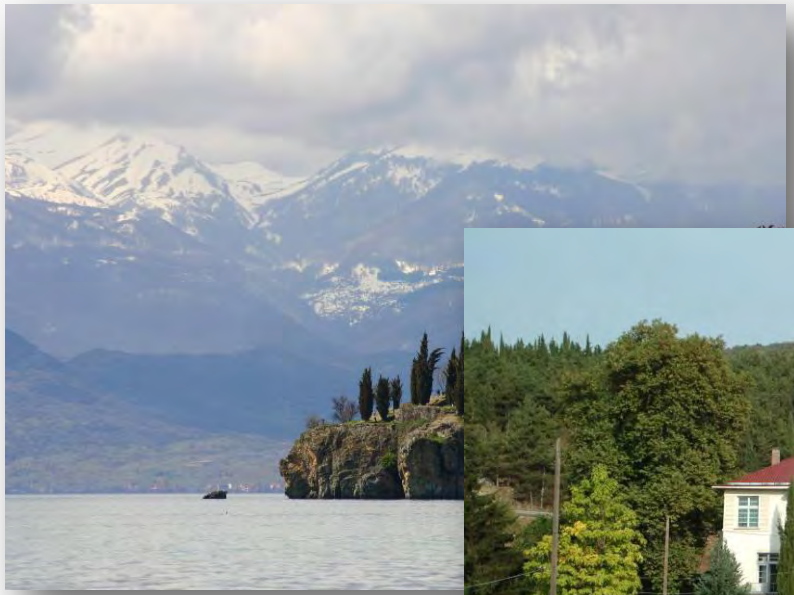

LAKE OHRID

Endemic Biodiversity

Lake	Total # endemic species	Lake size in km²	Endemic biodiversity index (log $N_{end.\ spec.}$ x log $A_{surf.\ area}^{-1}$)
Baikal	ca. 1200	31.494	0.684
Tanganyika	632	32.900	0.657
Malawi	ca. 600	29.600	0.621
Victoria	ca. 550	26.560	0.619
Ohrid	**212**	**360**	**0.908**
Biwa	58	670	0.623
Titicaca	64	8.372	0.461

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LAKE OHRID ENDEMIC BIODIVERSITY

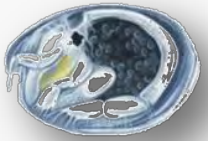
Gastropoda
79%

Amphipoda
90%

Porifera
80%

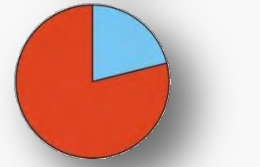
Tricladida
79%

Isopoda
75%



Ostracoda
63%

Hirudinea
54%



endemic

nonendemic

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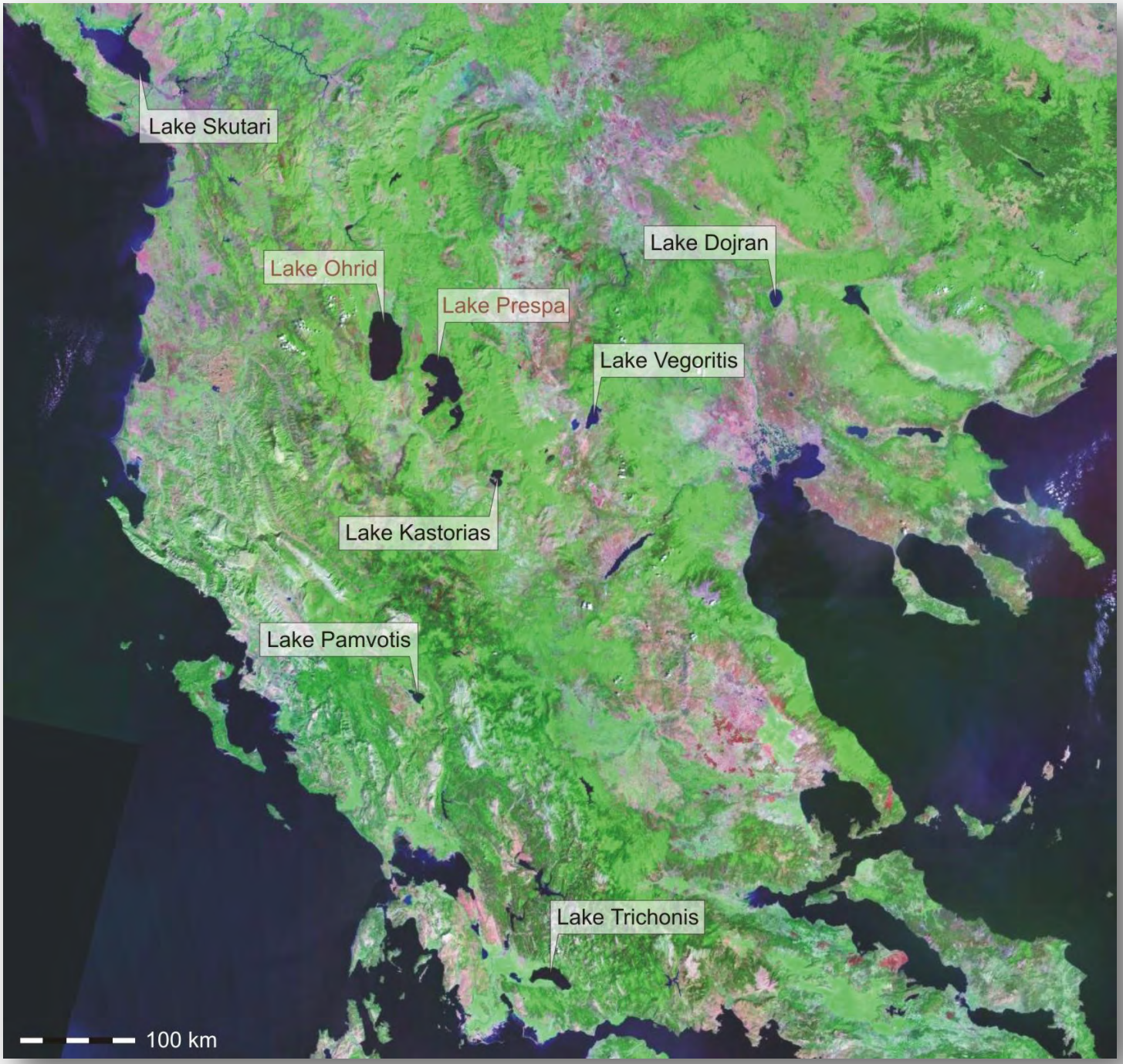
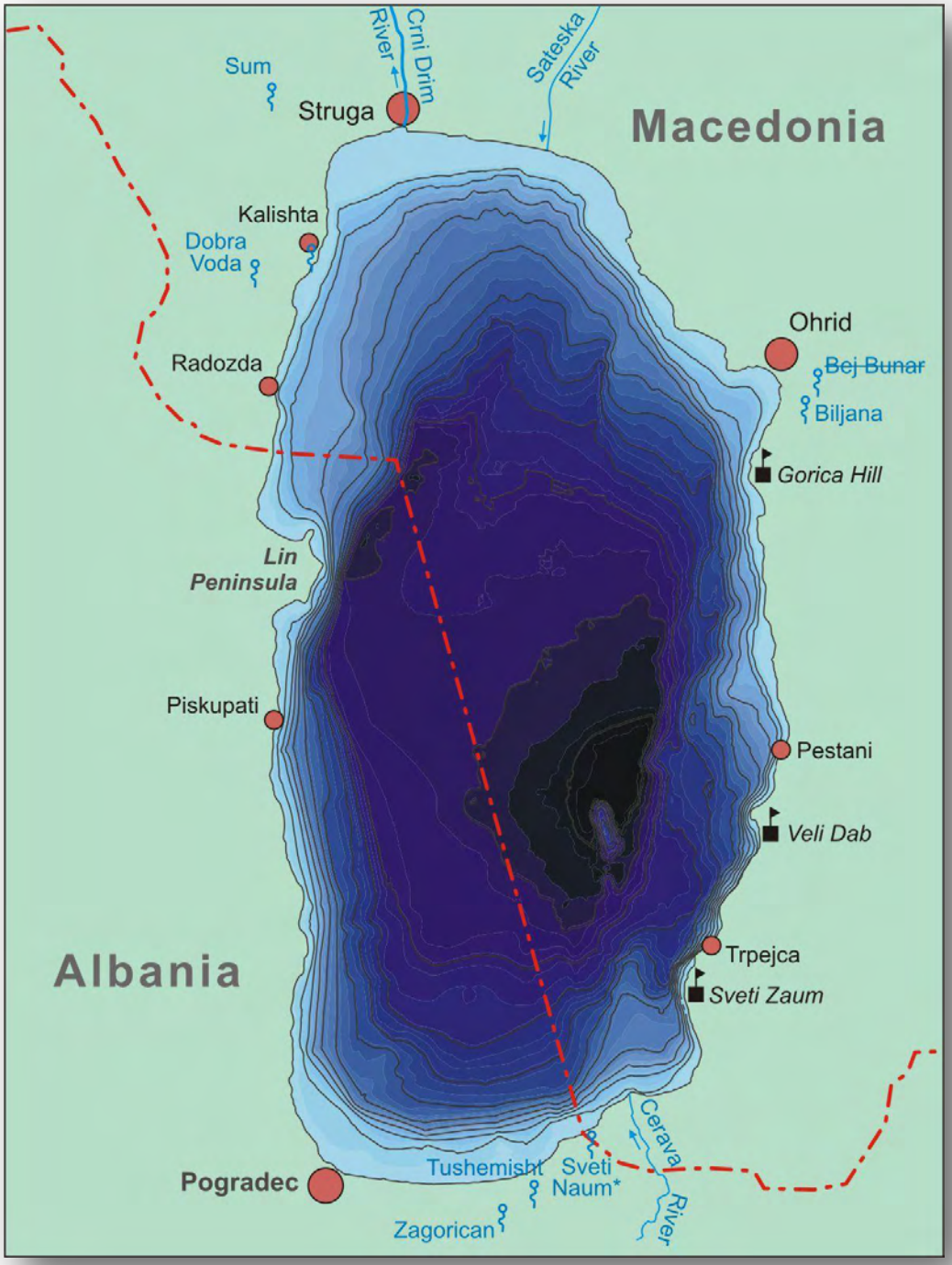
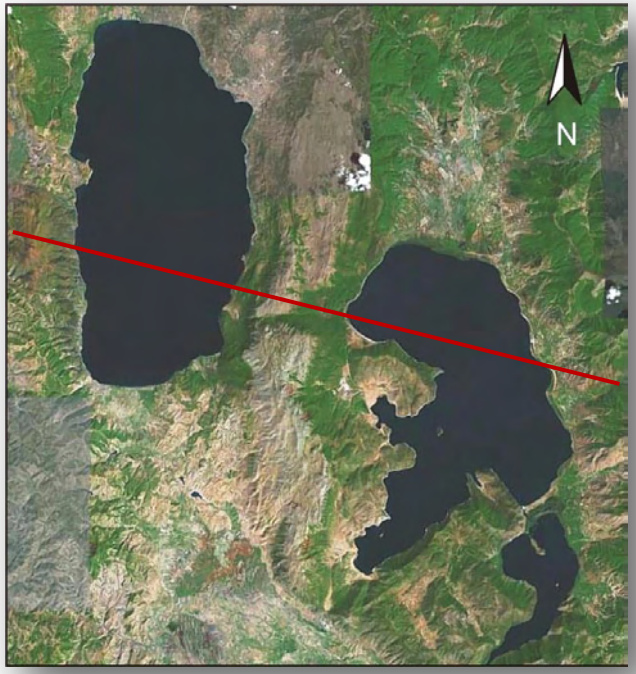
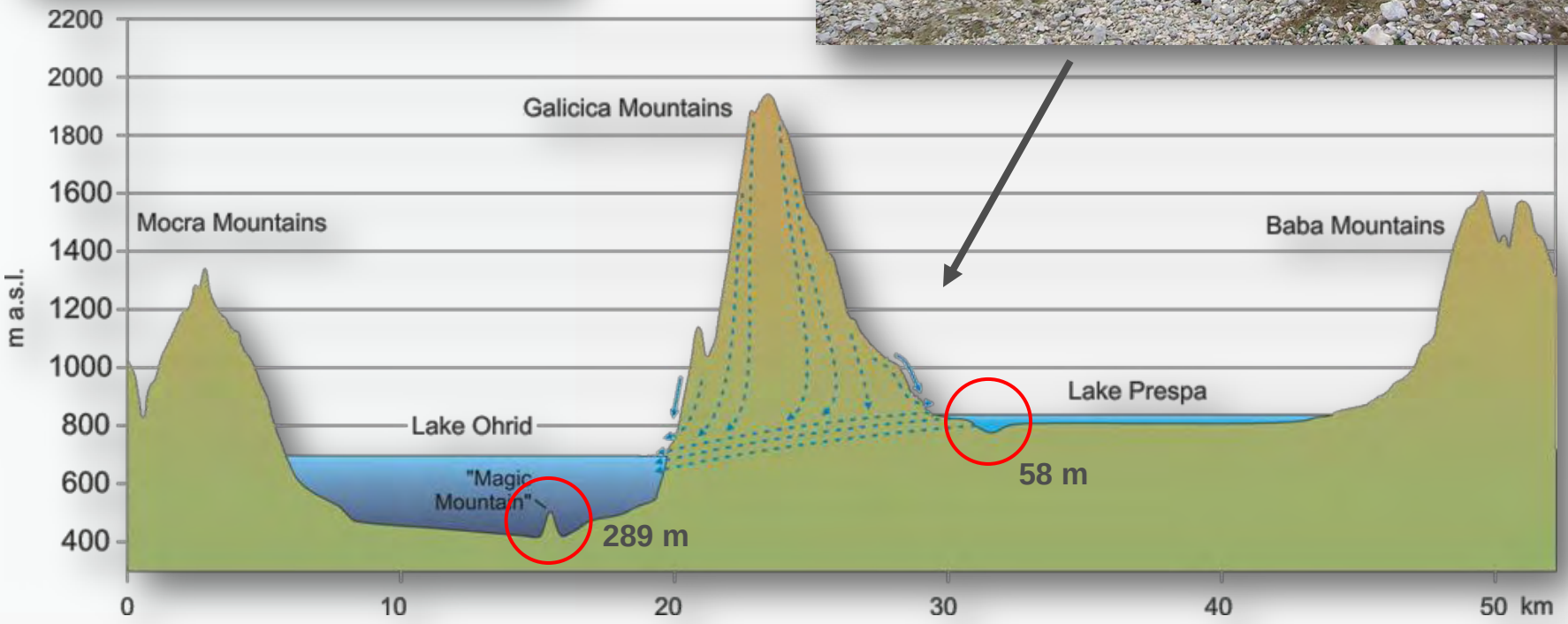


Balkan Peninsula

Altitude:	693 m a.s.l.
Length:	30.3 km
Width:	15.6 km
Surface area:	358 km²
Volume:	55 km³
Max. depth:	289 m
Mean depth:	155 m
Residence time:	70 years
Catchment/lake surface ratio:	7




N


2200
2000
1800
1600
1400
1200
1000
800
600
400
m a.s.l.
Galicica Mountains
Mocra Mountains
Baba Mountains
Lake Ohrid
Lake Prespa
"Magic Mountain"
289 m
58 m
0
10
20
30
40
50 km

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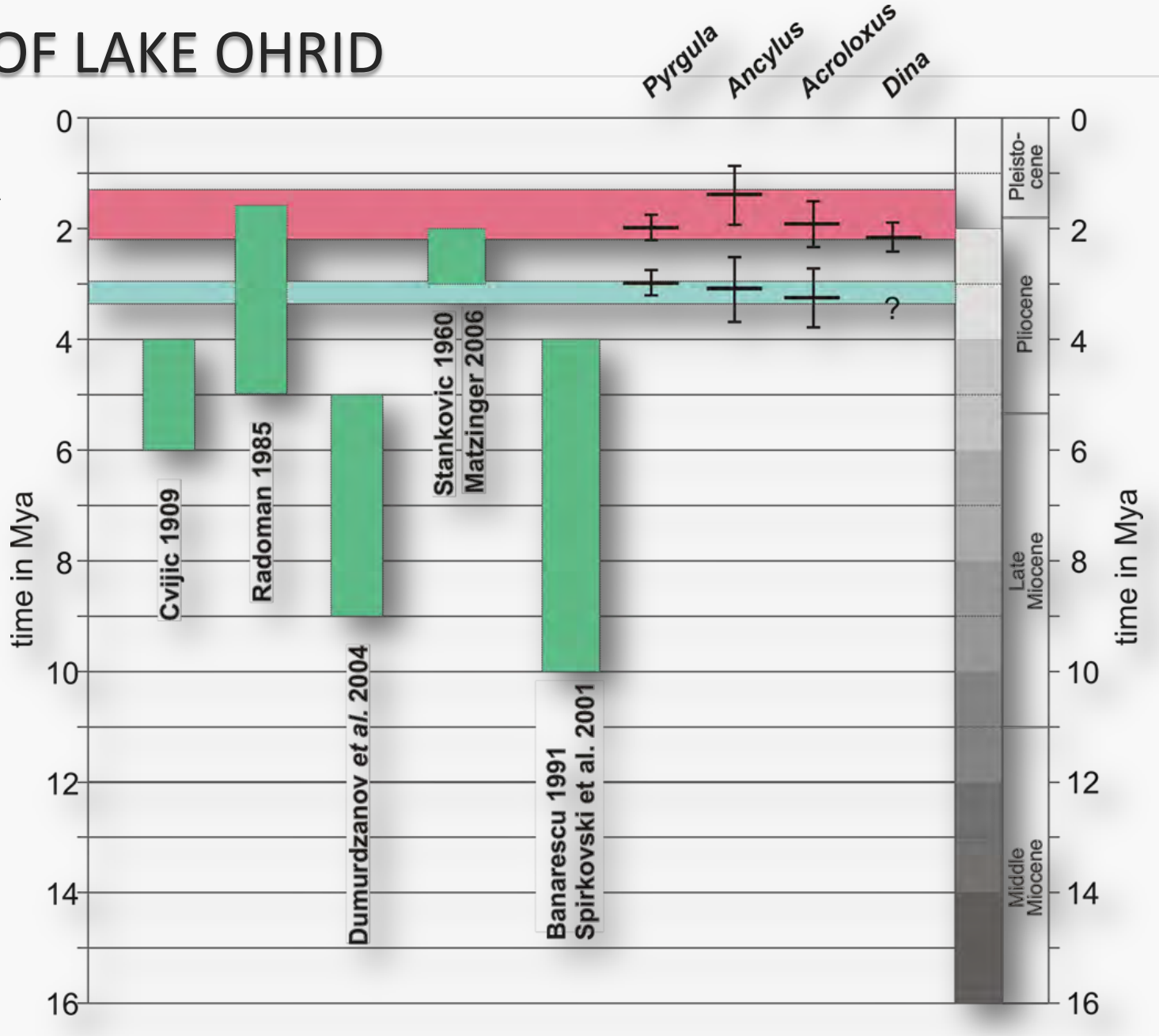
Ohrid 2009

AGE OF LAKE OHRID

Geological *versus* phylogenetic age



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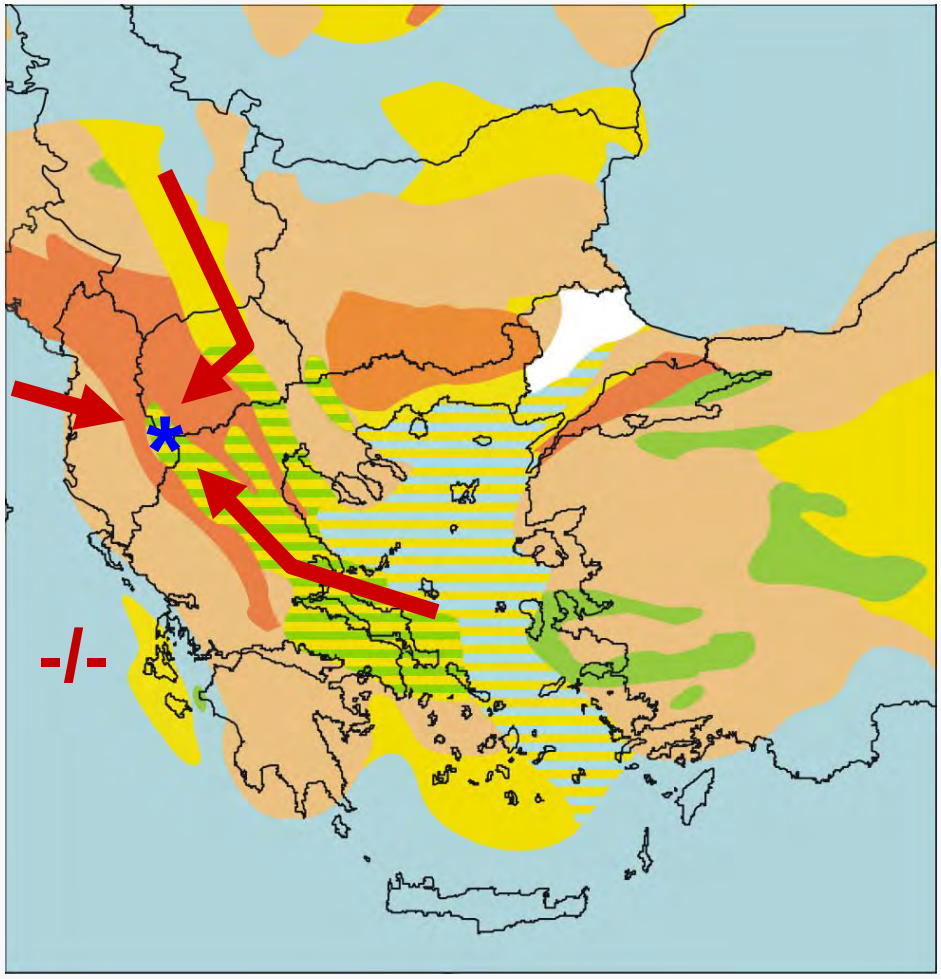
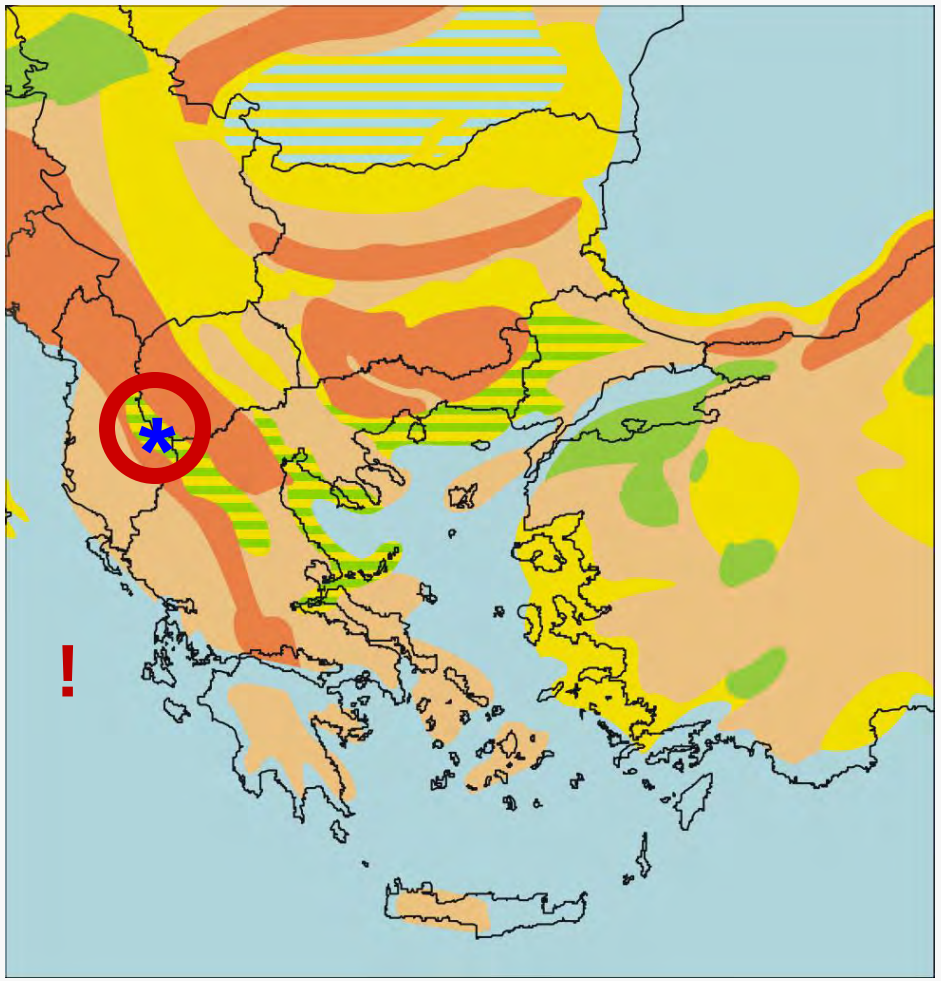
LIMNOLOGICAL AND FAUNAL ORIGIN

Late Miocene



Middle - Late Pliocene



Maps modified from Popov et al. 2004

ENDEMIC BIODIVERSITY

Total number of gastropod species in Lake Ohrid

Radoman (1985): **71 species**
55 endemic
16 non-endemic

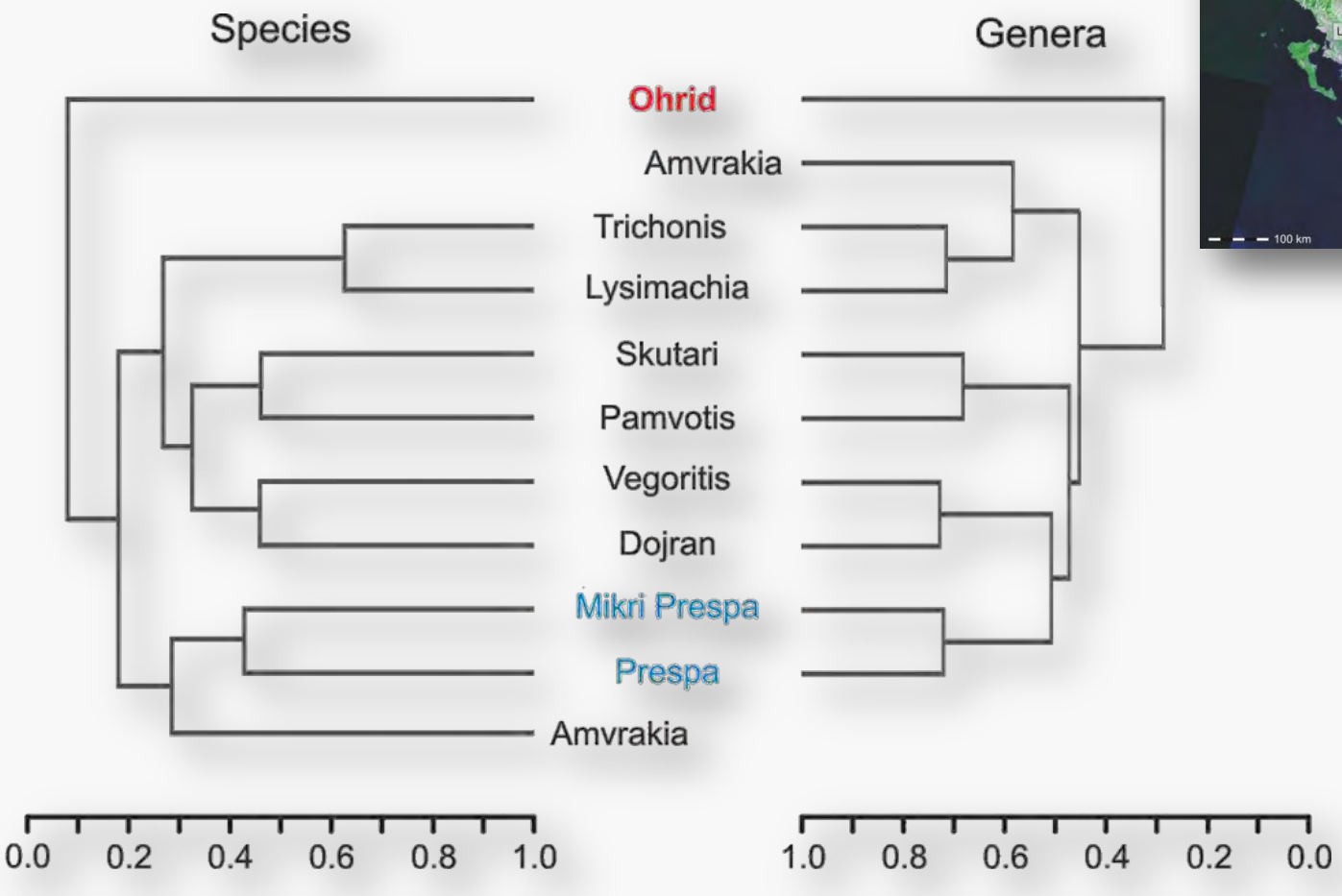
Hauffe (2009): **66 species**
52 endemic
14 non-endemic

Gastropoda
78%

Gastropoda
79%

BIOGEOGRAPHY

Faunal overlap with other Balkan lakes



Cluster analysis modified from Albrecht et al. 2009

BIOGEOGRAPHY

Distribution of taxa within the Lake Ohrid watershed?

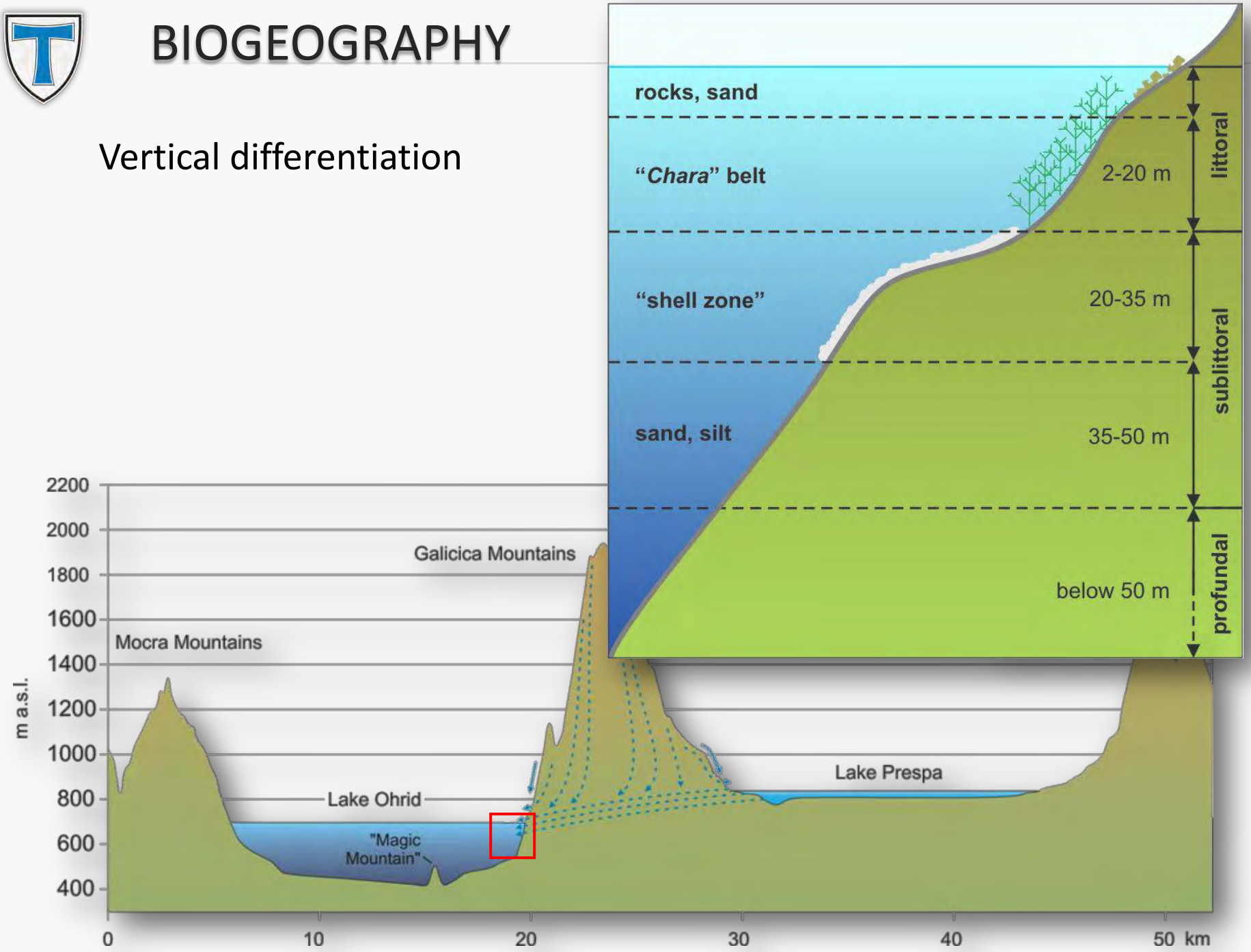
Radoman, 1983, 1985: Spatial differentiation of taxa

- vertically (bathymetrically)

- horizontally

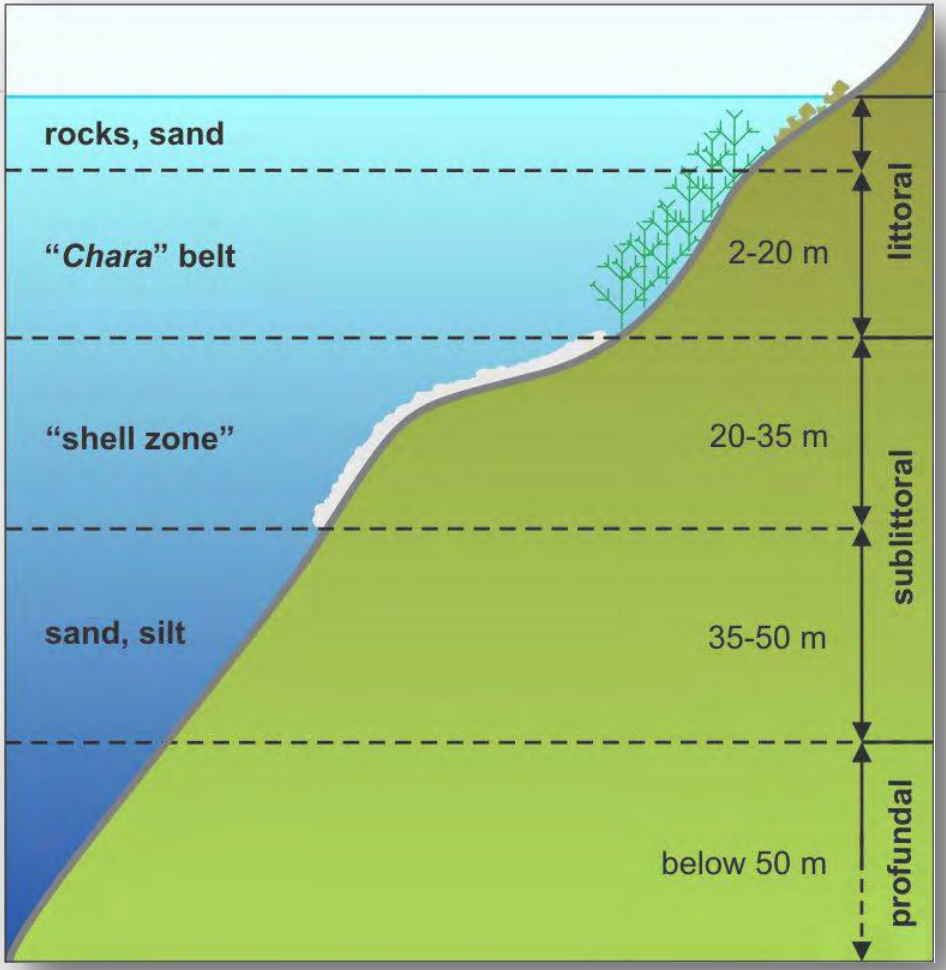
BIOGEOGRAPHY

Vertical differentiation

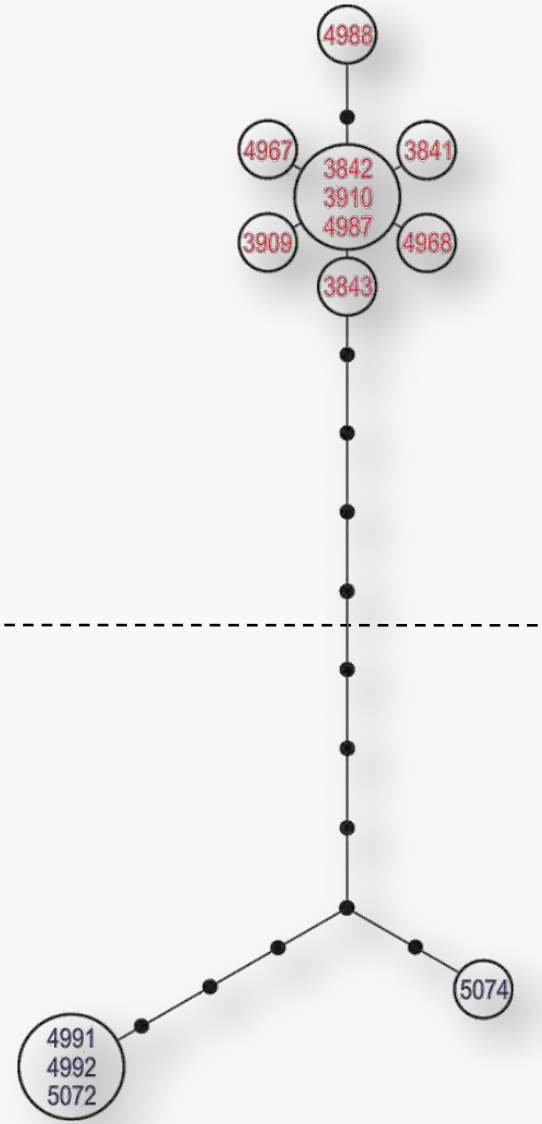


BIOGEOGRAPHY

Vertical differentiation

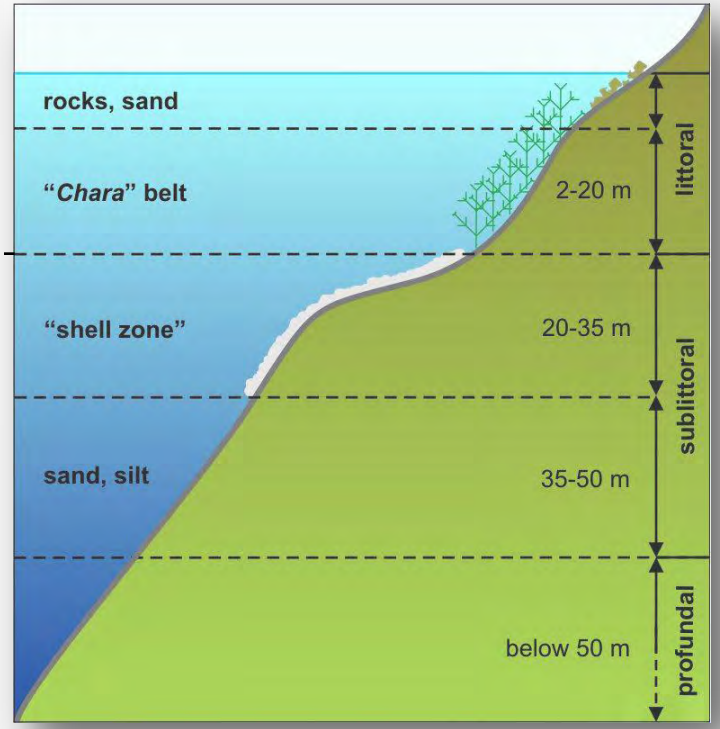


VERTICAL DIFFERENTIATION



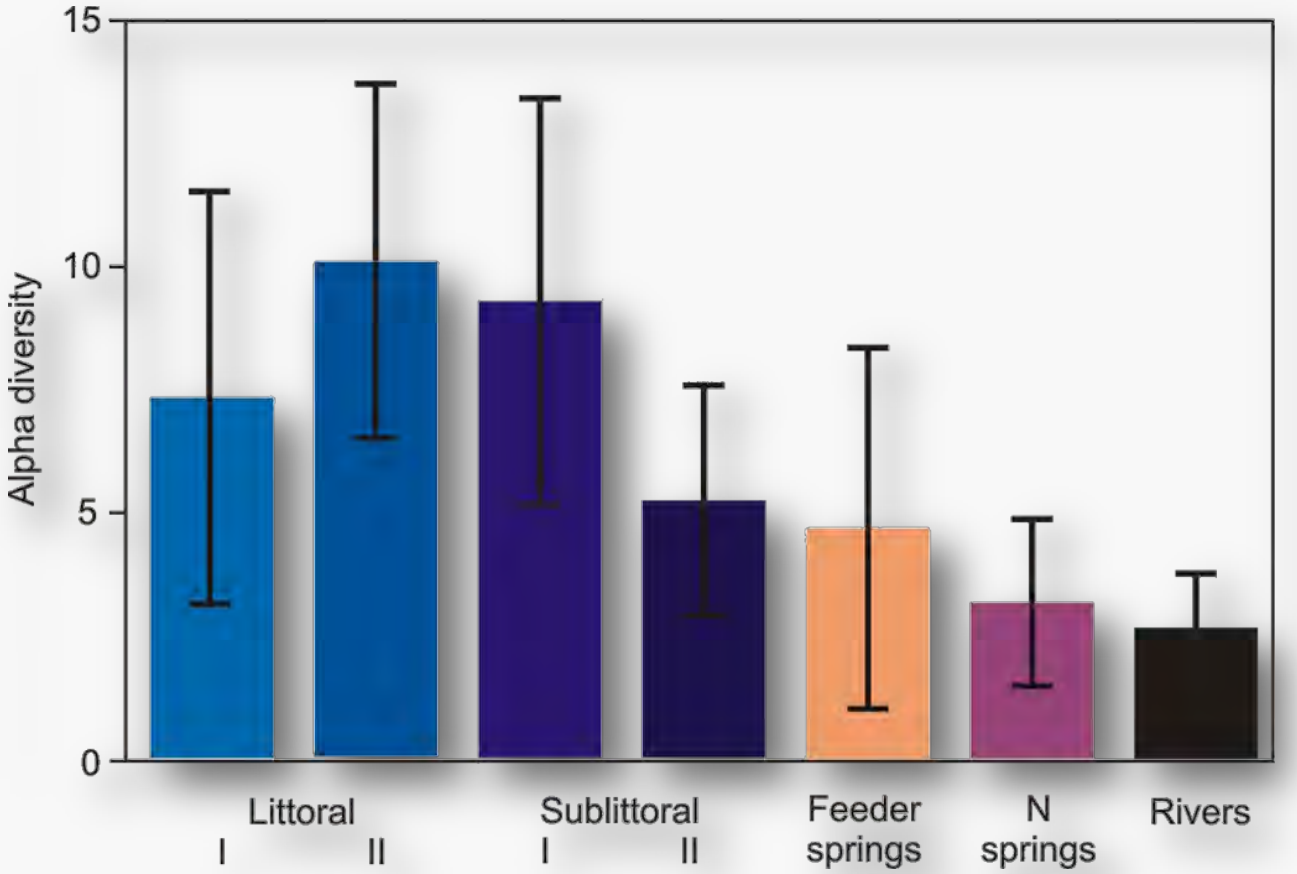
Ginaia m. munda

Ginaia m. sublitoralis

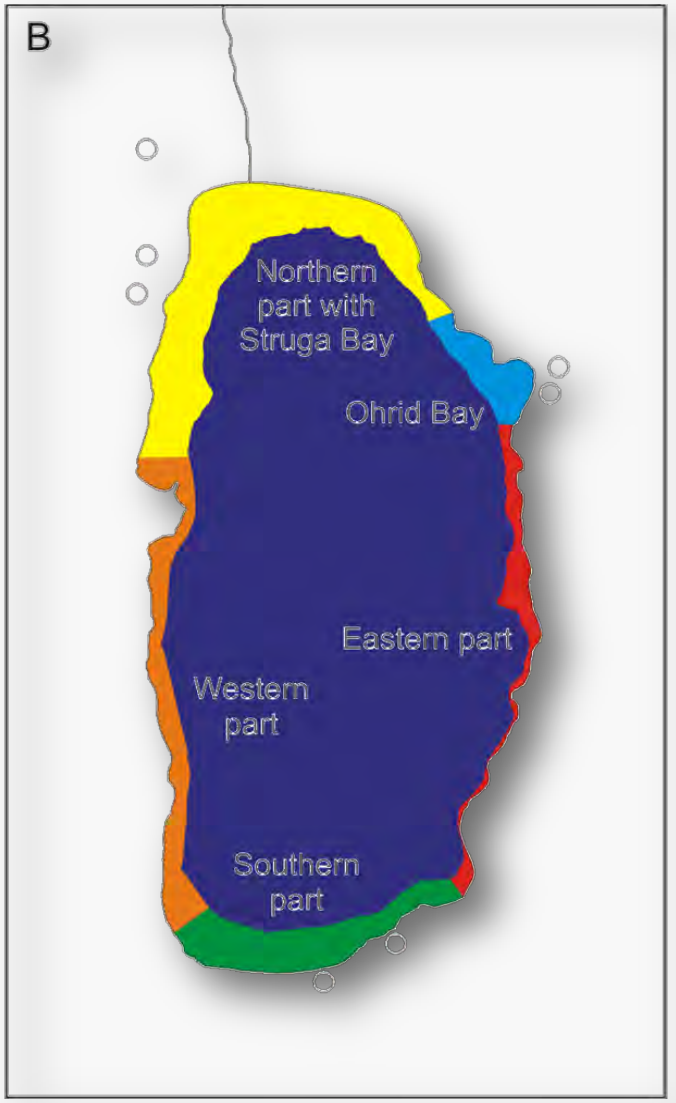


SPATIAL DISTRIBUTION OF TAXA

Average alpha diversity per site

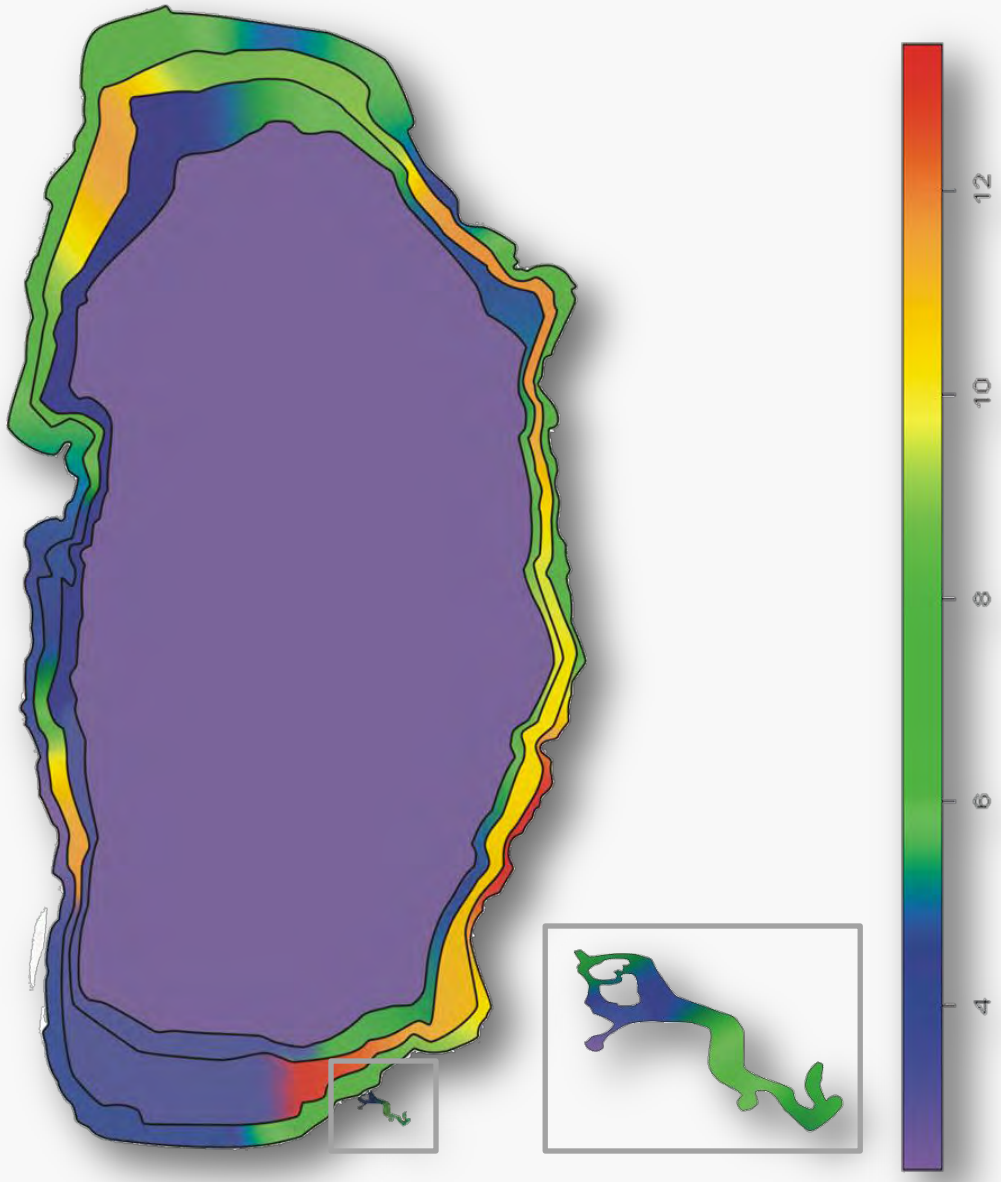


HORIZONTAL DIFFERENTIATION (LAKE PROPER)



SPATIAL DISTRIBUTION OF TAXA

Heat map of alpha diversity



Profundal: species free

Sublittoral: partly species rich, homogeneous

Littoral II: species rich, partly heterogeneous

Littoral I: species rich, partly heterogeneous

Feeder springs, relatively species rich (near springs)

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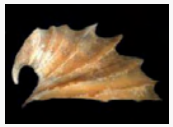
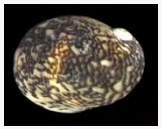
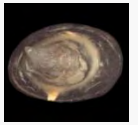
SPECIATION PATTERNS




Ancylus *Valvata* Pyrgulinae *Acroloxus*
Carinogyraulus *Theodoxus* *Dreissena* *Dina*

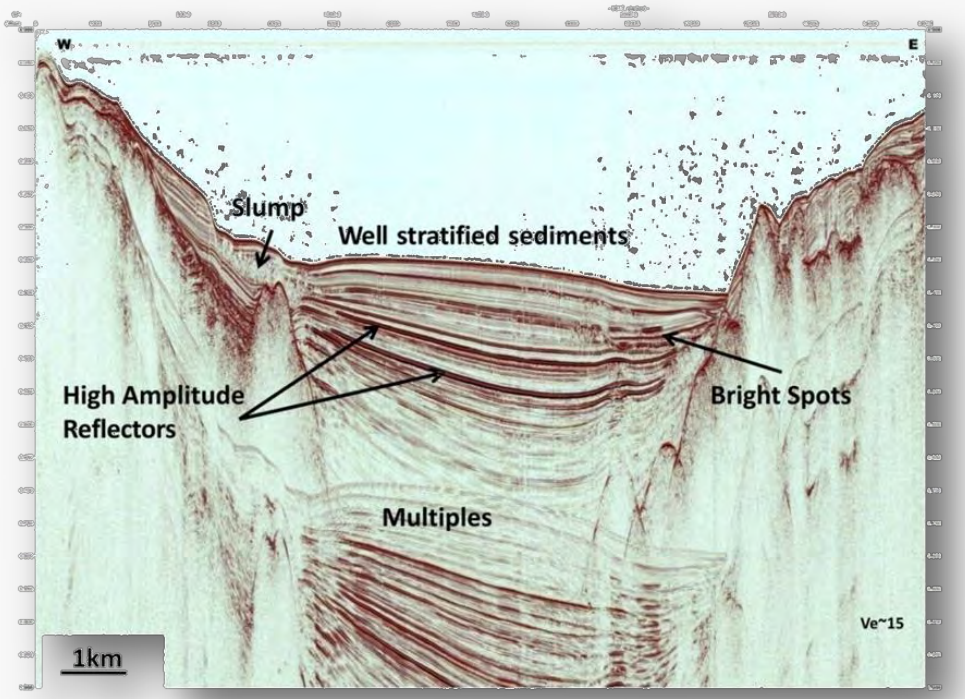
No. taxa (endemic)	**5(4)**	**5(5)**	**4(4)**	**1(0)**	**14(?)**	**1(0)**	**4(3)**	**14(14)**
No. of endemic lineages	1	1	2	1	?	1	1	1
Intralacustrine speciation	Y	Y	Y	?	?	?	Y	Y
Ancient lake species flock	Y	Y	N?	N	?	N	Y	Y
Phylogeographic relationship	**B**	**B**	**B**	**?**	**?**	**B**	**B**	**?**
Vertical differentiation	Y	Y	Y	N	Y	?	?	Y
Horizontal differentiation	?	Y	?	N	Y	?	Y	Y
Out of Lake Ohrid	N	N	N	N	Y	Y	N	?
Age of radiation (in My)	**1.4**	**?**	**-**	**-**	**1.7**	**-**	**1.9**	**2.2**

OUTLOOK

International continental deep drilling program

- Scientific Collaboration on Past Speciation Conditions in Lake Ohrid (SCOPSCO)

- anticipated drilling: 2009



HAVE A GREAT MEETING IN OHRID!