NRESi

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RESEARCH COLLOQUIUM SERIES

Dr. Bill McGill

Professor, Ecosystem Science & Mgmt Program, UNBC

Friday

Jan. 20, 2012

3:30 - 4:30

LECTURE THEATRE

7 - 152

ARE ECOSYSTEMS FRAGILE?

One hears much about loss of diversity and fragile ecosystems both in the scientific literature and the more accessible media. Energy is directed to protecting fragile species, communities and areas to prevent global catastrophe. What do these terms mean and is the current discussion informative?

This colloquium explores the meaning and evidence for the term "fragile ecosystem" and associated or derivative terms. It provides evidence around: 1) concepts of fragility; 2) methods of measuring fragility, diversity and their connection to ecosystem productivity; 3) indictors of decline in biodiversity; and, 4) problems with estimation of species extinctions. This leads to some heuristic questions such as "why are alien species ecologically bad?", "if some parts of the globe have more generalist species and others have more specialized species why is it undesirable if the range of generalist species increases?", "are ecosystem dynamics being conflated with fragility?", "is fragility even a useful concept"?

In light of the foregoing questions, examples are presented that suggest ecosystems and nature are not fragile, that human activity has generated new and currently desired ecosystems, and that changing suites of organisms over the last 3 billion years have driven the most profound changes on earth including atmospheric oxygen, global glaciations (snowball earth) and development of the Phanerozoic. It is concluded that we may protect against global catastrophe by directing our energies to globally significant planetary scale processes and boundaries rather than local processes for which there is no evidence of global scale thresholds.

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