Data from: Trait-mediated functional responses: predator behavioral type mediates prey consumption

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Abstract

1. The predator functional response (i.e. per capita consumption rate as a function of prey density) is central to our understanding of predator-prey population dynamics. This response is behavioral, depending on the rate of attack and time it takes to handle prey. 2. Consistent behavioral differences between conspecific individuals, termed behavioral types, are a widespread feature of predator and prey populations but the effects of behavioral types on the functional response remain unexplored. 3. We tested the effects of crab (Panopeus herbstii) behavioral type, specifically individual activity level, on the crab functional response to mussel (Brachidontes exustus) prey. We further tested whether the effects of activity level on the response are mediated by the presence of toadfish (Opsanus tau) predation threat in the form of waterborne chemical cues known to reduce crab activity level. 4. The effects of crab activity level on the functional response were dependent on crab body size. Individual activity level increased the magnitude (i.e. slope and asymptote) of the type II functional response of small crabs, potentially through an increase in time spent foraging, but had no effect on the functional response of large crabs. Predation threat did not interact with activity level to

influence mussel consumption, but independently reduced the slope of the type II functional response. 5. Overall, this study demonstrates size-specific effects of a behavioral type on a predator-prey interaction, as well as a general pathway (modification of the functional response) by which the effects of individual behavioral types can scale up to influence predator-prey population dynamics.

Usage Notes

Data from: Trait-mediated functional responses: predator behavioral type mediates prey consumption

This data is from an experiment where the activity level (behavior) and mussel prey consumption rate of individual crabs was measured at a range of mussel prey densities, and in the absence and presence of chemical cues from toadfish, a predator of crabs.
Data.csv

References

This dataset is supplement to https://doi.org/10.1111/1365-2656.12236

Location

USA

North Inlet estuary

Georgetown

South Carolina

Keywords

oyster reef, Panopeus herbstii, food web, Interaction strength, Crassostrea virginica, Opsanus tau, boldness, Brachidontes exustus, Cenozoic, animal personality, behavioral syndrome

Files

1 files for this dataset

Data.csv	17.84 kB	text/csv

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