



River ecosystems: animal biodiversity WORKSHEET 1

1.1 Indicate some invertebrates characteristic of water courses.

1.2 Indicate animals living in the water surface? What physical property of the water they take advantage of.

1.3 Indicate some vertebrate species present in the acequias.

Mammals	
Birds	
Fishes	
Amphibian	
Reptils	



River ecosystems: animal biodiversity WORKSHEET 2

Elaborate one hypothesis or a question to solve during the research phase.

2.1 Debate in the group the hypotheses and/or questions.

2.2 Write the selected hypotheses/questions

2.3 What diversity index would you chose to measure biodiversity?.



River ecosystems: animal biodiversity WORKSHEET 3

3.1 Define sampling points

3.2 List the material you will need in the field to carry out the tasks

3.3 Which method(s) will you use to collect and conserve specimens

3.4 Indicate some identification guide you will use.

3.5 How a specimen collection can be prepared? (Annex II)

3.6 How do taxa files will e elaborated? (Annex III)



River ecosystems: animal biodiversity

WORKSHEET 4

With the information compiled on the former activities it can be prepared a collection of specimens collected on the fieldwork. Files will be prepared for chosen taxa.

A table of sampling point x taxa abundance will be prepared for the data analysis for the data analysis and graphing.



River ecosystems: animal biodiversity WORKSHEET 5

5.1 Draft the conclusions of the experimental part in relation to the animal biodiversity in the study area.

5.2 Plan the slides you are going to use in the presentation of the research.

Slide 1: _____

Slide 2: _____

Slide 3: _____

Slide 4: _____

Slide 5: _____

Slide 6: _____

Slide 7: _____

Slide 8: _____

Slide 9: _____

Slide 10: _____

5.3 Prepare the presentation



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River ecosystems: animal biodiversity

WORKSHEET 6

Relate the organisms sampled on the different sampling points with the environmental variables.



River ecosystems: animal biodiversity WORKSHEET 7

Divide the presentation in sections to be exposed by each of the members of the group. Write a script of the presentation:

- ✓ Introduction (Approach to the problem and hypothesis/research questions)
- ✓ Materials and methods
- ✓ Results and discussion
- ✓ References

Rehearse the exposition until you match it to the 10-minute limit with a clear and rigorous language.

ANNEX I

INFORMATION FOR THE STUDENT

WEBS

https://www.openstreetmap.org/relation/3257102_iderm.imida.es/Acequias/
<https://www.murcia.es/web/urbanismo/huerta1>
https://herbario.uniovi.es/c/document_library/get_file?uuid=cedc484e-1e46...
https://bos.uniovi.es/c/document_library/get_file?uuid=a0cfdeb1-8fb7-4bde...
bibliotecadigital.educarm.es/bidimur/i18n/catalogo_imagenes/grupo.cmd?path...
<https://es.slideshare.net/DesarrolloUrbanoPuebla/paleta-urbana-final>

LITERATURE

<https://es.slideshare.net/BorjaSarasola/catalogo-de-fauna-flora-y-arboles-singulares-de-la-cm>
<https://waste.ideal.es/galerias/moluscosdeaguadulce/moluscosdeaguadulce-galeria.htm>

IDENTIFICATION GUIDE OF MOLLUSCS

http://www.murcianatural.carm.es/c/document_library/get_file?uuid=08c2f7f9-4630-46c6-8a2d-1c72e84c2760&groupId=14

IDENTIFICATION GUIDE OF DRAGONFLIES

<https://www.asociacionanse.org/download/65/>
<https://www.asociacionanse.org/proyectos/odonatos-del-sureste>
<http://odonatosdemurcia.blogspot.com/>

SAMPLING, COLLECTION AND CONSERVATION METHODS

https://www.researchgate.net/profile/Gustavo_Darrigran/publication/277100637_Guia_para_el_estudio_de_macroinvertebrados_I-_Metodos_de_colecta_y_tecnicas_de_fijacion/links/5568586308aefcb861d3d006/Guia-para-el-estudio-de-macroinvertebrados-I-Metodos-de-colecta-y-tecnicas-de-fijacion.pdf

ANNEX II

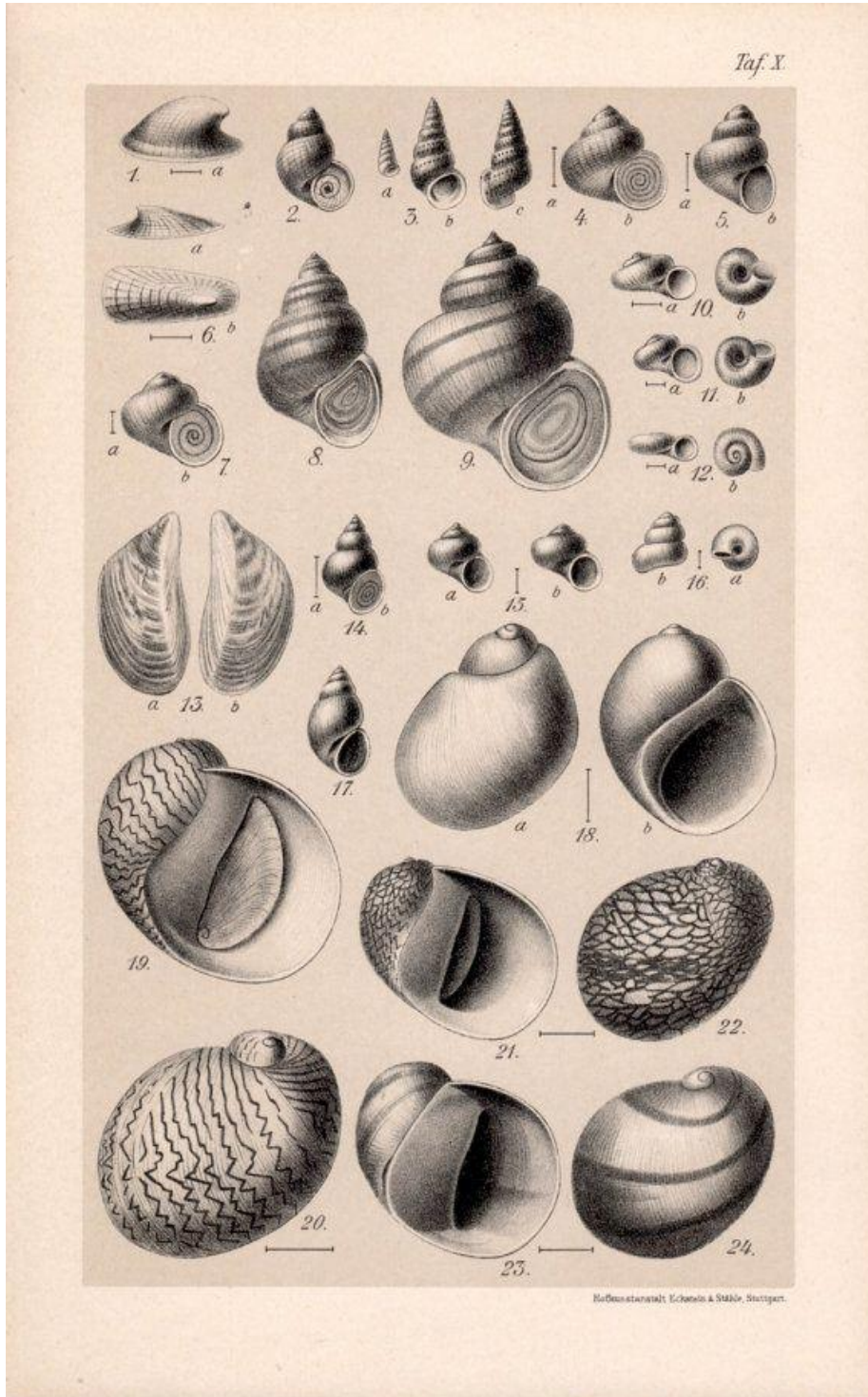
Labelling

Collection of			
Species		Common name	
Characteristics:		Date	/ /
		Collector's name:	
Site:		UTM Coordinate	
Habitat:		Register number	

Example

Family	Cruciferae
Genus	<i>Diplotaxis</i>
Species	<i>arvensis</i> (L.) DC.
Subspecies	[var. o subsp. <i>fulanita</i> , si acaso]
Observations	flores amarillas
Provincia	SEVILLA
Locality	Montellano, casco urbano, junto al Polideportivo
Habitat	Nitrofile pasture
Altitud	210
UTM	TF7097
Date	11.02.2004
Legit (recolectores)	C. Romero
Determinavit	C. Romero
Register number	0001/04

ANNEX III:
Collection of mollusc shells



EXAMPLE OF TAXON FILE

Scientific name:	
Common name(s):	
Family:	
Description:	
Location and environment:	
Characteristics:	
Measurments:	

Body	Detail 1	Detail 2	Detail 3

Planorbis planorbis



BIODIVERSITY

Students search information about animal and/or biodiversity on the webs splitted in three groups:

- First group: what biodiversity is ?
- Second group: why biodiversity is important?
- Third group: factors producing biodiversity loss.

Each group summarize their findings to the rest of the class,

Some important groups:

What do you understand by diversity? And by biodiversity? And by plant diversity?

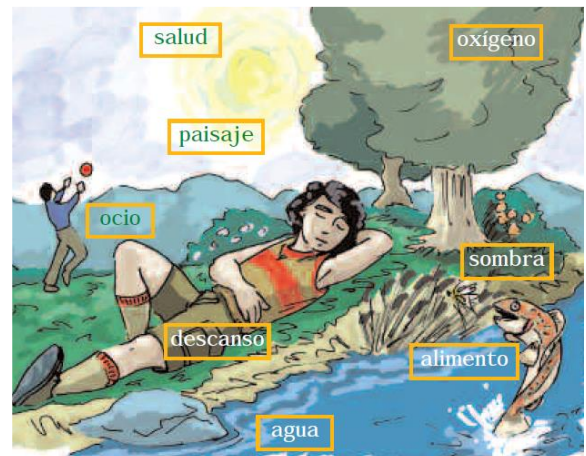
What services living beings do provide to the humankind?

Are these living beings mainly plants or animals?

What factors can influence biodiversity loss?

Are there reasons to conserve biodiversity?

What could we do about?



CALCULATION OF BIODIVERSITY

The basic table for diversity calculation is sampling x taxon abundance

Species	Abundance
1.	
2.	
3.	

Students can calculate species richness (number of species) or a more sophisticated index like Margalef's index:

$$D = (S - 1) / \ln N$$

D: diversity

S: number of species

N: total number of individuals.

Discussion of results will be centred on

- Are there differences in diversity between sampling points? Do the two indices have the same value?
- What could be the causes for differences in diversity between sampling points?
- Are some ecosystems naturally more diverse than others?

ANNEX IV

Comparison of animal communities used as reference of water quality, in the field and in the lab.

