

Environmental problems in the Telica-Rota Protected Area

The slopes of Volcán Telica were once covered by dense dry tropical forest, but the advancing agricultural frontier, combined with illegal logging, pests, forest fires and hurricanes, has reduced the forest to small, isolated fragments. Felled logs and tree stumps of different species are a common sight on the hillside farms and native species of precious woods such as mahogany are now very rare. Perhaps more alarming, however, is the fragmentation of the forest which reduces “wildlife corridors”, inhibiting seed dispersion, separating predators from their prey and ultimately leading to a loss of biodiversity. The effects of deforestation are not just environmental; increased soil erosion from deforestation reduces farmers’ crop yields, loss of vegetation increases the risk of landslides, and loss of wildlife reduces the potential for tourism.



Deforestation caused by forest fires in Telica-Rota

Of the various factors contributing to deforestation on Volcán Telica, perhaps the most devastating has been indiscriminate burning due to “slash and burn” farming, hunting of iguanas, collection of honey from natural hives, or even just recreation! Forest fires not only destroy large areas of forest, but they also affect the local fauna, already under threat from hunting. Several different species of monkey have disappeared completely from these hillsides and although the area still hosts two endangered species of cats, the margay and ocelot, these are also in serious danger.

Some of the farmers in the hillside communities within the Telica-Rota Protected Area are owners of land which includes natural forests, but they usually regard these areas as “unproductive”; when looking for ways to increase their income, farmers are generally unaware of options to generate income from forested land and see clearing the forest as the only viable solution.

Project Focus and Target Area

Nuevas Esperanzas has been working with communities in the highest parts of the protected area for a number of years and has established a close relationship with many farmers. This has presented the organisation with a unique opportunity to influence attitudes and practices and, in recognition of this opportunity, the Ministry of the Environment has invited Nuevas Esperanzas to co-manage the protected area. With significant input from Nuevas Esperanzas’ staff, a management plan was produced by environmental consultants for the Ministry of the Environment in 2008. The ‘Forests and Fires’ project will contribute to the implementation of this plan.

The ‘Forests and Fires’ project combines objectives relating to reforestation, conservation, economic sustainability and vulnerability reduction from four projects outlined in the Mountain Rain Project Portfolio. Reforestation and conservation are the principal objectives of this project. However, wherever possible, efforts will be made to ensure that the project also contributes to economic sustainability and vulnerability reduction. When environmental conservation and regeneration initiatives take place in areas with high levels of poverty, it is possible that conservation and poverty reduction objectives may be at odds. For example, if a project works to reforest agricultural land without providing alternate livelihood options for farmers, it may aggravate poverty in the area. This project will aim to comply with the ‘do no harm’ principle; conservation and environmental restoration will not be pursued at the cost of contributing further to the current vulnerabilities of residents in the target area.

The target area for this project includes El Ojochal del Listón, which lies within the Telica-Rota Protected Area. This area was seen as the best location to introduce reforestation and conservation activities as Nuevas Esperanzas has already had the opportunity to establish trust and rapport with this particular community.

Objectives

Short-term and long-term objectives and their relative priorities were based on MARENA's¹ Management Plan for the Telica-Rota Protected Area, to which Nuevas Esperanzas was a contributor, as well as observations made by Nuevas Esperanzas staff during extensive periods in the field.

Long-Term Objectives

	Priority
Contribute to the conservation and restoration of the slopes of Volcán Telica and Cerro Rota through reforestation.	A
Protect the environment through control of illegal logging, forest fires and hunting.	A
Contribute to reforestation through establishment of organic plots of fruit trees.	B
Improve and diversify income of small producers.	B
Reduce vulnerability to landslides through soil conservation and awareness raising.	B

Mid-Term Objectives

Preserve existing closed forest in El Ojochal del Listón	A
Increase area of closed forest in El Ojochal del Listón	A
Increase interconnectivity of closed forest in El Ojochal del Listón	B
Decrease the number of forest fires in El Ojochal del Listón	A
Increase environmentally sensitive agricultural practices in El Ojochal del Listón ²	?

Short-Term Objectives

Increase growth of appropriate tree species around existing areas of closed forest in El Ojochal del Listón, especially where there is a possibility of connecting segments of forest	A
Increase understanding of social dynamics related to forest fires, and the specific environmental impacts of forest fires in El Ojochal del Listón	A
Improve coordination between key stakeholders with respect to the prevention and management of forest fires	B

Outstanding Questions

Even after the significant investment in the formulation of the Management Plan which assessed the opportunities and threats for environmental protection and regeneration within the Telica-Rota Protected Area, large information gaps still exist which make it difficult to design appropriate interventions. A preparatory 'investigation period' will therefore be necessary before reforestation and conservation efforts can begin.



Soil erosion on the slopes of Volcán Telica

Before reforestation can begin in El Ojochal del Listón, more rigorous mapping of the various ecosystems is needed. It will also be necessary to map property lines and obtain feedback from land owners regarding potential reforestation sites. A participatory reforestation process will be

key to the project's success, given that local land owners are likely to be the caretakers of any reforested sites. Furthermore, from a purely practical point of view, their intimate knowledge of the local environment will be necessary to make informed decisions concerning the protection and maintenance of reforested sites.

It is largely agreed among those concerned with the conservation of the Telica-Rota protected area that forest fires are the largest threat. However, while the general reasons for intentional burning are known, there is virtually no data on the relative importance of the various motivations for intentional burning. Neither is it known which ecosystems are most affected, nor to what extent they may be affected by burning in a single year. One important short term objective is to focus on understanding better the social dynamics

¹ MARENA is the Nicaraguan governmental department for environmental protection.

² The priority given to changing environmental practices will depend largely on whether a strong connection is found between forest fires and current agricultural practices. See the following section, 'Questions To Be Answered'.

related to deforestation through forest fires, as well the specific environmental impacts of forest fires in the area. Questions to be answered include:

- What do stakeholders perceive to be the causes of forest fires in El Ojochal del Listón?
- Are most forest fires controlled or uncontrolled?
- Who is starting forest fires and for what purpose?
- Which ecosystems are most affected by forest fires?
- How much of the respective ecosystems are lost to forest fires during the time of most intensive burning (January to May)?
- When during this period do forest fires occur and with what frequency?
- How can forest fires be prevented?

Outline of 7 Month Work Plan

January and February

- Hold meetings and/or workshops with community residents, farmers from surrounding communities who work in the area, MARENA and the local mayor's office in order to obtain feedback on project design, analysis from stakeholders as to the causes of and potential solutions for deforestation in the protected area and an understanding of attitudes towards the elimination of forest fires and reforestation in the protected area.
- Map property lines and ecosystem locations.
- Identify area to be reforested based on mapping and feedback from community members, decide on potential tree varieties to be planted, and establish quantities of each variety needed.
- Establish a forest fire notification system, with the help of community volunteers and MARENA staff.
- Begin an 'inventory' of all forest fires in El Ojochal del Listón, tracking times and dates, locations, area burned, whether the fire was controlled or uncontrolled, the fire starter, and the purpose for burning.
- Identify 'research parcels' in each of the representative ecosystems from which to gather more extensive baseline data and conduct future monitoring of ecosystem changes.

March

- Look into potential promotional activities (i.e. a local march, workshops in the local high school, etc.) to increase local awareness of upcoming reforestation projects, and increase its potential educational impact.
- Based on initial findings of the forest fire inventory, investigate the viability of establishing a voluntary fire brigade in El Ojochal del Listón.
- Secure the saplings needed from the municipal government.¹
- Continue conducting forest fire inventory.

April and May

- Work with MARENA and community members to develop a work plan for planting and maintenance of saplings, and conduct any necessary training.
- Continue conducting forest fire inventory.

June and July

- Planting and follow up.

Budget

The budget for the project is \$9,577 including staff time, vehicle use, subsistence, materials and indirect costs (including finance and administrative support, office overheads, etc).

Given that the scope of the reforestation and forest fire prevention activities will depend on findings from the initial investigations, the estimated costs for materials are somewhat speculative. The intention behind including these amounts was to provide the project with the flexibility to pursue a variety of reforestation and fire prevention strategies. The estimate for fire prevention materials was based on general equipment suggestions for voluntary fire brigades. The estimate for reforestation was based on past reforestation experience and feedback from the community.

¹ In the 'Reforesting Forests' proposal found in the Mountain Rain project portfolio it is noted that reforestation would depend on the construction of a reservoir, which would provide irrigation for the tree nursery. The local Mayor's office has offered to provide the saplings needed, allowing us to bypass the costly steps of constructing a reservoir and establishing a tree nursery.

The budget does not reflect the cost of a Project Manager as this will be provided as an 'in kind' donation by Nuevas Esperanzas US.

Budget				
Staff Time	<i>days</i>	<i>hours</i>	<i>rate</i>	<i>cost</i>
Agricultural Engineer	47	372	6.13	2,280.36
GIS Advisor	4	32	12.23	391.36
Outreach Worker	20	156	3.63	566.28
Field Assistant	20	160	1.82	291.20
				3,529.20
		<i>man</i>		
		<i>days</i>	<i>rate</i>	
Subsistence		154.5	3.00	463.50
Transport		<i>km</i>	<i>rate</i>	
Horses				840.00
Vehicle (4x4 pickup)		3,200	0.45	1,440.00
				2,280.00
Materials				
Fire Prevention				1,000.00
Reforestation				1,000.00
				2,000.00
Training & Promotion				70.00
Sub-Total				8,342.70
Administration (15%)				1,251.40
Total				US\$ 9,594.10

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