



Lectures' Outlines – Prof. Steve POLASKY

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LECTURE 1:

BIODIVERSITY CONSERVATION AND ECONOMIC RETURNS ON A LANDSCAPE

Habitat loss and fragmentation are a major threat to biodiversity. These processes are driven by economic considerations in which people convert land to human dominated uses in order to produce goods and services. Conserving biodiversity, therefore, requires addressing the degree to which biodiversity conservation can be consistent with earning economic returns. In this talk, I will discuss spatially explicit models for analyzing the consequences of alternative land use patterns on biodiversity conservation, specifically species persistence, and on economic returns from the production of goods and services. The biological model uses habitat preferences, habitat area requirements and dispersal ability for each species to predict the probability of persistence of that species given a land use pattern. The economic model uses characteristics of the land unit and location to predict the value of commodity production given a land use pattern. The combined biological and economic models are used to search for efficient land use patterns in which the conservation outcome cannot be improved without lowering the value of commodity production. These methods are illustrated with data on for the Willamette Basin in Oregon.



LECTURE 2:
TRADE LAND-USE AND BIODIVERSITY

How might trade patterns affect biodiversity? In this talk I will investigate several possible linkages between trade and biodiversity, including an approach that combines a simple trade model with a species–area curve to derive the effect of trade on biodiversity conservation. Trade causes specialization in production that drives specialization in ecosystems and their associated biodiversity. When trading partners contain similar species in autarky, trade has little effect on global biodiversity but lowers local biodiversity. On the other hand, with high endemism, specialization causes significant declines in both local and global biodiversity. If preferences for biodiversity conservation are sufficiently high, overall utility may decline with a move toward free trade unless corrective conservation policy is instituted.