Ecoagriculture Landscapes: Towards a Green Strategy for Food Security

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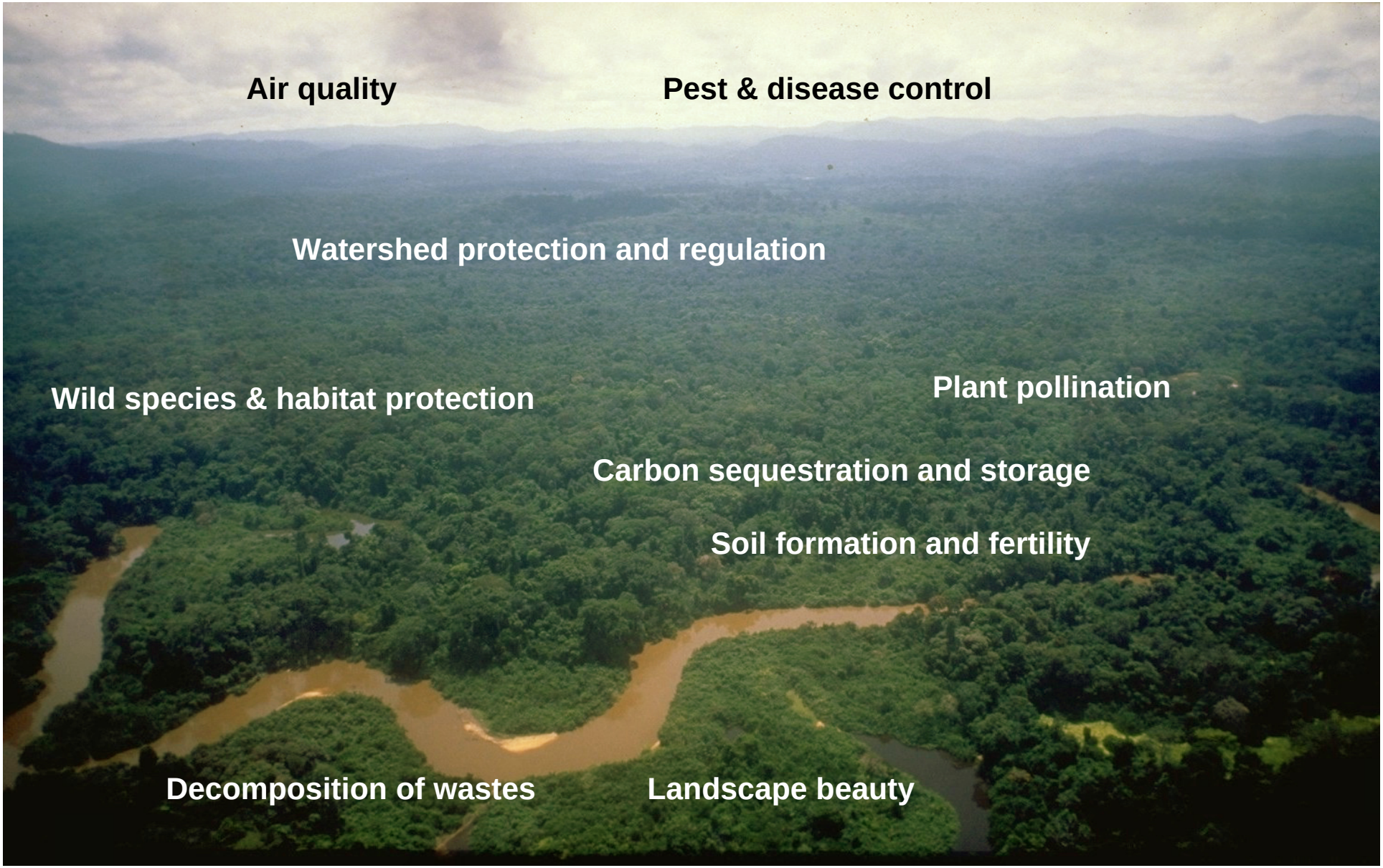
Challenges for agricultural production in the 21st century

- Reduce rural food insecurity
- Reduce rural poverty
- Secure urban food supply
- Meet global demand for food rising by 50-100% by 2030
- Provide biofuel energy
- Adapt to climate change
- Restore degraded resources
- Reduce the ecological 'footprint'-- ***produce ecosystem services***

The "unsinkable" Titanic…

Global food security in the 21st century?

Agriculture depends on our “natural infrastructure”



Farming communities depend on biodiversity & ecosystem services

Direct

- Nutrition: direct consumption of wild plants and game; micro-nutrients, “safety net”
- Medicines
- Fuel and construction materials
- Farm inputs (fodder, fertilizer, packaging)
- Income from sale of wild species
- Quality water supply for domestic use
- Reliable irrigation water supply
- Pollinate crops, key wild species
- Cultural, spiritual, aesthetic value

Indirect

- Maintain soil fertility
- Maintain healthy human habitat
- Maintain microclimate for crops
- Pest & disease control
- Nutrient cycling, detoxification
- Wild crop/livestock relatives

Half the world's land resources are affected by crop production

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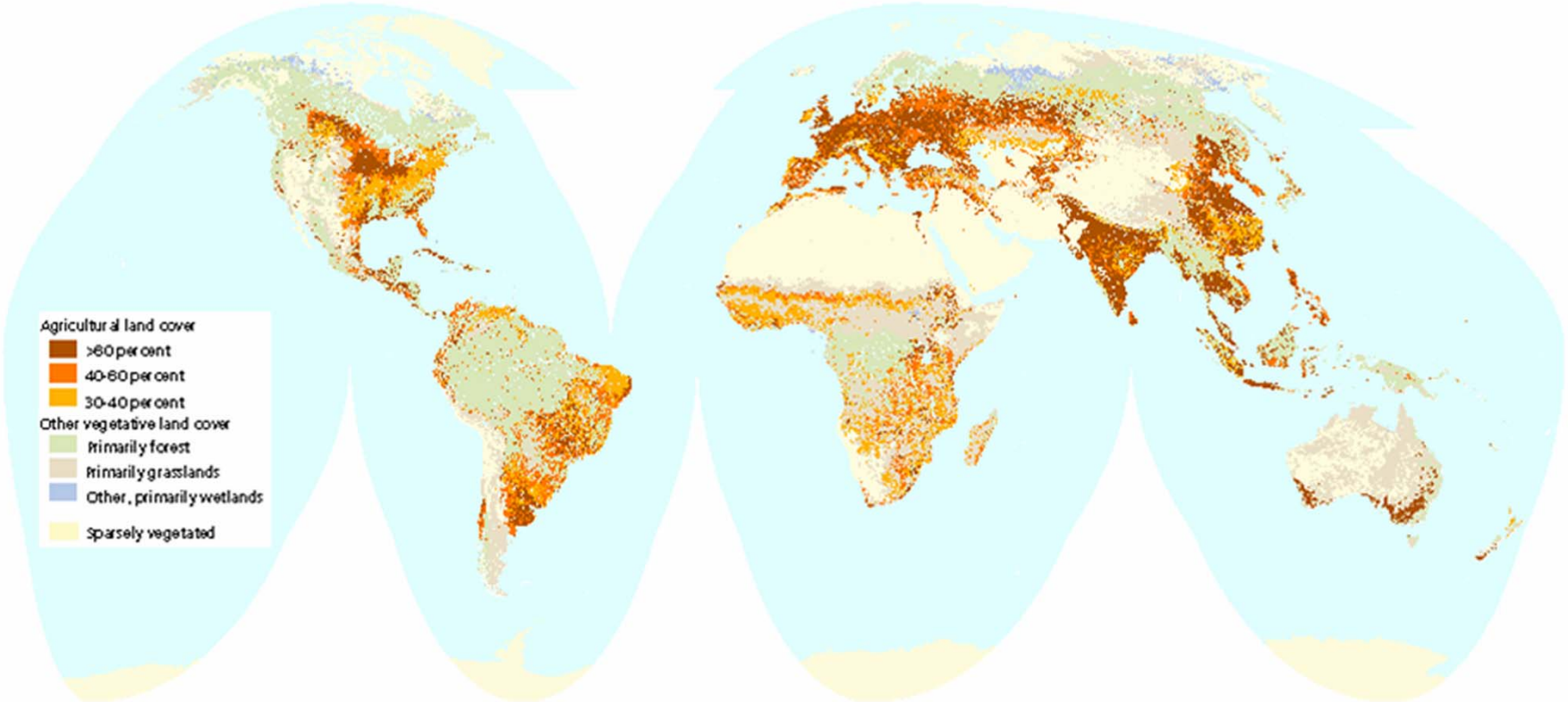
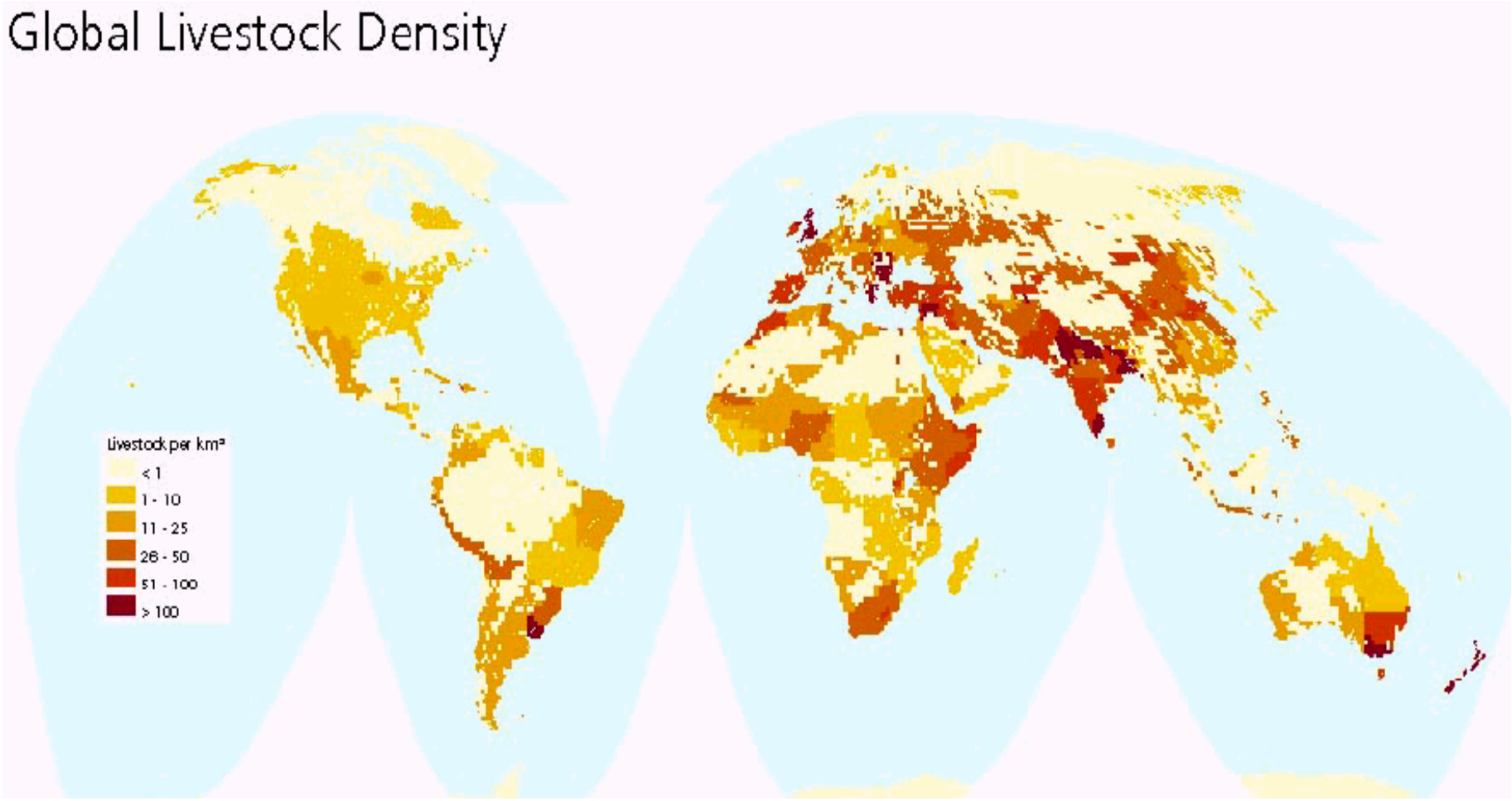
Map 1

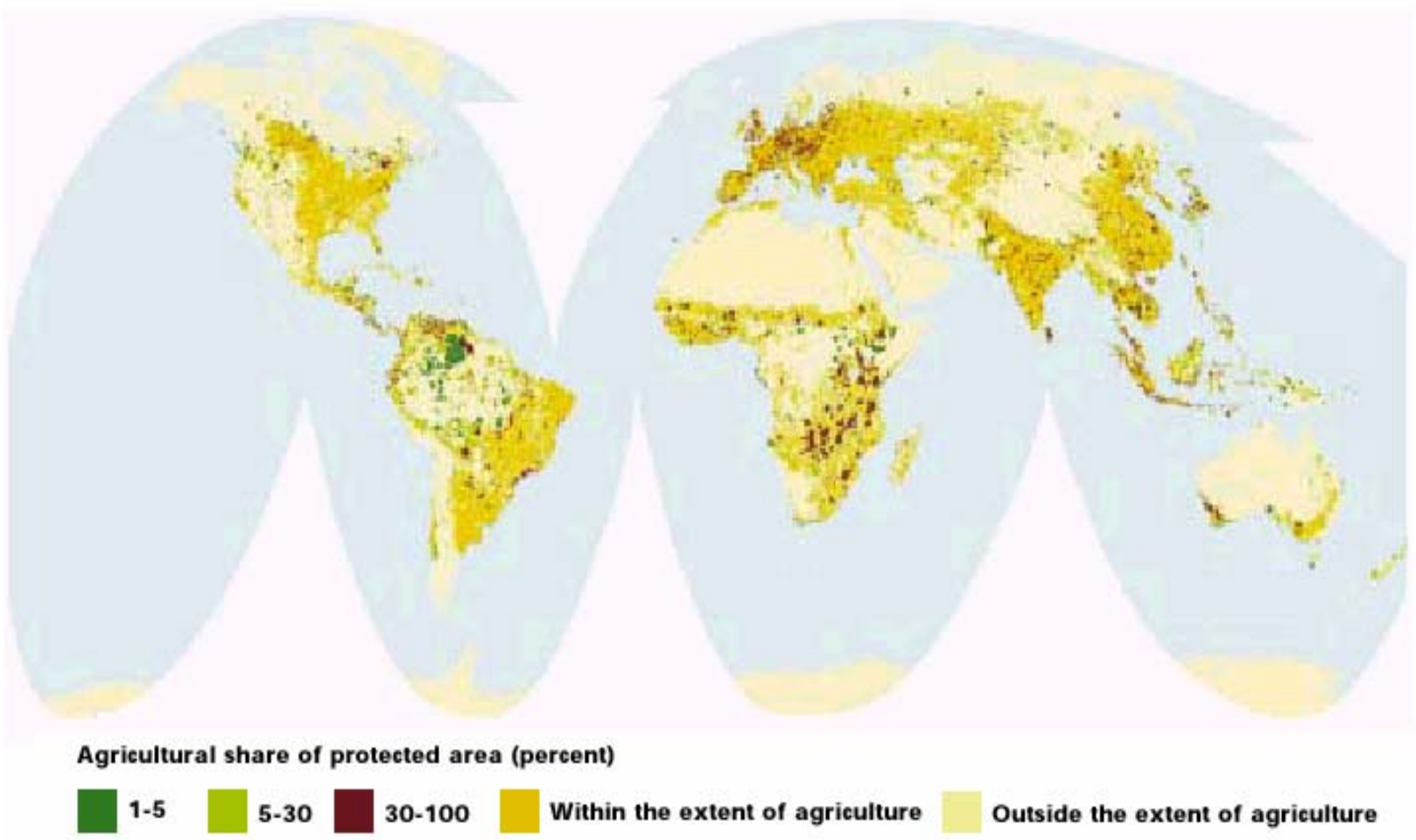
PAGE Agricultural Extent



Most other land areas are affected by grazing



Half of public Protected Areas are in agricultural landscapes



Major watersheds are under agricultural land use

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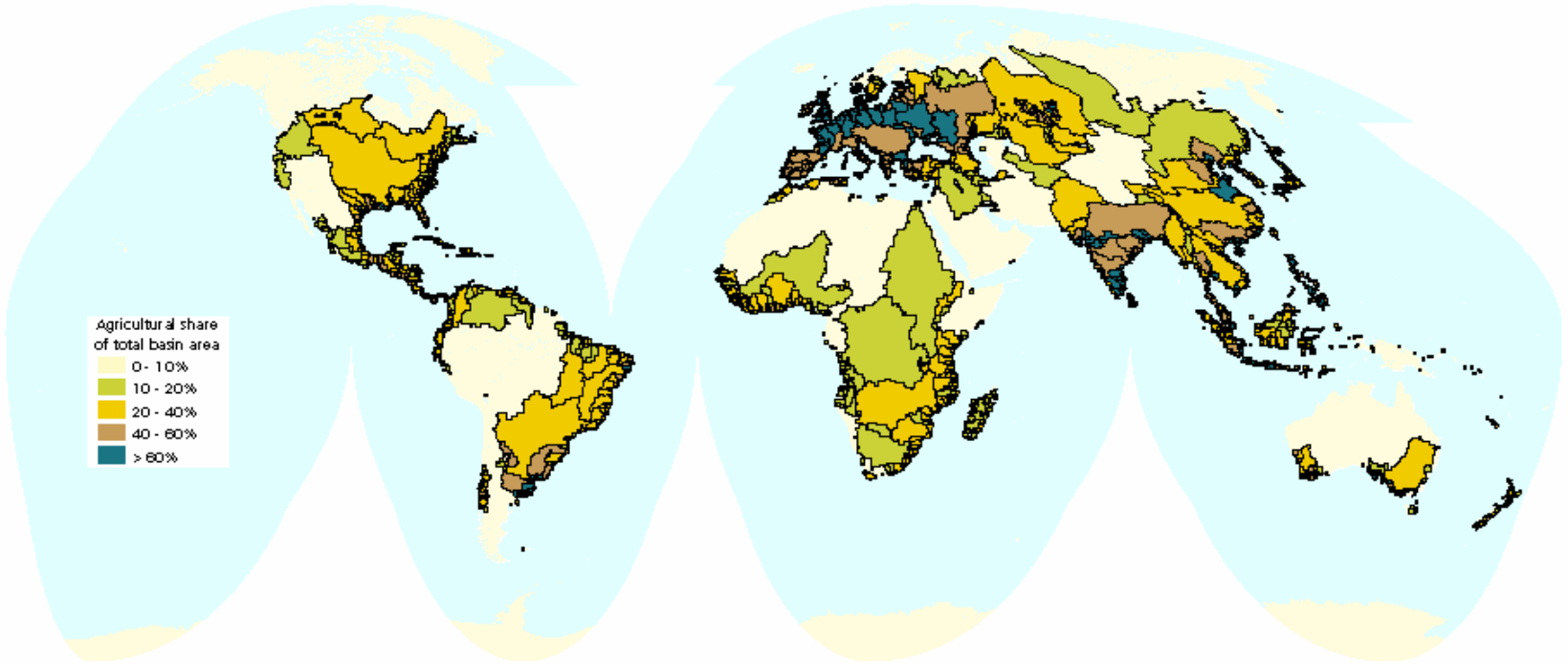
Map 17

Agricultural Share of Watershed Area



Source: UNH - GRDC Runoff Database (UNH - GRDC 1999).

Projection: Interrupted Goode's Homolosine

Note: The share of each watershed that is agricultural was calculated by applying a weighted percentage to each PAGE agricultural land cover class (80 percent for areas with at least 60 percent agriculture; 50 percent for areas with 40-60 percent agriculture; 35 percent for areas with 30-40 percent agriculture; and 5 percent for areas with 0-30 percent agriculture) to determine the total agricultural area within a watershed. Only watersheds with 10 percent or greater agricultural share are mapped. The agricultural shares do not include additional irrigated areas based on Doell and Siebert 1999.

Integrating strategies: Ecoagriculture landscapes for people, food and nature

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Agricultural landscapes managed to enhance rural livelihoods and sustainable agricultural production (of crops, livestock, fish and forest), while conserving or restoring ecosystem services and biodiversity.

Landscape goals and strategies vary
(mosaics for production-biodiversity-livelihoods)

Kabale, Uganda

Willamette Valley, USA

Eastern Region, Burkina Faso

Tea Zone, Kenya

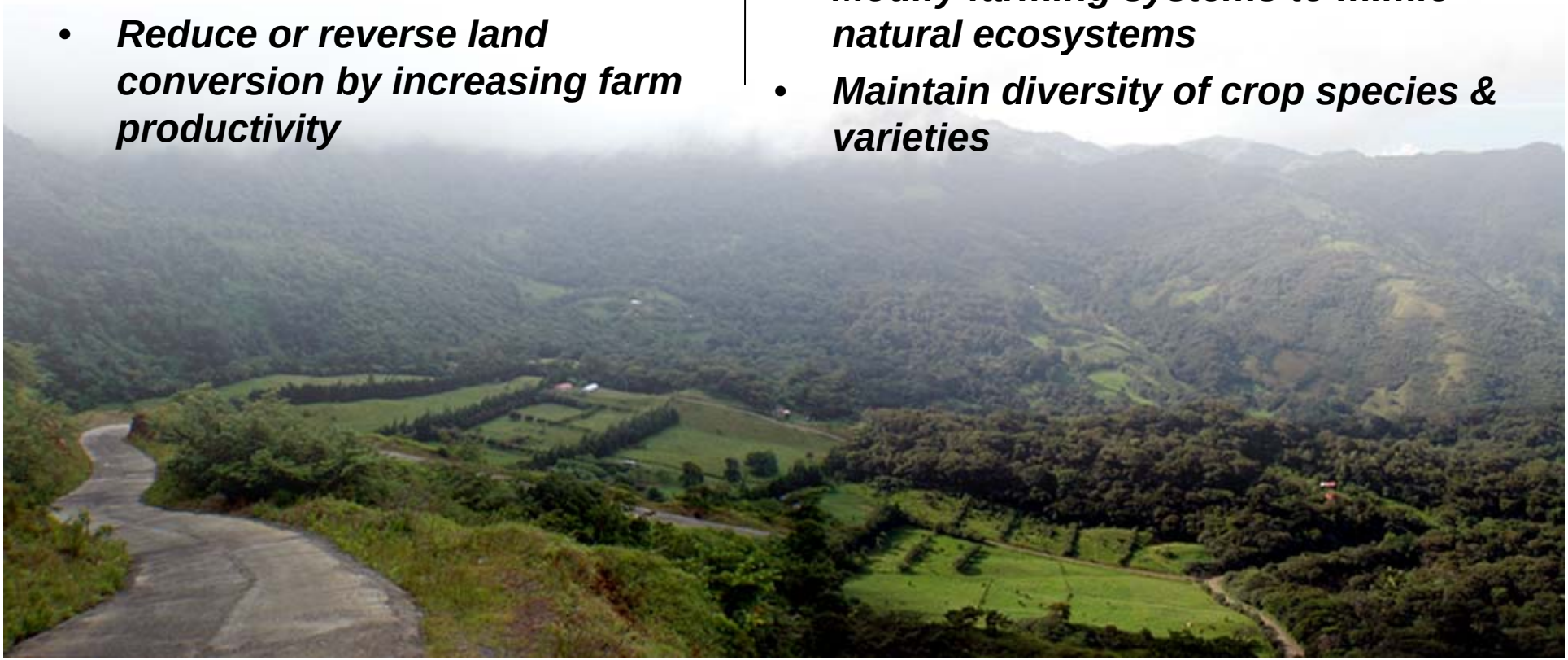
Ecoagriculture strategies

In conservation areas

- *Create conservation reserves that benefit local farming communities*
- *Develop habitat networks in non-farmed areas*
- *Reduce or reverse land conversion by increasing farm productivity*

In production areas

- *Minimize agricultural pollution*
- *Use ecologically-compatible management of soil, water, and vegetation*
- *Modify farming systems to mimic natural ecosystems*
- *Maintain diversity of crop species & varieties*



Ecoagriculture strategies can mitigate climate change (and benefit farmers)

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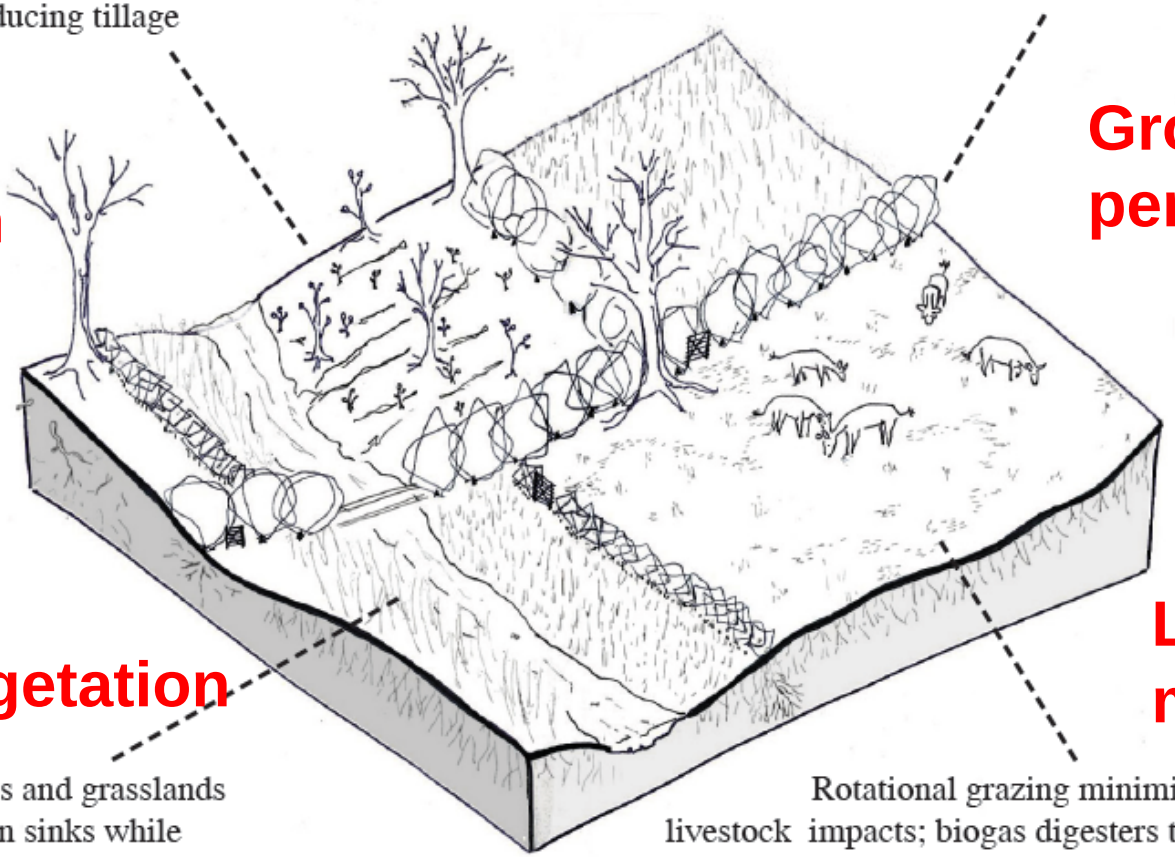
Degraded soils are revegetated, producing bio-char; fertile soils remain productive using organic methods and reducing tillage

Perennials, treecrops, and other agroforestry methods retain greater biomass in the cropping rotation

Soil carbon

Grow perennials



Protect natural vegetation

Livestock mgmt

Retaining forests and grasslands maintains carbon sinks while protecting watersheds

Rotational grazing minimizes livestock impacts; biogas digesters turn waste into energy and organic fertilizer

Restore degraded land

Ecoagriculture requires multi-stakeholder landscape planning & action

New markets and policies favoring ecoagriculture strategies

- Climate change action
- Search for sustainable biofuels, meat fish
- New supply chains (to reduce energy cost, eco-certification, env-friendly procurement, biosafety)
- Payments for Ecosystem Services (PES) in agricultural landscapes
- Farmer-environmental partnerships
- Ecosystem risks (e.g. pollinators; epizootics; drought; bioterrorism) are engaging non-farm sectors

So… why are we just talking about 'seed and fertilizer'?

Towards an Ecoagriculture Agenda: Key Actions in 2009

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1) **Include agricultural landscape carbon & GHG's in climate agreements at Copenhagen— for mitigation and adaptation**

2) **Convene a global Summit to frame a long-term "Green Strategy for Food Security"**

3) **Establish a facility to help farming communities plan for agriculture, environment & climate resilience**

And what else at CSD?

Please visit our website at…

www.ecoagriculture.org

Thank you!