A student research project on invasive plants and fishes: an effective educational tool.

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Goals and objectives

- Enhancing the insights of students regarding potentials & threats for biodiversity in quarries or novel ecosystems
  - Habitat for Nature 2000 and red list species;
  - Sensitive to invasion of exotic species;
- Invasive Butterfly bush : distribution & habitat specificity
- Invasive fish: biodiversity in central pond & measures to enhance fish biodiversity

Material and methods: Butterfly bush


NOVA
MERCK


1A
1B
2A
1B
2A

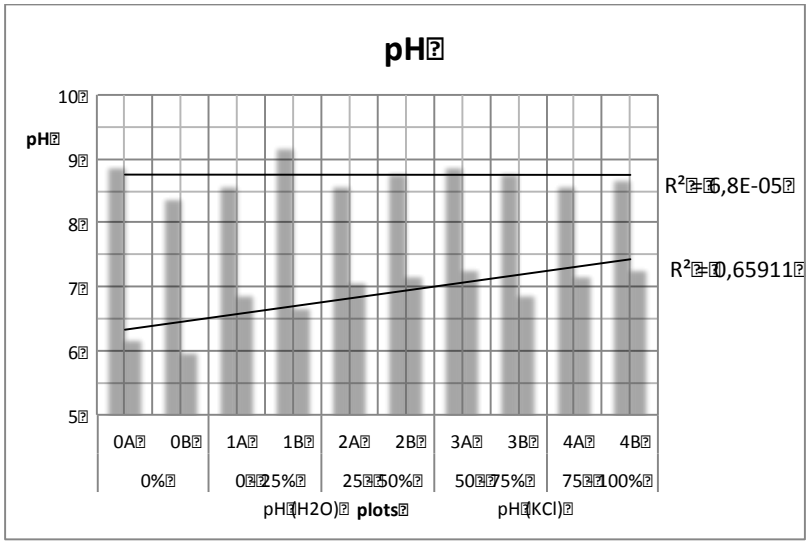
Butterfly bush – soil relation

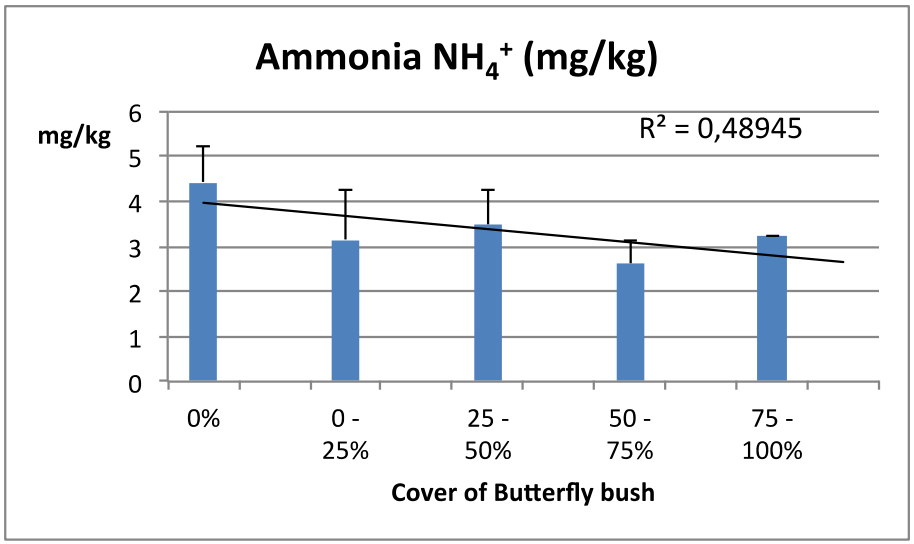
Cover *Buddleja davidii*	Plot	Observed plants of *Buddleja davidii*
0%	**0A**	0 plants
	0B	0 plants
0–25%	**1A**	2 small plants
	1B	2 small plants
25–50%	**2A**	6 small plants
	2B	4 plants
50–75%	**3A**	5 plants: 3 tall, 2 small
	3B	6 plants
75–100%	**4A**	5 plants, of which 1 very tall branched
	4B	8 plants, of which 3 small

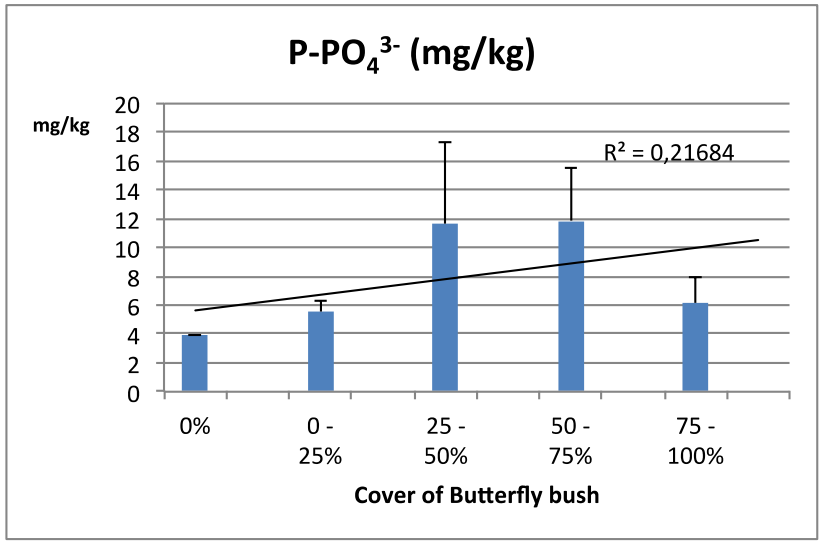
Material and methods: fish and amphibia

Elektrofishing

Results : Soil variables Butterfly bush







Results : Fish and amphibia in the central pond

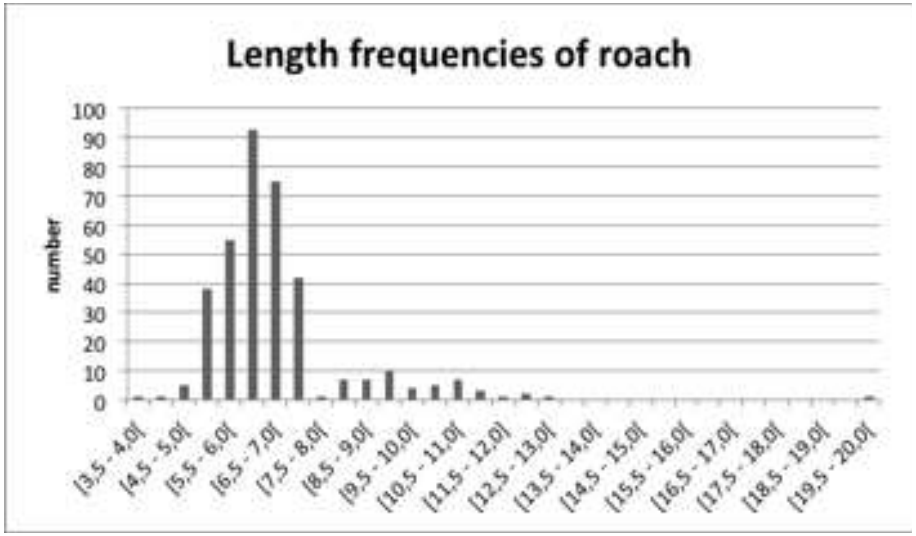
Species list:

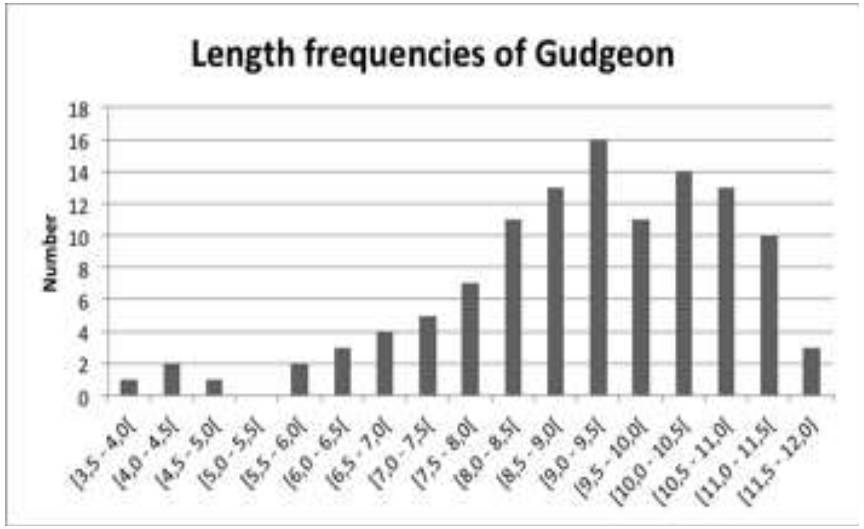
Amphibia:
Pelophylax esculenta synklepton
Rana ridibunda
Ichthyosaura alpestris

Pisces:
Carassius gibelio (1)*
Cyprinus carpio (113)*
Gasterosteus aculeatus (14)
Rutilus rutilus (359)
Gobio gobio (116)

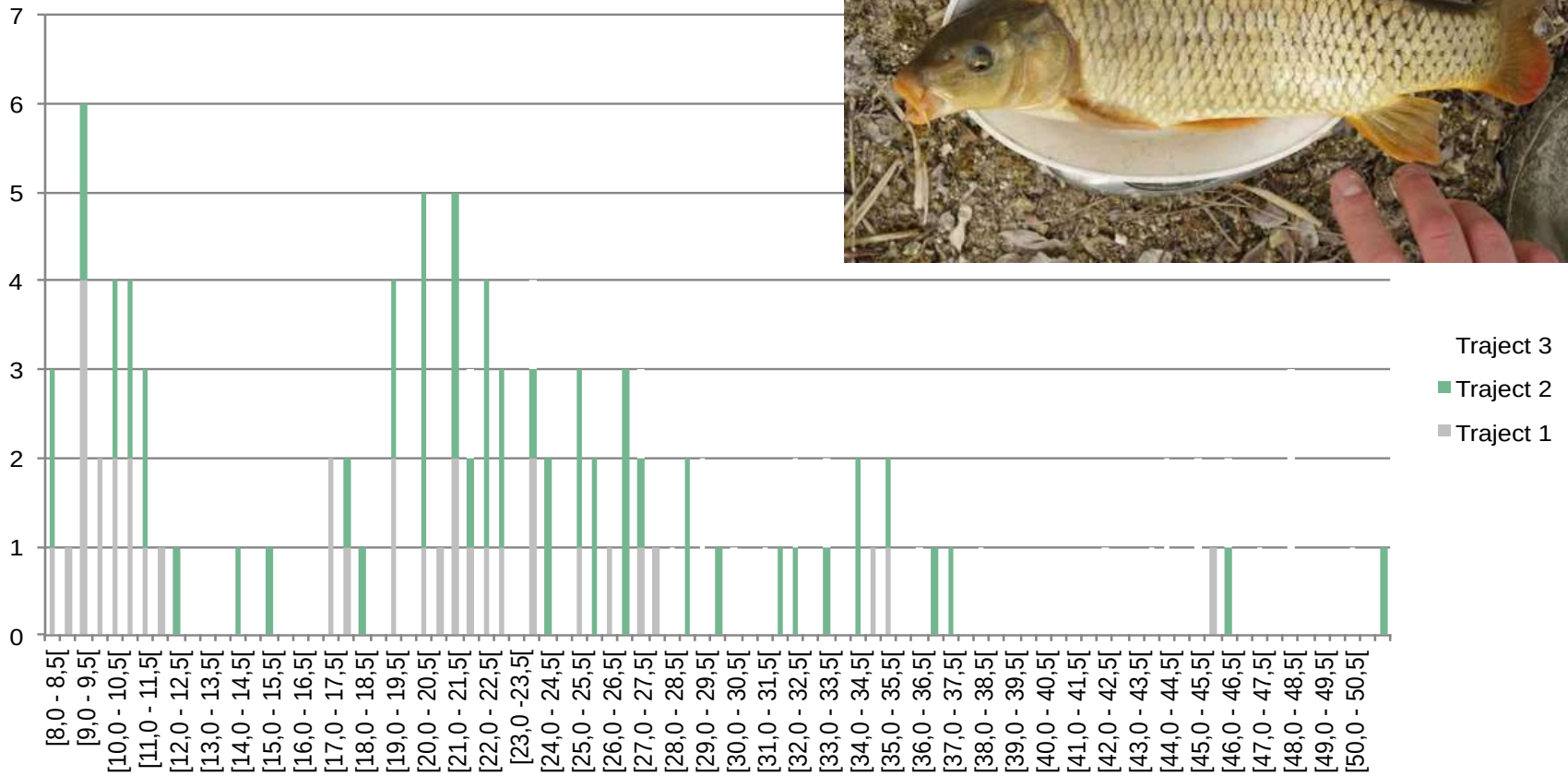
Amphibia

Fish : roach and gudgeon populations





Population of carp (*Cyprinus carpio*)



Outcome

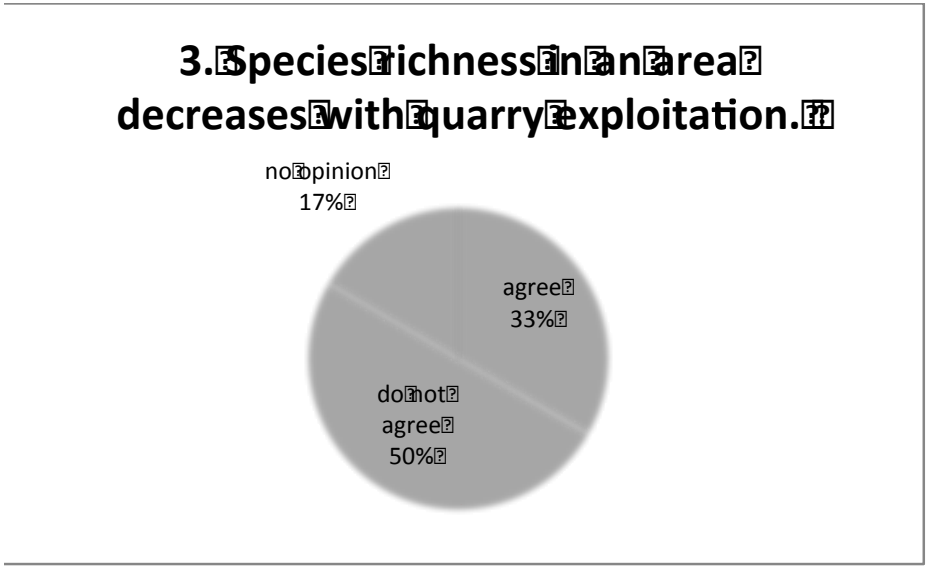
- Students management advise to control Butterfly bush (*B. davidii*) and restore chalk grassland;
- Students management advise to enhance the ecological quality of the pond and to control invasive carp (*C. carpio*).

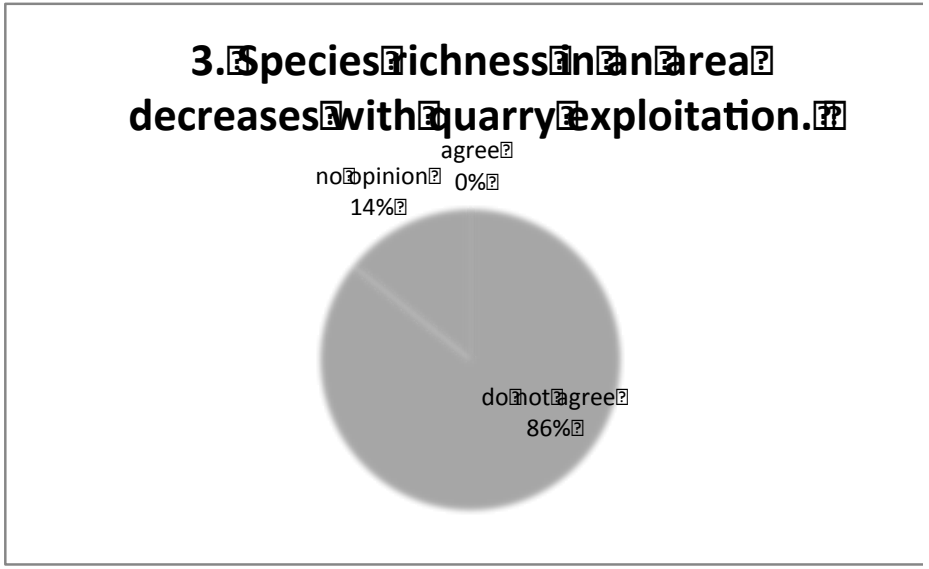
Conclusions

- Small differences in pH, nitrogen and phosphorus conc. in relation to cover of Butterfly bush
- Presence of Common carp population with negative impact of on native fish and especially reproduction in amphibians
- Survey among students before and after project

Learning effect

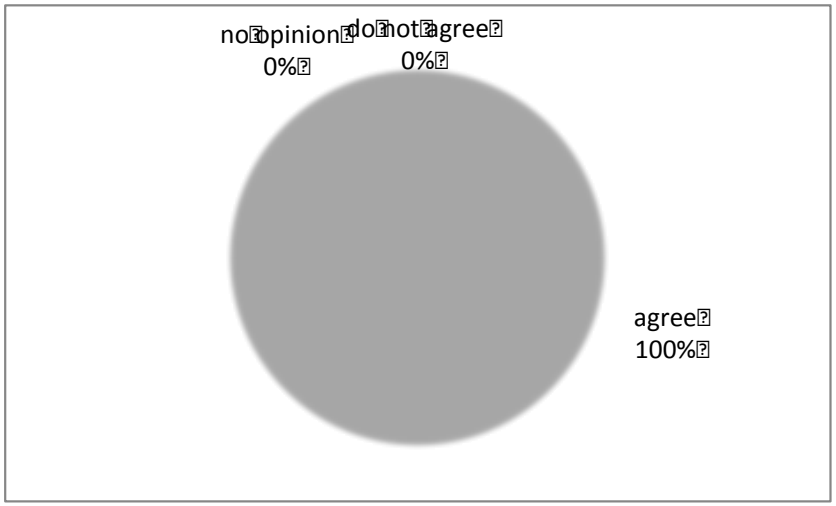
- Survey before and after project (and graduation)
- Questions related to quarrying, biodiversity, IAS



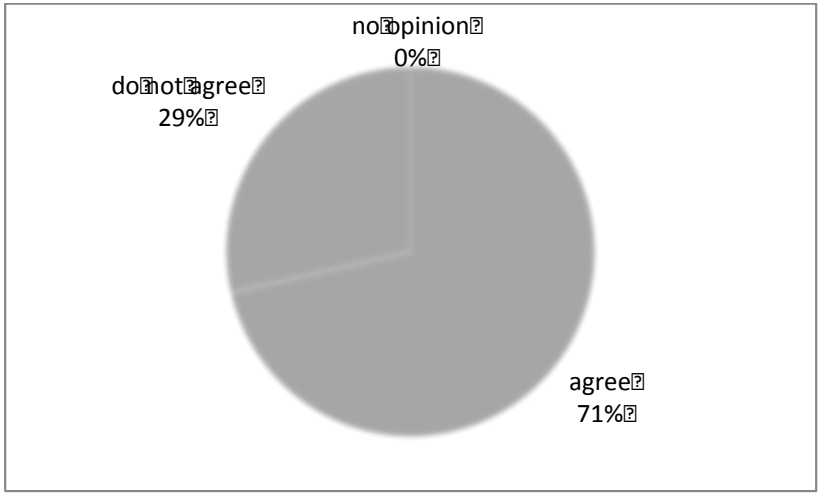


Learning effect

- This project changed my opinion in respect to opportunities that quarries create for nature conservation in a positive way



- This project changed my opinion in respect to potential threats formed by invasive alien species



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