

Heritage Trees of Fiji



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Executive Summary

Heritage trees are trees of great size, old age, or have cultural or historical significance that have been formally recognized and protected by countries and cultures. We explored the value of a heritage tree program for Fiji, asking whether the concept was appropriate and useful for conserving Fiji's biological wealth or if a program could be helpful in implementing the National Biodiversity Strategy and Action Plan.

Large trees were recognized for their important biological values, including providing food and habitat for wildlife, such as shining parrots, and in the regeneration and maintenance of natural forests. Fijians can also benefit economically from the protection of very large trees through ecotourism activities and the conservation of important genetic resources from these ancient survivors. Large trees are also critical in the regeneration of natural forests as they provide much of the seeds for their species.

Workshop participants believed that a heritage tree program for Fiji was important and a potentially useful tool for landowners and the government to protect and benefit from natural resources. All agreed that supporting the concept was good for Fiji as a whole. There was concern that Fiji may suffer the same fate as Indonesia and New Guinea, where foreign companies have logged out much of the accessible forests, if Fijians are not made aware of the benefits of conserving large trees and natural forests. This resource survey can contribute to this awareness.

Because the heritage tree concept was seen as something in relation to the traditions and customs of the indigenous Fijians, it was recommended that the Ministry of Fijian Affairs (FAB), the custodians of tradition and custom in Fiji, be the primary agency to facilitate, manage, and expand the heritage tree concept in Fiji. Technical support and expertise would be provided by government departments and other organizations. Mataqali and villages would nominate heritage trees and recommend projects and FAB would assist in their realization. These are suggestions on how a process might be designed.

The cost of initiating and running a heritage tree program should not be too high. Initial funding could come, in part, from NGOs, such as the Wildlife Conservation Society. Longer-term funding could be secured through various approaches such as a departure tax for tourists, multi-lateral agency grants, or contributions from the private logging sector. Much of the success of a heritage tree program will depend upon the interest and commitment of landowners who are the stewards of these great trees.

Workshop participants conducted a preliminary mapping of heritage trees for Fiji. Larger trees in Fiji were mainly restricted to relatively inaccessible, larger blocks of forest that still have not experienced intensive logging. These typically occur in higher elevation areas with rugged terrain, although some lowland sites, like the Sovi Basin on Viti Levu, still support some larger trees. In general, larger heritage trees are primarily located in the last large blocks of natural forest in Fiji that have been spared logging. Some exceptions occur around communities that have protected larger trees. Many communities throughout the Fiji Islands and Rotuma have trees that are valued for their cultural and historical significance. A preliminary mapping of individual heritage trees and forested areas that are likely to contain heritage trees was attempted at the workshop. The maps and database are presented here and will be made available to all interested parties.

Na Vunikau Yaga Ni Vanua

Nai Vakalekaleka ni Tukutuku

Na vunikau me okati '**Vunikau Yaga ni Vanua**' era vunikau levu, balavu, qase ka vuqa na kedra yaga ki vei ira na lewe ni vanua ka kilai tiko na kedra sema kina veiwekani ena veivanua tale eso. A vakadiveki taumada se dua beak na kena na yaga me dua nai tuvatuva ni **vunikau yaga ni vanua** e Viti, ka vakatarogi na veivakasama vinaka me maroroi me rawa ni toqomaki kina na veika bula duidui ka vuqa tu oqo ena noda vanua se me dua na tavatuva me tokona na cakacakataki ni "Tuvatuva ni vakayagataki Yaubula nei Viti", (National Biodiversity Strategy Action Plan)

Era kilai na veivunikau lelevu e Viti mera I vurevure ni bula vei ira na veika bula tale eso, okati kina na kena vakarautaki na kakana, vanua era bula kina na manumanu duidui ni loma ni veikau me vaka na kaka (parrots), na veikau tubu vou ena veivanua vakaleqai kei na vakacokotaki ni veikau bula. Sa rawa ni dua na vurevure ni cakacaka kei na rawa I lavo vei ira nai taukei ni qele kevaka era maroroya eso na vunikau lelevu (okati me **vunikau yaga ni vanua**) me baleta na veivakatorocaketaki ni cakacaka ni Saravanua, ka vaka talega kina na nodra maroroi na 'i vakacabe ni bula' (genetic resources) mai vei ira na vunikau matua vinaka oqo. Na veivunikau lelevu e yaga vakalevu sara taleqa ena nodra vakawa na vei vunikau vakaitaukei, ko ya ena nodra dua se, ka vua ena veiyabaki.

Era vakabauta na lewe ni vuli ni dodonu me dua na tuvatuva levu nei Viti me baleta na maroroi ni **vunikau yaga ni vanua**. E rawa talega ni vakayagataki me i dusidusi vei ira na i taukei ni qele kei na matanitu me ra kila na kalougata ni mamaroroi Yaubula. Era marautaka kece sara na lewe ni vuli na vakasama oqo ni na vuqa na kena yaga vei keda, vakausivi noda kawa mai muri. E tiko edua na ririko de muria ko Viti na leqa ka tarai Indonesia kei New Guinea, ena nodra sa musuka na kabani ni musu kau edua na I wase levu ni veikau ka rawarawa na kena cakacakataki, nib era ni vakacilavi vei ira na I taukei ni qele na yaga ni maroroi na veivunikau lelevu kei na loga ni veikau dina vakaitaukei.

Me vaka ni salavata na mamaroroi ni Yaubula kei na i vakarau vakavanua e Viti sa matata na nodra vakaitavi na Tabacakacaka i Taukei kei na Vale ni Volavola ni Yasana e Viti me rau vukeya na vakatetei ni maroroi ni **vunikau yaga ni vanua**. Era sa tu vakarau na veitabana ni matanitu kei na veisoqosoqo mera veitokoni ena veivakasalataki. Me qaravi main a veivakaturi taumada ena Bose Vakamataqali se Bose Vakoro me baleta na maroroi ni **vunikau yaga vanua** ka me qai vakau mai kina Tabacakacaka i Taukei. Oqori e vica wale na vakasama me rawa ni yavalati kina edua na i tuvatuva.

E sega ni namaki me levu se sivia sara nai sau ni kena tauyavutaki kei na kena qaravi e dua na tuvatuva ni **vunikau yaga ni vanua**. Na i sau ni kena tauyavu e rawa ni vakagolei mai vei ira na NGOs me vaka na Wildlife Conservation Society. Ia, ena rai balavu me qai vakasaqarai eso na vurevure ni lavo, lavaki e dua na I wase ni lavo ni biu vanua (departure tax) ka tauyavu e dua na kena tobu, na soli veivuke mai na veisoqosoqo lelevu e vuravura, na veimatani se na nodra i tini (multi-lateral agency grants), se na cau mai vei ira na kabani dau musukau, varokau se volitaki kau. Na toso vinaka ni tuvatuva vaka oqo ena vakatau vakalevu ena nodra taleitaka tiko na lewe ni vanua, ko ira era vakatokai mera i taukei ka i vakatawa ni **vunikau yaga ni vanua**.

Era vulica na lewe ni vuli me makata ena mape na vanua era kunei kina na veivunikau lelevu. E matata ni ra bula ena vanua sega ni dau lakovi vakarawarawa, vaka kina na loga ni veikau e se bera ni bau vakayacori kina na musu kau. E kune na veikau oqo ena veidelana se veitokaitua sulusukura, dina ga ni so e kune ena veivanua lolovira me vakataka na Sovi Basin e Viti Levu. Ena rai vakarabailevu, na vovo ni vunikau lelevu ka bula tiko ena gauna oqo, era kune ena vanua ka se bera ni qaravi kina na musu kau. Ia, ena so na vanua sa qaravi oti kina na musu kau, era sa maroroya oti tu na veivunikau lelevu okati me **vunikau yaga ni vanua**. Ena vei yasa i Viti kei Rotuma ka kune kina na veivunikau lelevu e tiko na kedra i sema e na kedra i cavuti vakavanua kei na veika talei era kilai tani kina. A mani vakatovototaki me makataki ena mape, yadudua na veivunikau kei na loga ni veikau ena vanua era dui bula kina. Na mape kei na kedra i tukutuku na **vunikau yaga ni vanua** sa vakarautaki tale tiko ga ena i tukutuku ni vuli oqo.

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Heritage Trees: An Introduction

Heritage trees are individual trees that are especially valued for their great size and age, or for some particular historical or cultural significance. In many parts of the world, heritage trees have been identified, formally recognized, and conserved as part of the natural and cultural heritage of a country or culture. This growing recognition of heritage trees is timely as trees of great stature and age, in particular, are vanishing around the world due to logging. Giant dakua, vesi, and yaka trees once dominated Fiji's forests. Larger trees in Fiji are now very rare, often restricted to more remote forests. Fiji has a window of opportunity to preserve examples of these heritage trees for the benefit of future generations.

What are these benefits? Heritage trees are of aesthetic and ethical significance to our society. The fact that heritage trees have survived hundreds or thousands of years can provide a feeling of awe and respect for nature, and testifies to the marvelous works of our Creator. These trees standing in the forests provide a living link to previous generations of Fijians who valued them as totems or transformed them into the swift drua that once plied the seas of Fiji.

Heritage trees also have great biological significance. Very large trees represent rare biological phenomena, an important element of biodiversity that is addressed in the recently legislated Fiji National Biodiversity Strategy Action Plan (NBSAP). In some forests around the world, there are many plant and animals species that live only in rare old-growth forests dominated by giant trees. For example, in western North America, there is a giant mushroom that only grows on trees over 400 years old. The dependence of certain Fijian forest species on old-growth forests and large trees is unknown at this time. But we do know that our own kaka (shining parrots) require larger, older trees so that they can excavate nest holes big enough for successful breeding. The Fijian giant longhorn beetle or quo, the world's longest beetle, may also require large dead trees for successful reproduction.

Very large trees are also survivors, weathering centuries cyclones, fires, drought, and disease. Their successful genes are important for the long-term health of tree populations and forests. Large trees can also provide seeds and fruits for parrots, bats, and other wildlife during stressful droughts or after cyclones. Large tropical trees are also known to contribute a large majority of a given year's seeds and seedlings, thus large trees are critical for maintaining regeneration throughout large areas of forests and may have a critical role in restoring forests after cyclones.

Heritage trees can also have economic significance. Ecotourism is a growing industry in Fiji and many visitors are familiar with heritage tree programs and drawn to them as special attractions. A single ancient dakua tree protected in a reserve in New Zealand is estimated to draw in several millions of dollars a year to the local economy. While not all heritage trees may be accessible to ecotourists, several trees may be able to generate good income for local communities, especially if the trees are promoted through a national heritage tree program. Establishing a heritage tree program will also reflect Fiji's commitment to the tenets of the Convention on Biological Diversity, further enhancing Fiji's reputation as a nation in step with progressive global initiatives and as a destination for visitors seeking natural wonders.

Heritage trees are particular trees of special value due to their cultural significance or their unusual biological features such as great age or immense size. Many government and cultures around the world are now identifying and protecting heritage trees. We are exploring whether the heritage tree concept is something that would be useful for preserving Fiji's forests and cultural heritage. What definition of heritage trees makes sense for Fiji, and if there are different kinds of heritage tree classifications that are most appropriate. Should heritage forests around heritage trees be

recognized? We have initiated a mapping of known trees that should be recognized as heritage trees at 1:50,000 scale. A system for adding new trees at a later data should be developed.

What is the best process to get formal or national recognition or registry for heritage trees in Fiji, and who would manage tree databases and registrations. If a heritage tree program was established, what are some approaches that would enable landowners to benefit from heritage tree status? How much funding would be required to support such a program, and what are potential funding sources?



Heritage Tree Concept

Would a heritage tree program benefit Fiji, particularly the communities in the rural areas and interiors of both Viti Levu and Vanua Levu where the majority of the forests are located. Discussions at the workshop centered on five questions:

1. Does the heritage tree concept make sense for conserving biodiversity and culture within Fiji?
2. What definition of heritage trees is most appropriate for Fiji?
3. Are there different types of heritage trees (e.g. large and old, cultural significance, historical significance) and which types make most sense for Fiji?
4. Should heritage forests around heritage trees be recognized?
5. How much forest is needed to enable heritage trees to survive (wind throw, regeneration, etc)?

The workshop participants agreed that supporting the initiatives to protect and conserve terrestrial ecosystems and natural resources, including heritage trees, is important, especially in light of the recent focus on marine environments and qoliqoli areas. Further, trees and forests resource are part of the daily lives and indigenous identity of Fijians, and thus should be treated and managed with respect and understanding. Heritage trees are a source of life to many other forms of life and have numerous tangible and intangible uses and values.

Do Fijians identify with heritage trees? Mataqali in every Yavusa have their own tree they call their own which represents the bond or relationship between people that exists within their communities. With the endorsement of the Provincial Council, the Roko Tui's present considered the conservation of forest resources, including heritage trees, to be part of their normal duty and that it was their responsibility to encourage village and elders to establish village- and tikina-based reserves and re-establish village resource gathering areas.

It was agreed that heritage trees are broadly defined as large dominant trees, endemic and unique trees, and those with special traditional usage. Individual trees could be defined and recognized at the local, national, and regional/international level. For example, the largest dakua in Fiji might be recognized as nationally important.

The forests and forest communities surrounding the heritage trees should be recognized as vital to the conservation of biodiversity and sustainability of natural resources in different areas. The conservation of forests surrounding heritage trees would benefit from management guidelines developed by the Ministry of Fisheries and Forestry and legal codes under Fiji law. Fortunately, there is already a legal foundation for this in the NBSAP and several other regulations administered by the Department of the Environment, such as the Convention on International Trade in Endangered Species (CITES) which was signed and agreed upon by 160 countries including Fiji.

Forest conservation areas and forest reserves need to be established to enable heritage trees to survive. How big a conservation area needs to be to effectively conserve single trees or groves of trees will depend upon several factors. First, large trees are buffered from windthrow by surrounding forests. Large areas of intact forest around heritage trees may be required to keep emergent and heavy trees from toppling during the strong winds of cyclones. Research conducted in fragmented forests in the Amazon suggests a forested area with a diameter at least 40 times the height of the tree is necessary to provide a buffer against windthrow. Forest edges continue to suffer the loss of trees due to wind and drying so isolated forest patches will continue to shrink. Floods caused by deforested watersheds can also damage roots or cause trees located in bottomlands to topple or die. For viable populations of trees to persist, much larger areas are required to maintain populations of 500 reproductive trees or more (an arbitrary number often given as a minimum in

conservation analyses). How many trees, and their age structure, that is required to sustain populations will depend on the reproductive system of different trees and how they are distributed throughout forested landscapes. For example, often dakua occurs in relatively isolated groves along ridges or in flat areas near rivers. A large area of natural forest may be required to protect a sufficient number of trees for adequate gene flow and regeneration of the dakua population. Research on the distribution and reproductive patterns of dakau and other tree species would be useful to determine the minimum area necessary to maintain viable populations.

The importance of forest conservation and the impact of man's actions on the environment need to be further emphasized. Local people need to be aware of the economic value that trees have, both as timber and as living trees in natural forests, so that they can make informed decisions about their forests and not allow themselves to be manipulated or taken advantage of by external forces. One participant from New Zealand remarked that Fiji is very fortunate to have some of the most beautiful trees and forests in the world and that opportunities to conserve large forested landscapes still exist. Fiji is at a crossroads where decisions have to be made regarding the conservation and exploitation of its natural forests. The demand for timber from tropical forests will only increase as the forests of Asia and elsewhere continue to be destroyed. It appears inevitable that international timber interests will increasingly be applying more intense pressure to convert Fiji's forests. All the lowland rainforest of Sumatra is predicted to be gone within eight years, and Fiji is much smaller than Sumatra. Fiji should also consider the economic benefits of standing trees and forests. For example, one tree called 'Tanemohua', a New Zealand dakua, attracts over 200,000 tourists a year making the presence of the tree a major contributor to the local economy.



Heritage Tree Mapping

We started to map known heritage trees in Fiji at the workshop. Although this is preliminary and not comprehensive, this mapping effort can act as a foundation for a more intensive effort to document Fiji's heritage trees. Three kinds of heritage tree features were mapped. First, individual trees or groves or trees were identified. Second, larger forested areas where heritage trees were known to occur, but which could not yet be accurately located on 1:50,000 maps, were circled. Third, larger forested areas where heritage trees were likely to occur were also mapped. A map at 1:50,000 scale can be a useful tool in locating the general vicinity of heritage trees. Field validation of tree localities can provide latitude, longitude, elevation, and other information for the map and database. Each tree or forest locality was named and the heritage tree features were described.

Workshop participants were asked to contribute to the mapping working groups that focused on the islands they knew best. A variety of heritage trees were identified, ranging from very large and old *dakua* and *yasi*, to trees of historical or cultural significance (Table 1). Four major kinds of heritage trees were documented:

- Very large or old trees in natural forests
- Trees with outstanding cultural or historical significance
- Trees unique to a particular area (local endemics)
- Mangrove forests containing larger mangrove trees

Information on each site or area was recorded, where possible, including the species of tree, the kind of heritage tree (for example, very old vs. historically significant), the location, a suggested name for each area, condition of the forest, and ownership. Preliminary heritage tree maps for Viti Levu, Vanua Levu and Taveuni, Kadavu, and the Lau Group and Lomaiviti Group are presented here (Figs. 1, 2, 3, and 4), along with tables of the localities and descriptions (Appendix 1). The maps and accompanying database are being developed in a spatial database using MAPINFO and will be made available to all interested users. However, an official database needs to be established by the organization that would manage a national heritage tree program. All additions and revisions should be made only on the official database to avoid confusion.

Viti Levu

Larger landscapes of intact forests in Serua, Namosi, and the Sovi Basin were noted for the presence of larger trees. Several areas at higher elevations, particularly around Mt. Tomanivi and adjacent valleys, were believed to harbor larger trees, as well. The Mt. Evans range has several very large *dakua* trees. Several mangrove forests around Viti Levu were recognized for their larger trees.

Vanua Levu and Taveuni

Clusters of heritage trees were located on the slopes of Navoluvotu Mountain in western Vanua Levu, Wailevu West District, around Waisali, watersheds around Delaikoro Peak, Dogotuki, Bulebulewa Peak in the north, Navakasiga District in the northwest, and the Natewa Peninsula. Taveuni was noted for extensive landscapes of natural forest with most known heritage trees around Bouma and Lavena.

Kadavu

Eight localities in western and central Kadavu were mapped as having larger trees.

Lomaiviti Group

Gau, Koro, and Ovalau were high, forested islands believed to support a number of larger trees.

Lau Group

Several islands were noted for the presence of potential heritage trees. These islands include Fulaga, Aiwa, Lakeba, Namuka i Lau, Kabara, Tuvuca, Nayau, and Oqea. Larger trees might still be found in Lakeba.

Rotuma

Rotuma just like several islands in the Lau Group does have certain areas of the island that holds older forests. Older heritage trees are known, but many of these trees have been logged for canoe building and the building of bures or fale's on the island. Several larger rain trees that have withstood many cyclones still stand on the island. One in particular is a tree that stands on a piece of land in the district of Motusa, which is the site where the deed of cession was signed when Rotuma was handed to Great Britain.

Table 1. Scientific Names of Fijian Trees Mentioned in Report

Fijian Name	Scientific Name
Buabua	<i>Fagraea gracilipes</i>
Dakua	<i>Agathis macrophylla</i>
Damanu	<i>Calophyllum leptocladu</i>
Kauvula	<i>Endospermum macrophyllum</i>
Mangrove	<i>Rhizophora</i> sp.
Makadre	<i>Agathis vitiensis</i>
Niusana	<i>Pritchardia thurstonii</i>
Tagimoucia	<i>Medinilla waterhousei</i>
Vesi	<i>Intsia bijuga</i>
Vuga	<i>Metrosideros collina</i>
Yaka	<i>Dacrydium nidulum</i>
Yasi	<i>Santalum yasi</i>



Can a Heritage Tree Program Benefit Fiji?

A variety of approaches for conserving heritage trees in Fiji were discussed at the workshop. This section highlights key points of these discussions and presents a general approach that was largely agreed upon by the assembled experts. Clearly, much additional work and consultation must occur before a formal plan of action is developed, but the approach presented here can act as a guide for this more intensive effort.

Several questions regarding a heritage tree program were the focus of discussions among the working groups. What could be a useful process to achieve formal recognition or registry for heritage trees? Who would be best to manage a heritage tree database and registration process? How can landowners benefit from heritage tree status (cultural heritage, ecotourism, trust funds, payment, etc.)? Is it possible to estimate how much funding is required to support a heritage tree program? What are the potential sources of funding for heritage trees programs in Fiji? How can a heritage tree system be communicated to Fiji and overseas?

A general organization chart for a process to develop a heritage tree program for Fiji was developed (Fig. 5). This chart incorporates suggestions from all four working groups and reflects a general consensus about an effective approach to implementing a program. It was noted that the organizational chart was in parallel with the Vanua system that is present in Fijian society and culture but not formalized.

The working groups recommended that nominations for heritage trees and associated ecotourism projects should come from individual matagali or districts. These should be discussed with the Roko Tui's and presented at various village, district, and, eventually, province level meetings. The Roko Tui would play an important role in making the communities aware of the heritage tree concept, program, and process, and in helping to convey recommendations from the villages and districts back to the heritage tree program. This is a preferable process to having an NGO or program officer working directly with the villages as communications will be enhanced and all parties will be informed of heritage tree issues and be able to have some input. It was agreed that the communities would benefit from scientific knowledge and information that would help them understand forest life better, the benefits of intact forests and large trees, and the impacts of the loss of heritage trees and forests. WCS and other organizations or government departments can assist in providing information to communities, in surveying for heritage trees, wildlife, and other natural resources, and in assessing the impacts of various ecotourism or development activities. Communities must also understand the rights to which they are entitled, especially with regards to forests and natural resources.

The role of the Ministry of Fijian Affairs was highlighted as being vital in the development of a heritage tree program for Fiji. They would be responsible for the collection of data and database management for heritage tree, and ensuring that information is disseminated to, and discussions carried out at, at provincial, district, and village level meetings. They would formulate a reserve inventory and that they would take the lead on capacity building in the villages. It was suggested that funding for FAB for this program might come from several sources including government departments, NGOs, regional agencies, international agencies, and landowner contributions and sponsorship. WCS would be willing to contribute some start up funds for the program.

FAB would be the main body that would look after and help manage funds that might be gained from heritage tree related ecotourism activities. They would be the agency responsible for the dissemination of information to relevant organizations such as the Department of Tourism, Ministry

of Fisheries and Forestry, Department of the Environment, Native Land Trust Board, and others. FAB would also record and update heritage tree information for the relevant koro, tikina and yasana (village, district, and province) bodies. An advisory committee comprised of representatives from DOE, MAFF, Tourism, NLTB, USP, and NGOs would provide review and guidance to FAB.

Comments and Next Steps

Mr. Bogiva, the workshop facilitator, felt that good progress was made towards developing a heritage tree program for Fiji, and was pleased with the collegiality and cooperation of the workshop participants who represented a wide range of landowners, government institutions, and non-profit and academic organizations. The Roko Tui's from Macuata and Cakaudrove suggested that this report be prepared and followed by an implementation plan from FAB, an advisory committee, and technical advisors. Heritage tree program materials should be translated into Fijian when finalized. An invitation was extended for WCS to participate in the Bose Ni Yasana (Provincial Council) meetings and also to visit heritage tree sites that they have identified. Manasa Sovaki, from the Department of Environment mentioned that survey reports from NGOs, such as several recent reports from Birdlife International, were very helpful in their efforts to implement the NBSAP and develop a database on Fijian biodiversity. Surveys from heritage tree projects would be similarly useful. Mr. Alivereti Bogiva would take steps to form an advisory committee for a heritage tree program.

Conclusions

- Very large trees of dakua, yaka, damanu, vesi, and other species are increasingly rare in Fiji as logging reaches further into natural forests.
- A heritage tree program would be an appropriate and useful tool for conserving the exceptional trees of Fiji and it's biological wealth overall. A heritage tree program would help implement the Fiji NBSAP, and would help show Fiji's commitment to international conservation initiatives.
- Heritage trees have important biological benefits for the conservation and sustenance of Fiji's forests including a major role in the regeneration of forests, maintaining important genetic resources for the adaptation and persistence of certain tree species, and providing habitat and food for many wildlife species.
- Potential economic benefits of heritage trees include income from ecotourism projects, conservation of genetic resources from trees that have survived cyclones and disease, and the great capacity of large trees to regenerate forests.
- A preliminary mapping of heritage trees was undertaken for Fiji. Very large trees are mainly restricted to relatively inaccessible, larger blocks of natural forests.
- Many communities throughout the Fiji Islands and Rotuma value individual trees for their cultural and historical significance.
- An organizational structure for a heritage tree program was recommended that would have the Fijian Affairs Board overseeing the program and working directly with the Roko Tui of each Province and various district and village bodies. An advisory committee consisting of representatives of government institutions, such as NLTB, DOE, MAFF, and Tourism, local NGOs, and academic institutions would provide input to the heritage tree program.

Appendix 2. Examples of Heritage Tree Programs around the World

UNESCO

UNESCO's World Heritage Convention came into being in 1972 with the primary mission of identifying cultural and natural heritage of outstanding value throughout the world, and ensuring its protection through international cooperation. By signing the world heritage convention a country pledges to protect the whole of its national heritage whether or not it is recognized by being included on the world heritage list. Such programs are carried out in NZ, Australia and some Pacific island countries. Some World Heritage Sites, such as ones conserving the last remaining cedars of Lebanon or the oldest cedar in Japan, are intended primarily to conserve heritage trees.

Oregon's Heritage Trees, Oregon State, USA

This program established to increase public awareness of the important contribution of trees to the state history and the significant role the trees play in the daily lives of the people. Examples of these heritage trees are the largest sitka spruce in America and giant sequoias planted in the 1880 by pioneers from the seeds of cones gathered from the Gold Rush era.

Seattle Heritage Tree Program, Washington State, USA

Heritage trees are nominated as an individual or a collection having the owners approval and meeting the following categories: *specimen* (trees of exceptional size, form, or rarity); *historic* (trees recognized for their great age or association with or contribution to a historic event); *landmark* (trees that are landmarks of a community); or *collection* (trees in a notable grove, avenue or other planting). Each heritage tree is identified by a plaque or placed with a deed restriction on their property to provide for future tree protection.

Champion Tree Program, USA

This private program determines the largest specimen of various tree species in North America. In this program only native and naturalized trees are eligible. In this case, the trees are scored by a point system based on three measurements, girth, height, and crown spread. This program also keeps a list of America's biggest trees. The register is published every other year and is compiled by individual states nominated by private citizens and professional foresters.

The Tree Register of the British Isles, United Kingdom and Ireland

The Tree Register is a non-profit organization collating and updating a database of notable trees throughout Britain and Ireland. This register comprises of a computer database with details of more than 125,000 trees. It records details of rare, unusual and historically significant trees. It also provides full data on the largest trees of each species. The Tree Register organises a volunteer network of over 50 tree measurers who update historical records and discover over 2,000 new trees worthy of inclusion each year.