Data from: Quantifying predator dependence in the functional response of generalist predators

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Abstract

A long-standing debate concerns how functional responses are best described. Theory suggests that ratio dependence is consistent with many food web patterns left unexplained by the simplest prey-dependent models. However, for logistical reasons, ratio dependence and predator dependence more generally have seen infrequent empirical evaluation and then only so in specialist predators, which are rare in nature. Here we develop an approach to simultaneously estimate the prey-specific attack rates and predator-specific interference (facilitation) rates of predators interacting with arbitrary numbers of prey and predator species in the field. We apply the approach to surveys and experiments involving two intertidal whelks and their full suite of potential prey. Our study provides strong evidence for predator dependence that is poorly described by the ratio dependent model over manipulated and natural ranges of species abundances. It also indicates how, for generalist predators, even the qualitative nature of predator dependence can be prey-specific.

Usage Notes

Zip archive containing feeding observations, estimated species densities, and estimated handling times

File names correspond to each of three 'cases': experimental cages, natural (unmanipulated) patches, and natural (manipulated) patches. For each case, files include data on (i) estimates of predator and prey mean densities (#/m^2), (ii) summaries of feeding counts by prey species, (iii) raw individual-level feeding observations, (iv) summary of estimated mean handling times (hours), (v) summary of predator-prey size ratios.
Novak.etal_ELE_data.zip

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References

This dataset is supplement to https://doi.org/10.1111/ele.12777

Location

Oregon

Keywords

consumer dependence, mutual predator effects, Nucella canaliculata, interaction modification, Food webs, Balanus glandula, Beddington-DeAngelis functional response, prey preference, per capita attack rates, interaction strengths, Mytilus trossulus, Nucella ostrina

Files

1 files for this dataset

Novak.etal_ELE_data.zip	43.55 kB	application/zip

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