

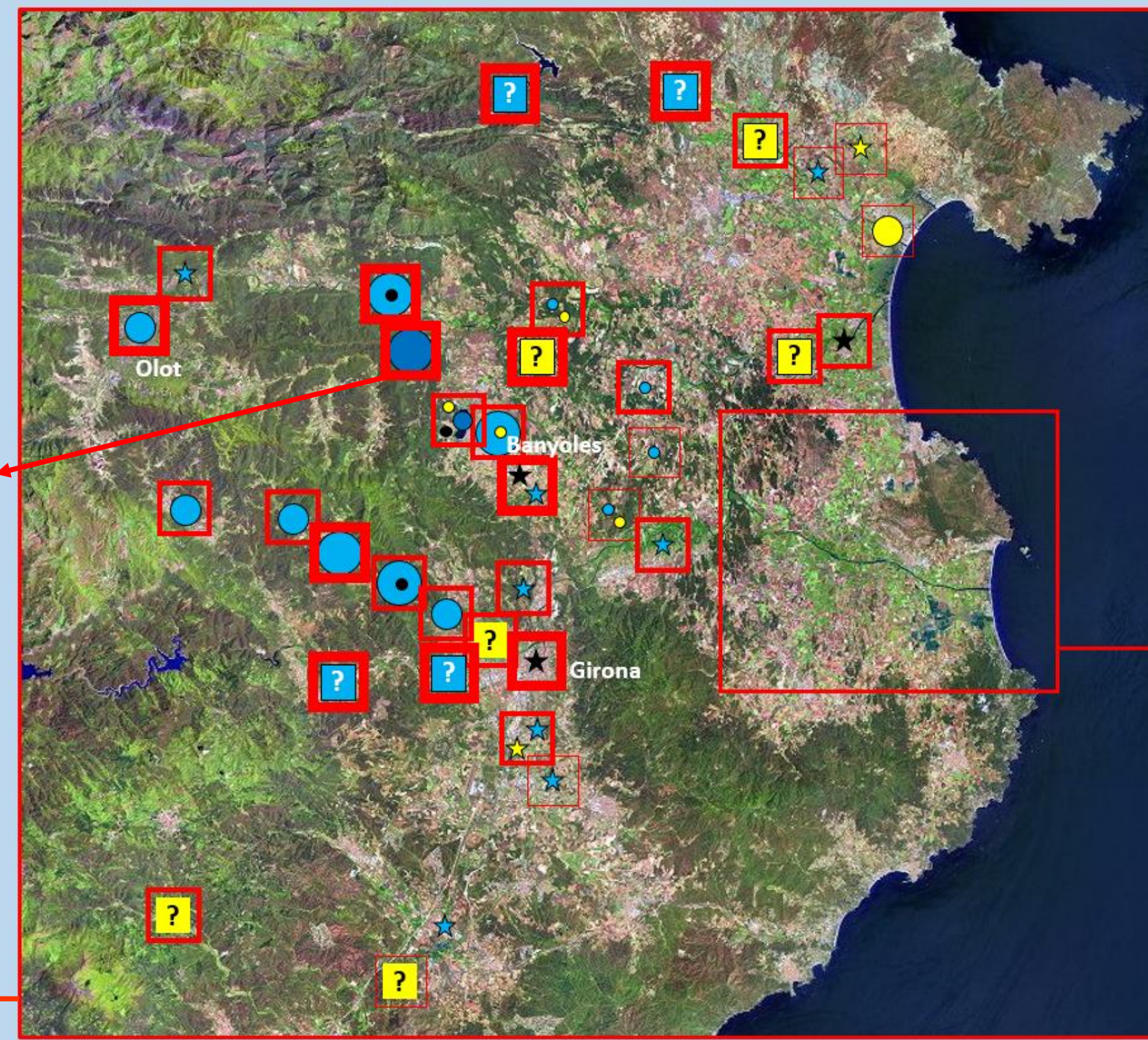
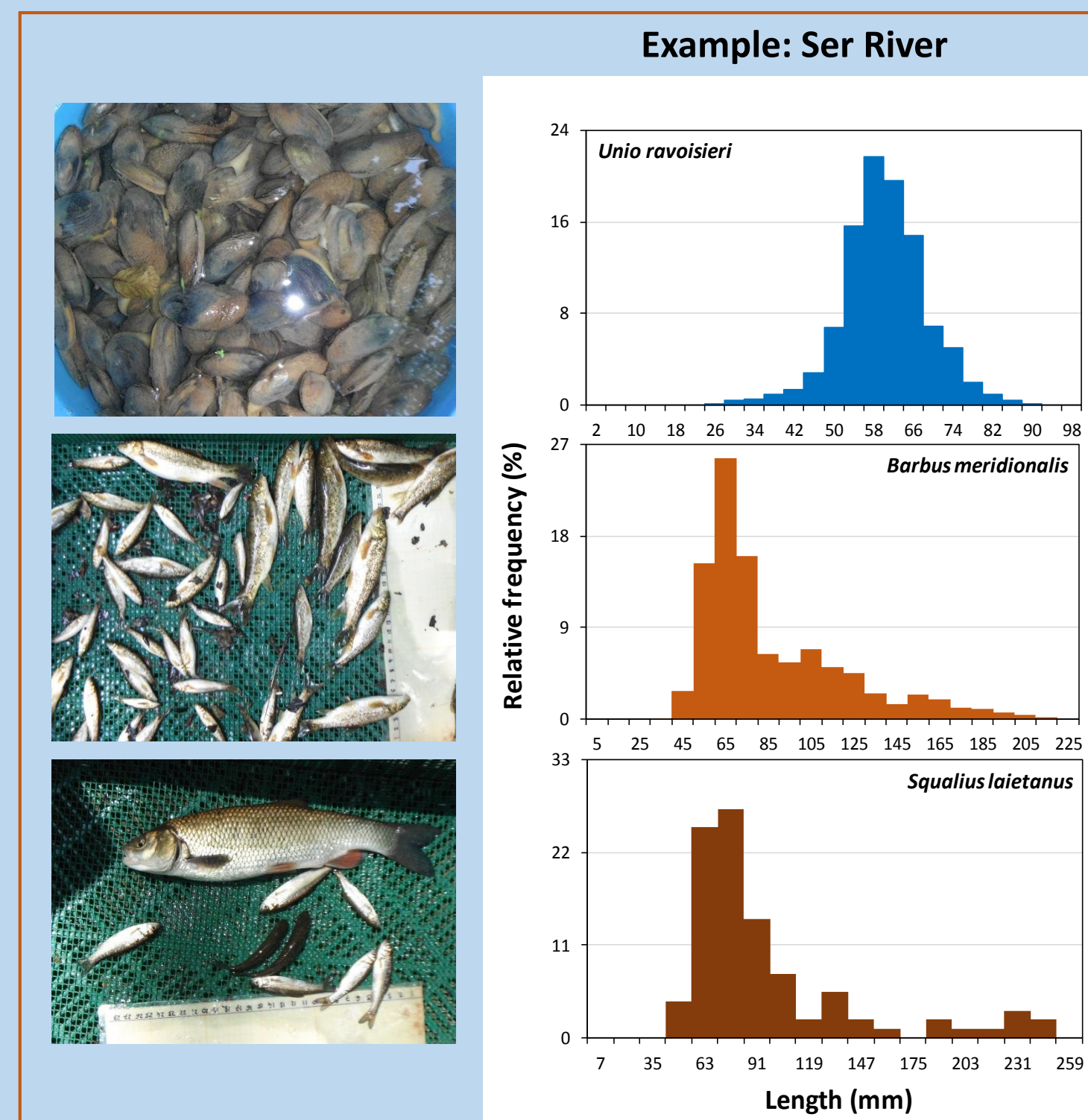
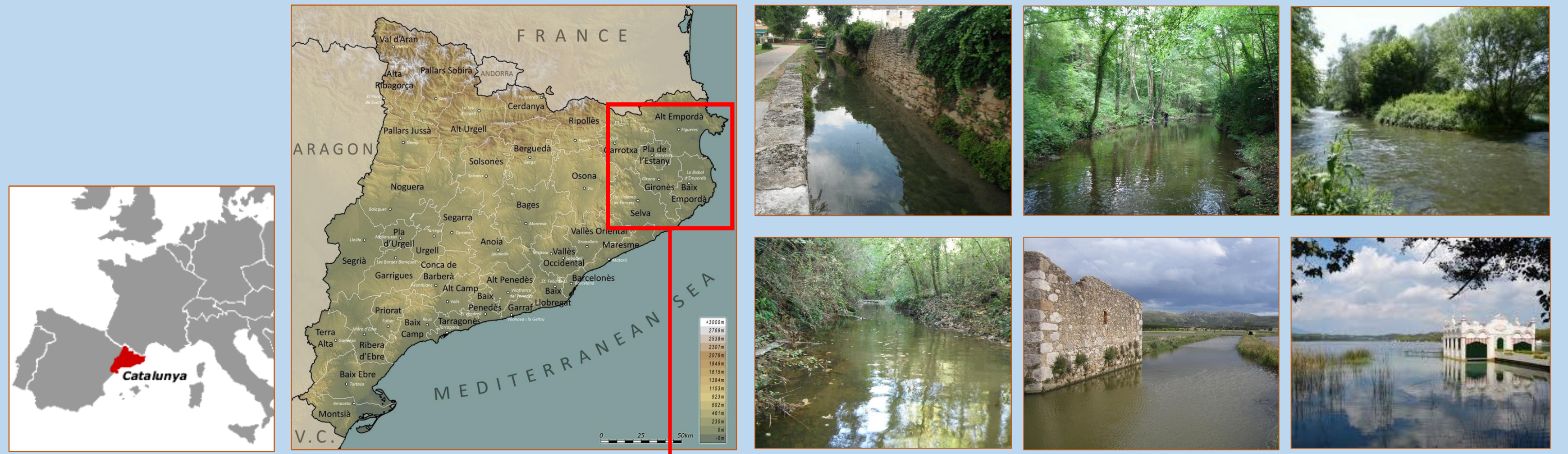
Naiads and fish, coupled destiny: the case of basins of north-eastern Catalonia.

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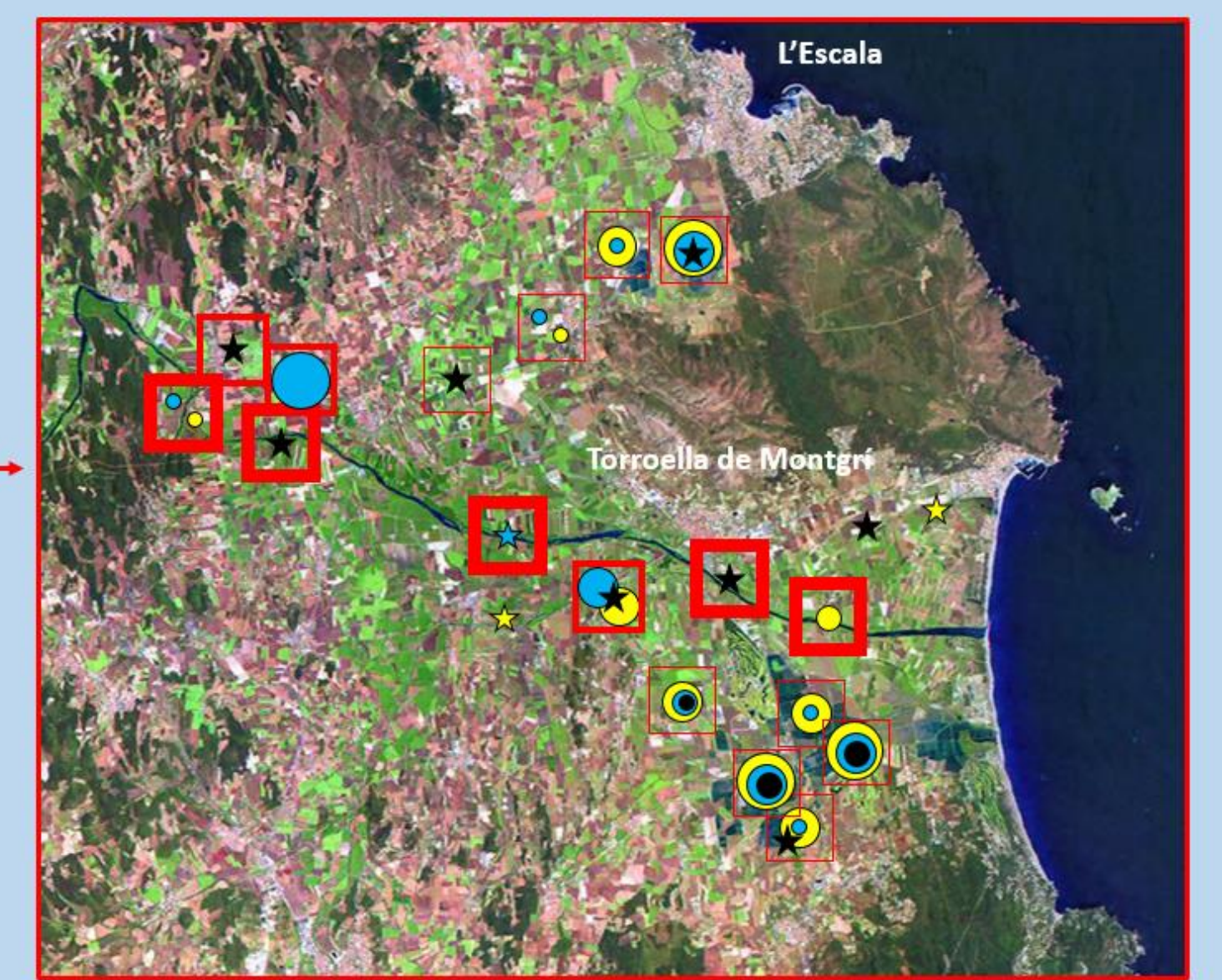
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AREA OF STUDY

In north-eastern Catalonia, several isolated populations of *Unio mancus*, *Unio ravoisieri*, *Potomida littoralis* and *Anodonta anatina* remains, despite the wide and big decline that these species have suffered during the second half of the XX century. They are present in different types of water masses: rivers, streams, diverting or draining channels, and a karstic lake (Banyoles Lake), from 250 to 0 MASL.



NATIVE NAIADS VS FISH COMMUNITY CURRENT SITUATION

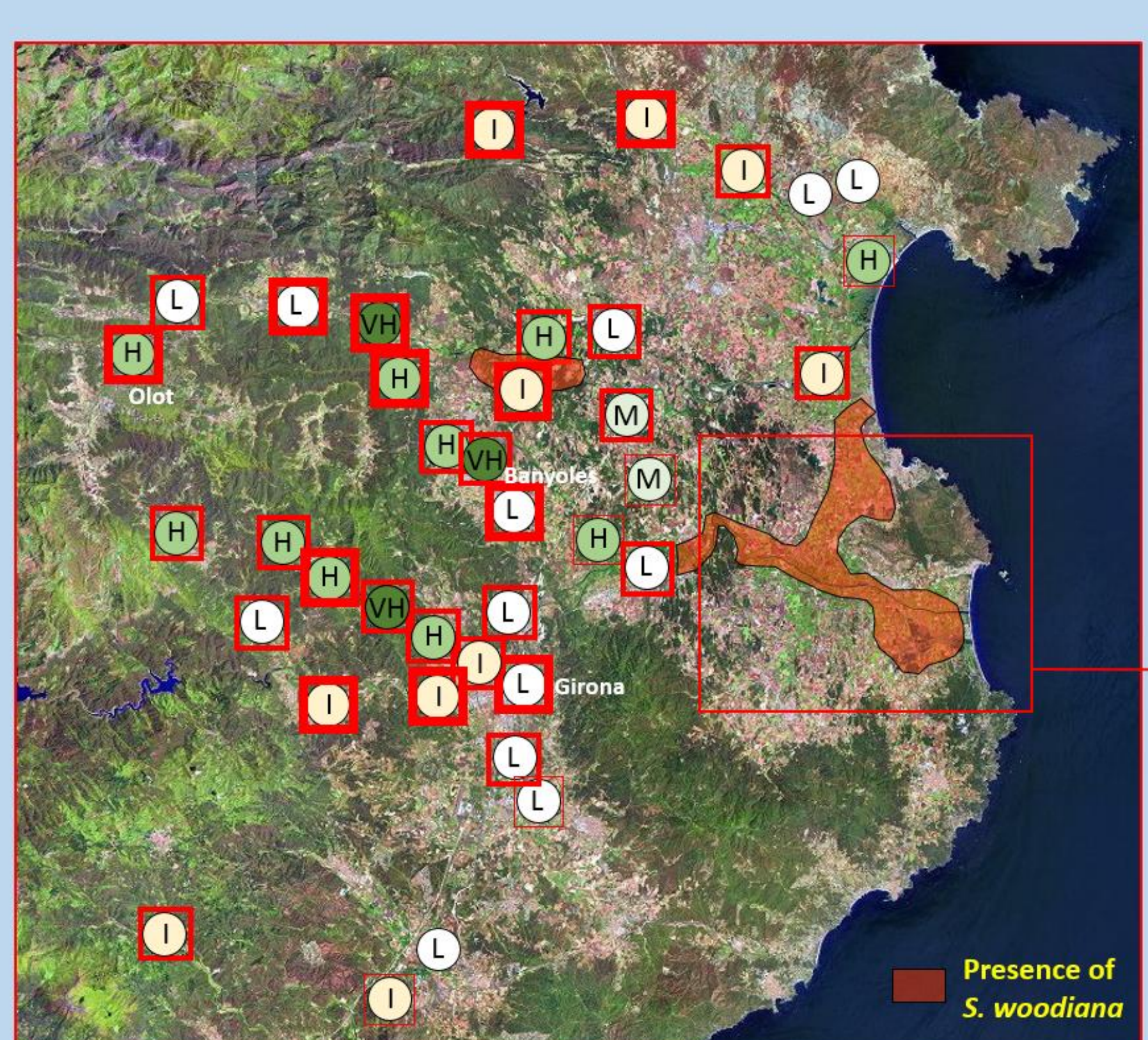


FISH COMMUNITY: CURRENT SITUATION	NATIVE NAIADS: CURRENT STATUS					
	Recently extinct (alongst 50 years)	Meager population (<10 ind. found, often very old)	No recruitment (or very low, or highly sporadic)	Low recruitment (irregular and/or ever low)	Normal recruitment (regular and/or often high)	Unknown status (but probably very precarious)
No fish (or sporadic presence of non native spp.)	1 ★	-	-	-	-	-
Non native host fish (or sporadic presence of some native host fish spp., and possible presence of 1 or more non native or non host spp.)	2 ★	6	1	3	3	1 ?
Only 1 native host fish sp. (... with stable presence; and possible sporadic presence of some other native host spp., and possible presence of 1 or more non native or non host spp.)	4 ★	2	1	4	2	4 ?
> 1 native host fish sp. (... with stable presence; and possible with sporadic presence of some other native host spp., and possible presence of 1 or more non native or non host spp.)	2 ★	1	1	1	3	4 ?

Native host fish: only considering recognised potential hosts for naiads (4 spp.): *Salaria fluviatilis*, *Squalius laietanus*, *Barbus meridionalis* & *Luciobarbus graellsii* (this species is actually no native from northeast Catalonia)

	<i>Unio mancus</i>	<i>Unio ravoisieri</i>	<i>Potomida littoralis</i>	<i>Anodonta anatina</i>
<i>Salaria fluviatilis</i>	1	-	-	1
<i>Squalius laietanus</i>	1	1	1	1
<i>Barbus meridionalis</i>	2	1	1	1
<i>Luciobarbus graellsii</i>	1	-	-	1

Interpretation	NATIVE NAIADS: PRESENT STATUS				
	Recently extinct	Meager population	No recruitment	Low recruitment	Normal recruitment
No fish	Extinct due to native fish disappearance, or to negative factors affecting both communities synergically	Naiad populations damned to vanish, unless an immediate recovery of fish community is produced.	Naiad populations probably damned to a drastic regression, unless a immediate recovery of fish community is produced. Some doubts about response of <i>A. anatina</i> , which may have an unknown host fish (non native).		
Non native host fish					
Only 1 native host fish sp.	Extinct due to any unknown factor/s, and most with recent recovery of fish community	Uncertain tenacity; possible recovery of some naiad populations, associated to an eventual recent recovery of fish community integrity.	Naiad populations mostly sure, and even some recovering from a worst former status, thanks to regular presence of native host fish; anyway, some of them maybe on slight decline.		
> 1 native host fish sp.					



FISH COMMUNITY: PRESENT INTEREST FOR CONSERVATION	NATIVE NAIADS: PRESENT STATUS				
	LOW	MEDIUM	HIGH	VERY HIGH	INDETERMINATE
No fish	6	-	-	-	-
Non native host fish	7	1	5	5	1
Only 1 native host fish sp.	6	0	7	2	4
> 1 native host fish sp.	4	1	4	1	5



These results emerge from several conservation projects: Projecte Estany (LIFE08 NAT/E/000078), LIFE Potamo Fauna (LIFE12 NAT/ES/001091), and other smaller projects funded by local and regional stakeholders ("Diputació de Girona" and "Generalitat de Catalunya").

INDEX OF INTEREST FOR CONSERVATION OF NAIADS:	
LOW (L)	No native naiads present
MEDIUM (M)	Only 1 sp. of native naiad present, without current recruitment.
HIGH (H)	Only 1 sp. of native naiad present, with current recruitment; or 2 spp. of native naiads present, independently of its current status.
VERY HIGH (VH)	At least 2 spp. of native naiads present, at least one of them with current recruitment; or > 2 spp. of native naiads present, independently of its current status.
INDETERMINATE (I)	Not enough information for proper evaluation, but with low evidences of low interest

Presence of *S. woodiana*