
Prospects of recommending management interventions on the basis of formal population viability analysis with scarce data.

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Abstract

Session: Issues with causation in Biology (Wes Anderson, Bruce Glymour, Jun Otsuka)
One problem in conservation biology is the calculation of the probability of quasi-extinction times, given some interventions, for all times of concern. Formal population viability analysis (PVA) is taken to have as one of its tasks just this sort of calculation. In the textbook models of quantitative conservation biology, moreover, it is encouraged that conservation biologists use classic models such as exponential or logistic growth models with error terms as the basis of PVA when data is scarce. Indeed, this is encouraged over relying on more informal methods of PVA such as asking experts for their opinions, for example. I ask whether such formal PVA, in general, can generate the required probability calculations when only scarce data is available. Ultimately, I think the prospects for such PVA are dim. The point can be made in two ways. First, in general, there is simply not enough data to expect reasonably accurate parameter estimates. Second, because certain demographic and environmental causes of quasi-extinction time—other than population size—are not taken into account, error in predicting the effects of hypothetical interventions will typically be unbounded. Following the arguments for these claims, I examine some counter-arguments and find them to be lacking.

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