ECOLOGICAL PLASTICITY OF FOUR INVASIVE POPULATIONS OF THE TOPMOUTH GUDGEON PSEUDORASBORA PARVA

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INTRODUCTION

- The topmouth gudgeon *Pseudorasbora parva* is a small cyprinid native to East Asia.
- It is one of the most widespread invasive species in Eurasia, being considered one of the most impactful invasive species worldwide.
- Nonetheless, there are only few studies on its ecology in Italy and information on its seasonal dietary variations are scanty.

MATERIALS AND METHODS

- Four populations in the Arno River basin (Central Italy) were sampled in the four seasons across one year.
- The populations' structure was determined by counting the annuli of the scales.
- The period of reproductive maturity was assessed by calculating the gonadosomatic index (GSI).
- Phenotypic differences among the four populations were investigated by counting these meristic traits: number of scales on the lateral line (**LL**), number of scales from the lateral line to the dorsal fin (**LLD**) and number of scales from the lateral line to the anal fin (**LLA**) (Fig. 1).
- The diet in each population and season was assessed through stomach content analysis.

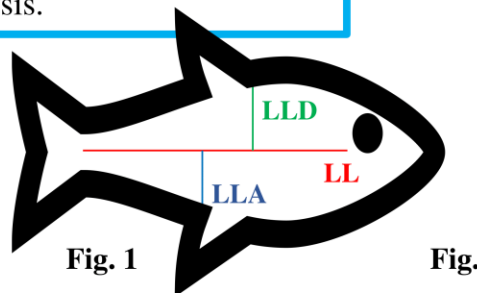

Fig. 1

RESULTS

- Each population showed a prevalence of intermediate age classes (Fig. 2).
- The GSI showed a similar pattern across all populations, with higher values in spring and summer (Fig. 3).
- There were significant differences in the morphology of the studied populations ($P < 0.001$).
- The diet varied across populations and seasons ($P < 0.001$), and the diet breadth varied among seasons, being more specialized in spring and summer, and more opportunistic during autumn and winter (Fig. 4).

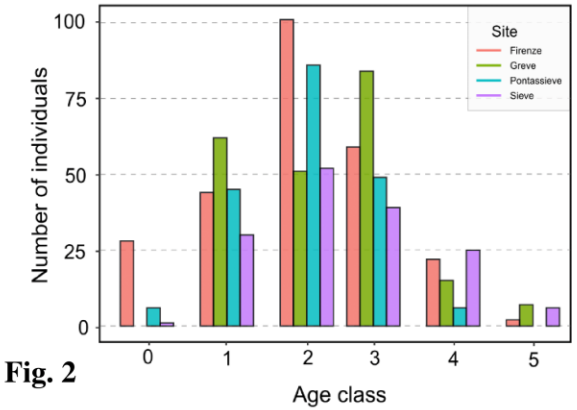

Fig. 2

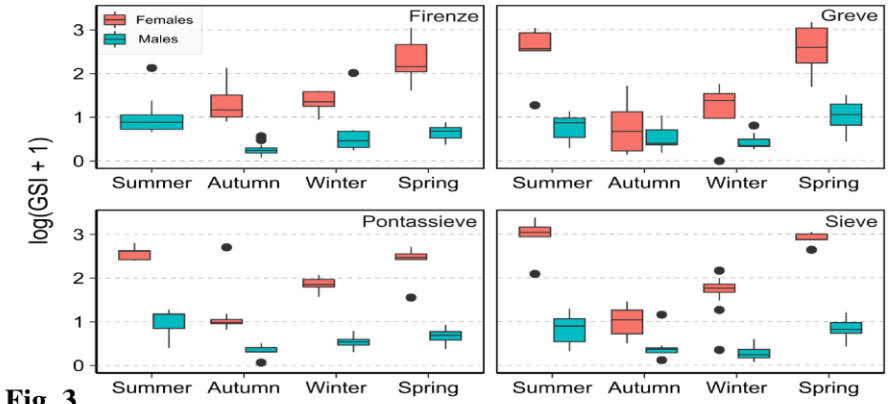

Fig. 3

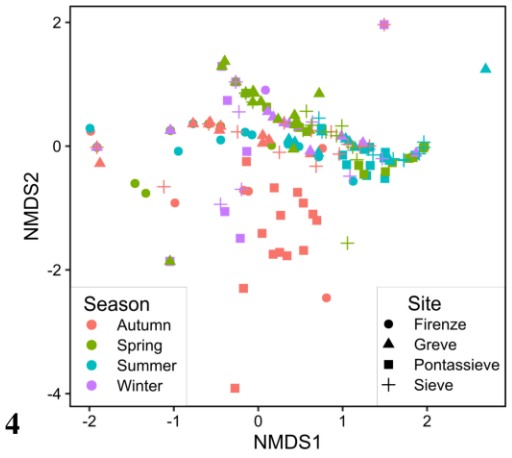

Fig. 4

DISCUSSION AND CONCLUSIONS

- The populations' structure reflect the natural mortality of younger and older age classes.
- The GSI indicated a long reproductive period.
- The morphological differences suggest a different origin or multiple introductions, or adaptation to different environmental conditions.
- The variability in the diet suggests a high degree of spatio-temporal trophic plasticity.
- High ecological plasticity in the invasive populations of *P. parva*, favouring its high invasiveness.