BEeS

The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Heraklion, 30 June - 3 July 2025

30 June 2025 | 15:00

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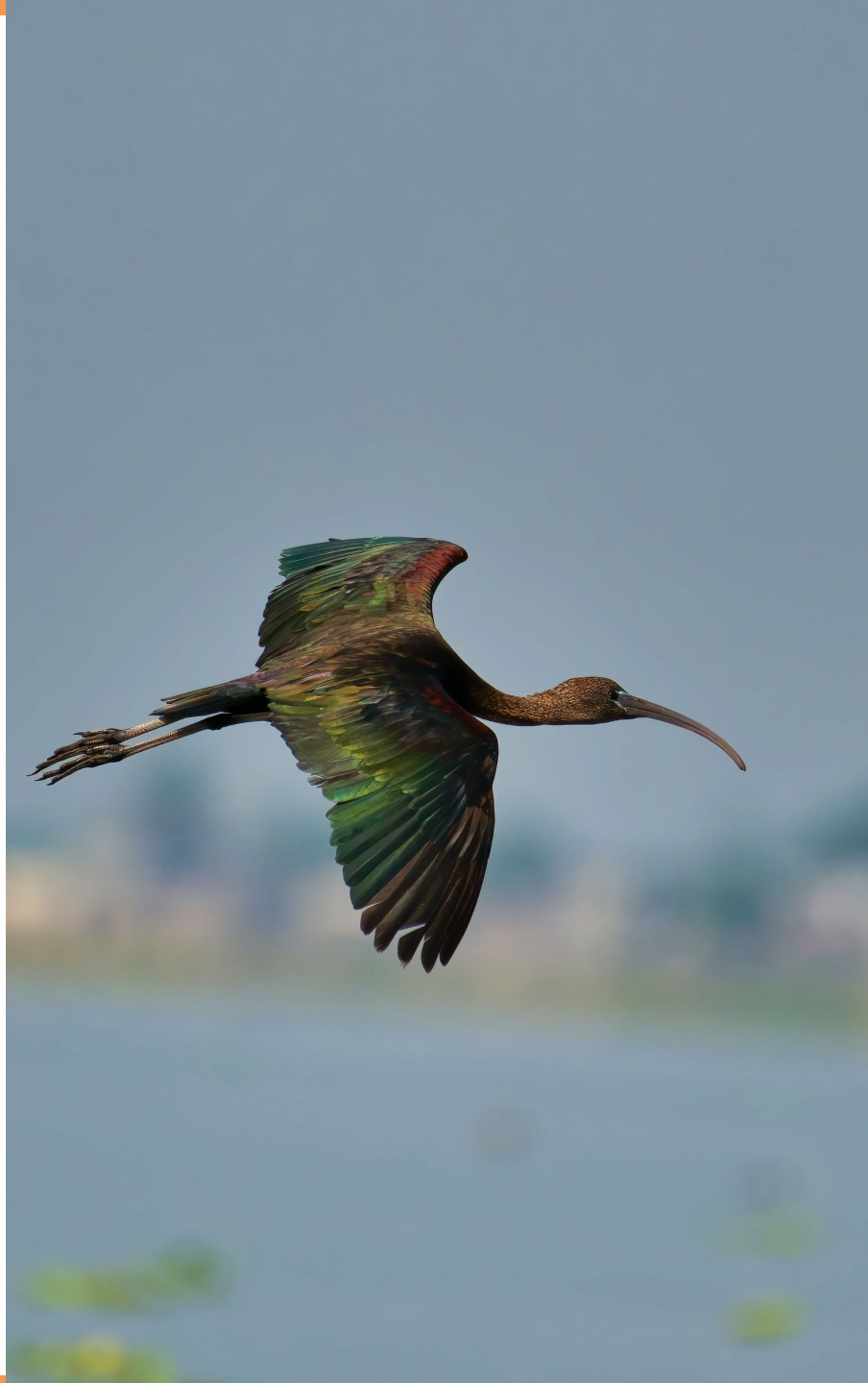
LifeWatch ERIC

hcmr ΕΛΚΕΘΕ

iMBBC ΙΘΑΒΒΥΚ

Session: Mapping life on planet: Biogeography in a changing world

1 July 2025 | 11:30-13:00



Integrated checklist of marine annelids along the Salento Peninsula unravels gaps of knowledge in their diversity and distribution

Presenter: Joachim Langeneck

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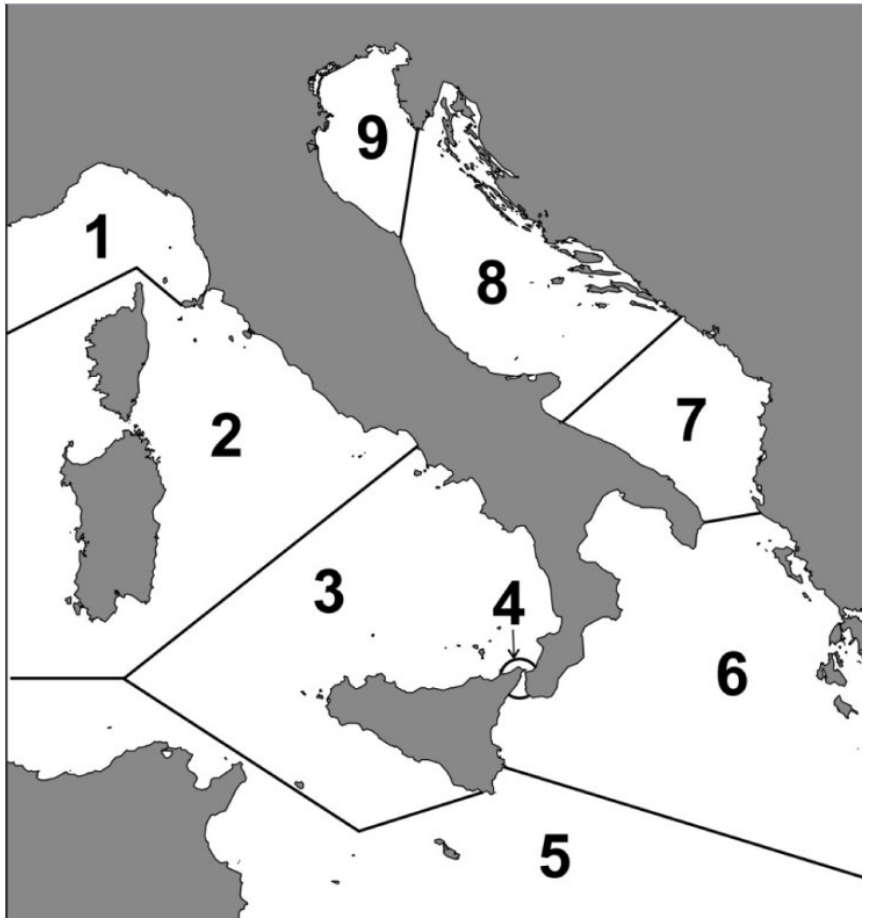
Checklists are invaluable tools! Why?

- For conservation purpose, to reconstruct the distribution of rare and endangered species.
- To track the expansion process of non-indigenous species.
- To map the distribution of natural populations of commercially or scientifically relevant species (e.g., experimental models).

			1	2	3	4	5	6	7	8	9	CAR	SIN	NOTE
Ordine Capitellida														
Famiglia Arenicolidae														
Abarenicola	**8138**	Wells, 1959												
Abarenicola affinis	**8139**	(Ashworth, 1909)												
Abarenicola affinis africana	**8140**	Wells, 1963						x						A1
Abarenicola claparedii	**8141**	(Levinsen, 1884)	x	x	x				x	x	x			
Arenicola	**8142**	Lamarck, 1801												
Arenicola cristata	**8143**	Stimpson, 1856	x	x	x									
Arenicola marina	**8144**	(Linnaeus, 1758)									x			A2
Arenicolides	**8145**	Mesnil, 1898												
Arenicolides grubii	**8146**	(Claparède, 1870)	x	x	x					x	x			
Branchiomaldane	**8147**	Langerhans, 1881												
Branchiomaldane vincenti	**8148**	Langerhans, 1881	x	x	x			x	x					
Famiglia Capitellidae														
Capitella	**8149**	Blainville, 1828												
Capitella capitata	**8150**	(Fabricius, 1780)	x	x	x	x	x	x	x	x	x			
Capitella giardi	**8151**	(Mesnil, 1897)			x									A3
Capitomastus	**8152**	Eisig, 1887												
Capitomastus minimus	**8153**	(Langerhans, 1880)	x	x	x	x	x	x	x	x	x			
Dasybranchus	**8154**	Grube, 1850												
Dasybranchus caducus	**8155**	(Grube, 1846)	x	x	x	x	x	x	x	x	x			
Dasybranchus gajolae	**8156**	Eisig, 1887	x	x	x	x	x	x	x	x	x			
Heteromastus	**8157**	Eisig, 1887												
Heteromastus filiformis	**8158**	(Claparède, 1864)	x	x	x	x	x	x	x	x	x			
Leiocapitella	**8159**	Hartman, 1947												
Leiocapitella glabra	**8160**	Hartman, 1947	x	x	x		x	x					a1	
Leiochrides	**8161**	Augener, 1914												
Leiochrides australis	**8162**	Augener, 1914	x	x	x	x		x	x			AL		A4
Mastobranchus	**8163**	Eisig, 1887												
Mastobranchus trinchesii	**8164**	Eisig, 1887	x	x	x		x	x			x			
Mediomastus	**8165**	Hartman, 1944												
Mediomastus capensis	**8166**	Day, 1961	x	x	x	x	x	x	x	x	x	AL		A5

Checklists are invaluable tools! However…

- Species occurrences usually given for relatively wide sectors.
- Georeferenced primary data often unavailable.
- Ecological data not reported.
- Genetic data and clues on cryptic diversity not reported.
- Need of regular updates for both distribution and taxonomy.



The Salento Peninsula

- Eastern-most edge of the Italian Peninsula.
- Facing both Ionian and Adriatic Sea, in the transition area between western and eastern Mediterranean.
- Depths over 2000 m in the deepest parts.
- Presence of many different coastal and marine environments.
- Two large commercial and touristic ports and a high number of touristic marinas.

Bibliographic research

- 114 literature sources including data on marine annelids off Salento.
- 68 sources with georeferenced data.
- Depth: 0-2760 m
- Coverage: 1891-2023

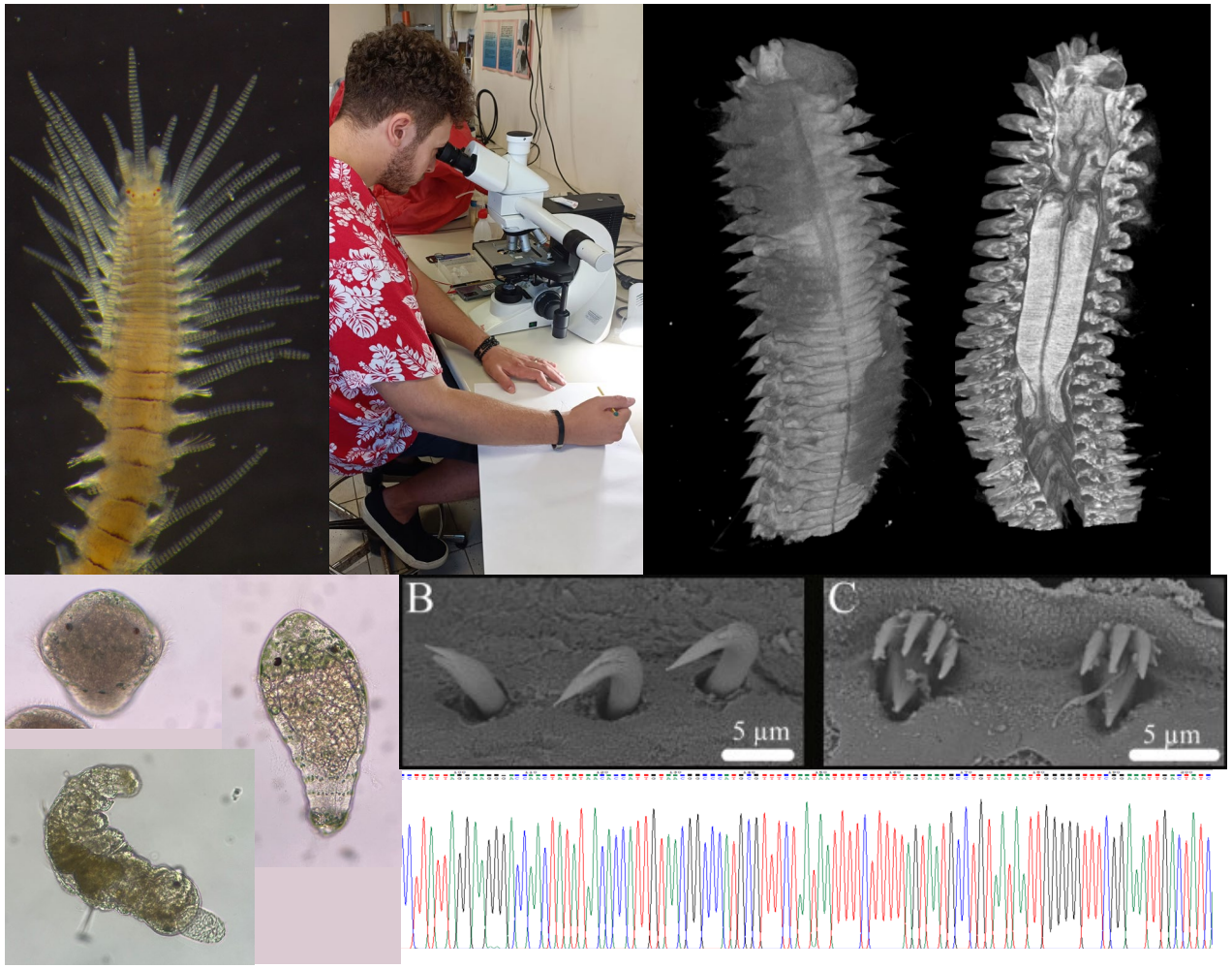
New data

- >50 sampling events.
- All data georeferenced.
- Depth: 0-970 m
- Coverage: 2015-2025

- >3400 records, >3000 of which georeferenced.
- Data organised following the Darwin Core standard.

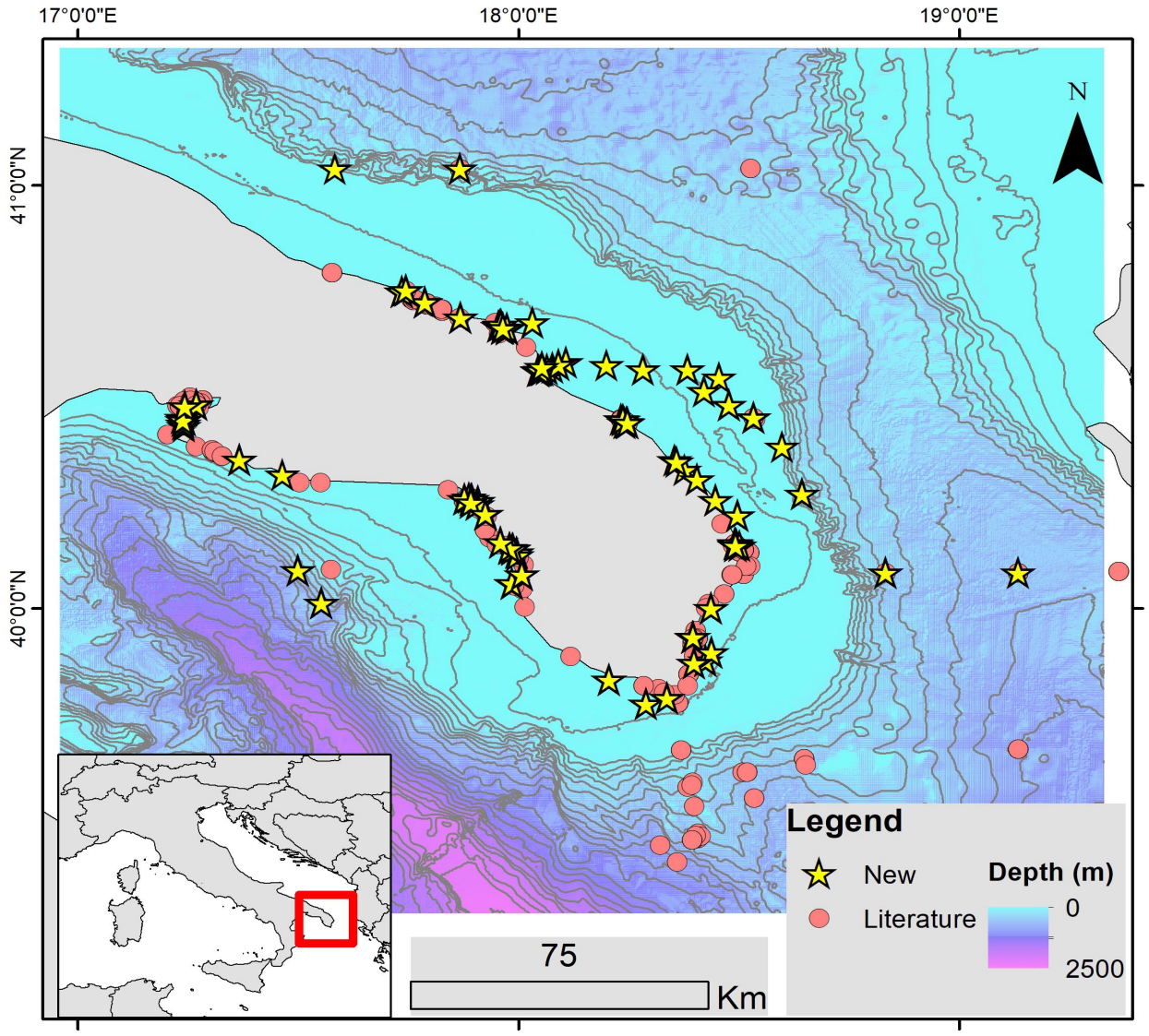
Characterisation of the new material

- Morphological:
  - Light microscopy
  - SEM scans
  - Micro-CT scans
- Molecular:
  - Mitochondrial COI and 16S
  - Occasionally other nuclear and mitochondrial markers
- Reproduction:
  - Data on maturative stage
  - Development in laboratory conditions



Results

- 654 species (~68% of all marine annelids reported for the Italian waters).
- 43 non-indigenous species including:
  - 2 significant range expansions (*Dorvillea similis*, *Pseudonereis anomala*)
  - 3 first records for Italy (*Lepidonotus tenuisetosus*, *Syllis crassicirrata*, *Syllis ergeni*)
  - 1 first record for the Mediterranean (*Syllis similisunzima*)

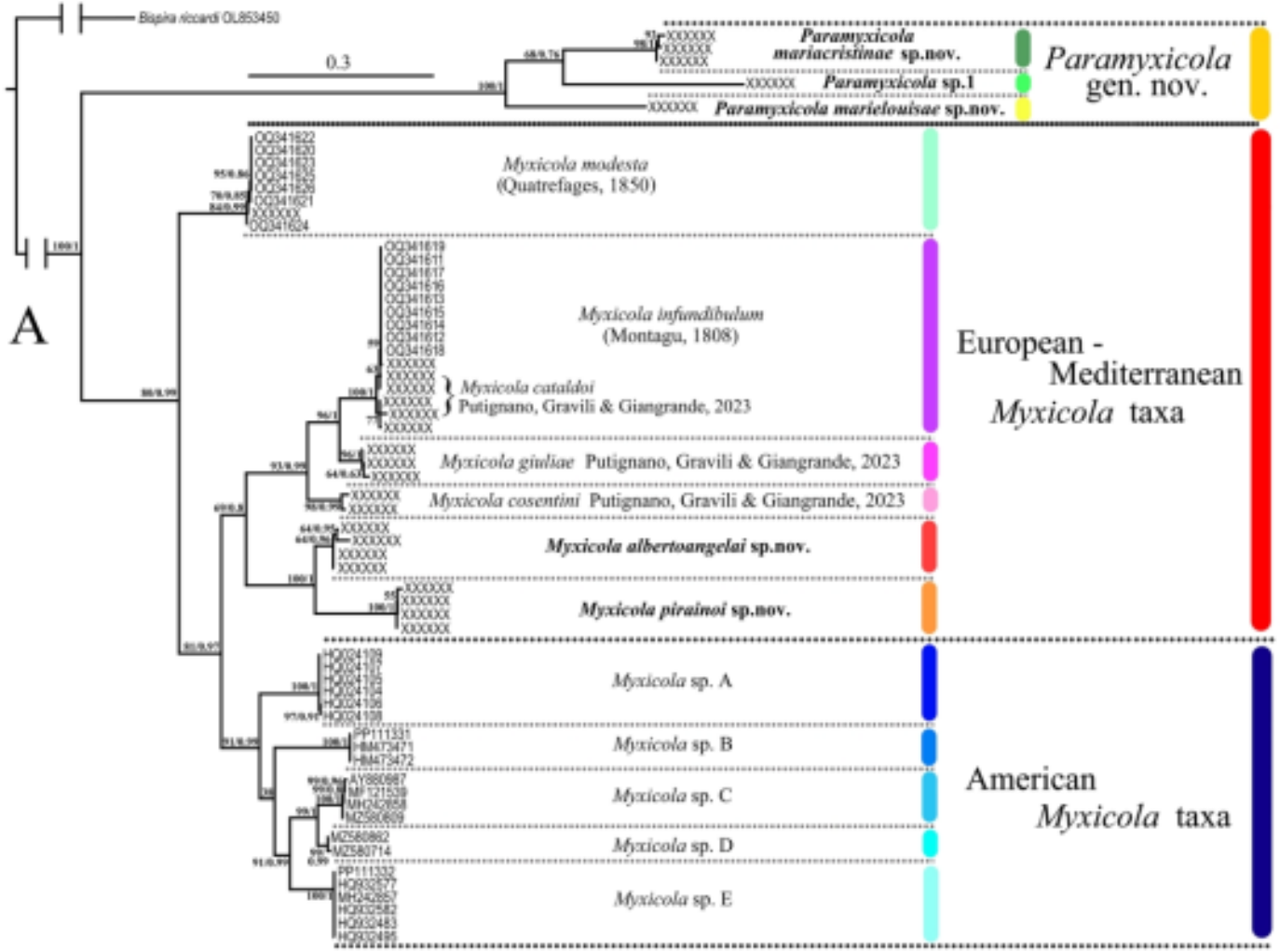


Results

- 25 probably undescribed species.
- Description of 13 new species of *Perinereis*, three of which apparently endemic to the Salento Peninsula (Teixeira et al., 2025).
- 2 «forgotten» species: *Myxicola parasites* Quatrefages, 1866 and *Protomystides bilineata* La Greca, 1946.
- 17 new records for Italian waters.

Results

- Multiple lineages retrieved in 32% of the species assayed.
- First clue of cryptic diversity for 36 nominal species.
- Clues of morphological variability despite genetic homogeneity in 6 taxa:
  - Phenotypic plasticity
  - Incipient species
  - Ontogenetic changes
  - ?



Conclusions

- Mediterranean annelids are still largely unknown as regards:
  - Distribution
  - Genetic diversity
  - Reproductive features
  - Ecology
  - Biogeography
- While Salento might actually be a biodiversity hot spot, it is not unlikely that other Mediterranean areas are affected by the same gaps of knowledge.
- Need of collaborations between different countries and research groups, integrating different types of data.

Thank you!

Questions?
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