

Comments received by the CCBA during the validation audit.

CCB Standards Second Edition

Project: **Return to Forest, Nicaragua**

Comment 1

Date:

Sent by: Colin Hunt, Faculty of Arts and Sciences Boston University

Query tree spacing. The wide spacing of 4m will mean that weed control will need to be more intense and for longer than if spacing were halved.

Not specified is the maintenance regime - materials, human resource and time. Weeds and grasses will need intensive control if the project is not to be overwhelmed. Given that poor weed control could pose the greatest threat to the project's success, how, by whom when - with respect to weed and grass control for 5 years - need to be clearly specified in the document.

Comment 2

Date:

Sent by: Sarah Otterstrom, Paso Pacifico Paso Pacifico Response

Thank you for the important observation. We agree that due to tree spacing, reforestation areas will require more intensive weed control during at least the first five years of the project. We have reforested at eight different sites and are seeing quite a bit of variability in weed growth between sites. At most of the sites, our weed control efforts are focused on the area directly surrounding the tree. We use machete clearing for weed control. For some of the drier forest sites, we are deliberately leaving weeds around the seedlings during the dry season months to prevent desiccation and to protect them from wind damage. Thus far, this has been an effective strategy in drier areas. Frequency of cleaning trees ranges from bi-monthly during the wet season, to once during the dry season. We should mention that for a site planted in 2006 with similar spacing, we are already seeing a large reduction in weeds, now requiring less frequent cleaning.

Labor costs in Nicaragua are significantly lower than many other Latin American countries (approximately \$4 USD/day). Additionally, there is high unemployment in rural areas. These two factors allow us to rely on human labor to maintain plantations, while benefiting local people with jobs. In coordination with private landowners, we have planned to continue managing weed growth into the next five years. We will design and implement site-specific annual plantation management plans for each farm. Arrangements between Paso Pacifico and landowners differ between each farm with respect to managing laborers. Given the sensitive nature of working with private landowners, we have to tailor each work plan according to the working relationship with landowners. Management plans are provided to CCBA auditors as supporting documents. We should mention that we deliberately chose to increase tree spacing for several reasons. First, we wanted to reduce the need for thinning and other intensive management practices later in the project (thinning). The primary goal of this project is restoration and plantation sites will be established as private reserves. We would like there to only be a minimal amount of thinning activities in the future. Secondly, by planting a high diversity of native trees, many for which there is little growth information, we expect size distributions of growing trees to be very uneven. We believe that this complex plantation structure will be beneficial to restoration by providing different light regimes and space gaps for seed dispersers, allowing additional trees and shrubs to establish. There has been very little research on restoration at this density in the tropics, but we do see that in bottomland hardwood forests of the U.S. (rainfall 1000-1600mm/year), such a density in restoration projects is common.

Given the unique design of our plantations, it will be important that we thoroughly document the management actions that we implement and keep an accurate accounting of tree mortality and other management obstacles. Hopefully our project will be a success and that along the way we will have learned new things about tropical restoration!

Thank you for your comments! Please do not hesitate to contact us with further comment or suggestion.
