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Ecoagriculture Policy Focus

Applying the Ecosystem Approach to Biodiversity Conservation in Agricultural Landscapes

Biodiversity conservation efforts must engage agriculture more centrally. Nearly a third of the world's landmass has crops or planted pastures as the dominant land use; another quarter of the land is under extensive livestock grazing. 80 to 90% of lands habitable by humans are affected by some form of production activity and areas critical for the conservation of genetic, species and ecosystem diversity are often most affected. More than 1.1 billion people, most directly dependent on agriculture, live within the world's 25 biodiversity 'hotspots', the most threatened species-rich regions on Earth. Agriculture's ecological 'footprint' will only continue to grow with rapid increases in population, higher levels of meat consumption and the emerging biofuels market.

A recent surge in research has revealed a wide range of synergistic relationships between ecological and agricultural systems, and there has been extensive documentation of sustainable practices by farmers, farming communities and agribusinesses that have found ways to maintain ecosystem integrity along with production and livelihood opportunities. This knowledge has substantially deepened our understanding of the production and conservation approaches that together lead to positive-sum interactions in agricultural landscapes, often referred to collectively as ecoagriculture. This brief draws from experience and research in ecoagriculture systems throughout the world to suggest guidelines for national and local implementation of the CBD's Ecosystem Approach in agricultural regions.

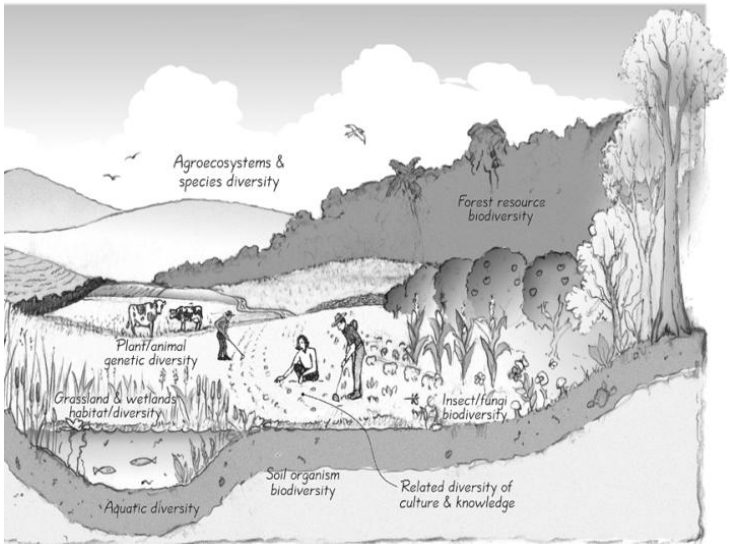
The importance of agricultural landscapes for conservation efforts

The conservation community has been slow to address the ecological dominance of agricultural systems in much of the world. Through most of its history, the conservation movement has prioritized the establishment of Protected Areas (PAs). It is a remarkable achievement that 10% of land is now officially designated as public PAs. Yet all acknowledge that this is not sufficient to maintain critical habitat and ecosystem services, and some estimates suggest that more than half of all wild species exist principally outside PAs, mostly in agricultural landscapes. The conservation potential of agricultural areas has been ignored, mainly because the most productive areas have typically been perceived as having habitat conditions so radically modified from their original states that their potential contribution to biodiversity conservation could only be marginal. But given anticipated trends in agricultural product demand and other unprecedented pressures on biodiversity and ecosystem services, this perspective needs to be re-evaluated.

While undisturbed areas remain essential for conservation, agricultural regions must also play an important role. Ecologically compatible agricultural production areas can enhance the efficacy of nearby PAs, improve the effectiveness of biological corridors that cross through unprotected areas, and provide smaller patches of critical habitat in uncultivated and farmer-protected spaces. Agricultural landscapes can also support in situ conservation of crop and livestock varieties and wild species that are necessary for sustainable agricultural production and rural livelihoods. To achieve these goals, conservation and agricultural planning must be coordinated in agricultural landscapes.

The functions of biodiversity in agricultural landscapes

Biodiversity in agricultural landscapes can contribute significantly to agricultural productivity, food security and financial returns. Diverse crop, livestock, tree and wild species can enhance livelihood security and generate income by opening commercial options in agriculture and other sectors, and by supporting adaptability and resilience to changing environmental and economic conditions. Diversity is often a central element of livelihood strategies for farmers and pastoralists in areas under high climatic, ecological and economic



There are myriad elements of biodiversity in agricultural landscapes: domesticated crop, grass, tree and livestock species and varieties; wild species like pollinators and soil microorganisms that support production; and wild species that use farming areas as their main or supplemental habitat.

risk. Increasing productivity by managing genetic, species and ecological diversity can be knowledge and technology-intensive, and better documentation of existing systems and new research is needed. But recent breakthroughs in ecology, agroforestry, agroecology, precision and conservation farming, geographic information systems, genetics, postharvest technology processing and marketing are providing new opportunities to scale-up such biodiverse systems.

Agricultural Biodiversity[1] and the Convention on Biological Diversity

The management of agricultural landscapes jointly for conservation and production is relevant to the implementation of the Convention on Biological Diversity (CBD) in practically all of its Thematic Programs and Cross-Cutting Issues[2]. However, the Program of Work (PoW) on Agricultural Biodiversity[3] provides a singular opportunity to take stock, examine options and chart new directions forward in global efforts to conserve biodiversity in agricultural areas.

There has been some notable progress, particularly in conserving and using agricultural genetic diversity[4] and stimulating the use of a wider range of crops. But biodiversity is increasingly threatened in agricultural landscapes throughout the world. A major challenge has been the application of the CBD's holistic Ecosystem Approach framework in an agricultural context. The Ecosystem Approach encompasses several key elements: functional relationships and processes within ecosystems; management at the scale appropriate for the issue being addressed; decentralization to the lowest level appropriate; intersectoral cooperation; equitable distribution of benefits; and use of adaptive management policies that can deal with uncertainties and are modified in the light of experience[5]. The following five guidelines provide a point of departure for discussions on how the Ecosystem Approach can be applied to agriculture.

1. Take an 'agricultural landscape' perspective

Agricultural landscapes are mosaics of natural features and agricultural (and other) land uses in a particular geographic region. A landscape perspective is necessary if the goals of biodiversity and ecosystem services maintenance, agricultural production, and improved livelihoods for local people are to be achieved. Farm or plot management alone will simply not provide the opportunities for spatial and temporal planning required for sustainable management. Neither will an approach in which managers simply select areas of most important biodiversity near agricultural land and protect them. PAs must be fully integrated within participatory planning frameworks. Agricultural lands should be managed as part of the matrix surrounding PAs; while natural habitat areas should be managed in relation to surrounding agricultural lands.

[1] Agricultural biodiversity is a broad term that includes all components of biological diversity of relevance to food and agriculture, as well as all components of biological diversity that support the ecosystems of which agriculture is a part (agro-ecosystems): the variety and variability of animals, plants and micro-organisms, at the genetic, species and ecosystem levels, which are necessary to sustain key functions of the agro-ecosystem, its structure and processes (http://www.cbd.int/agro/whatis.shtml).'

[2] See http://www.cbd.int/ for information on thematic Programes and Cross-Cutting Issues

[3] For full text and history of the PoW on Agricultural Biodiversity, see http://www.cbd.int/agro/pow.shtml.

[4] See FAO's assessments on state of the world's plant and animal resources (http://www.fao.org/ag/cgrfa/) and the development of the International Treaty on Plant Genetic Resources for Food and Agriculture (www.planttreaty.org).

[5] For more information on the CBD's Ecosystem Approach, visit http://www.cbd.int/programmes/cross-cutting/ecosystem/

Examples of agricultural landscape strategies for biodiversity conservation include protecting and promoting local crop and livestock diversity, maintaining connectivity between native habitats within agricultural landscapes, planting hedgerows around farm fields, protecting watersheds with spatially targeted perennial natural and planted vegetation, maintaining continuous year-round soil cover to enhance rainfall infiltration; managing inputs and wastes to minimize agricultural pollution of natural habitats; and designing farming systems to mimic the structure and function of natural ecosystems.

2. Empower multi-stakeholder processes for landscape management

Ecoagriculture landscapes require multi-stakeholder management approaches. These arrangements should be dynamic and neutrally facilitated. Multi-stakeholder processes should recognize all stakeholders within the landscapes and actively engage local farming and livestock-raising communities as lead stewards of biodiversity and priority beneficiaries of conservation activities. Local communities and agricultural enterprises will often advocate for protecting habitats as these can provide local agricultural benefits such as important pollinator habitat and water recharge areas. Effective protection can also enable other livelihood options including fishing or tourism. Multi-stakeholder processes would aim to mobilize local farming communities as part of a social fabric for achieving sustainable ecosystems, creating bridges between farmer and catchment, and promoting regional approaches and government policy to deliver change at the broader landscape scale.

Agribusinesses should be brought fully into the process in landscapes where they are key actors. Many in the corporate sector are beginning to recognize the business case for ecosystem conservation for sustainable supply, to meet consumer demand or to reduce regulatory costs.

3. Build farming communities' landscape management capacity

For farming communities to successfully direct ecoagriculture landscape management, they must be supported to build strong local institutions. A crucial first step for many communities will be securing rights to own, use and manage the natural resources in the places they live. Secure tenure arrangements will give farmers a more powerful voice in environmental management in and outside of PAs, and provide incentives to manage landscapes for long term environmental sustainability. Access to markets for diverse agricultural goods and services will further spur the management of landscapes for multiple goals.

Financing and technical assistance for community investment should be channeled in a flexible way to complement local initiatives rather than introducing models from the outside that are governed from above. Communities must be engaged as full partners in the ecological and social science research projects that have the potential to affect their lives. They often need support in integrating the results of these studies into management plans.

4. Adapt the role of conservationists in agricultural landscapes

The conservation community has tended not to engage in core agricultural development policies and programs beyond seeking limits on agricultural expansion. An important implication of the centrality of agricultural communities in conservation, in and outside of PAs, is that conservation organizations will need to re-orient themselves to explicitly support local community stewardship in ways that respect and realistically address the role of agriculture and livelihoods in planning and implementation methodologies. This broad view, including a focus on yield improvements, market access and livelihood opportunities generally, will help facilitate a process of local validation of conservation agendas while more clearly identifying roles for local people in biodiversity conservation. For conservationists to contribute to ecoagriculture objectives, they must evolve to find their footing in a wider range of institutions and organizations than those required for PA biodiversity management.

In an ecoagriculture landscape, a primary role for a conservation group might be to support multi-stakeholder planning exercises facilitated by a neutral party. For market support, conservationists could play an intermediary role with communities to lower marketing costs and provide expertise and assistance linking to warehouses, transportation, loans and any other market bottlenecks. In the policy arena, they might engage in national policy processes on agriculture, advocate for ecologically sensitive approaches and encourage environmental

ministries to see agriculture as a potential ally. Their research initiatives should include local farmer partners and emphasize the translation of results for local benefits.

5. Coordinate environmental and agricultural policies for more effective landscape planning

To support and scale up ecoagriculture initiatives, local, national and international environmental policy processes must reconsider relationships to agricultural policies and institutions. Most policy, legal and institutional frameworks separate action on ecosystem management, agricultural productivity and rural livelihoods. Government structures are not easily changed, but sectoral policy priorities can be harmonized. Inter-sectoral policy agendas must be integrated into public investment plans including the Poverty Reduction Strategies of low-income countries and donor strategies designed to support the Millennium Development Goals (MDGs).

At the local level, cross-sectoral planning can be achieved more easily by removing jointly identified policy barriers. At the national level, inter-ministerial committees or working groups can be formed and environmentally trained staff can play key roles in agriculture ministries (and vice versa). To support international coordination, CBD focal points need technical support for agricultural landscape management, and focal points for all related international conventions should work more closely together. Implementation of the Program of Work on agricultural biodiversity, and relevant CBD programs at the national level should be coordinated between environment and agriculture ministries.

With coordinated efforts, policy-makers must creatively confront current challenges as well as the explosive demand for agricultural output. Examples of policy tools include emerging mapping technologies that allow planners to identify sensitive ecological areas and habitats within a landscape requiring protection or use of ecological production practices, to functionally link these with core protected areas; financial incentives, including ecocertification and payments for ecosystem services, that promote eco-friendly agricultural practices and farmer-conserved areas; and public regulations and private investment screens that require large agricultural investments to incorporate conservation plans consistent with multi-stakeholder agreements developed in the landscapes where they will be implemented.

Ecoagriculture Policy Focus Series
The Policy Focus series, produced by Ecoagriculture Partners in collaboration with other organizations, highlights issues relevant to policy experts and decision makers in the fields of agriculture, conservation and rural development to promote integrative solutions

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Guidelines for applying the ecosystem approach in agricultural landscapes

1. Take an 'agricultural landscape' perspective
2. Empower multi-stakeholder processes for landscape management
3. Build farming communities' landscape management capacity
4. Adapt the role of conservationists in agricultural landscapes
5. Coordinate environmental and agricultural policies for more effective landscape planning

This brief was prepared jointly by the organizations whose logos appear below, with valuable input from other partner organizations, including the International Federation of Agricultural Producers, Fauna and Flora International, and The Nature Conservancy

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