Environmental Leadership & Training Initiative

SYMPOSIUM-WORKSHOP REPORT

Native Species Reforestation in Singapore

Singapore
February 4, 2012

A symposium-workshop jointly organized by:
Environmental Leadership & Training Initiative (ELTI)
National University of Singapore - Department of Biological Sciences (NUS-DBS)
Singapore National Parks Board (NParks)

Background: Much of the native vegetation of Singapore was cleared in the 19th century for the expansion of plantations, resulting in the country now having the lowest level of primary forest cover in the region. A significant amount of secondary forest has since become established, but Singapore's rapid urbanization and emergence as a leading economy in the region, has put increasing pressure on those forested areas. While some would consider forest biodiversity an inevitable casualty to these socio-economic trends, the Singaporean government has taken progressive steps to conserve much of its remaining forests and expand the benefits of tree cover across the island.

Central to Singapore's forest conservation initiatives is a system of protected areas, including 4 Nature Reserves, and 18 Nature Areas, all of which have significant biodiversity value. Managed by NParks, these areas are relatively secure from the threats that face protected areas in other countries of the region, however, they remain vulnerable to biodiversity loss due to their isolation and small size. NParks has various programs in place to manage these sites, including a modest forest restoration program, which has planted over 17,000 trees since the 1990s in the Nature Reserves in order to help rehabilitate forest fragments and forest gaps.

Promoting itself as a "city in a garden," Singapore has also increased its overall tree cover over the last 20 years from 36% to 47% through widespread tree planting in urban areas. Most of the trees initially planted were non-native, but NParks has started diversifying the planting stock by including more native species (though often of Malaysian provenance). The NUS-DBS Plant Systematics Laboratory has taken this one step further by working with NParks to develop planting material from threatened species in Singapore, which are being tested for planting in urban areas.

Because of such efforts, Singapore now serves as a showcase for the region, and indeed the rest of the world, on how forest ecosystems can be managed in a highly urban environment. While Singapore's efforts are impressive, the question remains: Is there more that could and should be done? Singapore's conservation strategy is built on a People, Public, and Private (3P) partnership; can this partnership be broadened and strengthened? Many countries in the region have a longer history of forest restoration than Singapore and are pursuing it on a larger scale. Can Singapore benefit from their experiences and approaches? Finally, there is a huge need for the establishment of regional networks to facilitate native species reforestation and its financing through REDD+ and voluntary carbon market schemes. How can Singapore benefit from and contribute to these broader regional efforts?

This symposium-workshop was designed to examine the state of native species reforestation in Singapore and explore options for enhancing the current approach. The first half of the day consisted of a symposium aimed at providing essential background information to a broad audience, while the second half of the day consisted of a workshop for a smaller number of participants designed to brainstorm ways to move forward.

Objectives:

1. Provide an overview of steps currently being taken in Singapore to restore its forests and conserve its native floral biodiversity;

2. Introduce participants to different approaches to native species reforestation being practiced in the region;

3. Conduct a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of the forest restoration efforts currently being conducted in Singapore; and

4. Strengthen cooperative efforts within Singapore and regionally to promote native species reforestation.

Format: The symposium-workshop started with a presentation by Dr. David Neidel (ELTI), who provided an introduction to ELTI and an overview of the program's capacity-building and training approach to promoting native species reforestation in the region. The first morning session then consisted of 4 presentations focused on Singapore: Prof. Richard Corlett (NUS-DBS) explained the ecological reasons why native species reforestation is important in Singapore; Mr. Benjamin Lee and Mr. James Gan (NParks) explained the current reforestation approach being implemented by Singapore NParks; and Prof. Hugh Tan (NUS-DBS) discussed the need and opportunities for planting native species in urban areas.

The second morning session then consisted of four presentations on native species reforestation efforts in other parts of the region: Mr. Benjamin Brown (Mangrove Action Program) provided an overview of his organization's approach to mangrove restoration in Indonesia; Prof. Billy Hau

(University of Hong Kong) discussed his research on barriers to natural forest succession and his efforts to introduce native species reforestation to Hong Kong, another highly urbanized area; Prof. Stephen Elliott (Chiang Mai University-Forest Restoration Research Unit) introduced the framework species method of forest restoration and the elements of that approach that were applicable to Singapore; finally, Dr. Campbell Webb (Harvard University Arnold Arboretum) discussed a forest restoration project currently underway on the edge of the Gunung Palung National Park in West Kalimantan, Indonesia.

For the afternoon workshop, the participants were divided into six different groups, with each group focused on one major land-use management category in Singapore. Each group then conducted a SWOT (Strength, Weaknesses, Opportunities, and Threats) analysis of native species reforestation efforts in their respective areas. The groups then reported on their deliberations and plans were made for follow-up.

Participants: The symposium-workshop was by invitation only and was intended to bring together people currently working on forest restoration as a way to catalyze greater cooperation. The symposium was attended by 70 people, representing NParks, NUS, the National Institute of Education, Nature Society (Singapore), and a variety of other organizations and institutions. The workshop in the afternoon was limited to 40 key participants from the morning session.

Field Trip: Two simultaneous field trips were held on February 5, the day following the symposium-workshop. One group visited a mangrove restoration site in Pasir Ris Park. The other group, which focused on terrestrial forest restoration, visited a primary forest area in Bukit Timah Nature Reserve and a forest restoration site in the Central Catchment Nature Reserve.

Outcome and Follow Up: From the morning presentations, it became clear that the potential for native species reforestation is limited in Singapore due to urban development pressures. Nevertheless, there exists significant opportunities for enhancing Singapore's native species reforestation initiatives by taking a landscape-level approach. These efforts are vitally needed to forestall the continuing extinction of Singapore's tree species by reducing fragmentation and increasing small population sizes. At this point in time, Singapore imports much of its planting stock from Malaysia at a premium price. This is contrary to the practice in the rest of the region where forest restoration practitioners collect their planting materials close to the planting site. To increase its native species stock, there is a clear need for Singapore to establish a dedicated forest tree nursery. We will continue to work with NParks towards this objective, as well as explore options for building wider public support for the conservation and restoration of Singapore's forests.

This event was possible thanks to Arcadia Fund, whose Environmental Conservation grants support programmes that protect and enhance biodiversity, and provide field training and academic research.