Improving the status of freshwater pearl mussel in the upper River X: habitat & population density factors

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1. Introduction

Several large recruiting populations of freshwater pearl mussel are present in the lower River X, Scotland. However, only small non-recruiting populations are present in the upper River. It is suspected that historically high levels of pearl fishing is the main driver behind this pattern– shallower water in the upper River is more accessible to pearl fishermen. However, the reasons for the current lack of recruitment and recolonization in the upper river remain unknown. This poster presents the methodology that will be used to assess habitat quality in the upper river to identify constraints on recruitment and potential reintroduction sites. Additionally, data collected from various Scottish rivers is presented that suggests smaller populations may be less likely to recruit.

2. Impact of population density

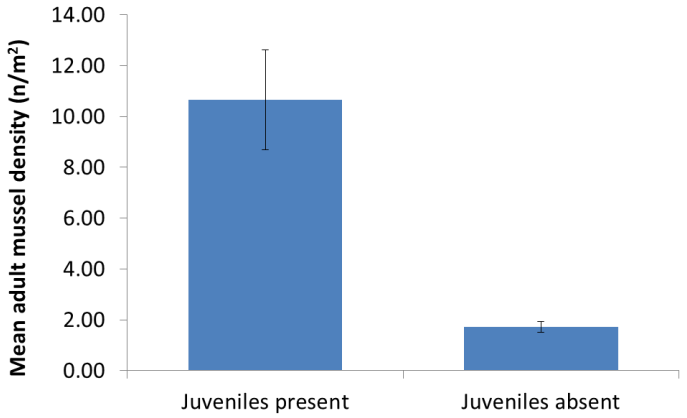


Fig 2 Mean adult mussel density in populations with and without juveniles. Populations with juveniles present have significantly higher mean adult density.

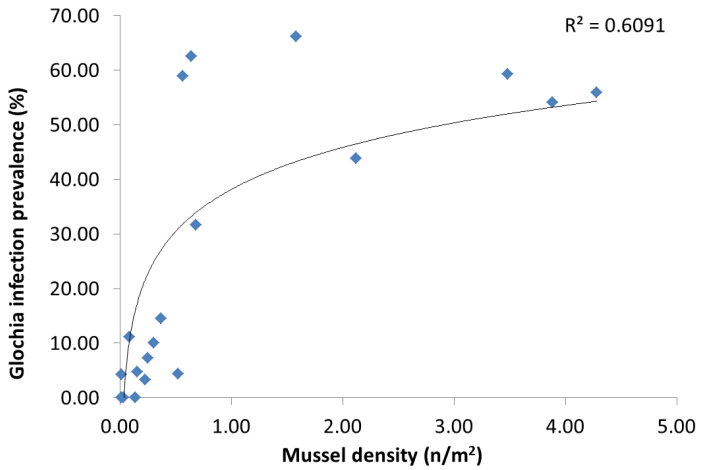
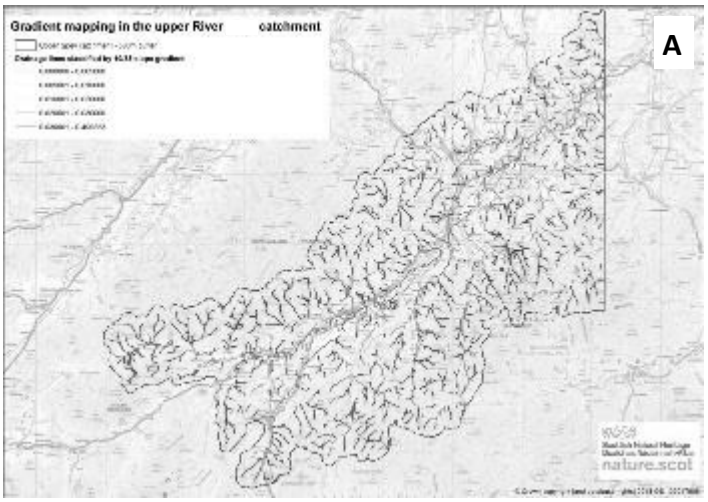


Fig 3 Relationship between mussel density and glochidia infection prevalence in host fish. There appears to be a positive relationship between mussel density and infection prevalence.

3. Habitat Survey Methodology







The habitat survey methodology will follow 3 stages. Firstly, spatial modelling of river gradient was conducted to allow selection of river stretches most likely to contain suitable habitat (A). Secondly, a visual assessment of the stability and suitability of river substrates was conducted in sections of river (B). Thirdly, in-depth surveys of the substrate quality will be conducted in the summer, including measurements of redox potential, penetrometer resistance, algal cover and near-bed river velocity (C).

4. Conclusion

The small populations in the upper River X may be less likely to successfully recruit, potentially due to lower glochidia infection prevalence. Along with possible habitat factors, this may be contributing to the lack of recruitment in the upper River X.