



# State and Private Forestry Fact Sheet Marshall Islands 2022



## Investment in State's Cooperative Programs

Program	FY 2021 Final
Community Forestry and Open Space	\$0
Cooperative Lands - Forest Health Management	\$0
Forest Legacy	\$0
Forest Stewardship	\$61,979
Landscape Scale Restoration	\$0
State Fire Assistance	\$0
Urban and Community Forestry	\$0
Volunteer Fire Assistance	\$0
<b>Total</b>	<b>\$61,979</b>

NOTE: This funding is for all entities within the state, not just the State Forester's office.

The Republic of the Marshall Islands (RMI) consists of 29 atolls, five solitary islands, and approximately 1,225 individual islands and islets. The network of islands contains 70 square miles of dry land situated about halfway between Hawaii and Australia. All the Marshall Islands are low in elevation; the average height of land above sea level being 7 feet. In July 2021, the population was estimated to be 78,831 people. More than two-thirds of the population lives on the atolls of Majuro and Ebeye.

The Marshall Islands contain five unique vegetation types: atoll forest, mangrove forest, coastal vegetation, saltwater aquatic vegetation (seagrass growing in coastal tidal flats), and cultivated vegetation (agroforests). Most of the interior, atoll forest was converted to agroforestry over the millennia since settlement by the Marshallese people. Marshallese agroforestry is a mix of trees, woody shrubs, and herbaceous species, managed for food and other forest products, notably breadfruit, coconut, pandanus, and bananas. Since Western contact, many areas have been managed as coconut plantations (70% of the landcover) and additional species have been introduced and integrated into the agroforest (especially fruit trees).

The Ministry of Natural Resources and Commerce (MNRC) consists of many Divisions and programs, including the Division of Agriculture, which is responsible for developing and implementing forestry programs. The RMI Forester works for the Division of Agriculture and collaborates with diverse partners, such as the College of Marshall Islands and the Coastal Management Advisory Group. The Coastal Management Advisory Group performs the duties of the Coordinating Committee and Urban and Community Forestry Council. The MNRC works together with various partners and stakeholders to increase efficiency in the implementation of forestry programs.

## Program Goals

- **Protect Forest from Harm:** Prevent the introduction and further spread of injurious pests and diseases into and within the Marshall Islands. Assist communities in planning for and reducing forest health risks, such as diseases that impact crop trees.
- **Enhance Public Benefits from Trees and Forest to Increase Food Security:** Increase local food crop production through extending knowledge and skills in better agroforestry systems. Strengthen access to nutritious foods for vulnerable households and individuals through support of local food crop production.
- **Conserve Working Forest Landscapes:** Maintain and enhance the economic benefits of trees and forest by programs such as the sawmill program where senile coconut palms are utilized and replanted with healthy trees. Protect and enhance water quality through coastal reinforcement efforts.

## Key Issues

- **Biodiversity:** Conservation of biodiversity in the Marshalls concerns terrestrial native species (especially endemic species and migratory birds) and traditional cultivars. Invasive species, including food crops and ornamentals, has led to a continued loss of biodiversity. The management of pests, insects, and disease is a critical concern. For example, the coconut rhinoceros beetle (CRB) has caused widespread loss of the coconut, which is an economically and culturally important species.
- **Food Security and Sustainable Livelihood:** The loss of traditional agroforestry practices and a lack of awareness of nutritional values are growing threats in the Marshall Islands. Agroforests are a source of subsistence goods and commercial products. Many Marshallese suffer from malnutrition and diabetes that could partially be addressed with increased agroforest production. Marshallese family incomes are low; agroforest production can reduce the need for purchases and bring in cash income.
- **Coastal reinforcement:** Coastal forests are those on the beach crest above high tide mark. Their root systems reinforce the beach "berm" or crest. Coastal forests have been thinned and removed in many urban and rural areas, so their restoration and maintenance in their natural state is a "no-regrets strategy" and a first line of defense against the effects of sea level rise.
- **Urbanization and a lack of urban planning:** Urbanization is a result of migration and the adoption of Western patterns of living. The increased clearing of forests in urban centers is a growing concern, especially in the capital city seeing the greatest loss of trees. The development of the airport resulted in more coastal loss. A large proportion of the population is now concentrated on a few urban islands, resulting in reduced forest cover and a loss of cultural benefits from the forest.
- **Climate Change:** The impacts of climate change are resulting in an increase of drought and a rise in sea-level, which has led to saltwater intrusion, subsequently impacting the ability to grow certain root crops, trees, and medicinal herbs.
- **Resource Management:** Threats include increased pollution and solid waste management, overuse of water for crops, and loss of soil due to excessive land clearing, mowing, and burning.

## Forest Facts and Accomplishments

Selected Facts	Value	FY 2021 Accomplishments	Value
Population	67,182	Landowners Receiving Educational or Technical Assistance	181
Acres of Forest Land	44,460	Acres Covered by New or Revised Forest Stewardship Plans	0
Acres of Nonindustrial Private Forest Land	0	Acres in Important Forest Resource Areas Covered by New or Revised Stewardship Plans	0
Number of NIPF Landowners	0	Volunteer Fire Departments Assisted	0
Acres of Federal Land Under State Fire Protection	0	State Fire Communities Assisted	0
Acres of Private Land Under State Fire Protection	0	Coop Forest Health Acres Protected	0
Number of Rural Fire Departments	0	Forest Legacy Project Acquisitions	0
Cities and Towns	33	Communities Provided Urban Forestry Program Assistance	1
Forest Based Employment	0	Population Living in Communities Provided Urban Forestry Program Assistance	19,664
Economic Impact of Forestry (by rank)	0	Urban Forestry Volunteer Assistance	0
State Forestry Budget (All Sources)	0		

## Program Highlights

### Conservation Education

Conservation education is a critical part of the work of the MNRC, with trainings and educational sessions featured across all of the USDA Forest Service funded programs and projects. These trainings focus on the importance of agroforestry on the island, they demonstrate how to propagate seedlings, how to grow traditional crops. The communities regularly need more crop varieties, improved tools to better manage agricultural systems, and other planting materials. The MNRC is their resource for these agroforestry

needs. This year, educational sessions occurred in over five communities and various schools. Additionally, MNRC hosted multiple trainings at their farm for women from three different atolls. They visited for two weeks to learn about agroforestry and livestock management, with hands-on gardening projects. Typically, tree propagation is a male-dominant job in the Marshall Islands; however, these workshops empowered women with the skills to help feed and sustain themselves and their families.

In May 2021, a team from MNRC and Wan Aelon in Majel visited Wotje atoll to conduct a sawmill refresher course, and an agroforestry training and educational session for the youth group. The Extension Agent in Wotje was provided training in woodchipper operations and in setting up a wicking system. Information was shared on cultural methods and home remedies for controlling pests, and brochures were distributed on CRB and on restricted import items. Finally, the facilitators assessed pest populations and plant health in Wotje. This was on behalf of the UCF program grant.

### ***Economic Development***

The loss of coconut due to the CRB has been devastating due to the cultural and economic importance of coconut. Coconut is used for fuel (coconut oil), food, soap, handicrafts, and lumber in the RMI. This year the Forest Stewardship Program is collaborating with the Marshall Islands Conservation Society, the USDA Forest Service and the University of Hawaii on a project focused on coconuts resources. The project will provide data on coconut plantation resources that will be useful on the community-level and industry-wide, for coconut rehabilitation, replanting, and for the sawmill program. This will include developing techniques to use satellite imagery to detect coconut health and pest conditions at the landscape-level. With the data from the imagery analysis, management will include removing the senile coconut trees and replanting healthy trees. The lumber of these coconuts can then be utilized by the sawmills across 11 atolls to produce lumber for timber and craft, which help support the economy of RMI.

### ***Forest Health Protection***

The Forest Health Protection Program focuses on the control of invasive plants, pests and diseases. Pests such as the mealybugs and whiteflies have been impacting a lot of forest and crop trees. The communities in RMI are very dependent on agroforestry for food, therefore these diseases have serious impacts on food security island-wide. When community members go to MNRC about a new pest impacting the development of crops, they will alert the Division of Quarantine. To prevent the introduction and spread of pests and diseases, the Division of Quarantine carries out quarantine inspections according to legislation and regulations, performs eradication and control programs, increases awareness on bringing in pests and diseases from overseas, increases awareness on the spread of pests and disease between islands, and provides information on eradication and control procedures. They are responsible for monitoring and surveillance of fruit flies, mealy bug, coconut scale, and other threatening pests.

### ***Forest Stewardship***

The College of Marshall Islands (CMI) managed the Forest Stewardship Program on behalf of the Forestry Division. CMI received a Forest Stewardship Grant with the goal of increasing tree production and educating communities on tree propagation and plant maintenance. At this point, a nursery facility on Ebeye is in operation as part of the high school gardening program and two additional nursery locations were established on school sites. These nurseries will serve as sites for demonstration and trainings on proper plant propagation and nursery management. While the nursery facilities are in operation, they are continually evaluated and monitored by CMI. Four field trials have been established to study exotic plants to be introduced for food production. As pests and disease impact important indigenous trees, it is critical to research new species to replace those that were lost. Currently, field trials are evaluating the resiliency and survival of soursop, sweet lime (calamansi), cacao, and Gliricida (green manure). In 2021, there were 105 Gliricidia, 175 Papaya, 70 Moringa and 35 Soursop seedlings produced and distributed. More tree seedlings are anticipated to be produced and distributed in the upcoming year. Six trainings were conducted in different schools and churches in Majuro on coastal erosion management (emphasizing tree planting and diversification), and on climate smart agroforestry approaches. These trainings reached 151 clients, including 30 landowners. Project outreach is conducted in-person and on social media through a Facebook Page (CMI LAND GRANT PROGRAM) that is occasionally updated with activities relating to Agroforestry. The last post had 5,617 views and 712 engagements, indicating that the program has community interest.

### ***Pacific Island Forest Restoration Initiative Project***

Marshall Island Conservation Society worked with the Micronesia Conservation Trust to get a USDA Forest Service Pacific Island Forest Restoration Initiative grant. The main objective of this project is to strengthen the shoreline through strand vegetation planting. This supports community subsistence livelihoods by increasing the production of critical food trees, while also helping to stabilize the coast. The project is currently working to collect fruit tree seedlings and provide them to communities in high conservation areas. Based on these goals, the tree species are typically traditional and exotic fruit trees and trees optimal for coastal reforestation. This year, total 582 seedlings were distributed including 408 papaya seedlings, 35 breadfruit, 79 pandanus, and 60 others (Banana, Kasava, sweet taro, Dye Fig, Bell Apple). These were provided to five different community sectors in Ajeltake community. Good working relationships with landowners and community partners continues to make the project successful.

### ***RMI Ridge to Reef Food Security and Sustainable livelihoods Project***

The goal of the Ridge to Reef Project is to protect RMI's natural resources and promote the livelihoods of community members at five target project sites, which include (Mejit, Aur, Wotho, Likiep, and Ebon). With the continued threat of climate change, particularly sea-level rise, natural hazards have impacted the daily sustenance needs of communities in the outer island populations. The proposed activities will increase food stocks by replanting staple food sources, including taro, banana, papaya, breadfruit, pumpkin, and pandanus. Additionally, the project will distribute and replant propagated indigenous salt-tolerant trees for coastal protection. These species stabilize the beach crest to prevent coastal erosion, they provide wind and salt protection for inner agroforestry sites.

This year, the MNRC visited Likiep to work with the community to implement some of the project activities. They collected and propagated seeds/seedlings of the selected species and cleared areas for planting the seedlings. Seedlings were distributed and planted at schools and amongst the communities. This included 115 banana, 85 cassava, and sweet potato seedlings in school gardens and 150 swamp taro seedlings planted into community taro patches. Additionally, the MNRC distributed seedlings to individual households which included: 200 swamp taro (laraj), 200 sweet taro (kotak), 200 cassava (tabioka), 400 sweet potato, and 132 breadfruit (ma). Sessions were held to educate the community on the importance of the selected crops and to share knowledge on traditional food preparation.

### ***Urban and Community Forestry***

As sea-levels continue to rise, the salinity affects the interior forest health, root crops in agroforestry systems, and coastal forest survival. One strategic action is coastal planting with salt tolerant trees along coast lines. The implementation of the Urban and Community Forestry (UCF) program focuses on education and outreach, coastal tree planting, agroforestry, and nursery development with the goal of supporting communities impacted by rising sea-levels. Last year, the UCF Program began working with the communities of Ajeltake to establish a nursery station to propagate indigenous trees for daily life and for coastal reforestation. The site has been acquired and the land has been cleared and prepared. The nursery is located near an elementary school; therefore, the students are easily able to visit and learn. A local community member was hired to manage and maintain the nursery. Thus far, approximately 1,500 seedlings have been produced for this project and they will be transferred to the nursery in Ajeltake once it is fully established. Community groups have already started to visit for educational events and to learn how to propagate seedlings to grow traditional crops. The project is already starting to fulfill the goal of promoting the importance of indigenous trees and forest management on the islands.

In April 2021, the Forestry Department facilitated a community consultation in Ajeltake to assess the status of the project and determine training needs. The communities request trainings according to their needs, for example, a training occurred on the use of raised beds for agroforestry to help with soil degradation due to salinization. On August 2021, a Letter of Agreement (LoA) was signed between the MNRC and Ajeltake Community Development Association to construct and manage the new nursery, keep records on seeds and seedlings collected and distributed, and to provide reports to the MNRC agriculture division.

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