The Economics of Classical Biological Control: A Meta-Analysis of Historic Literature and Suggested Framework for Future Studies

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Abstract

Classical biological control (CBC) programs are initiated to protect natural resources, agricultural and other human interests. CBC programs typically involve an investment of public funds and their success is often determined by welfare measures such as benefit/cost analyses. An initial review of the literature shows previous efforts at measuring program benefits in monetary terms have often been incomplete and/or misguided. This review reveals that the basic analytical challenge can be broadly traced to two areas; project benefits lacking marketable measures and confusing or under reporting of project costs and benefits. The economics of CBC projects should be analyzed within the neo-classical economic view of supply and demand. On the supply side, costs are expenses directly related to project development and implementation. These include all direct expenditures necessary to locate and test the control agent and affect its release. These costs are typically covered by public funds and justified by the public nature of the anticipated project benefits. However, cost should also include any value lost to agents as a result of the project’s success. On the demand side, agents with marketable goods and services that benefit from the project will provide a direct measure of the economic gain. Furthermore, their gains will lead to an indirect benefit or ripple effect through the economy. However, there are also benefits that lack market value and include items such as improved ecological services and other non-market activities such as improved fishing, hunting, etc. CBC projects would benefit from a strategic approach to assessing their economic efficiency. A meta-analysis of the use of economics in historic CBC literature is conducted and an analytical framework introduced to guide future benefit/cost studies for CBC projects. The framework will help generate support for CBC programs by providing a clear guideline for their effective economic evaluation.