

Science and Technology of
Harmonious Co-Existence

Achievement : Contribution to the conservation of tropical forest

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<Summary>

In recent times, the destruction of tropical forests has been progressing at an alarming rate. Tropical forests are a veritable treasury of a diverse array of many forms of life, and it is widely believed that the loss of this environment would have a major impact on the ecosystem of the entire planet. Dr. Peter Ashton has been awarded the 2007 Japan Prize in the category of "Science and Technology of Harmonious Co-Existence" for his expansive research into the phylogenetic systemization of flora and ecological studies in the tropical forests of Southeast Asia, and the contribution his findings have made to tropical conservation efforts.

The Current Status of Tropical Forests

Tropical forests cover large tracts of warm climate areas with vast amounts of fall, and are primarily found in Southeast Asia, Central Africa and Central and South America. Due to this, the forests play host to many species of flora and fauna—although tropical forests account for only 12% of the total land area of the earth, it is believed that they are home to over 50% of all known forms of life. However, these tropical forests are now disappearing at an alarming rate. This trend is particularly prominent in Asia—from the 1960s to the 1990s, while the world’s tropical forests were decreasing at a rate of about 20%, the tropical forests in Asia were decreasing at a rate of approximately 30%.

Tropical Forests in Asia and Dr. Peter Ashton

Dr. Peter Ashton, the 2007 Japan Prize laureate in the category of "Science and Technology of Harmonious Co-Existence" has done much to research, identify and systematize the dipterocarpaceae and other species of tree prominently found in Asian forests. The dipterocarpaceae species is also known as *lauan* timber, or tropical plywood, and is imported as plywood by Japan. As the trunk of this tree is straight, and it is a light yet hard wood, it is seen as a material that can be put to a diverse range of uses, and the tree has thus been felled in large numbers. Despite being the most important tree of the region, its reproductive powers are relatively weak and the indiscriminate felling of this tree has had a profound impact on the tropical forests of the Asian region. Large scale deforestation in the region is also progressing to make way for oil palm and rubber plantations, and this is causing the destruction of the complex ecosystem that is found in the tropical forests.

To address this situation, the Center for Tropical Forest Science (CTFS), an affiliated facility of the Smithsonian Tropical Research Institute, is collaborating with other research centers to implement a long-term continual observation project covering wide areas in 18 different locations in 14 countries in Central and South America, Central Africa and Southeast Asia. Dr. Peter Ashton is in charge of 11 locations in the Asian region and has been leading a team of researchers from around the world to further the

project, which reviews the observed changes on a five-yearly basis.

Establishment of the Tropical Forests Survey

The long-term continual observation project for tropical forests covers 18 different locations across the world. It is a global-scale forestry survey that conducts continual long-term observations of tropical forests. It is thought that the project observes approximately 6,000 species encompassing some 3 million trees. Tropical forests are made up of an extremely large number of species of tree. The reason that such a large-scale survey is necessary is because small-area surveys would not include many trees of the same species and would not yield an accurate picture of the role of the trees in the ecosystem. Such a large-scale survey, however, is an undertaking of major proportions.

Let us examine a survey that Dr. Ashton carried out with other researchers in Malaysia. Firstly, a survey area of 50 hectares (500mX1000m) was marked out in five-meter sections, measurements of the topographical features were taken, and a map was drawn up. Next, a tag was attached to each tree of at least chest height and with a diameter of over 1cm to differentiate between the species of tree; the diameter of each tree was then accurately measured and the species identified. These findings were then added to the map. The area is revisited every five years with the same operation conducted to allow the researchers to gauge the growth of the trees and catalog those trees that are unable to survive.

To undertake such a major research project requires passion, dedication and leadership—qualities that Dr. Ashton possesses in abundance. Since the late 1980s, he has worked tirelessly convincing the world of the need for an effective survey, collecting funds to finance the survey, getting the survey up and running, nurturing young researchers, and devoting himself fully to the project.

Immense Contribution to the Conservation of Tropical Forests

As has been noted, tropical forests are made up of an extremely large number of species of tree. The trees come in a variety of shapes and sizes, and each plays host to and supports a plethora of other life forms. However, the trees of the secondary forests that replace the original primary forests after deforestation has taken place lack the diversity of their predecessors. This, in turn, adversely affects the forms of life that made their homes in and were supported by the trees of the primary forest. When photographed from the air, there would appear to be little difference between primary and secondary forests. However, for the diverse array of organisms that make their homes in the forest, the difference is immense.

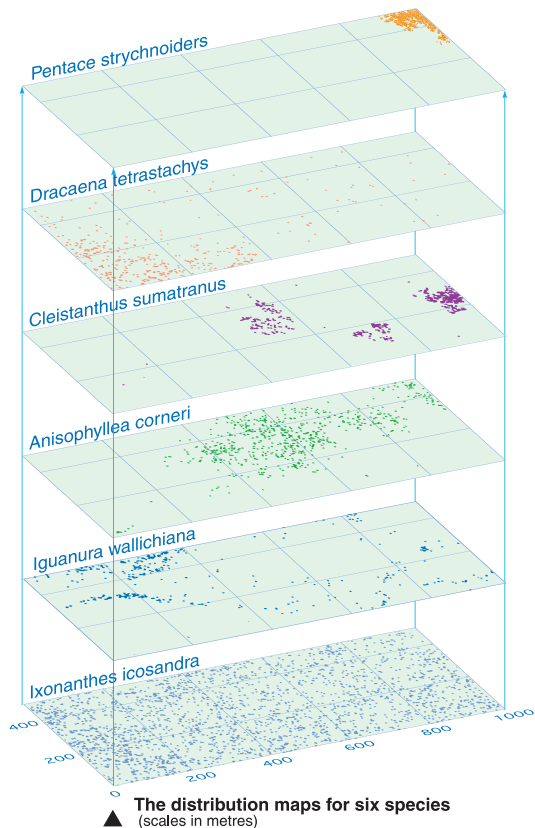
The CTFS project strives not only at raising awareness of the current predicament faced by tropical forests and the effect that this has on the wider global environment, but also aims to encourage examination of how people who rely on the forests for their livelihoods can interact more harmoniously with their natural surroundings.

The vast body of ecological knowledge that Dr. Peter Ashton has acquired over his many years of research form the foundation for the current global research project, and his leadership has attracted many talented researchers from around the world.

The contribution of Dr. Ashton to the conservation of tropical forests, and particularly those in the Asian region, has been immeasurable. He has gained a glowing reputation among fellow Japanese researchers as “the most trustworthy of all fellow scientists,” and his unceasing efforts

toward achieving a sustainable environment have been greeted with the highest possible praise from the international scientific community.

A Large-scale Survey (Paso Forest Reserve)



A survey area of 50 hectares was marked out in 5x5meter sections, and a map was drawn up. Next, specific types of tags were attached to each tree with adiameter of over 1cm to differentiate between the species of tree. The diameter of each tree was then accurately measured and the species identified.

