An information bulletin on Non-Wood Forest Products

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Non-Wood news

EDITORIAL

This is my last issue of *Non-Wood News* as your editor so I am glad that it is such a special one! It is special because it highlights the exceptional partnerships we have made and the truly rich information that has been generated.

The first important partnership is with Rainforest Alliance, which is celebrating its 25th anniversary this year. Deanna Newsom, the manager of the Rainforest Alliance's Kleinhans Fellowship contacted *Non-Wood News* last year to see if we would like to be involved in their anniversary celebrations by highlighting the work of the Kleinhans Fellowships, which are two-year fellowships dedicated exclusively to research into non-wood forest products. The Special Feature in the present issue is a direct result of this collaboration, and includes nine original essays from researchers past and present who have been awarded such a fellowship.

The second partnership highlighted in this issue is the one with the Center for International Forestry Research (CIFOR) and People and Plants International. I was contacted by Patricia Shanley, Senior Research Associate at CIFOR, some years ago, to see how we could collaborate together to co-produce an updated English version of a unique publication that had then only been published in Portuguese. Its uniqueness lies in its emphasis on communicating scientific information and results in a way that non-scientists – for example, local people who have interacted with the scientists – can understand and use: a form of "respectful research". Our partnership culminated in the publication of *Fruit trees and useful plants in Amazonian life*, which was launched in December 2011 at a ceremony at FAO headquarters marking the close of the International Year of Forests with Patricia, who was lead editor of the publication, as the guest speaker. Her speech (which was truly inspirational and met with lengthy applause), together with extracts from the publication are featured in this issue.

The third partnership covered concerns the collaboration on edible insects with Wageningen University of the Netherlands, which led to the workshop – "Assessing the potential of insects as food and feed in assuring food security" – that took place in January at FAO headquarters. This was the first time that the many different actors in the sector came together to discuss the varied role of edible insects in food security issues. A report on the workshop, together with coverage on different aspects of edible insects – for example, food or feed – can be found in this issue.

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is compiled and coordinated by Tina Etherington, FAO Forest Economics, Policy and Products Division. Language editing by Roberta Mitchell and Anouchka Lazarev; design, graphics and desktop publishing by Claudia Tonini.

Non-Wood News is open to contributions by readers. Contributions are welcomed in English, French and Spanish and may be edited to fit the appropriate size and focus of the bulletin.
If you have any material that could be included in the next issue of *Non-Wood News* for the benefit of other readers, kindly send it, before 31 August 2012, to:
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Spreng.] K. Schum.]). In the cosmetics and food industries, demand for herbal products has boomed and gone mainstream, no longer restricted to niche markets. For instance, ten years ago, handmade soaps from Amazonian vegetable oils could only be found in fairtrade or boutique cosmetic shops; today, most large companies produce at least one type of bath soap based on Amazonian NTFPs.

The mismatch between academic interest and on-the-ground reality has occurred because conservationists and academics alike are chasing a new fad to avoid tropical forest loss: payments for environmental services (PES). As with NTFPs long ago, these are believed to be a win-win strategy that avoids the main pitfalls of NTFPs. The logic of NTFP extraction is that trading depends on standing forests, so people's reliance on NTFPs will conserve forests for life. But people may trade NTFPs and, concurrently, sell timber or agricultural products. Moreover, teaching people how to trade takes more effort and resources than previously thought. PES, on the other hand, are a more direct and efficient way of achieving conservation because people benefit only *if* and *when* they conserve.

In a sense, the logic is straightforward. Yet, might PES become the new purgatory in 30 years if we do not learn from the lessons of NTFPs? NTFPs and PES share many characteristics. People's incomes rise, so they may accumulate and later switch to more harmful land uses. If you monitor their territory, there is a chance they will perform harmful activities somewhere else since the demand for products persists, simply displacing the problem. Moreover, PES have problems that are absent with NTFPs. For instance, because of their recurring costs and reliance on monitoring, PES are unlikely to be implemented in vast tracts of forested regions because the total cost would likely be out of reach of most conservation organizations. Yet this is exactly what must be done to prevent dramatic ecological and climatic disasters. Moreover, the costs of PES are ongoing and likely to increase in the future because the larger the area under PES and conservation, the higher the opportunity costs to conserve new areas. Each new economic crisis will thus imperil PES continuity.

We must therefore stop discarding one panacea for the next and start combining different approaches. We also need to go back to the field and understand the impact of the increased demand for NTFPs: are people still combining NTFP extraction with more harmful activities, or has the increased demand for a variety of NTFPs removed the incentives to do so? And what are the ecological impacts of extracting multiple NTFP products at the local level? There are still many questions to answer, and the fact that conservation science periodically coalesces around fashionable topics is counterproductive to biological conservation. (***Contributed by:*** Carla Morsello, Escola de Artes, Ciências e Humanidades, Universidade de São Paulo, Rua Arlindo Bettio 1000, CEP03828-000, São Paulo (SP), Brazil.
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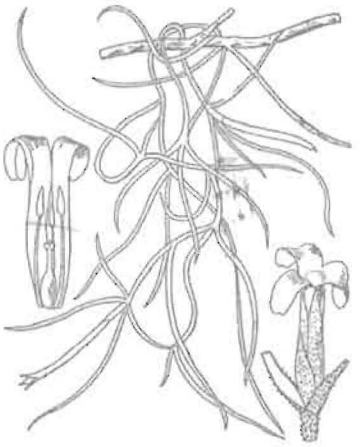

Tillandsia multicaulis

EPIPHYTE MANAGEMENT? THE ANSWER IS YES

Fellow: Tarin Toledo Aceves
Fellowship years: 2009–2011
Fellowship topic: Harvesting of epiphytic bromeliads: an opportunity for cloud forest conservation.

Cloud forests are of great strategic value for sustainable development because they play a key role in the maintenance of hydrological cycles and act as reservoirs of biodiversity. Despite their importance, these are among the most rare and threatened ecosystems globally, occupying only 2.5 percent of the total area of the world's tropical forests. The main threats to cloud forests are conversion to pasturelands and global warming. Given their location within a narrow belt in the mountains where clouds frequently cover the vegetation, cloud forests are unsuitable for timber production because of their relatively low productivity, low resilience, low wood quality and poor access.

Although the high species diversity of cloud forests means that most non-wood forest products (NWFPs) are unavailable in the quantities required for commercial purposes, there is an exception: epiphytic bromeliads, which are conspicuous, abundant and aesthetically attractive plants. The leaves and inflorescences of many epiphytic bromeliad species are sold in important international horticultural markets and have been used in traditional ceremonies in Latin America for centuries. From an ecological perspective, epiphytic bromeliads are an essential source of food and habitat for a great variety of animals within the canopy. They also contribute significantly to nutrient and water cycling in the forest. Unfortunately, bromeliad overexploitation threatens their survival in the remaining patches of cloud forest. In various Central American countries, bromeliads have been the subject of illegal trade, precipitating the depletion of their populations.

As a Kleinhans fellow, I examined whether the science-based management of epiphytic bromeliads in southern Mexico could simultaneously increase rural income, preserve local traditions and foster the conservation of the plants and the forests they inhabit. In order to establish harvesting potential, analysis of population dynamics is a key tool with which to determine whether the population growth rate (λ) of a given species is at or above its equilibrium value, i.e. whether the population is in growth, stasis or decline. Such studies are very useful for designing sustainable harvest guidelines for NWFPs, but are time consuming and complex: hundreds of plants within the forest canopy must be identified and monitored for a minimum of two years in order to obtain a representative picture of the population status. In my study, I found the populations of each of the three species evaluated (*Tillandsia multicaulis* Steudel. [*tencho trencita*], *T. punctulata* Schldl. & Cham [*tencho camarón*] and *T. butzii* Mez.) to be in decline. Recent studies in Mexico show that 15 out of 16 populations of epiphytic bromeliads analysed in cloud forests, including those of my study, are declining even in the absence of extraction. Whether climate

The logo depicts water in the centre, from which liquid ambar trees emerge, supporting different lifecycle stages of epiphytic bromeliads. Each leaf in the crown was designed by a different child from the community of Rancho Viejo.

change, fragmentation, illegal logging and/or forest disturbance are responsible, the outcome is the same: in their current condition, cloud forests cannot sustain viable populations of epiphytic bromeliads. If this is the case for the most abundant species, the less common ones are at even greater risk.

Given these pressures, can epiphyte management really contribute to cloud forest conservation? If the remnant fragments cannot sustain viable populations, what are the alternatives? My results show that because of the small contribution of seed production and early establishment to population growth, the reintroduction of seeds and seedlings into the forest canopy would have a very low impact in terms of population recovery. Most species have low rates of growth, making it very expensive to cultivate plants for reintroduction as adults – and this is before taking into account the practical challenges of working in the canopy. In the short term, one strategy for producing income while increasing forest conservation is the collection and utilization of fallen plants. One of the main causes of natural death in epiphytes is detachment from the support tree. I found that from the floor of a relatively modest forest fragment of less than 5 ha, thousands of plants may be recovered in good condition for commercial purposes with no impact on the population.

Ultimately, however, what is needed in the long term is the management and restoration of the cloud forest ecosystem as a whole. The challenge is complex, but an isolated attempt to manage one resource is only likely to fail. If epiphytic bromeliads are considered to be indicators of forest condition, then recovery of the whole system requires investment in the collection of native tree seeds for reforestation in the most fragile and degraded areas, fencing to impede livestock grazing within the forest, and the education and cooperation of the local landowners. The list is long and each of these activities requires a considerable investment. Profit from trade in epiphytes is currently insufficient to compete with other more lucrative enterprises such as construction and the illegal timber trade.

However, since I began working on this project, I have observed changes in the way the community views the forest, and that makes me optimistic that epiphytic bromeliads could function as a trigger to prompt other activities geared towards forest recovery. Forest owners no longer permit the illegal collection of plants by outsiders, students at the community school have painted bromeliads in a mural depicting the forest resources they value, and many community members have planted trees to rehabilitate deforested areas. If the goal is to contribute to the recovery of an enduring, respectful relationship between communities and forests, learning along the way and presenting alternatives is really the only option. Is there a role for epiphyte management in cloud forest? The answer is yes. [***Contributed by:*** Dr Tarin Toledo Aceves, Department of Functional Ecology, Instituto de Ecología A.C., Carretera antigua a Coatepec # 351, C.P. 91070, Xalapa, Veracruz, Mexico. E-mail: tarintoledo@gmail.com/]

THE CHANGING WORLD OF RATTAN

Fellow: Stephen F. Siebert
Fellowship years: 1989–1991
Fellowship topic: Rattan cultivation and management in hillside farms and forest preserve buffer zones of Kerinci-Seblat National Park, Indonesia.

Rattan, arguably the world's most important non-timber forest product, has been used by rural people for binding, basketry, home construction, food and many other domestic, non-market purposes for centuries throughout the Old World tropics. Rattan canes also fuelled the multibillion dollar international furniture, handicraft and mat-making industries during the twentieth century. E.J.H. Corner, one of the last of the great British naturalists, conveyed the socio-economic importance of rattan when he noted: "Ever since man had the means of cutting their stems, they have been exploited. ... rattans were so invaluable to village life that one can speak of the rattan civilizations of Southeast Asia".

Rattan is also ecologically important. It is often the most abundant plant on the ground as well as in the canopy of Asian tropical forests. In research supported by a Kleinhans Fellowship, for example, I recorded an average of 284 *Calamus exilis* with 1 910 m of harvestable cane per hectare in Kerinci, Sumatra and 38 *C. zollingeri* with 2 660 m of harvestable cane per hectare in northern Sulawesi, and these were only one of dozens of rattan species in each site. Quite simply, rattan is a defining component of moist tropical forests throughout Southeast Asia. In addition, insects, amphibians, reptiles and mammals use the long, sinuous canes of rattan as three-dimensional highways with largely unknown implications for population dispersal, foraging strategies, predator avoidance and countless other plant and animal interactions. Rattan canes