

**Behavioural traits of rainbow trout and brown trout may help explain their differing invasion success and impacts**

**Ciara L. O. McGlade<sup>1\*</sup>, James W. E. Dickey<sup>1,2,3</sup>, Richard Kennedy<sup>4</sup>, Shannon Donnelly<sup>1</sup>, Clare-Ann Nelson<sup>1</sup>, Jaimie T. A. Dick<sup>1</sup> & Gareth Arnott<sup>1</sup>**

<sup>1</sup> *Institute for Global Food Security, School of Biological Sciences, Queen's University Belfast, 19 Chlorine Gardens, Belfast, Northern Ireland, BT9 5DL, UK*

<sup>2</sup> *Leibniz-Institute of Freshwater Ecology and Inland Fisheries (IGB), 12587 Berlin, Germany*

<sup>3</sup> *Institute of Biology, Freie Universität Berlin, 14195 Berlin, Germany*

<sup>4</sup> *AFBI Aquatics Group, River Bush Salmon Station, Church Street, Bushmills, Northern Ireland, BT57 8QJ*

*\*Corresponding author*

## **Supplementary figures**

### **Figure S1**

Boxplots showing the number of bloodworms eaten during the feeding test by each trout type, with median and interquartile range plotted and overlaid with raw data points.

### **Figure S2**

Pearson's R coefficient for Rainbow trout for each of the correlations performed (significant correlations have colours, NA = no correlation performed due to overlapping test or behaviour variable (i.e. both boldness variables, or both from novel object test), white = correlation performed but not significant, red= -ve correlation, blue = +ve correlation). A: "activity" variables given along the top axis, with the relevant correlations listed down the side (i.e. boldness and aggression variables), B: "boldness" variables following the same format (against activity and aggression variables), and C: the correlations of all of the behavior variables against the fish mass and feeding rate.

### **Figure S3**

Pearson's R coefficient for diploid brown trout for each of the correlations performed (significant correlations have colours, NA = no correlation performed due to overlapping test or behaviour variable (i.e. both boldness variables, or both from novel object test), white = correlation performed but not significant, red= -ve correlation, blue = +ve correlation). A: "activity" variables given along the top axis, with the relevant

correlations listed down the side (i.e. boldness and aggression variables), B: “boldness” variables following the same format (against activity and aggression variables), and C: the correlations of all of the behavior variables against the fish mass and feeding rate.

#### **Figure S4**

Pearson’s R coefficient for triploid brown trout for each of the correlations performed (significant correlations have colours, NA = no correlation performed due to overlapping test or behaviour variable (i.e. both boldness variables, or both from novel object test), white = correlation performed but not significant, red= -ve correlation, blue = +ve correlation). A: “activity” variables given along the top axis, with the relevant correlations listed down the side (i.e. boldness and aggression variables), B: “boldness” variables following the same format (against activity and aggression variables), and C: the correlations of all of the behavior variables against the fish mass and feeding rate.

#### **Figure S5**

The experimental set-up for each of the behaviour tests. A: Open Field Test, B: Disturbance/Novel Object tests, C: Shelter/Predation tests, D: Mirror test, E: Group Disturbance/Novel object tests.

#### **Figure S6**

Flowchart illustrating the order of the individual and group tests. Functional response experiments were also performed separately on fish not involved in these experiments.

Figure S1

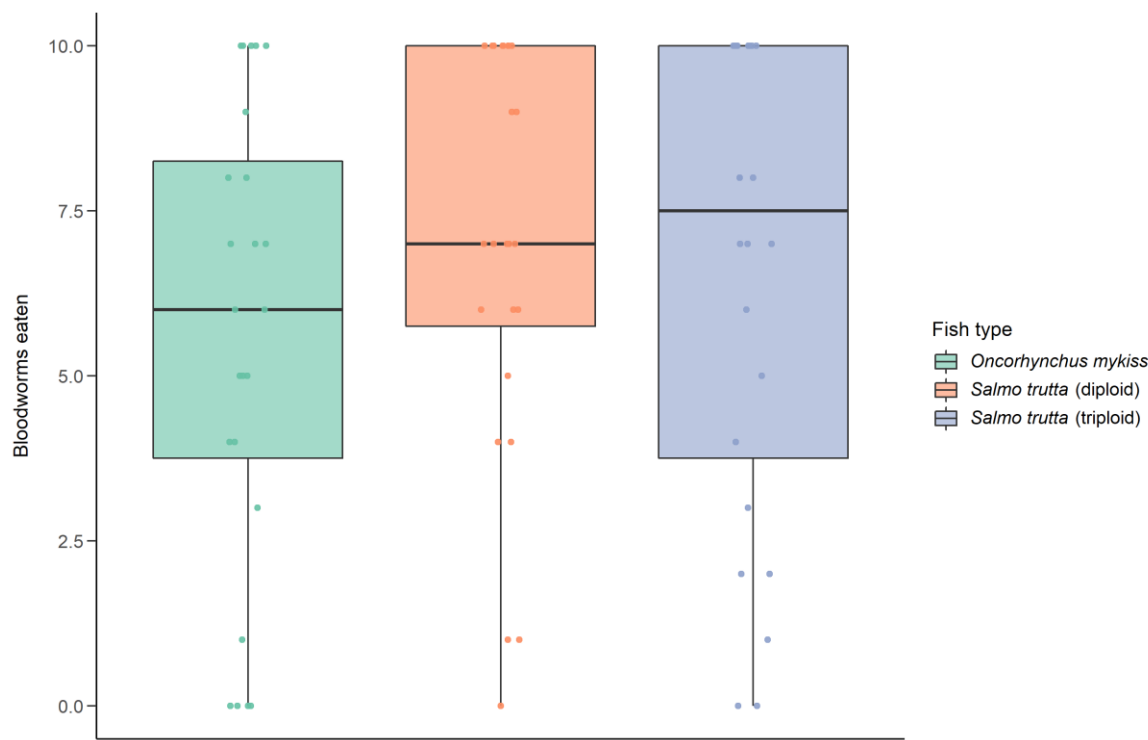


Figure S2

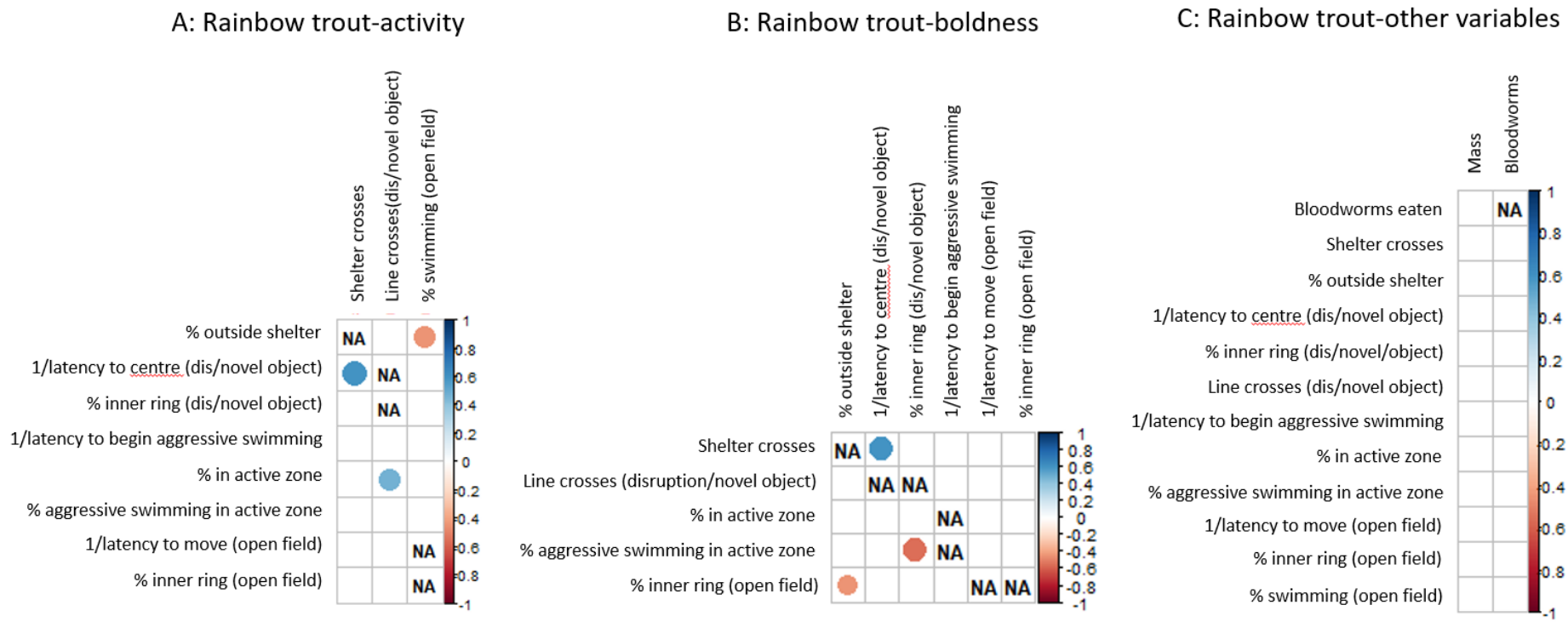
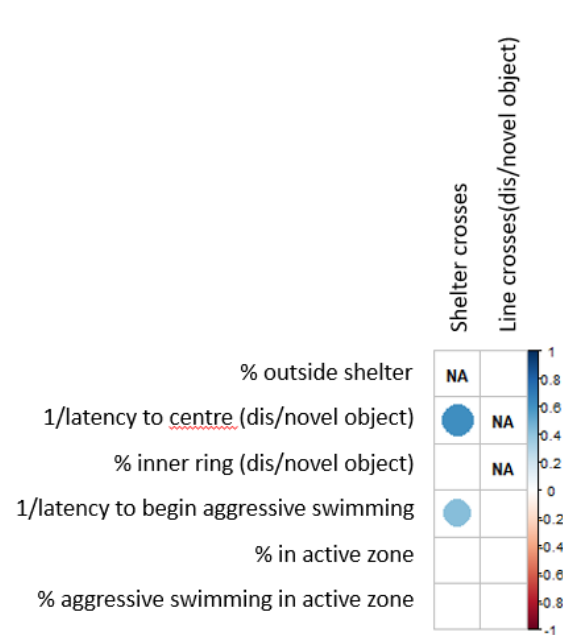
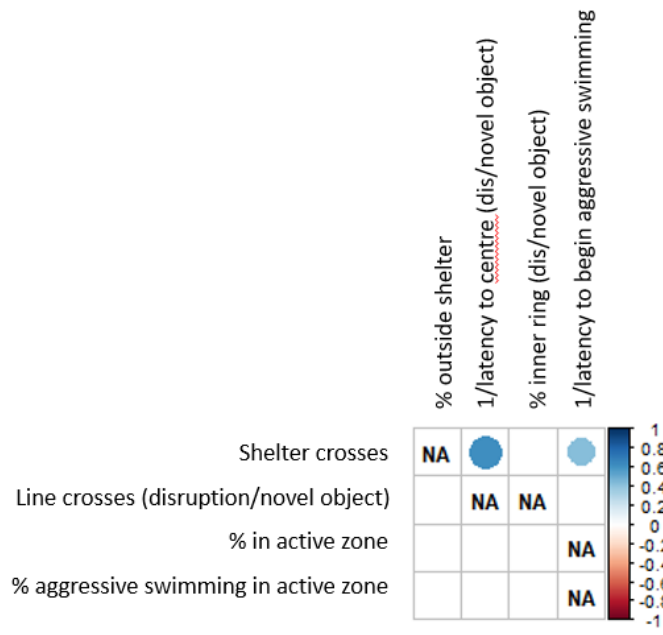


Figure S3

A: Diploid brown trout-activity



B: Diploid brown trout-boldness



C: Diploid brown trout-other variables

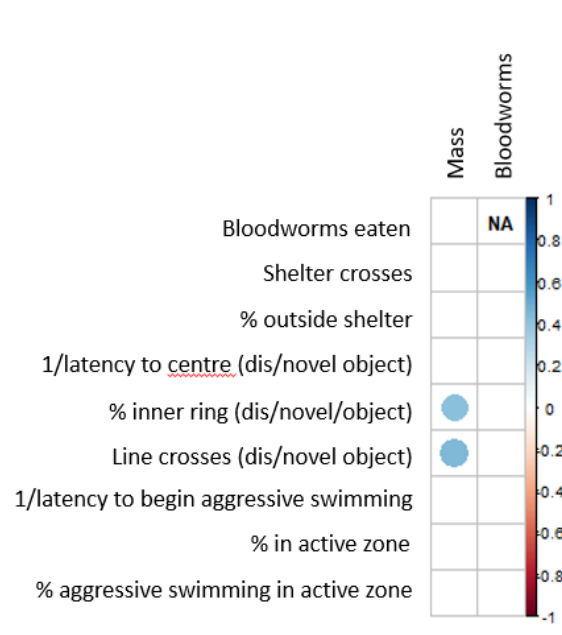


Figure S4

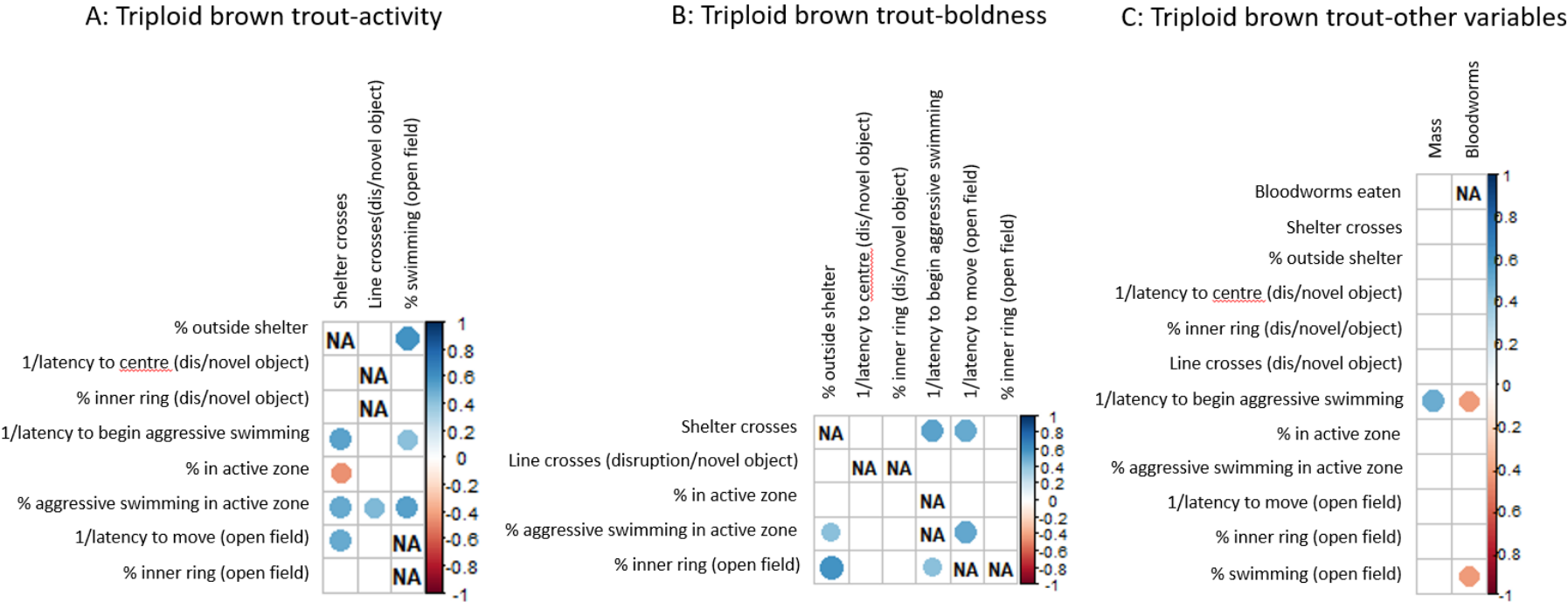
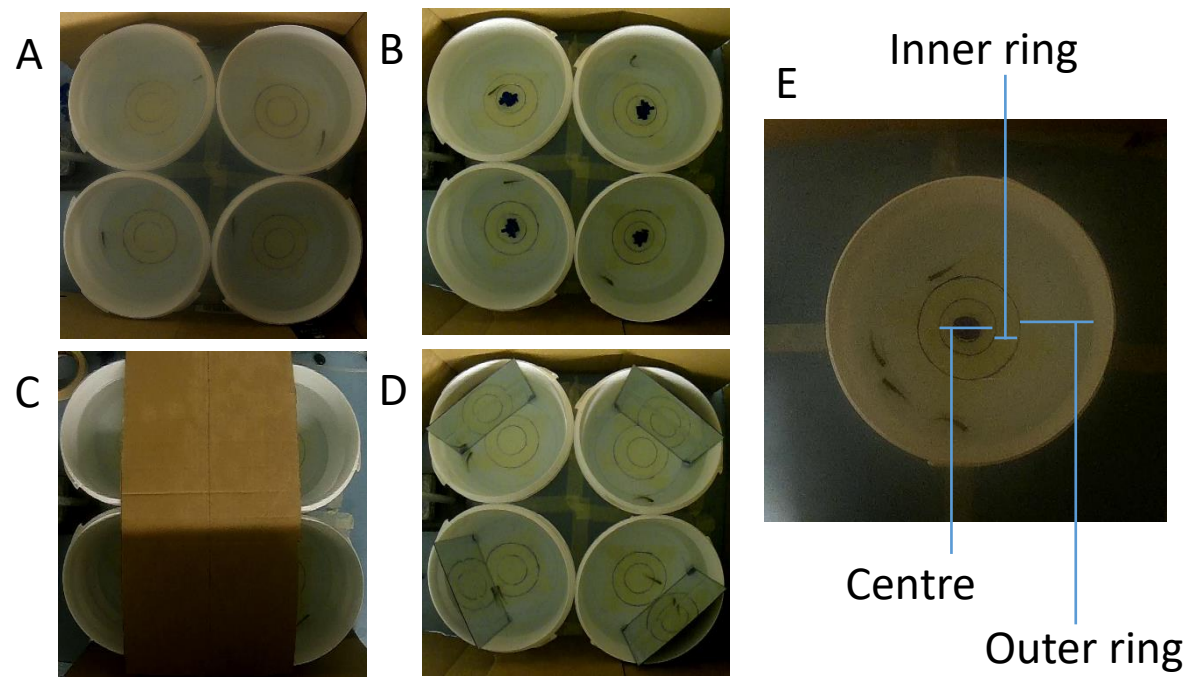


Figure S5



**Figure S6**

