The Innovation

Using regional corridors as planning units to accomplish what planning at the scale of individual parks and buffer zones cannot: the optimum allocation of resources to conserve biodiversity at the least cost to society.

The Impacts

There is an emerging scientific consensus that using the landscape scale for conservation planning, can significantly improve the chances for long-term survival of biodiversity. An "ecological corridor" involving a mosaic of different land uses represents one of the most promising approaches for biodiversity conservation planning. The Ecological Corridors Project is building economic, social and political support in Brazil to conserve biodiversity across large landscapes in the country’s main rainforest areas. The corridors are dimensioned and managed to guarantee that plant and animal species can survive and continue their normal biological processes undisturbed.

Background

The Ecological Corridors Project aims to contribute to the effective conservation of Brazil’s biodiversity by testing an innovative approach in two of Brazil’s most important forested areas. The project’s overall objective is to demonstrate the viability of ecological corridors in conserving biodiversity in the Brazilian Amazon and Atlantic rain forests.

An ecological or biodiversity corridor is a mosaic of different land uses connecting fragments of natural vegetation across a landscape. It is a regional planning unit, rather than a zoning mechanism. Corridors include both existing and new protected areas, private reserves, “nuclei” of corridor management, priority zones for landowner incentives, demonstration sites and other areas of intensive economic use. The priority zones of the corridors indicate which nonpublic lands will be favored to receive financial incentives for biodiversity conservation. This is not a zoning mechanism because it does not involve the creation of new involuntary land use restrictions. (See map on page 3.)

From a biological perspective, the principal goal of corridor planning is to maintain or restore connectivity of existing forest fragments across the landscape. This involves

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1 This note is part of an occasional series produced by the Bank’s Rain Forest Pilot Program highlighting success stories and best practice examples from projects funded by the Pilot Program to Conserve the Brazilian Rain Forest.
the creation of additional protected areas, the introduction of more benign land use strategies, and the restoration of degraded lands in key sites.

From an institutional perspective, the corridor strategy seeks to improve protected area management, build management capacity in the region, and promote biological and socioeconomic research that can reveal possible tools to reduce the threat of species extinction. The needs of local communities and other stakeholders must also be included to ensure the long-term sustainability of parks and reserves.

The Ecological Corridors Project is based on the premise that today’s multiple and growing threats to biodiversity protection require more than establishing discrete, government-run protected areas surrounded by landscapes in which development activities proceed unchecked. In many regions of the world – notably the Atlantic rain forest – this approach has led to a scattered archipelago of isolated parks and reserves, which are frequently besieged on all sides and inadequate to guarantee long-term protection of the plant and animal species they contain. Other shortcomings of this approach are especially evident in the Amazon, where 116 federal and state parks and reserves -- covering 416,000 km$^2$, or about 8.4% of the region – are widely scattered in remote locations and severely understaffed, with an average of one park ranger per 15,000 km$^2$.

During project preparation, a team of prominent Brazilian scientists defined five priority corridors in the Amazon and two in the Atlantic Forest regions based on “state-of-the-art” studies of key plant and animal distributions commissioned by the Ministry of Environment (MMA) and the environmental protection agency (IBAMA), as well as the results of priority setting workshops. Broad areas were mapped and ranked according to biological value, degree of threat, and social and institutional factors bearing upon the likely success of an intervention. The specific biological criteria utilized for selection of the seven corridors included: (i) species richness, considering the absolute and relative number of species present in the corridor area in relation to the regional biodiversity; (ii) community and ecosystem diversity; (iii) degree of connectivity; (iv) integrity/size of supporting areas; and (v) endemic species.

Among the seven proposed corridors, the Central Amazon Corridor (CAC) in the state of Amazonas, and the Central Atlantic Forest Corridor (CAFC) in the states of Bahia and Espírito Santo were selected as the pilots to be financed during the first phase of the project by the Pilot Program. The selection of the priority corridors involved different criteria for each region. Of the five corridors identified in the Amazon region, the Central Amazon Corridor (CAC), together with the Extreme Northern Amazon Corridor presented the highest degree of connectivity between protected areas and the highest integrity of natural ecosystems. The decisive factor for selection was the existing institutional base, which is stronger in the CAC, which has a favorable composition of government and non-government organizations, research institutes and private enterprises more likely to contribute to the success of the project. In the two Atlantic Forests corridors, the main selection criterion was the level of threat, given the highly-fragmented nature of the remaining Atlantic Forest areas.
The Central Atlantic Forest Corridor (CAFC) is more vulnerable and fragmented when compared to the southern corridor in the region. From 1985 to 1990, the data on forest cover indicated a loss of 70,000 hectares of forest in the State of Bahia and 20,000 hectares in Espírito Santo. The lack of connectivity of extremely important ecosystems and the opportunity to illustrate how these isolated remaining “islands” could be preserved and potentially expanded was a major consideration. Another aspect taken into account was the existence of several ongoing projects, including bilateral Pilot Program projects funded by the German Government, to protect the Southern Corridors and the relative lack of projects in the CAFC. Hence, the CAC and CAFC were chosen to serve as pilots for testing new corridor models.

Initial Results and Potential Impact

Initial results of the project during its first phase include:

- **Popularizing the concept** of the ecological corridor approach to biodiversity conservation and land management in Brazil at the federal and state levels;

- **Improved coordination** of different agencies and levels of government in planning and implementing environmental policies;

- Further **decentralization** of environmental protection responsibilities to state and local levels, improving management performance;

- **New regulations and economic incentives** to encourage environmentally responsible behavior as opposed to reliance upon command and control measures;
Involvement of stakeholders, including the private sector, local communities and NGOs, in designing/delivering environmental programs;

Increased enforcement of environmental policies, particularly in remote areas where government institutions are most fragile.

Taken together, the potential impact of the seven corridors, including government-run protected areas (known as conservation units in Brazil), private reserves, indigenous lands, and interconnecting areas, are impressive in scale. The five Amazonian corridors encompass nearly 1.5 million km$^2$ — or an area equivalent to France, Germany, Spain, and Portugal combined. They contain 73 conservation units, 116 indigenous lands and key zones known to harbor exceptional concentrations of biodiversity. The two Atlantic Forest corridors are estimated to contain at least two thirds of the original biodiversity of this biome. They cover an area of over 20 million hectares, sheltering the highest recorded diversity of vascular plants in the world, with large numbers of endemic species of plants and animals.

Next Steps

The first phase of the Ecological Corridors Project is funded by the Rain Forest Trust Fund (US$5.0 million) with federal and state support. There is agreement among donors that once the first 18-month start-up phase is successfully completed and trigger conditions are met, they will participate in a larger, second-phase project totaling about US$28 million to fund the implementation of activities developed during the first phase in the two pilot ecological corridors. The second phase will last an estimated 42 months and will focus on the consolidation of corridor monitoring and protection systems, implementation of corridor management plans and implementation of subprojects in interconnecting areas.

For more information on the Pilot Program to Conserve the Brazilian Rain Forest or to receive copies of the previously published Success Stories, please visit our website at www.worldbank.org/rfpp, or contact our staff in Brasilia, (55-61) 329-1015, and Washington, D.C., (202) 458-8012.

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