BEeS Heraklion
30 June - 3 July 2025

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ΙΘΑΒΒΥΚ

Session: Taxonomy: Identifying the units of diversity in life

1 July 2025 | 14:30-16:30

Safeguarding Greek biodiversity – through the BGE project

Presenter:
Alexandros Triantafyllidis, Aristotle University of Thessaloniki

The case for the Greek Biodiversity conservation

Group	Greece	Europe	%
Plants	6.308	12.500	50.5
Mammals	111	270	41.1
Birds	436	772	56.5
Reptiles	61	84	72.6
Amphibians	22	75	29.3
Freshwater Fishes	122	552	22.1
Insects	21.945	61.830	35.5
Invertebrates	24.747	94.257	26.1
Sum (Native)	53.752	170.340	31.6
Non-Indigenous Species (NIS)	771	10.961	7.0

- The Mediterranean basin, where about 30% of the species are endemic, constitutes one of the 30 biodiversity hotspots of the planet (Aravanopoulos, 2010,Biodiversity Hotspots 2010).
- 27% of European endemic plants are present in Greece.

The case for the Greek Biodiversity conservation

The New Read data book of Greece (2024) estimates that 21.5% of about 11.500 studied species are under threat

The need for barcoding Greek species

https://www.boldsystems.org/

Records found in BOLD
from specimens collected in Greece
December 2024

- 24,542 Records in total – 5,412 species

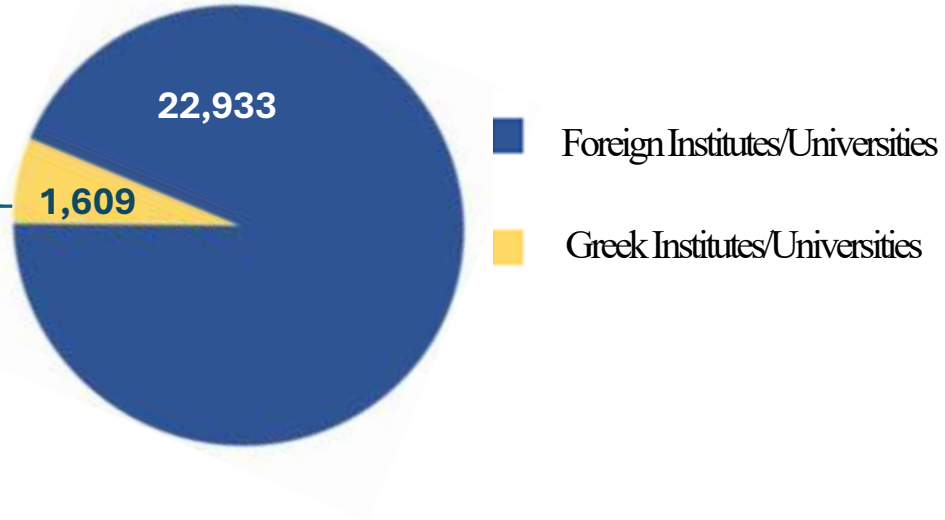
Aristotle University of Thessaloniki (**1204**)

University of Athens (**394**)

Fisheries Research Center (**6**)

University of Crete, Natural History Museum (**3**)

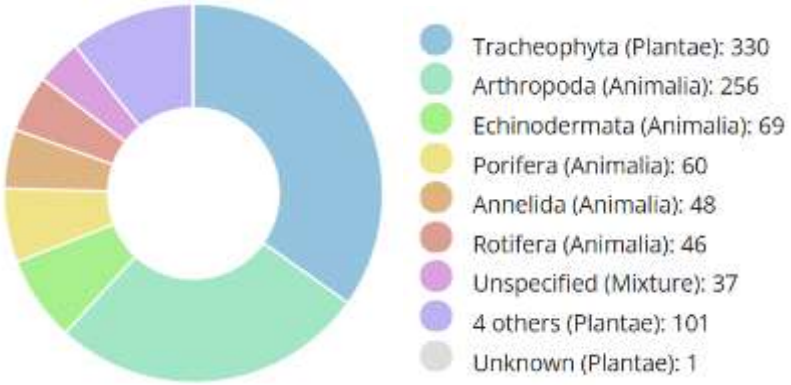
University of the Aegean (**2**)

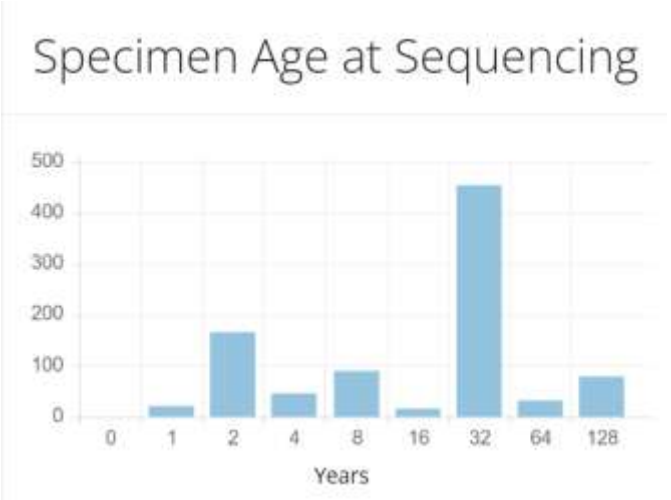


Data to be produced through BGE

✓ **Identified species** (museum or fresh)

1,650 specimens (550 species)

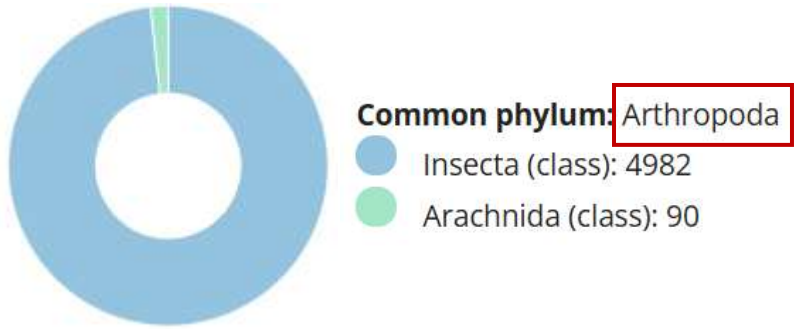




Data to be produced through BGE

✓ **Unidentified species** (dark taxa)

20,000 specimens



Arthropods

- collected from altitudinal gradients in Mt Vermio
- collected from different Aegean islands
- collected from forests of North Greece

School of Biology -Aristotle University of Thessaloniki
School of Agriculture -Aristotle University of Thessaloniki
Forest Research Institute –Hellenic Agricultural Organization Demeter
Museum of Zoology of the Kapodistrian University of Athens

Data to be produced through BGE

✓ **Metabarcoding**

Community sampling

- **Insect communities**
  ~95 samples (5 sites x 19 weeks)

How communities of flying arthropods change, across altitudinal gradients in high mountain systems

- **Pollinator communities**
  40 samples [(10+10) x 4 areas]

Pollinator diversity in agricultural land and gardens

- **Ecological restoration**
  240 soil samples

Soil biodiversity changes during the process of ecological succession following land abandonment

eDNA

- **eDNA** Invasive species
  80 filtered water samples

Port of Thessaloniki

- **eDNA** Citizen science events: Invasive species

A roadmap for National barcoding node development

i. To establish a transferable framework ✓ community organisation ✓ expertise sharing

ii. To initiate Greece Barcoding National Node ✓ communication ✓ connections to funders and policy makers

Roadmap for **national** barcoding node development

➢ Information, suggestions, experience of already established national nodes BOL or other initiative, formal or informal, mainly European but not only

various models of building such initiatives

Questionnaire

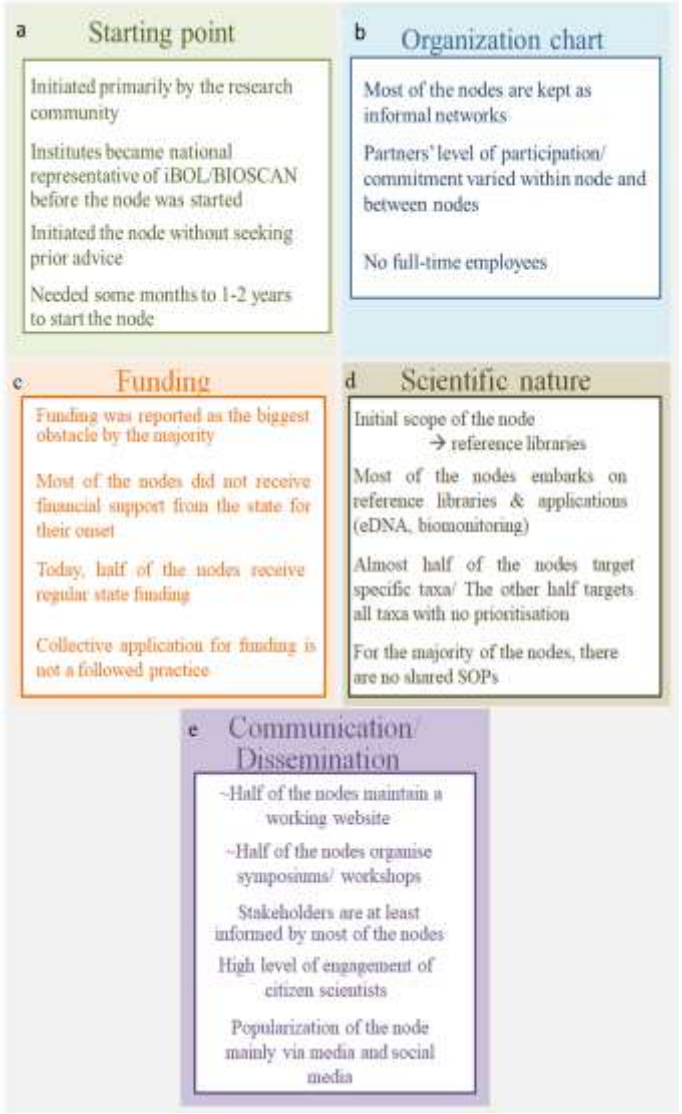
- 19/30 replies/recipients
- 17/23 countries

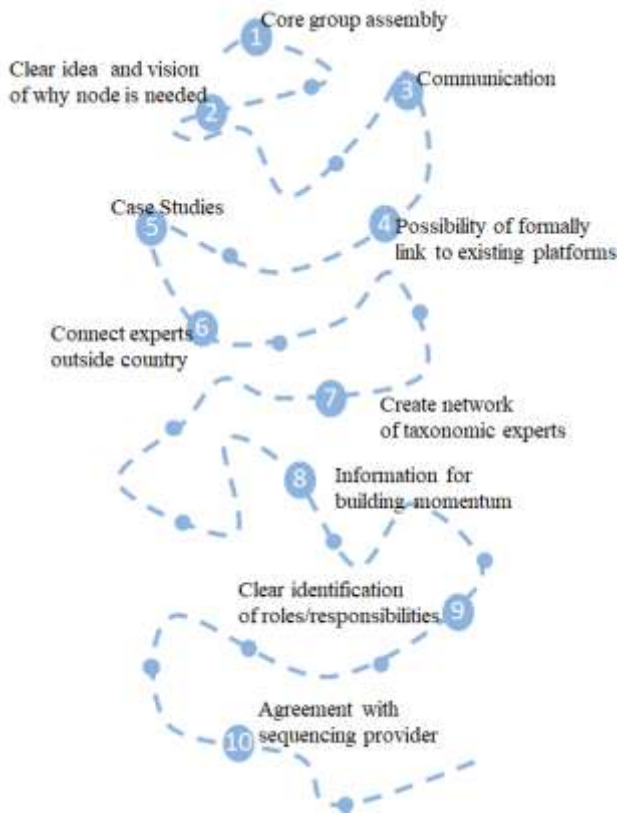
Workshop
28-31 of May 2023
Spała, Poland

Best practices ⟶ Related action(s)

Challenges ⟶ Strategies to overcome challenges

Take Advice from Existing Nodes





Paper to be submitted soon

Building awareness within Greece

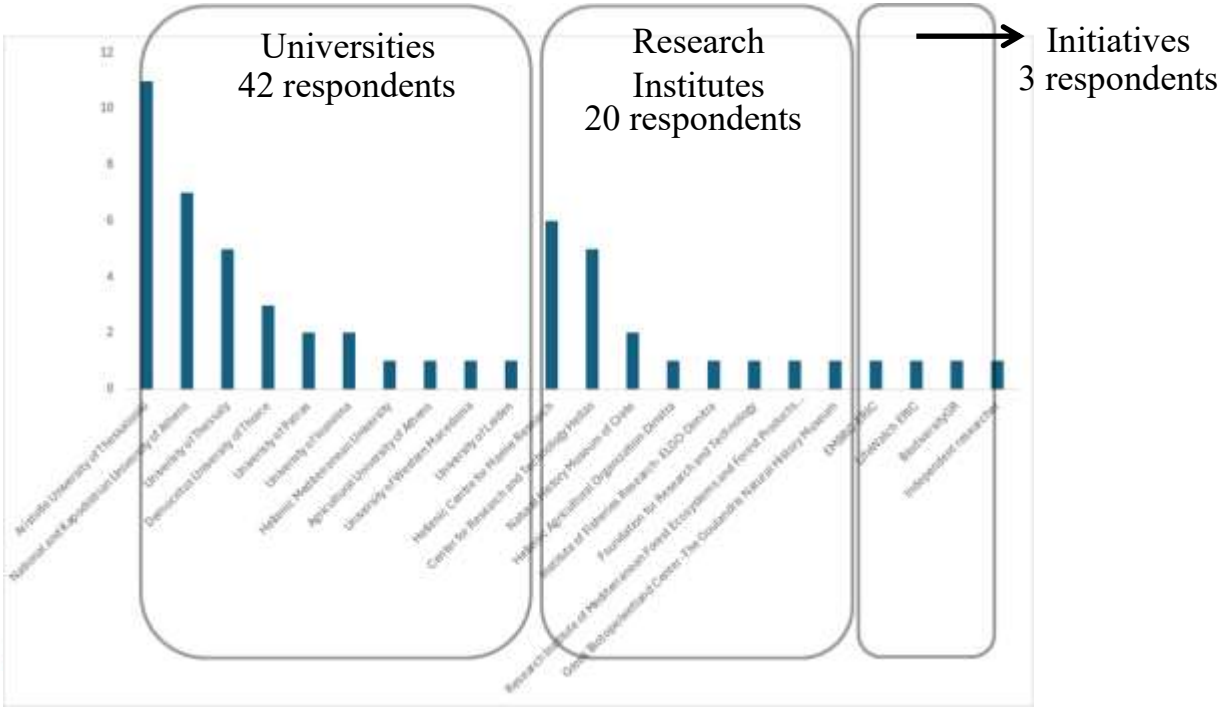
- Talk to the scientists
  - **"Environment and Climate Action Plan" (29/11/22)**, Bodosakis Foundation, Athens
  - **BGE presentation (9/12/22)** Panhellenic Association of Bioscientists Conference, Thessaloniki.
  - **42nd Hellenic Society for Biological Sciences** (**18-20 May 2023**), satellite session of **EMBO (practical course on Computational Molecular Evolution)** held in Heraklion, Crete.
  - "**Building the Molecular Biodiversity Community in Greece" under the 11th Conference of the Hellenic Ecological Society,** (**4-7 of October 2023**) Patras
  - **FRI (Fisheries Research Institute), 19/1/2024**, Nea Peramos, Kavala,
  - **BGE presentation (5/4/2024)** School of Biology University of Athens

- Talks with State Officials
  - General Directorate of Forests, Ministry of Environment (6/4/2024)
  - General Directorate of Biodiversity, Ministry of Environment (6/4/2024)
  - Natural Environment and Climate Change Agency (4/4/2024)
  - Prefecture of Central Macedonia (2/6/2025)

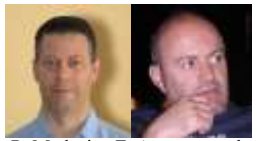
Asking for Feedback from Greek Researchers

Opinion of the research community active in Greece – Spring 2024

Questionnaire → Universities, Research institutes, Initiatives → 66 respondents



Creating the bond – virtually - online meetings


P. Madesis F. Aravanopoulos

1st online meeting of the research community -11/06/24

- **>120 researchers** active in 22 Greek Universities, Research institutes and Biology Associations all over the country (as well as State Official Representatives)/ >90 of them ultimately participating in this three-hour online
- **different fields of study** -systematics, molecular biology, genomics and bioinformatics- expressed their interest in the node's initiation and development, meeting
- covering a wide range of **animal and plant species**

2nd online meeting of the Temporary Executive Board -15/07/2024

Each Institute/Organism represented by two members→ Temporary Executive Board

Discussion of the practical information (needs and challenges) as listed in previous meeting

A draft MoU was set for discussion

3rd online meeting of the Temporary Executive Board -11/09/2024

Organization of the 1st in person meeting

Creating the bond – physically
1st in person meeting

140 participants (80 physical presence)
22 HEIs and Research Institutes

Extended Media Coverage

"Building the Greek Barcoding Node, GrBOL"
«Δημιουργία του Ελληνικού Barcoding Κόμβου, GrBOL»
KEDEA Building, AUTh, Thessaloniki
Κτήριο ΚΕΔΕΑ, ΑΠΘ, Θεσσαλονίκη

Monday 7th of October 2024, 12:00-16:00 pm

12:00-12:30	Welcome speeches **Prof K Yakinthos** Vice Rector of AUTH for Research **P Varelidis** General Secretary for Natural Environment and Water Resources **N Jollas** Deputy Head of Digital Governannce **P Nikiforidis** Deputy Mayor of Thessaloniki for Environment **A Chatzidimitriou** Deputy Head of INEB/EKETA Academic Representatives of AUTH schools of Biology, Veterinary Sciences, Agriculture and Forestry, **Prof. Alexandros Triantafyllidis,** AUTh, BGE Scientific Responsible	
12:30-13:00	iBOL in Action - Averting a Mass Extinction Through Mega-Science	**Prof. Paul Hebert** University of Guelph, Canada. Chief Executive Officer of iBOL
13:00-13:20	Towards the European Biodiversity Genomics Infrastructure	**Dr. Dimitris Koureas** Managing Director at Naturalis Biodiversity Center BGE project manager
13:20-13:35	iBOL Europe – DNA based species identification and biomonitoring in Europe	**Prof. Pete Hollingsworth** Royal Botanic Garden Edinburgh. Chief Scientific Officer of iBOL
13:35-13:50	ERGA – the pan-European node of the Earth BioGenome Project	**Dr. Camila Mazzoni** Leibniz Institute for Zoo and Wildlife Research Founding Chair, ERGA
13:50-14:05	Current status and future prospects for the Norwegian Barcode of Life (NorBOL)	**Prof. Torbjorn Ekrem** Norwegian University of Science and Technology
14:05-14:20	You can only love what you know - Towards a better knowledge of Germany's biodiversity (BFB + GBOL)	**Dr. Axel Hausmann** Zoologische Staatssammlung Munchen
14:20-15:20	Roundtable Discussion with the Greek GrBOL scientific community *Ανοιχτή συζήτηση με την GrBOL ερευνητική κοινότητα*	**Chairs: Prof. Philip Aravanopoulos** Forestry and Natural Environment, AUTh **Prof. Panayiotis Madesis** INAB-CERTH and University of Thessaly
15:20-16:00	Light buffet	

Training opportunities for Greek+ researchers

1st Training event: "Train the trainers"

Biology School, AUTh, Thessaloniki
October 2023

2nd Training event for early carrier scientists

Biology School, AUTh, Thessaloniki
22-23 April 2024

- 23 participants

- DNA extraction
- Library preparation
- Sequencing
- Bioinformatics analysis

Training events in 2025

School of Forestry, AUTh, Thessaloniki 12-13 February 2025
HCMR, 24-26 June 2025
Bulgarian Academy of Sciences, Sofia, 7-9 July 2025

Citizen science events in Greece

Sampling insects

April 2024
Agriculture Farm, AUTH
~20 Biology students

Invasive marine species - eDNA

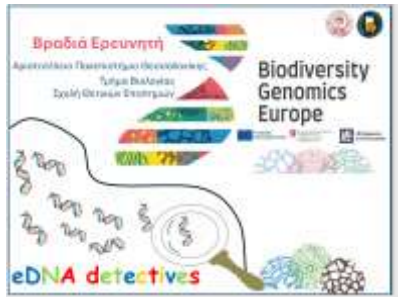
April 2024
Port of Kavala
23 students from the 6th High School of Kavala

Harbour eDNA

Leaflet of the action

May 2024
Port of Alexandroupoli
25 students of the Department of Primary Level education

Researcher's night 2023 & 2024



Future Actions – New Developments

- Signing of MoUs among Greek HEIs until end of 2024
- Extended Discussions with State Officials
- Application to Prefecture of N Greece call for Infrastructure **has been accepted** (1M euros for building GrBOL and safeguarding botanical and zoological collections
- Continue working in the **Second Phase of BGE** in order to enlarge iBOL Europe network

Thank you!

Biodiversity Genomics Europe

Questions?

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- F Aravanopoulos
- P Madesis
- S Papakostas
- L Michaloudi
- A Drouzas
- D Avtzis
- D Kovaios

- E Kaitetzidou
- K Gkagkavouzis
- I Kavakiotis
- S Minoudi
- V Tsartsianidou
- N Karaiskou

- P Hollingsworth
- W Copestake
- M Grabowski
- G Dankova
- J Alonso
- K Fantoni

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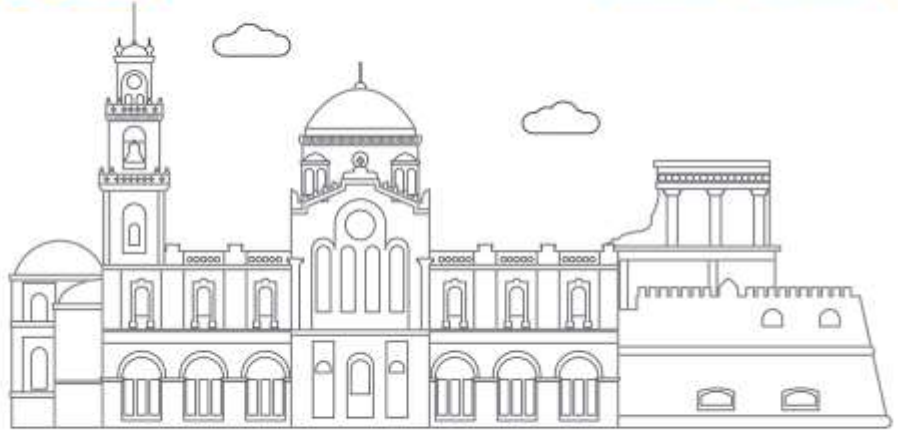
The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference



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