

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Predicting Ecosystem Response to Perturbation from Thermodynamic Criteria**<sup>1</sup> KARO MICHAELIAN, Instituto de Fisica, Universidad Nacional Autonoma de Fisica, VASTHI ALONSO-CHAVEZ, Instituto de Fisica, Universidad Nacional Autonoma de Mexico — The response of ecosystems to perturbations is considered from a thermodynamic perspective by acknowledging that, as for all macroscopic systems and processes, the dynamics and stability of ecosystems is subject to definite thermodynamic law. For open ecosystems, exchanging mass and energy with the environment, the thermodynamic criteria come from non-equilibrium or irreversible thermodynamics. For ecosystems during periods in which the boundary conditions may be considered constant, it is shown that criteria from irreversible thermodynamic theory are sufficient to permit a quantitative prediction of ecosystem response to perturbation.

<sup>1</sup>We are grateful for the financial support of DGAPA-UNAM, project IN118206

Karo Michaelian  
Instituto de Fisica, Universidad Nacional Autonoma de Mexico

Date submitted: 18 Dec 2006

Electronic form version 1.4