PLANTS AND PEOPLE OF VANUATU

A Partnership between the New York Botanical Garden, the Vanuatu Department of Forestry, the Vanuatu National Herbarium, the Vanuatu Cultural Center, and Communities in Vanuatu.

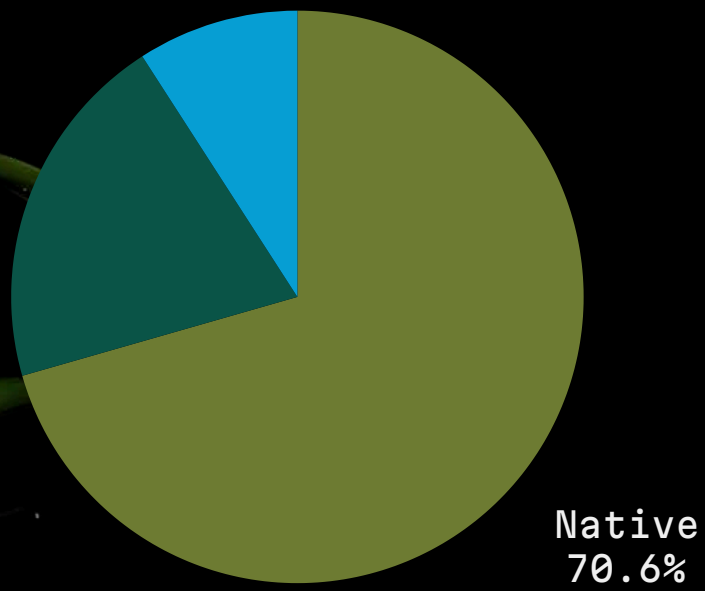
NYBG

VANUATU AT A GLANCE

KEY STATISTICS

POPULATION:	300,000
INDIGENOUS LANGUAGES:	138
VASCULAR FLORA:	1,652 SPECIES

FLORA OF VANUATU



Phreatia micrantha

WHY VANUATU? WHY NOW?

Vanuatu is an archipelago of 83 islands in the South Pacific with a population of around 300,000 people who speak 138 different Indigenous languages, making it the most language-dense country on earth. As part of the recognized East Melanesian biodiversity hotspot, Vanuatu is home to 1,652 species and 192 families of vascular plants.

The people of Vanuatu maintain a deep connection to their traditional ways of life: the cultural fabric of Vanuatu is woven closely with the environment, as communities rely on local plants for food, clothing, shelter, and medicine.

In recent years, Vanuatu culture has faced increasing threats due to poor land management, climate change, and the erosion of traditional ecological knowledge. These pressures not only endanger the region's rich plant life but also threaten the survival of cultural practices that have been passed down for generations. The *Plants and People of Vanuatu* program aims to address these urgent issues by working directly with communities to document, preserve, and revitalize biocultural knowledge and practices.

For over 20 years, the New York Botanical Garden (NYBG) has collaborated with Pacific Islander communities to support their biodiversity and cultural conservation priorities. Since 2014, the *Plants and People of Vanuatu* program has collected nearly 4,500 plant specimens along with local-language names and cultural uses to advance research in food security, climate education, and sustainable land practices. The program's key objectives include fostering biocultural research, promoting conservation initiatives, and building local capacity to ensure that both the people and plants of Vanuatu continue to thrive in the face of global change.

THREATS & VULNERABILITIES

Vanuatu faces **significant environmental and social challenges** that threaten both its natural ecosystems and cultural traditions. Situated within the **Pacific Ring of Fire**, Vanuatu is highly susceptible to natural disasters, including frequent earthquakes, volcanic eruptions, cyclones, and tsunamis. Additionally, **rising sea levels** pose a continued threat to coastal communities, endangering homes and infrastructure. These environmental pressures exacerbate the vulnerability of Vanuatu's people, many of whom rely on the land and sea for their livelihoods.

Beyond environmental risks, Vanuatu also faces **complex social and economic challenges.** Moreover, cultural erosion is accelerating due to shifting economic pressures and globalization. The country also continues to suffer from transportation difficulties by both air and sea. Vanuatu has struggled with building resilience against these threats, making conservation and cultural preservation efforts more critical than ever.

A. Map of the southwest Pacific, highlighting Vanuatu. B. Map of Vanuatu, divided by province. C. The five islands of Tafea Province, the focus of the first decade of work in Vanuatu.

Astronidium aneityense

The impacts of climate change are felt everywhere in island nations.

Cyclone Pam, a Category 5 storm that struck Vanuatu on March 13, 2015, as the most intense storm ever to make landfall in the South Pacific. It caused extraordinary devastation to the country, as shown here.

In the quarter century before Cyclone Pam, storms were much less frequent and intense, but since 2015, there have been a total of six major cyclones striking Vanuatu.

OUR APPROACH

Project partners from South Tanna.

The *Plants and People of Vanuatu* program is committed to **building community-driven initiatives**, ensuring that the people of Vanuatu define their own priorities and receive the resources they need to achieve their goals. Rather than imposing external mandates, this work is guided by a grass-roots model, where local communities take the lead in establishing conservation and cultural preservation initiatives. NYBG's work in Vanuatu has been in close collaboration with the Vanuatu Department of Forestry, the Vanuatu National Herbarium, the Vanuatu Cultural Center, and dozens of individual communities in Vanuatu. These partnerships promote long-term sustainability, allowing Indigenous people to maintain governance over their land.

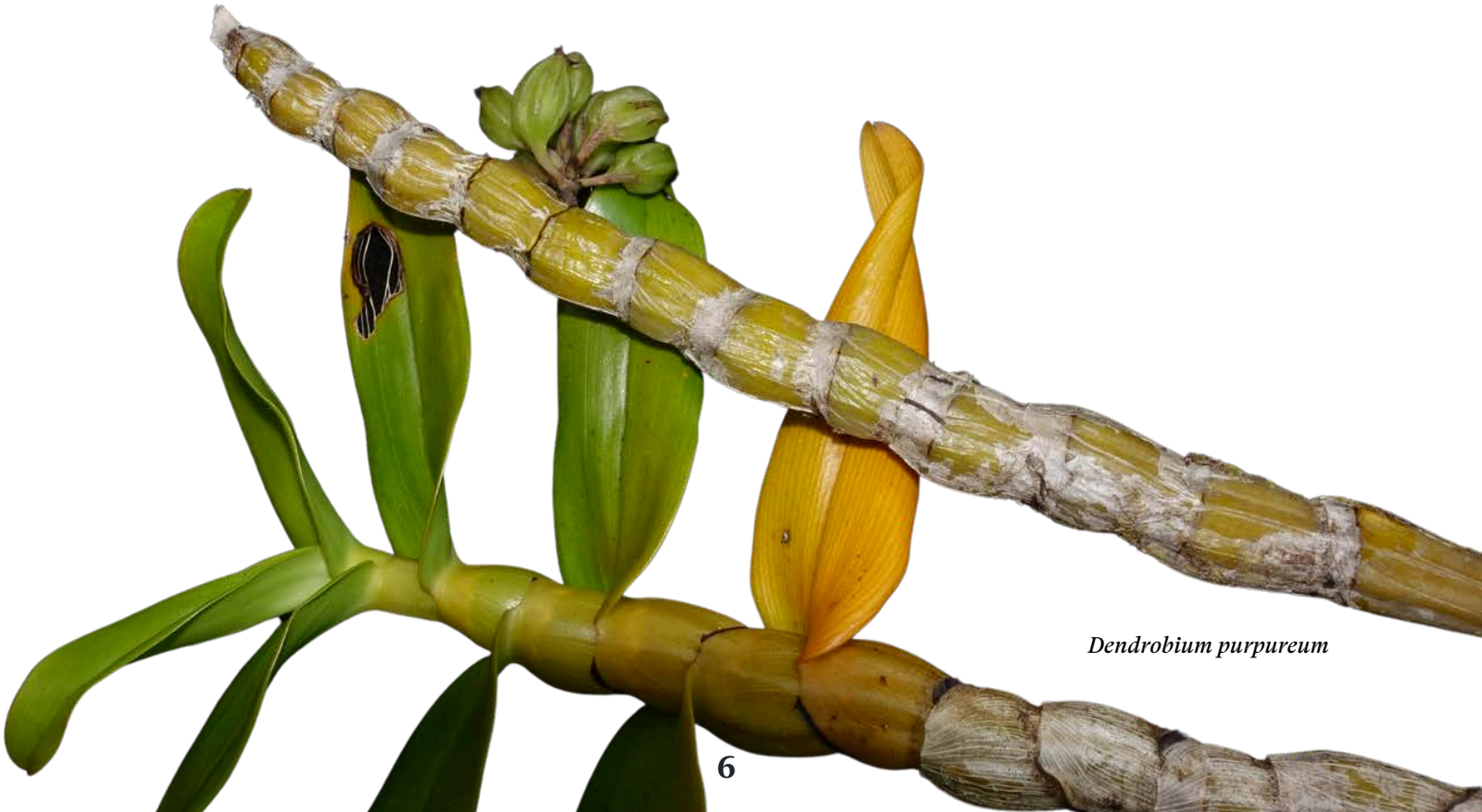
A key pillar of this approach is the recognition that biodiversity, culture, and language are deeply interconnected—when any one of these three is lost, the other two are immediately put at risk. Preserving cultural memory is vital for safeguarding traditional knowledge and protecting Indigenous communities from the pressures of globalization and environmental change. Through community-led initiatives, the *Plants and People of Vanuatu* program works to ensure that this rich heritage endures for the benefit of future generations.

Corynocarpus similis

PLANT BIODIVERSITY AS A KEY TO RESILIENCE

Before the *Plants and People of Vanuatu* project, there was no comprehensive record of Vanuatu's plant biodiversity. Insufficient documentation of the country's flora limited scientists' capacity to understand the country's biogeographic relationships, both within the archipelago and across the Pacific. This informational gap also hindered conservation efforts, as a plant checklist is essential for evaluating species distribution and ecological importance. Without formal recognition on the IUCN Red List, many of Vanuatu's threatened and endemic species faced obstacles in securing the resources needed for protection and management.

To address this gap, the *Plants and People of Vanuatu* project has developed a checklist that lists 1,652 vascular plant species—of which 1,268 (76.7%) are native, 376 (22.7%) are introduced, and 0.5% remain of uncertain status. These efforts provide a foundation for future conservation planning, ensuring that Vanuatu's unique plant biodiversity receives the recognition and protection it deserves.



Dendrobium purpureum

KEEPING CULTURAL USES OF PLANTS IN PRACTICE

The people of Vanuatu have a profound relationship with their natural environment, using plants for a wide array of cultural and practical purposes. Nearly every aspect of daily life is connected to plants, from food and medicine, to housing and clothing, to cultural traditions and spiritual practices.

One fascinating example is the use of calendar plants, which signal seasonal changes and provide cues for certain activities, such as hunting, gardening, and fishing. In southern Vanuatu, the *nakul* tree (*Boehmeria virgata*) is an important seasonal indicator—when it blooms with small white flowers, the community knows it is time to plant sweet potatoes (*Ipomoea batatas*). This plant serves a different purpose in the southwestern part of the island, where local people use the plant's flowering as an indication that it is time to harvest taro, demonstrating how ecological knowledge is tailored to local conditions.

Another remarkable tradition is the use of message plants, which facilitate nonverbal communication between community members of the same village or between different tribes. On Aneityum Island, the *naposeri* tree (*Murraya odorota*) is associated with song creation. If someone desires a new song, they present a branch of this tree to a songwriter, who will then receive a composition from the spirits.

Transmission of traditional knowledge for plant use is key to the project.

At the Sakerau Kastom Skul, a school program held on Tanna Island in August of 2018, local experts in traditional knowledge and skills gathered for one week to teach over 100 children the traditional skills and knowledge of their kastom (customary practices) as they relate to plants, who enrolled in the first formal program to convey these skills through a week-long formal curriculum. Shown here, top to bottom are the Slow Food Mamas preparing traditional foods for the school program; heating vines over the fire to make them pliable for tying posts and beams of traditional houses; and learning to prepare the stem of Bambusa vulgaris to use as a container to store and serve water.

LANGUAGES ENCODE ENVIRONMENTAL KNOWLEDGE

Vanuatu is the most linguistically dense country on Earth, with 138 Indigenous languages spoken across its many islands. The people of Vanuatu are descendants of the Lapita, an Austronesian group that migrated across the Pacific between 1500 and 500 BCE. The languages spoken in Vanuatu belong to the Austronesian family, connecting them to languages as geographically distant as those in Madagascar, Taiwan, and the Philippines.

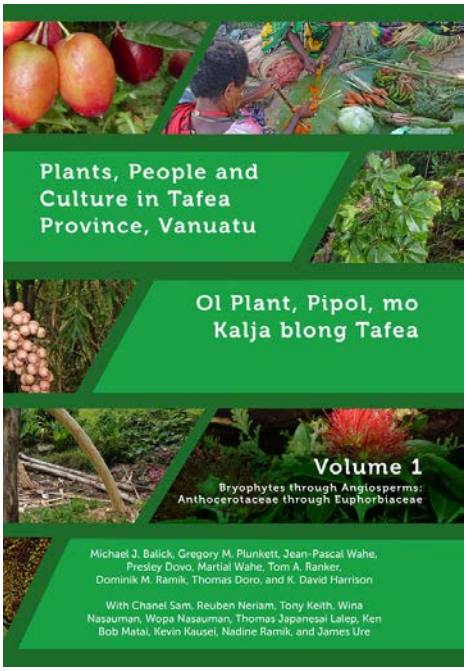
Vanuatu also uses a local creole language called Bislama, which serves as its lingua franca throughout the country, facilitating communication between speakers of different Indigenous languages. Gradually, the increasing dominance of Bislama and other languages with European roots has placed pressure on Vanuatu's Indigenous languages, causing linguistic shifts that lead to language erosion over time. Even languages that are considered "secure" are losing significant parts of their vocabularies related to nature, disrupting the transmission of environmental knowledge encoded within them. Many traditional ecological terms in local languages are difficult or even impossible to translate into Bislama, English, or French.

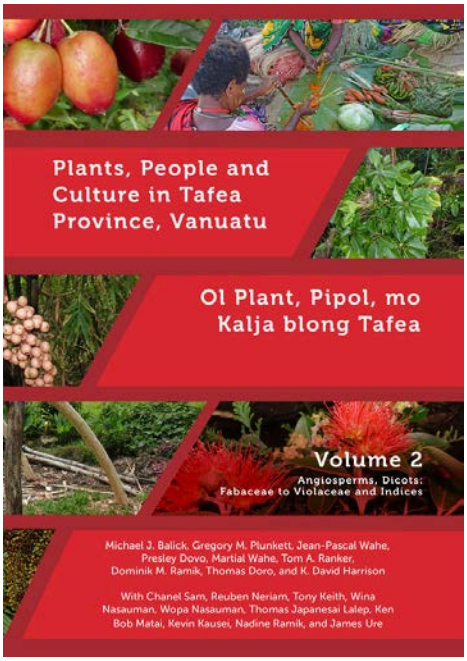
To address this challenge, ***Talking Dictionaries*** have become an essential tool to document and maintain local languages. *Talking Dictionaries* record the pronunciation, alternative spellings, and definitions of Indigenous words, ensuring that Indigenous knowledge remains accessible to future generations. Language-documentation efforts require close collaboration with local experts, as linguists work carefully to ensure accuracy in their documentation.

Talking Dictionaries for several of the most commonly used languages in Vanuatu are already available on the program's website (https://pvnh.net/vanuatu-talking-dictionaries/), and additional ones are actively being developed. These efforts are vital for preserving not only linguistic diversity but also the environmental wisdom embedded within Vanuatu's languages.

SUSTAINING CULTURAL IDENTITY

Cultural memory is collective memory held by a community, rather than an individual, binding people together to provide benefits that help individuals on their journey through life. Plant-based cultural memory relies upon stories, rituals, traditions, and language, as well as knowledge of the uses of plants for many aspects of life—including food, medicine, construction, fuel, clothing, and tools. In Vanuatu, cultural memory remains strong but is now vulnerable as the elder stewards of this information pass away without conveying their knowledge and skills to younger people. The Plants and People of Vanuatu program is working to preserve plant-based biocultural knowledge not only through documentation but also through cultural activities such as kastom schools where traditional knowledge can be taught to large groups of young people in a formal setting.





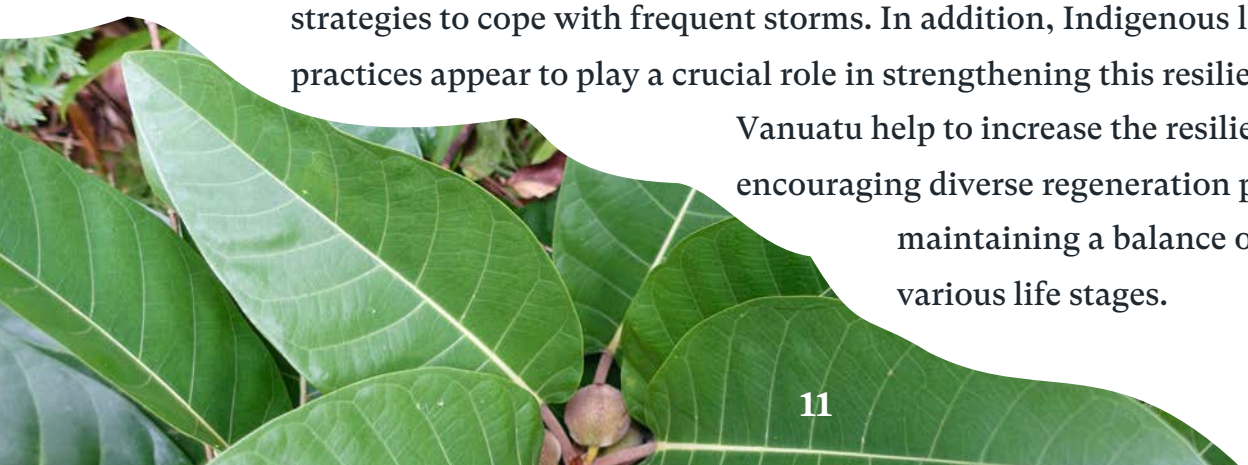
One major goal has been to codify Vanuatu's plant-based information. Today, this knowledge is commonly held by selected, mostly elderly community members and is in danger of disappearing. In the summer of 2025, the project published a two-volume work, ***Plants, People and Culture in Tafea, Province, Vanuatu (Ol Plant, Pipol, mo Kalja blong Tafea)***, the first such work of its kind ever produced for this country. It results from a decade of plant collecting combined with ethnobotanical and linguistic interviews from over 200 local experts, comprising nearly 1,000 pages of information and richly illustrated with color photographs. This work is an unparalleled resource for community members seeking to preserve and transmit plant uses and names — a significant contribution to self-sufficiency. New methods of dissemination are also being developed, including ***LiguaNabanga***, an interactive app that combines photos, use information, and recordings of names by native speakers, and can be easily accessed on computers and smart phones.

FOREST MONITORING AND PROTECTION

The *Plants and People of Vanuatu* program is dedicated to studying forest changes over time and promoting resilience in the face of environmental challenges. Effective forest monitoring relies on a variety of strategies. One key technique is surveying transects, which involves systematically studying sections of the forest to track plant diversity, population changes, and habitat conditions over time. These surveys provide valuable data on species composition and help detect early signs of environmental stress. Additionally, interviews with Indigenous land stewards provide crucial insight into traditional ecological knowledge, further enriching scientific understanding of Vanuatu's forests.

Understanding forest recovery after extreme weather events is a key focus of this research. In 2015, the category-5 Cyclone Pam devastated much of the Vanuatu archipelago, but our researchers were on the ground conducting pre- and post-cyclone surveys to assess the cyclone's impact on forest structure and composition. By comparing transect data collected before and after the storm, they were able to examine which factors influenced the rates of tree damage and survival. The study also tracked the regeneration of the canopy, ground cover, seedlings, and saplings to determine how forest communities recover over time.

The findings revealed that Vanuatu's forests exhibit high levels of resistance and resilience. Despite the storm's intensity, tree mortality remained relatively low, the overstory canopy rapidly closed, and a diverse range of new seedlings and saplings quickly regenerated. Collectively, these findings suggest that Vanuatu's forests have developed robust adaptive strategies to cope with frequent storms. In addition, Indigenous land stewardship practices appear to play a crucial role in strengthening this resilience. The people of Vanuatu help to increase the resilience of forests by encouraging diverse regeneration pathways and maintaining a balance of species at various life stages.



Vanuatu's forests have so far been resistant to many disturbances, including cyclones, invasive species, and small-scale agriculture, but the scale and pace of these threats are accelerating.

Surveying and monitoring forest transects provides insights into how forest habitats are changing. Shown top to bottom: the use of a 10-meter aluminum collecting pole to gather specimens from trees; collecting and field-pressing herbarium specimens in the forest; and, carefully preparing the specimens at base camp for shipment to the Vanuatu National Herbarium, where they will be dried and curated for study by specialists worldwide.

BUILDING LOCAL CAPACITY

A key goal of *Plants and People of Vanuatu* is to train the next generation of Indigenous botanists, ensuring that local scientists can lead research and conservation efforts. Currently, much of the botanical research in Vanuatu is conducted by experts from outside the country. By investing in local education and training, this program aims to shift that dynamic, empowering communities to document, study, and protect their own plant biodiversity.

In pursuit of this goal, *Plants and People of Vanuatu* has prioritized the development of local research infrastructure. This has included assisting with the expansion of the Vanuatu National Herbarium (PVNH), providing essential resources such as the herbarium's database, and the development of a highly dynamic "progressive checklist app" to present the new Vanuatu plant checklist, ensuring that Vanuatu's botanists have the tools they need to advance their work. Together, these initiatives lay the foundation for long-term, locally-led conservation efforts in Vanuatu.

Herbarium specimens are now curated in modern collections facilities at the Vanuatu National Herbarium.

Macodes sanderiana

SPECIES CONSERVATION

Protecting Vanuatu's plant biodiversity requires a combination of scientific assessment and community-led conservation efforts. Understanding which species are most at risk is a critical first step in developing effective conservation strategies. Researchers conduct species assessments using the IUCN Red List, systematically evaluating their status, threats, and conservation needs. As of 2025, plant species have been assessed as Critically Endangered (CR), Endangered (EN), or Vulnerable (VU) under IUCN criteria. More than 60% of these assessments have been carried out by Plants and People researchers, and these assessments are essential for guiding conservation strategies.

One of Vanuatu's most endangered species is ***Carpoxylon macrospermum***, a critically endangered endemic palm that grows wild only on three islands in southern Vanuatu. Once thought extinct, a botanical survey in 1994 discovered only 37 mature trees left in the wild. Habitat loss due to land clearing for development and agriculture, natural disasters, and rapid environmental change has severely impacted its population. To ensure this species' survival, the ***Plants and People of Vanuatu*** program has led conservation efforts to collect seeds, build community nurseries, plant palm saplings from these nurseries, and establish protected areas to maintain this highly threatened species in its native habitat, all while engaging local leadership from the communities that serve as stewards of these forests. Currently, six protected areas safeguard 60% of the remaining wild populations of this endemic palm. Collectively, these initiatives serve as a

model for future conservation efforts in Vanuatu.

Another recent and highly significant initiative of the *Plants and People of Vanuatu* program has been the development of **Kastom Forest Konsevesen (KFK),** a collaborative effort between the Vanuatu Department of Forestry, the Vanuatu Kaljoral Senta, and the New York Botanical Garden (NYBG). Developed locally on the island of Tanna, KFK emerged as a response to outside models of conservation that often pressure Indigenous communities to commodify their land. These practices directly conflict with Melanesian values, where wealth is traditionally measured in land, not money. KFK's approach ensures that conservation efforts align with local priorities, respect Indigenous governance, and uphold traditional values. In practice, KFK's work includes facilitating community workshops, forming village-led conservation teams, building eco-friendly "bush nurseries" for propagating and replanting native trees, and conducting biocultural diversity surveys.

Globally, Indigenous peoples manage 25% of all terrestrial habitats on earth, collectively making them among the most important stewards of biodiversity. Indigenous conservation methods have long played a crucial role in maintaining forest health, offering insights into sustainable land stewardship. Plant conservation efforts are crucial not only for saving threatened species but also for preserving cultural traditions tied to the land.

Selliguea feeioides

FOOD SECURITY & AGRODIVERSITY

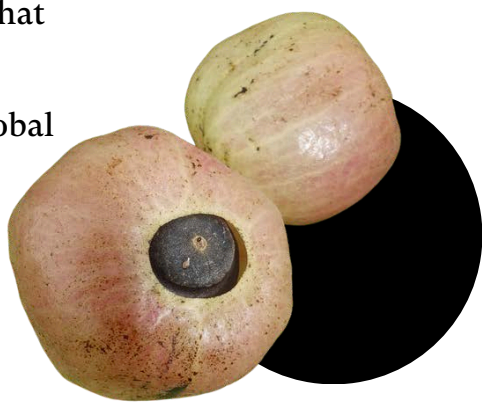
Agricultural plants in Vanuatu range from those used as food or animal feed to plants used to maintain these crops, such as fertilizers or even the tools used for planting. Most of Vanuatu's agriculture can be described as subsistence farming, providing the food for individual families and villages, rather than for sale in markets or export. In addition to cultivated crops, we have documented over 180 species of wild-growing plants that are used as food sources, including a category known as "famine" or "emergency" foods that are vital to survival in Vanuatu's disaster-prone environment.

Agrodiversity is the diversity of plants used for food and agriculture, and just as biological diversity is essential to the proper functioning and long-term viability of an ecosystem, agrodiversity is essential to the resilience of agricultural systems. Monocultures of important crops can become susceptible to the effects of pathogens or climate change, resulting in reduced production or even their demise. Our program has been able to demonstrate the great diversity of locally recognized and adapted cultivars used throughout the archipelago. Traditional gardens in Vanuatu comprise complex and diverse arrays of cultivated plants, most in intercropped fields. One goal of the Plants mo Pipol blong Vanuatu Program is to continue to inventory the country's agrodiversity to establish a baseline of the cultivated varieties in current use. This diversity helps to ensure that people will be able to grow what they need to maintain their livelihoods, despite a changing environment, now and into the future.

VANUATU'S LESSONS FOR THE WORLD

Unlike many other parts of the world, Vanuatu's traditional way of life has largely avoided extractive industries such as mining and large-scale logging. Instead, Vanuatu's communities have prioritized using traditional approaches for preserving their ecosystems, ensuring that resources remain available for future generations.

Vanuatu serves as an example of the unique role that islands play as incubators of environmental innovation. With limited land, fresh water, and agricultural space, island communities must develop resource-management strategies that balance human needs with environmental preservation. Many of these traditional practices, such as sustainable fishing methods, rotational agriculture, and wealth systems based on land that cannot be alienated from family groups, provide examples of locally developed solutions that can provide a framework for addressing global sustainability challenges.



Vanuatu's approach to conservation offers valuable insights into how societies can live within their ecological means while maintaining cultural and economic stability. By sharing their knowledge with researchers, conservationists, and policymakers from around the world, the people of Vanuatu contribute to a growing global movement for sustainable living.

Sustainable use of plants is central to maintaining Vanuatu's rich tapestry of cultural practices. 70% of people still live in rural areas, supporting themselves through subsistance agriculture and depending on biodiversity resources for their everyday livelihoods. But outside pressures are leading to a rapid transition towards urbanization and cash-based economies.

Therefore, it is vital that local skills and plant-based knowledge are passed down to the younger generations before they are lost.

Shown top to bottom: Construction of a traditional house; using leaves of Piper latifolium to ritually lift a person up who cannot walk; celebrating the end of a lesson on how to make a local flute from the stem of wild cane (Miscanthus floridulus).

VANUATU: AN INCUBATOR FOR NATURE-BASED SOLUTIONS

People in Vanuatu have a **biodiversity-dependent lifestyle**, continually relying on their close relationship to nature, but there are many challenges. The islands are relatively small and isolated, resources are limited, there are few options for transportation and shipping, and the region is prone to natural disasters such as cyclones, volcanoes, earthquakes, and storm surges. All of these necessitate the development of a self-sufficient food-production system to ensure food security.

The program has been working with local communities on developing and implementing **nature-based solutions** to help ensure that they can continue to have the benefits that nature provides in a rapidly changing world, including food, shelter, medicine, daylight, and a strong cultural attachment with the land and oceans. For example, the program worked with communities to protect forests on Tanna Island that serve as major sources of fresh water, raising funds for the installation of distribution systems providing fresh water to nine villages and 1,200 people for the first time and at minimal cost. Another project worked with local communities to successfully reforest degraded habitats using endangered endemic plant species and economically important trees and understory crops. Vanuatu can be an incubator for new ideas to address biodiversity loss, to promote environmental and societal resilience, and to enhance livelihoods. These actions and lessons can serve not only this small nation but also the larger Pacific Island region, and local community and governmental partners have prioritized the implementation of such nature-based solutions.

PLANTS AND PEOPLE OF VANUATU STATISTICS

HERBARIUM SPECIMEN COLLECTING (AS OF SUMMER, 2025)

- Specimens collected: 4,345 (comprising ~24,000 herbarium specimens including duplicates for distribution worldwide)
- Representing:
  - 158 vascular plant families (84% of known families found in Vanuatu)
  - 521 plant genera collected (63% of all known families found in Vanuatu)
  - 852 plant species collected (52% of all known species found in Vanuatu)

LANGUAGE PRESERVATION

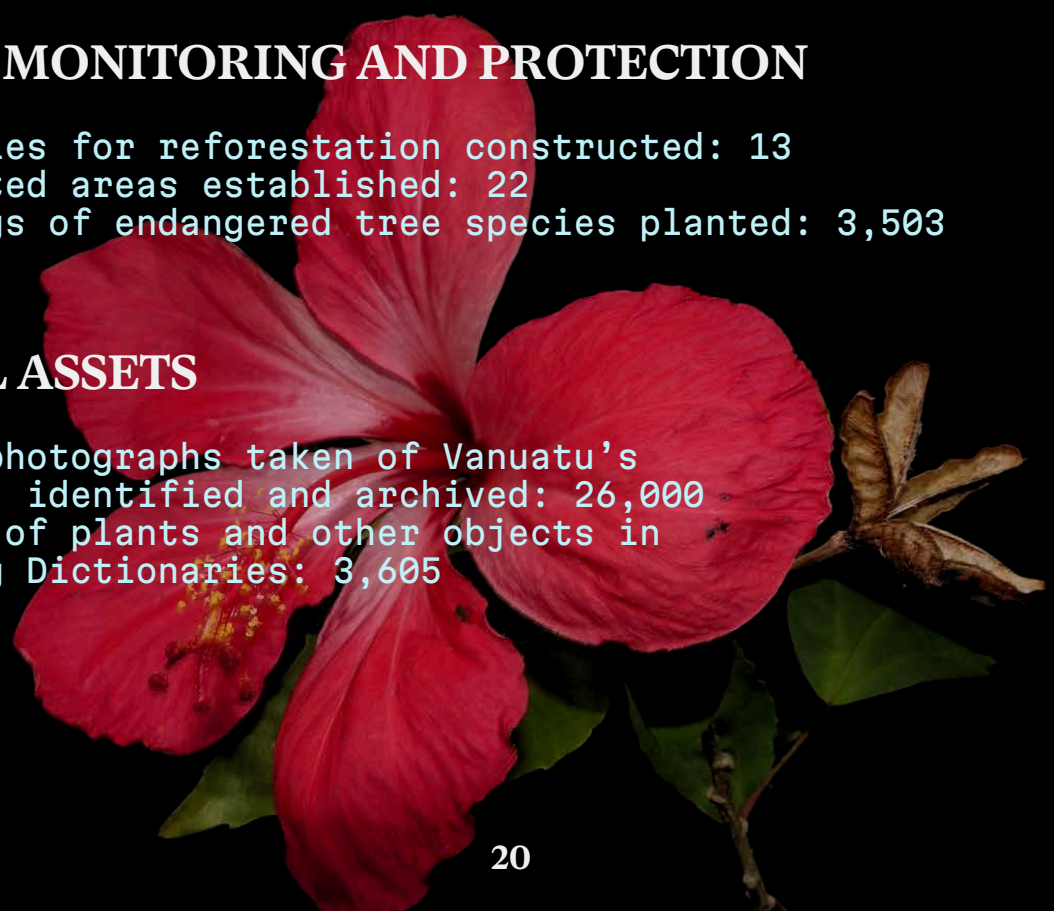
- Languages documented in Talking Dictionaries (7)
- Language entries: 9,537
- Audio files (pronunciation of language names) 7,073

FOREST MONITORING AND PROTECTION

- Nurseries for reforestation constructed: 13
- Protected areas established: 22
- Saplings of endangered tree species planted: 3,503

DIGITAL ASSETS

- Field photographs taken of Vanuatu's plants, identified and archived: 26,000
- Images of plants and other objects in Talking Dictionaries: 3,605



Hibiscus cooperi

ACHIEVING INTERNATIONAL TARGETS THROUGH PLANTS & PEOPLE OF VANUATU

The Global Strategy for Plant Conservation

Objective 1 - Reducing threats to biodiversity

1	Plant conservation in spatial planning and management
2	Ecological restoration
3	Important areas for plant diversity
4	Plant species conservation • Conservation of genetic diversity
6	Monitoring invasive species • Controlling invasive species
8	Native plant use in climate mitigation and adaptation

Objective 2 - Meeting people's needs through sustainable use and benefit-sharing

9	Plants for people's needs
10	Sustainable management of production land
11	Native plants and ecosystem functions and services
13	Access & benefit sharing for plant conservation

Objective 3 - Tools and solutions for implementation and mainstreaming

14	Tools for mainstreaming plant conservation
15	Sustainable practices in plant use
16	Sustainable consumption
20	Capacity building
21	Public awareness programmes • Plant information systems • Citizen science
22	Plant conservation and traditional knowledge

FUTURE DIRECTIONS

The future of the *Plants and People of Vanuatu* program lies in building local capacity to sustain and extend its work, ensuring that conservation and cultural-preservation efforts continue for generations. With increased funding, these initiatives would not only remain active in Vanuatu but also expand to the broader Pacific, fostering regional collaboration in protecting biodiversity and supporting biocultural knowledge and practices.

To learn more about this work, visit the *Plants and People of Vanuatu* program website:

https://pvnh.net/.

Grinding vegetables with the spiny leaf bases of the native tree fern, Sphaeropteris lunulata.

PLANTS AND PEOPLE OF VANUATU PUBLICATIONS

Ethnobotany Manual (2 vol., 975 pages):

- 4,026 interviews about plant uses and languages for 2,492 plant collections
- More than 200 local experts consulted
- Local language names for plants recorded: 3,102

Scientific papers published: 13

Popular articles published: 10

Outreach:

- Documentaries, Podcasts and Webinars: 7
- Blogs and News Articles: 19

PARTNERSHIPS

Plants & People of Vanuatu is collaboration of the **New York Botanical Garden**, the **Vanuatu Department of Forests**, and the **Vanuatu Cultural Centre.** Other international organizations have also been instrumental in carrying out this work, include researchers from the **University of the South Pacific**, the **University of Hawaii-Manoa**, **California State University East Bay**, **Swarthmore College** and the **Institut de Recherche Pour le Dévelopment.**

SUPPORTERS

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VANUATU DEPARTMENT OF FORESTS

VANUATU NATIONAL CULTURAL COUNCIL
CULTURAL CENTRE CULTUREL
CONSEIL NATIONAL CULTUREL DE VANUATU

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Booklet Created and Designed by Nia Meadows

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