrenc Lipej
Marcelo Kovacic
Hannes Svoldal



KU LEUVEN



Solea solea (common sole)



Filip Volckaert (KU Leuven)
Enora Geslain, (KU Leuven)
Laboratory of Biodiversity and Evolutionary Genomics, KU Leuven
staff of the Sanger Institute, Cambridge, UK

ULB

UNIVERSITÉ
LIBRE
DE BRUXELLES



Niphargus schellenbergi



Jean-Francois Flot, ULB
Dieter Weber; Benoît Vacherie;
Thomas Guérin; Emilie Payen;
Laurie Bertrand; Jean-Marc
Aury; Caroline Belser;
Benjamin Istace; Nadège
Guiguelmoni



Merodon desuturinus.

Nevena Velickovic; Mihajla Djan
Nanopore sequencing

LIÈGE université
GIGA
Genomics



Next steps




**Biodiversity
Genomics
Europe**

**Funded Horizon proposal (1 September 2022 – 28 February 2026)
Partnership with Bioscan (barcoding, iBol node)
450 Gbp worth of genomes (Between 350-500 species depending on
genome sizes)**

SIGN UP TO ERGA NEWS

Name
Email
Main Institution
Country
If you wish, please leave a message here ...

After submitting this form, you will receive instructions on How to Join ERGA

I'm not a robot 
reCAPTCHA
Privacy - Terms

I agree to the terms & conditions
[View ERGA Privacy Policy](#)

Sign up & Newsletter

Are you a scientist or institution interested in joining the European Reference Genome Atlas initiative? Sign up to the newsletter to find out how!

contact@erga-biodiversity.eu



<https://virtual.venue-av.com/e/bg2022>

SAVE THE DATE !



4th October

Focus on Europe & Mediterranean Asia 13:00-16:00	
13:00-14:30	The Diversity of Biodiversity Genomics Actions Across Europe and Mediterranean Asia chaired by Claudio Ciofi & Rob Waterhouse
	<i>The ERGA Umbrella - Camila Mazzoni</i>
	<i>The ERGA Pilot - Ann Mc Cartney, Alice Mouton, Giulio Formenti</i>
	<i>Greece - Tereza Manousaki , Konstantina Theofanopoulou</i>
	<i>France - Hugues Roest Crollius , Patrick Wincker</i>
	<i>Faroe Islands - Svein-Ole Mikalsen, Ian Slater</i>
	<i>Romania - Andrei Ștefan, Lucian Pârvulescu</i>
	<i>Slovenia - Elena Bužan, Matjaž Gregorič</i>
<i>Israel - Ariel Chipman</i>	

7th October (2PM CET)

	Genome Project Symposia	
13:00-14:00	Aquatic Symbiosis Genomics & Global Invertebrate Genomics Alliance <i>chaired by Victoria Mckenna & Vanessa Gonzalez</i>	European Reference Genome Atlas <i>Ann McCartney & Alice Mouton</i>

