

Ecosystem Services: Background Concepts and Economics

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Ecosystem Services

- **Ecosystem services are the goods and services derived from natural and managed ecosystems upon which human welfare depends**

The Diversity of Ecosystem Services-Examples

- Fresh water
- Water supply and ground water recharge
- Flooding
- Habitat
- Soil
- Maintenance of air quality
- Noise abatement
- Nutrient storage and recycling (N, P)
- Pollution control and detoxification
- Pollination of crops
- Maintenance of biological and genetic diversity
- Eco-tourism, recreation
- Food and biofuels

Wetland Ecosystem



Riparian Ecosystem



Working Agricultural Landscapes and Ecosystem Services: these Productive Lands Produce

- Traditional Agricultural Commodities—these have well established markets**
- Ecosystem Services —in most instances these have no markets, hence there are no market values; consequently, landowners whose land generate these ecosystem services cannot derive a stream of income from providing them and they have no incentive to continue providing them**

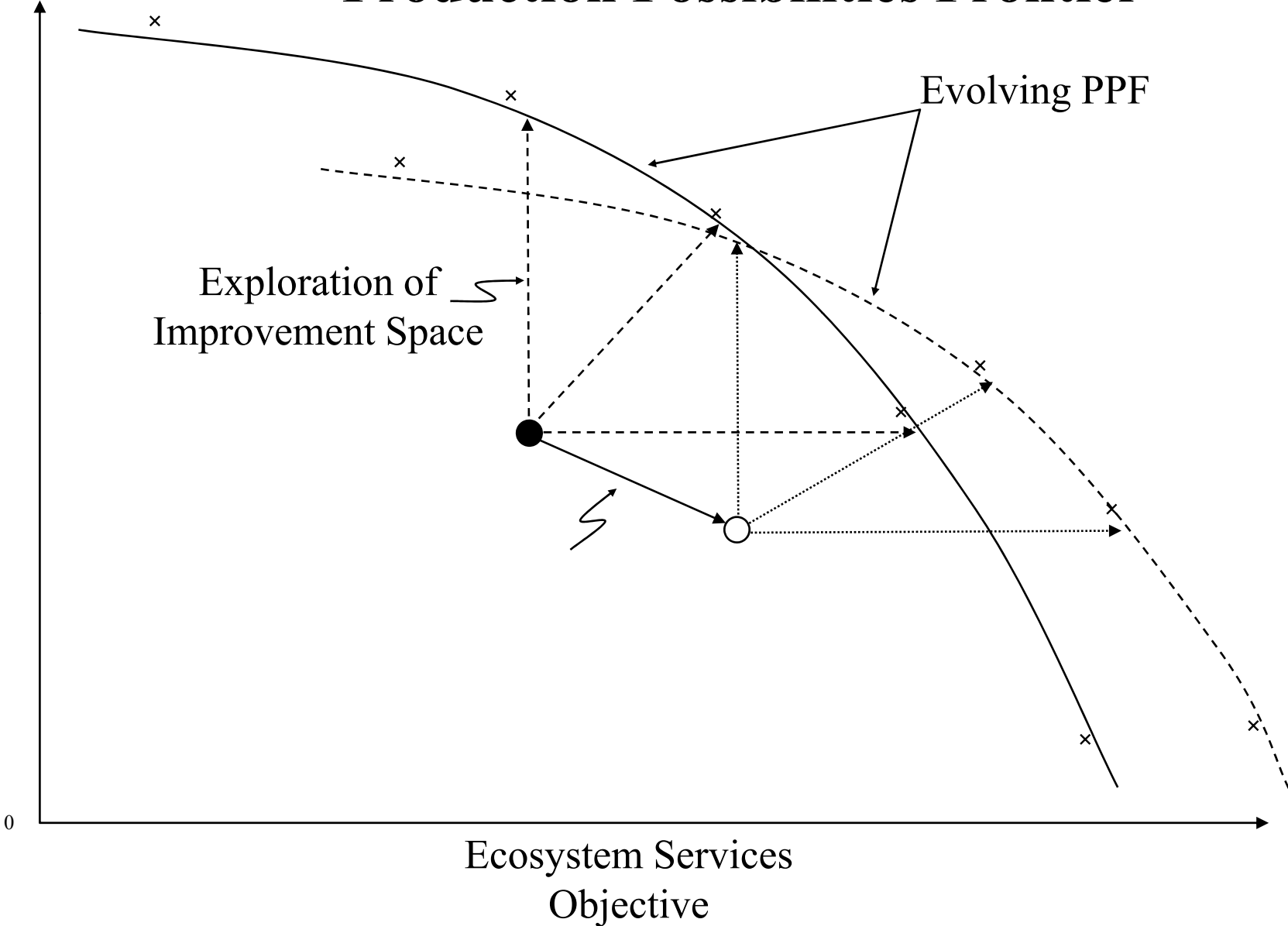
Ecosystem Services

- Changes in land use, e.g., result in changes in the flow of ecosystem services



The Evolving Ecological-Economic Production Possibilities Frontier

Monetized Objectives



Ecosystem Services and Policy

- **Agriculture: Multifunctionality**
the existence of **multiple commodity and noncommodity outputs** that are jointly produced by agriculture and its working landscape
- **WTO trade negotiations** –gov'ts can pay farmers for the provisioning of ecosystem services and still be WTO compliant as long as such payment are not trade distorting

Ecosystem Services and 2007 Farm Bill

- Some of the proposals for the 2007 farm bill include scenarios for paying farmers to provide and/or maintain/enhance one or more ecosystem services
- Encourage market development for ecosystem services
- Protection of water quality with riparian buffers
- Carbon sequestration
- Wildlife habitat

Ecosystem Services and Policy

- Maintenance or enhancement of the flows of ecosystem services
- Systems approach to understanding the relationships between a landscape providing ecosystem services and traditional agricultural commodities
- Challenge for the 21st Century—future viability of ecosystem services in adequate quality, quantity, and timing and location of availability
- Questions