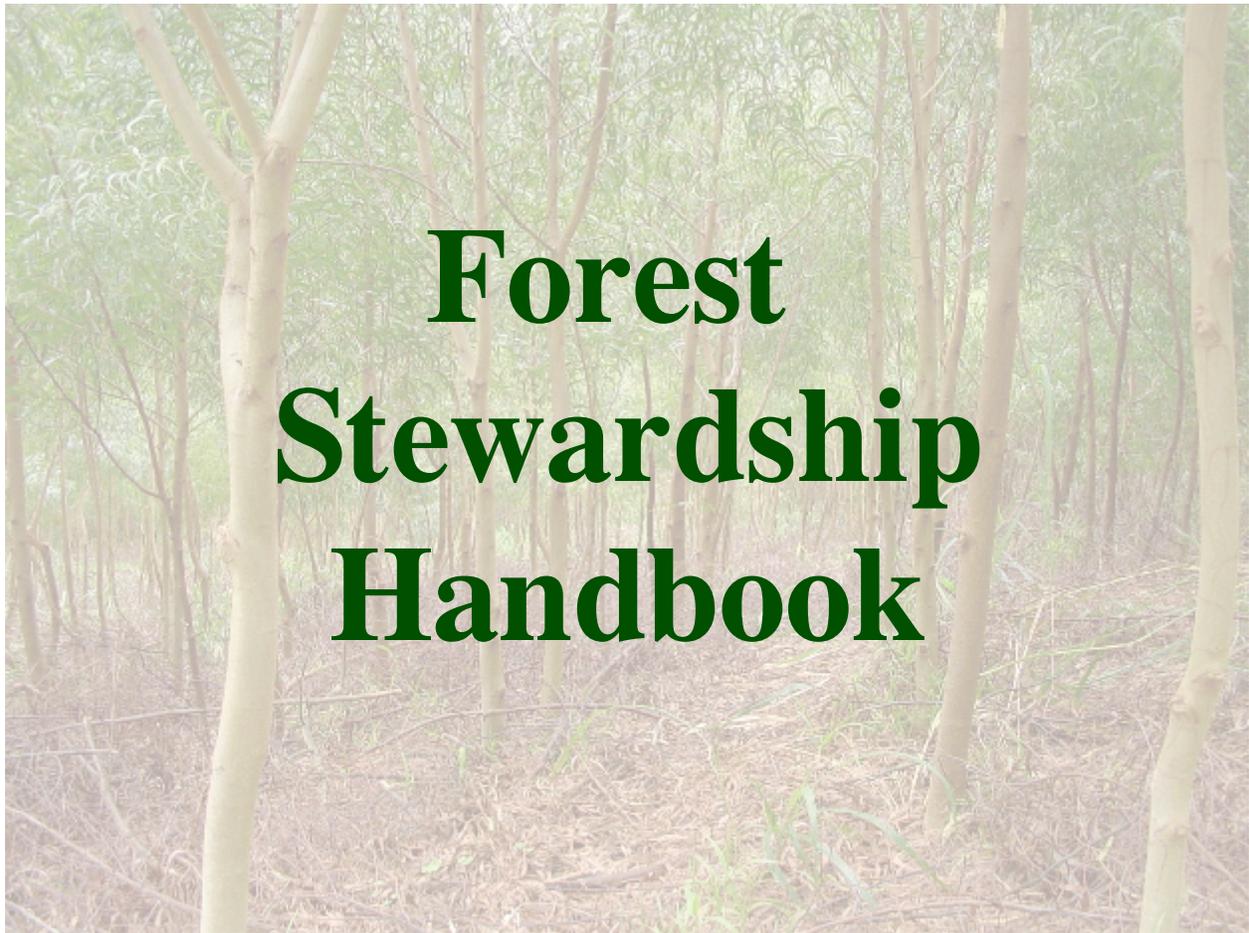


State of Hawaii



Forest Stewardship Handbook

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I. General Overview

Hawaii's Forest Stewardship Program (FSP), administered by the Department of Land and Natural Resources, Division of Forestry and Wildlife (DLNR-DOFAW), provides technical and financial assistance to owners of nonindustrial private forestland who are committed to the stewardship, enhancement and conservation of their forest resources. The assistance provided to landowners through the FSP is intended to help them understand and implement management practices to enhance and protect a variety of forest resource values including timber productivity, wildlife habitat, watershed quality, native ecosystem health/biodiversity, and recreation.

The FSP was adopted through Act 327, as enacted by the 1991 State Legislature to provide State funds on a cost-share basis to financially assist private forest landowners. The DLNR-DOFAW administers the FSP under advisement from the State Forest Stewardship Advisory Committee (The Committee). The Committee reviews Forest Stewardship proposals and management plans and recommends those deserving of funding support to the State Forester and the Board of Land and Natural Resources. Committee members include federal and state agency representatives, professional foresters, professional resource consultants, representatives of resource conservation organizations, representatives of land trust organizations and private landowners.

Applicant Eligibility

To be eligible for the FSP:

- You must own at least five contiguous acres of forested—or formerly forested land—that you intend to actively manage to enhance forest resource values for **both** private and public benefit. You can also meet this minimum acreage requirement if you possess a lease to a property for some minimum term, depending upon your management objectives.
- You are eligible if you are an individual, joint owner, private group, association or corporation.
- If you are an industrial forest producer (you already derive more than 50% of your income from the primary processing of forest products), you are **not** eligible for FSP funding support.

The FSP is available to all applicants who meet the above eligibility requirements without regard to race, creed, sex, national origin or political belief.

Applicant Enrollment and Participation

To enroll in the FSP, you must follow established program procedures with the assistance of available DLNR-DOFAW staff. The primary program enrollment requirement is the development and implementation of a multi-resource management plan covering a period of at least 10 years. We recommend that you develop your management plan with the assistance of a professional resource management consultant, unless you are technically qualified to write the plan yourself. If your plan is approved by the Forest Stewardship Advisory Committee, and the Board of Land and Natural Resources, you will receive cost-share assistance to achieve your forest management objectives. You can also get technical assistance as you need it, from DLNR-DOFAW staff, and from other collaborating agencies and institutions such as the USDA Natural Resources Conservation Service (NRCS) and the University of Hawaii at Manoa Cooperative Extension Service.

Once enrolled, you will be reimbursed as you complete your eligible, approved management practices up to the approved cost-share rate per practice which is typically 50% of the estimated total practice cost. To receive reimbursements for completed management practices, you will be required to submit regular progress reports and cost documentation to the DLNR-DOFAW.

Enrollment, project implementation and reimbursement procedures are described in detail later in this handbook. The following are important introductory points:

1. **Eligible management practices:** The following general forest management practice categories are eligible for cost-share assistance through the FSP.

- **Applicant Forest Stewardship Plan Development**
- **Reforestation and Afforestation**
- **Forest and Agroforest Improvement**
- **Windbreak and Hedgerow Establishment, Maintenance and Renovation**
- **Soil and Water Protection and Improvement**
- **Riparian and Wetland Protection and Improvement**
- **Native Wildlife Habitat Improvement**
- **Forest Recreation Enhancement**

*Guidelines for these management practice categories are provided in **Appendix B**.*

2. **Cost-share reimbursement rate:** You will receive up to a 50% cost-share reimbursement for your management practice expenses, as described in your approved Forest Stewardship Management Plan, provided that these costs are within the limits established and associated with the eligible practice components included in your management plan. When formulating your project budget, you can include “in-kind” services such as family labor and the use of your own equipment as part of your 50% cost-share or match. For current allowable “in kind” cost-share rates for supplies, equipment and labor, see **Appendix G**.

3. **Per-year per project and per acre cost-share caps:** A maximum allowable annual cost-share total per landowner/project is periodically set by the Forest Stewardship Advisory Committee and is dependent upon anticipated availability of, and demand for funding. Allowable reimbursements are, however, subject to a variety of factors including project scale, type, actual project costs and the anticipated availability of program funding.
4. **Progress reporting/reimbursement:** Normally, you will be required to submit project progress reports and cost documentation twice-yearly to the DLNR-DOFAW administration office in Honolulu. A DLNR-DOFAW Branch Forester will then visit you to verify practice completion and discuss your progress with you. After this site visit, the DLNR-DOFAW administration will mail you a reimbursement payment.
5. **Cost-Share assistance pay-back provisions and other funding conditions:** If your primary stewardship objective is commercial timber production you will be required to pay back to the state some of the funding assistance that you receive through the program with each of your successful commercial timber harvests as defined in your Forest Stewardship contract agreement with the state. Your contract agreement language will include a provision whereby you agree to pay back to the state (Forest Stewardship Fund) a certain percentage of the total of cost-share funding that you received through the FSP with each of your commercial timber harvests from the project site. The percentage will be set/adjusted so as not to have a substantially negative impact on the economic viability of your project (normally 5 to 10% of the funding assistance received with each commercial scale harvest). However, if you sell your project property during the term of your approved contract agreement, you may be required to pay back to the state all of the cost share assistance that you received from the FSP following the transfer of your property.

Cost-share reimbursement payments are considered as income and are thus normally subject to state and local taxes. However, depending upon your management activities, payments may be exempt from taxes. A guide to federal income tax regulations affecting landowners of private forests, and other resources are available on line at: www.fs.fed.us/spf/coop. Go to “quick index”, then “forest taxation” for a listing of relevant publication links.

In addition, you may be eligible for real property tax reductions or incentives because of your commitment to long term forest management. For more information, contact your county tax office.

II. The Forest Stewardship Project Pre-Proposal

To enroll in the FSP, you must first prepare and submit a brief project pre-proposal that describes your primary management objectives and the forest resources that you will manage. DOFAW staff and the Hawaii Forest Stewardship Advisory Committee will evaluate your pre-proposal to determine whether it fits with overall Program goals and objectives and current assistance priorities.

Your Forest Stewardship project pre-proposal must include the following:

1. Description(s) of the specific management objective(s) that you want to achieve.

Examples of management objectives include timber production, wildlife habitat enhancement, and native forest restoration.

2. Description of your project property or the land area that you will manage with FSP assistance.

Your site description must include the following information/documentation:

- **Property location and location map**
- **Property or management area size** (acres)
- **Property tax map key number**
- **Property Zoning** (agricultural, conservation, etc.)
- **Topographic Map** (Contact your local USGS office or use on line “mapfinder” at www.usgs.gov)
- **Soils description** (Soil surveys are available at your local NRCS and UH Cooperative Extension Service offices.)
- **Existing vegetation and wildlife** (general description)
- **Land cover use** before and after project implementation. (Pasture, cropland, sugarcane, rangeland, forest-grazed, forest non-grazed, or other.)

3. Brief/summary descriptions of the management activities and practices that you will use to accomplish your objectives.

*The practices that you are proposing for cost-share assistance must be eligible as described in **Appendix B** and **Appendix C** of this Handbook. You should also include relevant planned ineligible practices with the understanding you will implement these practices at your own expense.*

4. Descriptions of natural resources or forest values that you intend to protect, enhance or create with your management plan in order to produce private and public benefits.

It is important that you explain how your project will benefit the public. Examples of forest resource values that benefit an individual landowner applicant as well as the public include: commercial timber production of a significant scale - or as part of a landowner cooperative (economic diversification/employment); native ecosystem and biodiversity restoration; watershed improvement/protection; native wildlife habitat enhancement; and the provision of educational, recreational and/or ecotourism opportunities.

5. Description of any other organizations that will be involved in your project.

Working partnerships with other resource management agencies and organizations are strongly encouraged.

6. An approximate timetable of management practice implementation covering a period of at least 10 years.

*It is recommended that you begin your project **after** your complete management plan and accompanying contract agreement are approved by the Forest Stewardship Advisory Committee and the Board of Land and Natural Resources. If you do begin before you have all approvals and have completed all paperwork you do so at the risk of incurring all costs, while understanding that there is no guarantee of final approvals or cost-share funding.*

7. An estimate of total project costs.

*Base your cost estimates on real data and currently available information. Do not project costs based on the hold-down rates (maximum allowable cost-share rates) established for eligible management practices as listed in **Appendix C**. Hold-down rates are established maximum reimbursement rates for specific management practices and should not be used to estimate costs. Costs will vary widely depending upon island, site, and intensity of management.*

Note concerning Environmental Assessments and Archeological Surveys

All Forest Stewardship plans that include the establishment of timber with the intent of eventual harvesting must be accompanied by an Environmental Assessment that includes a detailed assessment of cultural impacts. An Environmental Assessment can be easily prepared once your Forest Stewardship Management plan is ready for Committee and Board review. DLNR-DOFAW staff are available to assist you with this process which involves a required public review/comment period.

Forest Stewardship plans not subject to the Environmental Assessment requirement must at a

minimum be reviewed by the Division of Historic Preservation to determine whether or not there are any significant cultural or historic resources on the proposed project site. An archeological survey may be required where there is strong evidence to suggest the existence of such resources on the site. Any such resources would then need to be protected throughout the course of a project.

III. The Forest Stewardship Management Plan

In order to qualify for financial assistance under the FSP, you must, after Forest Stewardship Pre-Proposal acceptance, develop a detailed and comprehensive Forest Stewardship Management Plan. You will require the services of a qualified professional forester or resource management consultant unless you are technically qualified to write your own forest management plan. Your management plan must meet the standards set by the Forest Stewardship Advisory Committee and be written according to the established standard plan format.

You are eligible to receive up to one of the following reimbursement amounts, once your plan is approved by the Forest Stewardship Advisory Committee and documentation of your consultant's fee is verified. Maximum allowable reimbursements for 75% of cost of producing management plans are adjusted according to plan complexity - which is usually associated with the number of management practice categories involved. These management practice categories are described in **Appendix B**.

1-3 practice categories	\$2,250	(total consultant fee = \$3000)
4-6 practice categories	\$2,625	(total consultant fee = \$3500)
7-9 practice categories	\$3,000	(total consultant fee = \$4000)

Minimum Plan Standards

All Forest Stewardship Management Plans must include the following information in the format outlined below:

I. Cover Sheet

- Your name, address and phone number
- Location of project property
- Consultant name, title, address and phone number
- Date the plan was completed

II. Signature Page (*sample form is provided as Appendix A*)

Applicant, consultant and State Forester signatures

III. Introduction

1. General description of the property including:
 - Property size and location
 - Description of access routes to property
 - Property tax map key number
 - Property zoning
 - Topography, elevation and climate (map)
 - Brief history of uses/description of present condition
2. Descriptions of your specific management objectives

IV. Land and Resource Description

- Existing vegetation/cover types
- Existing forest health and function including disease problems and fire threat
- Soils and their condition, general slope and aspect
- Water resources and their condition
- Timber resources
- Wetland resources
- Significant historic and cultural resources
- Existing wildlife
- Threatened and endangered species existing on property
- Existing recreational and aesthetic values

V. Recommended Treatments and Practices

This section of the plan must describe the specific management practices that you intend to implement in order to achieve your desired forest resource management objectives within a specified time period. All practices for which you are requesting financial assistance should fall under one of the eligible management practice categories listed below and described in detail in *Appendix B*.

- Reforestation and Afforestation
- Forest and Agroforest Improvement
- Windbreak/Hedgerow Establishment, Maintenance and Renovation
- Soil and Water Protection and Improvement
- Riparian and Wetland Protection Improvement
- Wildlife Habitat Improvement
- Forest Recreation Enhancement

It is important that you select the management practices and activities that will make it

possible for you to achieve your stewardship objectives with the resources you have available to you.

The practices and methods you include should suit your goals and your project site. For instance, you must carefully consider your physical site characteristics and objectives when deciding which tree species you will plant.

Tree species considered to be invasive will not be funded and should not be planted within forest stewardship project areas, regardless of funding source. Invasive plant species are non-native plants that harm, or have the potential to harm, the environment (including native forest ecosystems), economy (including agricultural and urban ecosystems), or human health. For further guidance, please contact the Invasive Species Coordinator at the Division of Forestry and Wildlife.

If your management objectives include commercial timber production, your plan should include some basic economic analysis such as a net present value or internal rate of return calculation. You should roughly estimate projected cost and income flows—and consider their sensitivity to changes in economic factors such as price and risks. While it may be impossible to accurately predict financial returns over time or provide precise data on silvicultural systems, it is recommended that you consider possible outcomes in consultation with a qualified resource economist or extension forester.

Cost-share amounts requested for each management practice to be applied should not exceed the cost-share rates listed in *Appendix C*.

VI. Practice Implementation Schedule

- Your practice implementation schedule must clearly list, in a tabular format, all your individual management practice activities, by year, total acreage, projected cost per acre or foot, total cost, state cost-share and your cost-share. Please note that your cost projections should be based on real relevant data and not simply projected using the allowable cost-share rates provided. It may be that your share of project expense projections will exceed the state's share in cases where real cost estimates turn out to be higher than 50% of the allowable cost-share rate for a particular management practice.
- The per year and per acre cost for each management practice must be clear.
- Your schedule must cover a period of at least 10 years.
- The state's share of projected practice expenses should not exceed the cost-share rates provided in *Appendix C*.

VII. Budget Summary

Your budget summary simply lists your projected cost-share, state-share and total

project costs per year for the length of the project.

Examples of an acceptable Practice Implementation Schedule and Budget Summary are provided in Appendix D.

VIII. Required Attachments

Location Map: This map simply illustrates where the project property/site is on island and in relation to towns, major topographic features etc.

Topographic Map

Project/Site Map: This map must locate all activities on the project property to clearly illustrate what is being done where, in relation to the topography, watercourses and other significant natural features of the site. The map must also illustrate the layout and orientation of any proposed tree plantings such as windbreaks, woodlots or plantations. All maps must be of at least a 1:24000 scale and include the following:

- Legend
- North arrow
- Property boundary
- Existing and proposed roads
- Watercourses
- Location, orientation and layout of all management practices the project/site map so that management practices can be viewed as they relate to the site's topography and natural features.

Photograph(s) of Project Site

IX. Recommended Attachments

- Maps: USGS, vegetation, roads/trails/soils, topography
- Existing forest stand inventories
- Plant and animal species lists
- Aerial photographs
- Sources of assistance and information
- Any required permits
- Other sources of financial assistance

All management plans must include page numbers and label all attachments with letters or numbers for referencing purposes. Please do not put your plan into any binding or folder. Loose leaf pages are preferred for photocopying purposes.

Best Management Practices (BMP's)

All Forest Stewardship Program participants must agree to adhere to current Departmental *Best Management Practices* that are pertinent to the management practices being implemented.

Distribution/use of approved Forest Stewardship Management Plans and Use of Information:

One of the primary objectives of the FSP is to generate useful information for landowners throughout Hawaii, who may also be considering active forest management as a land use alternative. During the course of your project, you will be asked to share your experiences and knowledge, to contribute to the development of data and information sources for others.

Once you are enrolled in the FSP to receive funding assistance for your project, your approved management plan will be made available for copy and distribution to the general public upon request. You are thus advised to delete any information that you consider to be proprietary, prior to submitting your management plan to the Forest Stewardship Advisory Committee. You can present relevant proprietary information to the Committee separate from your management plan.

Although approved Forest Stewardship management plans are available for distribution to the general public, they should be used by potential applicants for informational purposes only. Any management plans that appear to plagiarize previously approved plans will not be accepted.

IV. Summation of Program Procedures

The following are the procedural steps, including paperwork, that you must complete in order to start and complete your Forest Stewardship project.

1. Complete and submit your Forest Stewardship Project Pre-Proposal to the DLNR-DOFAW Administration in Honolulu.
2. State Forest Stewardship Advisory Committee reviews your pre-proposal. If the Committee accepts your pre-proposal, you are advised to hire a resource consultant and develop a comprehensive Forest Stewardship Management Plan.
3. Enlist the services of a professional resource consultant unless you are technically qualified to write your own management plan.
4. State Forest Stewardship Advisory Committee reviews your management plan. If the Committee approves your plan, DLNR-DOFAW staff prepare and mail to you your Forest Stewardship contract agreement.
5. You review, sign with notary, and then mail your contract agreement back to the DLNR-DOFAW.
6. The Board of Land and Natural Resources reviews your Forest Stewardship contract agreement.

Note: In some cases, the DLNR Board will request that adjustments be made to management plans and contract agreements to reflect current DLNR priorities or budget concerns.

7. You are informed of Board approval and advised to start your project.
8. You are informed of reporting/reimbursement procedure.
9. You receive a Forest Stewardship recognition sign to post on your project property.
10. You submit 6-month progress reports for periods July to December and January to June each year, including all cost documentation, to DLNR-DOFAW Administration.
*(Required reporting format can be found in **Appendix F**).*
11. A Branch Forester and/or Forest Stewardship Coordinator visits your project site to verify practice completion.
12. DLNR-DOFAW Administration mails you your reimbursement payments.

Forest Stewardship Plan Signature Page

Professional Resource Consultant Certification: I have prepared (revised) this Forest Stewardship Plan. Resource Professionals have been consulted and/or provided input as appropriate during the preparation of this plan.

Prepared by:

Professional Resource Consultant's Signature/ Date

Professional Resource Consultant's Name

Applicant Certification: I have reviewed this Forest Stewardship Plan and hereby certify that I concur with the recommendations contained within. I agree that resource management activities implemented on the lands described shall be done so in a manner consistent with the practices recommended herein.

Prepared for:

Applicant's Signature/ Date

Applicant's Name

State Forester's Approval: This plan meets the criteria established for Forest Stewardship Plans by Hawaii's Forest Stewardship Advisory Committee. The practices recommended in the plan are eligible for funding according to state of Hawaii Forest Stewardship Program guidelines and administrative rules.

Approved by:

State Forester's Signature/ Date

State Forester's Name

Forest Stewardship Management Practice Categories and Guidelines

This appendix describes each of the Forest Stewardship Management Practice Categories that are eligible for cost-share assistance. Descriptions include general practice category definitions, practice implementation requirements, and a list of specific technical components that are eligible for cost-share under each general practice category. Definitions of the individual technical components and corresponding specifications and approved cost-share rates for each are provided in *Appendix C*. A table that summarizes all practice categories and corresponding technical practice components is provided in *Appendix E*.

Forest Stewardship Management Plan Development

Purpose: To provide you with a multidisciplinary, action-oriented forest management plan based on sound biological, environmental and economic management principles. Your plan should consider the long term management of all of the forest resource values that are important to achieving your land use goals and objectives.

All Forest Stewardship Plans must be written by a qualified professional forest resource consultant, or qualified applicant, according to the format detailed in this handbook.

Your plan may be reviewed and revised in the future if necessary, subject to DLNR-DOFAW and Land Board approval. Significant amendments may require that a new contract agreement be drawn up and approved. Minor amendments can typically be made as addenda to original plans.

You are eligible to receive up to one of the following reimbursement amounts, once your plan is approved by the Forest Stewardship Advisory Committee and documentation of your consultant's fee is verified. Maximum allowable reimbursements for 75% of cost of producing management plans are adjusted according to plan complexity - which is usually associated with the number of management practice categories involved.

1-3 Practices	\$2,250	(total consultant fee = \$3000)
4-6 Practices	\$2,625	(total consultant fee = \$3500)
7-9 Practices	\$3,000	(total consultant fee = \$4000)

Reforestation and Afforestation

Purpose: Establish a stand of forest trees for timber production and/or conservation purposes.

Implementation Guidelines and Requirements:

- Apply to open land or partially stocked forest areas.
- Maintain for at least 10 years following establishment
- Protect from destructive fire and destructive grazing.
- Prepare and treat planting areas to eliminate and control plant competition that might cause the practice to fail.
- An area from which timber was recently harvested is not eligible for cost-share under this practice category.
- Tree Establishment Protection methods are eligible for cost-share only where it is determined that the primary purpose of this practice will not be achieved if it is not protected from feral animals or domestic livestock—or where protection as a "stand alone" component will result in the natural regeneration of trees.

- Fruit tree orchard establishment is *not* eligible for cost-share.

- Agroforest establishment is eligible according to the following definition:
 - At least one tree species and at least one crop (food) or livestock species are managed to occur on the same unit of land either in some spatial arrangement or in time sequence.
 - Biological interactions between the woody and non-woody components are significant and managed to improve the total yield, economics or sustainability of the system.
 - Where the primary objective is the production of fruits, nuts coffee beans, etc. harvested from a tree species, one of the following must also be a significant objective (in order to distinguish the system from an orchard):
 - Soil and water conservation by inclusion of a significant shrub or herb strata and minimization of chemical fertilizers and pesticides (multilevel agroforest serving a watershed protection function)
 - Timber and fiber production by inclusion of additional tree species in the system (multi-species agroforest providing multiple products)
 - Biodiversity conservation by management for specific native wildlife or plant species (agroforest serving native habitat function)

Technical Components Eligible for Cost-Share:

Site Preparation
Seedling Acquisition
Planting
Fertilization/Soil Amendments
Weed/Moisture Control
Tree Establishment Protection, including predator control

See *Appendix C* for technical component specifications and approved cost-share rates.

Forest and Agroforest Improvement

Purpose: Achieve stand-specific objectives by increasing the growth rate and quality of crop trees, and improving forest stand vigor. This practice is applied to improve the health or species composition of an *existing forest*.

Implementation Guidelines and Requirements:

- Apply to forest land with existing tree cover.
- Apply to enhance standing timber quality, improve species composition, and/or enhance forest health.
- Apply in a way that preserves or improves the quality of the environment, especially wildlife habitat and the appearance of the area.

- Pre-commercial thinnings will be allowed with the approval of DLNR-DOFAW staff.

- Protect planted areas from destructive fire and destructive grazing.
- Maintain for at least 10 years following establishment.

- Tree Establishment Protection methods are eligible for cost-share only where it is determined that the primary purpose of this practice will not be achieved if it is not protected from feral animals or domestic livestock—or where protection as a "stand alone" component will result in the natural regeneration of trees.

- Only the tree (forest) components of agroforestry systems are eligible for cost-share. (Many of the agricultural or cropping components of agroforestry systems are eligible for cost-share through programs offered by the U.S. Natural Resource Conservation Service (NRCS) and the USDA Farm Service Agency (FSA).)

- Agroforestry is defined as follows for the purposes of the Forest Stewardship Program in Hawaii:
 - At least one tree species and at least one crop (food) or livestock species are managed to occur on the same unit of land either in some spatial arrangement or in time sequence.
 - Biological interactions between the woody and non-woody components are significant and managed to improve the total yield, economics or sustainability of the system.

- Where the primary objective is the production of fruits, nuts coffee beans, etc. harvested from a tree species, one of the following must also be a significant objective (in order to distinguish the system from an orchard):
 - Soil and water conservation by inclusion of a significant shrub and herb strata and minimization of chemical fertilizers and pesticides (multilevel agroforest serving a watershed protection function)
 - Timber and fiber production by inclusion of additional tree species in the system (multi-species agroforest providing multiple products)
 - Biodiversity conservation by management for specific native wildlife or plant species (agroforest serving native habitat function)

Technical Components Eligible for Cost-Share:

Site Preparation

Seedling Acquisition

Planting

Control of Undesirable Plant Species

Fertilization/Soil Amendments

Tree Establishment Protection, including predator control

Non-Commercial Thinning

See Appendix C for technical component specifications and approved cost-share rates.

Windbreak and Hedgerow Establishment, Maintenance and Renovation

Purpose: Establish and maintain windbreaks and hedgerows—and/or renovate existing windbreaks and hedgerows. Windbreaks are lines of trees established to reduce wind erosion and protect newly established tree plantations. Hedgerows are dense lines of trees established along elevation contours to control soil erosion and/or provide green manure or fodder in agroforestry systems.

Implementation Guidelines and Requirements:

- Windbreak and hedgerow system designs must follow technical guidelines established by the USDA Natural Resource Conservation Service (NRCS) and require NRCS and DLNR-DOFAW approval. (*NRCS technical guidelines for field windbreaks and hedgerows are available at DLNR-DOFAW Administration in Honolulu.*)
- Windbreak establishment is not eligible for cost-share, where the sole purpose of the windbreak is to protect non-forest resources such as an unforested pasture managed solely for grazing or a food crop.
- Protect all planted areas from destructive fire and destructive grazing.
- Maintain for at least 10 years following establishment.
- Tree Establishment Protection methods are eligible for cost-share only where it is determined that the primary purpose of this practice will not be achieved if it is not protected from feral animals or domestic livestock.

Technical Components Eligible for Cost-Share:

Weed/Moisture Control
Site Preparation
Seedling Acquisition
Planting
Tree Establishment Protection, including predator control
Fertilization/Soil Amendments
Non-Commercial Thinning
Trickle-Drip Irrigation Systems

See [*Appendix C*](#) for technical component specifications and approved cost-share rates.

Soil and Water Protection and Improvement

Purpose: Improve the water quality and yield from forest soils, maintain or improve the productivity of forest soils, and prevent erosion on forest land.

Implementation Guidelines and Requirements:

- Eligible practices are erosion control measures on forest soils that include the use of soil protecting/conserving plants in order to control sheet or rill erosion, gully formation and/or mass movement of soil.
- Apply practices on abandoned roads, trails, firebreaks, landings and other forest areas requiring critical area treatment.
- Adhere to state-approved ***Best Management Practices*** for activities in stream crossings, cross drainage and streamside management areas. Applicable practices for Streamside Management Zones are described in the Best Management Practices.
- Protect all planted areas from destructive fire and destructive grazing.
- Maintain for at least 10 years following establishment.
- Tree Establishment Protection methods are eligible for cost-share only where it is determined that the primary purpose of this practice will not be achieved if it is not protected from feral animals or domestic livestock—or where protection as a "stand alone" component will result in the natural regeneration of trees.

Technical Components Eligible for Cost-Share:

Tree Establishment Protection, including predator control
Mulching
Water Diversion
Critical Area Revegetation

See ***Appendix C*** for technical component specifications and approved cost-share rates.

Riparian and Wetland Protection and Improvement

Purpose: Protect, restore, and improve wetlands and riparian areas, reduce stream sedimentation and streambank degradation, and protect water quality.

Implementation Guidelines and Requirements:

- Apply to forest land with existing tree cover or other rural lands capable of supporting forested wetlands or forested riparian areas.
- Apply to establish and maintain permanent tree and shrub cover on plantation forest or agricultural areas that border: permanent streams; lakes or ponds; open water wetlands; important groundwater recharge areas; or important groundwater recharge areas.
- Riparian Buffer Areas
 - Stabilize and protect riparian buffer areas from erosion prior to planting.
 - Protect riparian buffer areas from destructive animal traffic, grazing and browsing.
 - Plant trees on 6x6 foot spacings and shrubs, on 5x5 foot spacings.
 - Buffer areas should be at least 18 feet wide and consist of at least four rows of trees.
- Follow applicable state-approved *Best Management Practices* for Streamside Management Zones when applying any forest or vegetation management activities in riparian or forest buffer zones bordering permanent or major intermittent streams and waterways. The Riparian Buffer Areas described above, are areas within Streamside Management Zones, which most closely border streamsides.
- Protect planted areas from destructive fire and destructive grazing.
- Maintain for at least 10 years following establishment.
- Tree Establishment Protection methods are eligible for cost-share only where it is determined that the primary purpose of this practice will not be achieved if it is not protected from feral animals or domestic livestock—or where protection as a "stand alone" component will result in the natural regeneration of trees.

Technical Components Eligible for Cost-Share:

Site Preparation
Seedling Acquisition
Planting
Fertilization/Soil Amendments
Tree Establishment Protection, including predator control
Establish Permanent Vegetative Cover
Streambank Stabilization

See ***Appendix C*** for technical component specifications and approved cost-share rates.

Wildlife Habitat Improvement

Purpose: Establish, restore, improve, or maintain permanent forest and/or wetland habitat for native and desirable non-native game and non-game wildlife species, including threatened and endangered species.

Implementation Guidelines and Requirements:

- Apply eligible management practices to create and/or alter unique habitat required of specific target wildlife species for nesting, brood cover, escape cover and food.
- Apply practices to forest land with existing tree cover and closely associated lands necessary for species habitat improvement and/or the recovery of threatened and endangered species of plants or animals.
- Develop practices in consultation with wildlife management professionals, and based on past research or scientific observation.
- Protect planted areas from destructive fire and destructive grazing.
- Maintain for at least 10 years following establishment.

- Tree Establishment Protection methods are eligible for cost-share only where it is determined that the primary purpose of this practice will not be achieved if it is not protected from feral animals or domestic livestock—or where protection as a "stand alone" component will result in the natural regeneration of trees.

Technical Components Eligible for Cost-Share:

Control of Undesirable Plant Species
Site Preparation
Tree Establishment Protection, including predator control
Fertilization/Soil Amendments
Seedling Acquisition
Planting
Wildlife Watering Unit

See *Appendix C* for technical component specifications and approved cost-share rates.

Forest Recreation Enhancement

Purpose: Improve forest areas, including historic sites, specifically for recreational and/or educational uses including hiking, natural resource interpretation, wildlife viewing and hunting.

Implementation Guidelines and Requirements:

- Apply to construct trails or walkways in scenic forest areas that are somehow accessible to the public.
- Trails constructed with cost-share assistance must be periodically made accessible to the public.
- Prepare paths, trails and walkways where they are needed for effective and safe use of targeted recreational forest resources.
- Maintain for at least 10 years following establishment.

Technical Components Eligible for Cost-Share:

Trail Construction

See *Appendix C* for technical component specifications and approved cost-share rates.

Forest Stewardship Practice Technical Components, Specifications and Allowable Cost-Share Rates

Site Preparation

Site preparation techniques are applied to create a favorable environment for tree seedling planting, establishment and growth. Applications may involve heavy or light equipment, or simply hand-labor. Vegetative competition is reduced or removed so that seedlings can be expected to survive. Site preparation techniques are also applied to improve the soil condition for seedling growth or natural regeneration. Scarification is commonly used to promote the natural regeneration of *Acacia koa*. Tilling and subsoiling may be required where soil is compacted or where there are hardpans.

Guidelines

- Apply all chemicals in accordance with registered uses, directions on label, and all other applicable federal, state and local policies.
- Be careful not to damage to existing desirable trees.
- Prepare site for planting so as to minimize soil erosion and the movement of sediment.
- Wherever feasible, follow elevation contours when using heavy soil-moving equipment.
- Do not employ mechanical site preparation methods in Streamside Management Zones as defined the DLNR-DOFAW *Best Management Practices*.

Costs and Cost-Share Rates

Costs for site preparation include equipment, labor and materials. Allowable cost-share rates vary depending upon the amount of site preparation required due to density of existing vegetation, soil condition, presence of hardpan, topography, etc. Rates are as follows:

Low	\$200/acre
Medium	\$400/acre
High	\$700/acre

NOTE: The cost-share rates listed in this appendix are the maximum allowable program shares for implementing the listed practices. They are estimated to be 50% of the total cost. Thus, if the \$200/acre Site Preparation rate is applied, an applicant will receive this amount in assistance if he/she spends at least \$400/acre implementing the practice. If the practice actually costs less than \$400/acre, the applicant will receive only 50% of the actual cost. If the practice costs more than \$400/acre, the applicant can still only receive the maximum allowable cost-share rate which is \$200/acre.

Planting

Tree seedlings are hand or machine planted after site preparation is complete.

Guidelines

- Plant seedlings at the beginning of the wettest season.
- **Hole size:** Recommended planting hole size depends upon seedling type and a variety of environmental conditions. Where dibble stock is used, soil is of good structure, and there is adequate rainfall, your planting holes need only to accommodate the small dibble. Where bare-root and larger planting stock are used, holes must be large enough to accommodate freely hanging roots, or root balls. Roots should never be bent or crowded. Where long droughts may threaten seedling survival, larger holes can serve as water storage reservoirs, greatly increasing seedling survival rates. Holes dug through sod or untilled ground should be at least 40cm square.
- You can mix soil amendments or additives such as hydrating polymers with soil before planting holes are filled in to improve growing environment and soil water holding capacity.
- Clear all weeds and competing vegetation from around newly planted seedlings at the time of planting to an area of at least 3 feet in diameter.
- Avoid using heavy machinery on areas bordering streams, major drainages and steep slopes. Hand-planting, direct seeding or natural regeneration are recommended for such areas.
- Avoid glazing sides of planting holes with digging tools, especially augers in wet clay soils.

Costs and Cost-Share Rates

Costs for planting include labor, equipment and materials. Maximum allowable cost-share rates are as follows:

Low	150 trees/acre	\$100/acre
Med.	150-250 trees/acre	\$150/acre
Heavy	250+trees/acre	\$200/acre

Seedling Acquisition

Seedlings should be purchased from local, private growers whenever possible. Local growers are those most likely to carry the species provenances that are best adapted to your site and your intended uses. You may need to order ahead of time to get the quantity and species that you desire. The DLNR-DOFAW also operates a nursery and produces a limited selection of species. Again, you should always order well in advance.

Guidelines

- Use smaller container stock such as dibble tube, airblock, root-trainer or plant band, as opposed to larger potted stock, if available to reduce site preparation and planting costs.
- Seedlings should be of good condition, adequate size and "hardened off" in nursery before planting.
- Make your species choices according to your project site conditions and intended uses/objectives.
- Make your species choices considering the plant communities that currently exist on your project site. **Avoid choosing invasive non-native tree species that may become aggressive weeds or out-compete more desirable forest species.** If you are not sure whether or not a species is invasive, contact the Invasive Species Coordinator at the DLNR-DOFAW.

Costs and Cost-Share Rates

Cost-share is allowable only for the purchase or production of seedlings. Higher rates are allowed for larger potted stock which may be all that is available for some native species. Higher rates may also be applied when you are producing your own seedlings for your project.

Normal Private Rate	\$.50/seedling
High Private Rate	\$1.50/seedling

Fertilization/Soil Amendments

Fertilization is recommended to promote good seedling growth and development where soil nutrients are limiting and where rapid early growth will provide seedlings with a competitive advantage over surrounding vegetation. You can use soil amendments to improve the structure and fertility of the soil immediately surrounding the seedling root zone. Fertilizers and soil amendments may be organic or inorganic.

Guidelines

- Apply chemicals in accordance with registered uses, directions on label, and all other applicable federal, state and local policies. Do not apply inorganic fertilizers near to streams or wetlands where polluted runoff might enter water.
- Chose and apply fertilizers only after considering species demands and soil test data.
- Consider possible induced deficiencies of nutrients due to excessive levels of other nutrients and the effect of soil pH on the availability of both soil and applied sources of plant nutrients and the optimum pH range of the plants to be grown.
- **Fertilizer applications are eligible for cost-share assistance for a period of up to four years subsequent to the seedling planting date.**

Costs and Cost-Share Rates

Costs of fertilization include fertilizer, equipment and labor. The allowable cost-share rates for fertilization/soil amendments are:

Normal Rate	\$100/acre/year
High Rate	\$250/acre/year

The high rate is applicable only where soil depletion is extreme as is the case with former sugar plantation sites.

Weed/Moisture Control

Weed and moisture control applications are recommended for a period following planting to provide seedlings with a favorable growing environment.

Guidelines

- Apply chemicals in accordance with registered uses, directions on label, and all other applicable federal, state and local policies.
- Apply weed control measures specific to competing or undesirable species and design applications to minimize adverse environmental impacts.
- Use mulch where feasible as a form of weed/moisture control.
- **Weed/moisture control practices are eligible for cost-share assistance for a period of up to four years subsequent to the seedling planting date.**

Costs and Cost Share Rates

Costs of Weed/Moisture Control include labor, materials and equipment. Irrigation is not eligible for cost-share under this component. The allowable cost-share rate for Weed/Moisture Control applications is:

\$150/acre/year

Tree Establishment Protection

Tree Establishment Protection strategies serve to protect seedlings and young trees from feral and domestic animals such as pigs, sheep, deer, cattle, horses and humans. You can also apply tree protection methods where animal activity prevents natural forest regeneration. You may also want to explore alternatives to permanent perimeter fencing, such as animal repellents, portable electric fencing, etc., as means of animal control.

Guidelines

Fencing

- Fence must have at least five strands of 12^{1/2} gauge smooth and/or 12^{1/2} gauge barbed galvanized wire.
- Wire should be tightly strung and well secured to post. (If pulled and released, wire should vibrate for 20-30 seconds.)
- Where fence crosses a major drainage, a suitable swinging section should be provided to prevent passage of animals during low water periods, yet allow water flow during flood periods.
- A post and stay should be used to hold fence in an upright position, and to maintain correct wire-wire and ground-wire spacing.
- Posts should be spaced about 10 feet apart.
- Where stays are used, not more than one between each pair of posts is recommended.
- Wooden posts within fence line should be at least 6 inches in diameter and 6 feet in length.
- Line posts should be set deep enough into the ground for adequate stability and support (about 18 inches).
- Line posts in depressions or draws should be anchored to prevent pulling when wire is stretched.
- Corner posts should be set approximately 3 feet into firm soil.
- Only sound, decay resistant material should be used for wooden posts. Kiawe, ohia, eucalyptus and ironwood are considered good post woods.
- Steel posts should be protected with an effective rustproof coating.
- Gates, cattle and/or deer guards should be provided as necessary to allow vehicle and farm traffic.
- Fence maintenance following installation is not eligible for cost-share assistance.

Other Practices

- You are encouraged to experiment with alternative animal control measures as long as there is a reasonable probability that the measure will be successful (proven elsewhere, previous observations, animal behavior studies, etc.).
- Develop alternative methods in consultation with wildlife, game management or livestock management professionals.

Costs and Cost Share Rates

For perimeter fencing, costs are applied on a *per acre protected* basis. Where fencing is needed to add to, or complete an existing fence, costs are applied proportionately to the total acres protected. For Example, if a fence is needed to close off one side of a four-sided square area, costs can be applied to 1/4 or 25% of the total acres protected. Qualifying acres include only those that are actively being managed under the Forest Stewardship Program. House sites, open, and other non managed areas cannot be counted as areas protected. The maximum allowable cost share rate for Tree Establishment Protection is:

\$150/acre protected

Control of Undesirable Plant Species

Apply this practice component wherever the elimination of undesirable plant species is necessary to achieve your forest, agroforest and/or wildlife habitat improvement objectives.

Guidelines

- You can eliminate or control undesirable plant species with herbicides or by physically removing/destroying vegetation.
- Apply chemicals in accordance with registered uses, directions on label, and all other applicable federal, state and local policies.
- Your control measures should be designed specifically for the competing or undesirable species and your applications should be designed to minimize adverse environmental impacts.

Costs and Cost Share Rates

Costs include labor, equipment and materials. Allowable cost share rates for Control of Undesirable Plant Species are as follows:

Low	(less cover)	\$200/acre
High	(more dense cover)	\$400/acre

Non-Commercial Thinning

Apply this practice to stands of trees to increase the production of high-value timber products, or when your multiple objectives include a combination of timber, wildlife and aesthetic benefits.

Guidelines

- Protect treated forest area from destructive grazing livestock and/or browsing wildlife ungulates.
- Apply practice to forested areas where stands of trees are overstocked or where desirable trees are over topped by less desirable trees.
- Your management plan should consider: species that will be favored for better growth; desired tree spacing after thinning; methods of tree removal; best season for thinning; thinning methods (mechanical or chemical); methods for slash disposal; and special treatments, if needed, to forestall the spread of disease fungi or insect pests.
- You can thin crop trees or remove undesirable cull trees to increase the growth rate, health and future value desired timber crop trees.
- Chose cull trees with the assistance of a DLNR-DOFAW Branch Forester or other professional forester.

Costs and Cost-Share Rates

Costs include labor, materials and equipment. The allowable cost-share rate for Non-Commercial Thinning is:

\$100/acre

Trickle Drip Irrigation Systems

You can use drip irrigation systems to establish trees in areas where the natural supply of water is not adequate in the amount or frequency necessary for acceptable seedling survival and growth.

Guidelines

- The installation of irrigation systems is an eligible practice only where they are being used to irrigate windbreak trees within rows—and only if it is determined that trees will not survive without irrigation.
- It is recommended that you use irrigation systems only to enhance seedling survival and growth during early development—before seedling roots have reached upper water table levels. Irrigation should not to be used to maintain trees as they become mature.
- Develop irrigation system designs in consultation with the UH-Cooperative Extension Service or the USDA Natural Resource Conservation Service.
- Cost-share assistance is available for system installation only. System maintenance and repairs are the responsibility of the applicant.

Costs and Cost Share Rates

Eligible costs are for system installation only. They include labor, materials and equipment. The allowable cost-share rate for the installation of Trickle-Drip Irrigation Systems is:

\$0.25/foot

Mulching

Apply mulch to soil surface immediately surrounding young tree seedlings after planting to conserve soil moisture, prevent soil compaction, reduce runoff and erosion, control weeds, improve soil structure and establish plant cover. Mulch consists of plant residues or other suitable materials produced on or off site.

Guidelines

- Apply mulch to erodible soils where trees or cover vegetation are being established.
- Apply mulch around tree seedlings at the time of planting as a means of weed/moisture control.
- Cover the soil surface completely with a mulch layer at least 2 inches thick.
- Where mulch is used to promote **Critical Area Revegetation**, it should serve to control erosion and boost soil fertility.

Costs and Cost-Share Rates

Costs include labor, equipment and materials. The allowable cost-share rate for mulching is:

\$125/acre

Critical Area Revegetation

This practice involves the establishment of permanent vegetation, including trees, shrubs, vines, grasses and legumes on highly erodible sites. The objective is to protect and rebuild soil so that trees can eventually be planted with good potential for survival.

Guidelines

- Apply practices to areas that cannot be stabilized by less intensive methods such as tree planting. Examples are dams, dikes, levees, slope cuts, fills and deep rills and gullies.
- Chose suitable plants according to site conditions and in consultation with the Plant Materials section of the USDA Natural Resource Conservation Service.
- Use erosion control netting and/or mulch on exposed areas with high erosion potential.
- Protect plantings from fire and grazing animals.
- Plant shrub and grass lines along elevation contours.

Costs and Cost-Share Rates

Costs include labor, materials and equipment. Allowable cost-share rates vary depending upon degree of degradation or erosivity. They are:

Less intensive	\$300/acre
More intensive	\$500/acre
Most intensive	\$700/acre

Water Diversions

The purpose of this practice is to divert water from flood or erosion prone forest sites to sites where it can be used or disposed of safely.

Guidelines

- This practice component applies where: 1) Runoff from higher areas is damaging to land being managed under the Forest Stewardship Program; 2) Surface and Shallow subsurface flow caused by seepage is damaging sloping upland; 3) Runoff is in excess and available for use on nearby sites; and 4) A diversion is required as part of a pollution abatement system.
- Do not use water diversions as substitutes for terraces to control erosion.
- Design and construct diversions in consultation with a resource professional from the USDA Natural Resource Conservation Service.
- Diversions must have the capacity to carry peak runoff from a 10-year storm event of 24 hour duration.
- Design diversions to have stable side slopes.
- Construct ridges with a minimum top width of 4 feet.
- The top of the constructed ridge must not be lower at any point than the design elevation plus 10 percent overfill for settlement.
- Locate diversions in consideration of outlet conditions, topography, land use, cultural operations and soil type.
- Do not use diversions below high sediment-producing areas.
- Vegetated filter strips along diversion bottoms are recommended.
- Each diversion must have a safe and stable outlet with adequate capacity.
- Outlets may be grassed waterways, vegetated or paved areas, sediment basins, grade stabilization structures, stable watercourses, underground outlets, or combination.
- Management plans must detail specs. for construction and maintenance including length, width, cross-section, depths, side slopes, slope of channel, and outlet.
- For vegetated diversions, plans should also specify grass species, recommended planting time and methods and fertilizer requirements.

Costs and Cost Share Rates

Costs for Water Diversions include labor, equipment and materials. The allowable cost-share rate is:

\$100/acre protected

Stream Bank Stabilization

This practice involves the establishment of temporary vegetation such as grass, or the use of other materials to stabilize the banks of streams, lakes and estuaries that are subject to erosion and scouring. Stream Bank Stabilization Practices are used to prepare a site for **Establishing Permanent Vegetative Cover**.

Guidelines

- Apply practices to streambanks that are susceptible to erosion and/or damage from livestock or vehicular traffic.
- Streambank stabilization applications include reshaping of banks, stabilization of bank toes with rocks or logs, temporary stabilization with mulch and grass prior to **Establishing Permanent Vegetative Cover** with trees and shrubs.
- Stabilization may be achieved with cuttings or posts of trees or shrubs that root rapidly in wet conditions.
- Follow applicable state-approved *Best Management Practices* for Streamside Management Zones when applying any forest or vegetation management activities in riparian or forest buffer zones bordering permanent or major intermittent streams and waterways.

Costs and Cost Share Rates

Costs include labor, materials and equipment. The allowable cost-share rate is:

\$200/acre

Establish Permanent Vegetative Cover

This practice involves the establishment of permanent forested buffer strips within Streamside Management Zones following **Streambank Stabilization** as described above.

Guidelines

- Buffer areas must be stabilized and protected from erosion prior to any tree planting.
- Buffer areas must be protected from destructive animal traffic, grazing and browsing.
- Plant trees on 6x6 foot spacings and shrubs, on 5x5 foot spacings.
- Buffer areas should be at least 18 feet wide and consist of at least four rows of trees.
- Develop planting plans, layout and installation in consultation with a DOFAW Branch Forester.
- Follow applicable state-approved *Best Management Practices* for Streamside Management Zones when applying any forest or vegetation management activities in riparian or forest buffer zones bordering permanent or major intermittent streams and waterways.

Costs and Cost-Share Rates

Costs include labor, materials and equipment. The allowable cost share rate for Establishing Permanent Vegetative Cover is:

\$300/acre

Trail Construction

You can construct trails in forest areas to enhance their recreational value, and to provide for public access and educational opportunities.

Guidelines

- When constructing trails, try not to eliminate key trees and other vegetation that have scenic value, provide shade, reduce erosion and runoff, provide unique habitat for wildlife, or that add to the aesthetic value of the area.
- Develop trail grades suited for your intended purposes, considering the topography, never exceeding 10 percent slope.
- Wherever possible, trail width should remain between two and 4 feet.
- Cut and fill slopes must be stable.
- Plans must include provisions for erosion control.
- Revegetate as soon as is practical following trail construction.
- Design bridges to withstand maximum expected loading with an adequate factor of safety.
- Place directional and warning signs, handrails, bridges and culverts as dictated by the site and intended use.
- Include provisions for maintaining all wearing surfaces, signs and drainage structures.

Costs and Cost Share Rates

Costs of trail construction include labor, equipment and materials. A higher allowable cost-share rate is applied to the construction of educational trails, which must provide for interpretation of forest values, forest species mixes, and/or historic and cultural sites. The allowable cost-share rates for trail construction are:

Recreational	\$1.25/foot
Educational	\$1.75/foot

Wildlife Watering Units

Wildlife Watering Units provide drinking water for wildlife where new, additional or improved watering places are needed to increase the range or to improve the habitat of desirable wildlife species.

Guidelines

- Construct watering units in consultation with a DOFAW wildlife professional.
- Maintain watering units to provide water for wildlife throughout the year.

Costs and Cost Share Rates

Costs include materials. The allowable cost-share rate for a Wildlife Watering Unit is:

\$200/unit

SAMPLE FORMAT: IMPLEMENTATION SCHEDULE

Year 1 - 2002

Practice Component	Units	Cost/Unit	Total Cost	LO Share	State Share
Trail Construction/ Education - Perimeter	6,000 ft.	\$2.58	\$15,480	\$7,740	\$7,740
Site Preparation	4 acres	\$1,769	\$7,076	\$4,276	\$2,800
Tree Establishment Protection	40 acres	\$404	\$16,161	\$10,161	\$6,000
TOTALS			\$38,717	\$22,177	\$16,540

Year 2 - 2003

Practice Component	Units	Cost/Unit	Total Cost	LO Share	State Share
Trail Construction/ Education - Interior	5,280 ft.	\$1.63	\$8,606	\$686	\$7,920
Site Preparation	4 acres	\$2,991	\$11,964	\$9,164	\$2,800
Weed Control	1 acre	\$962	\$962	\$812	\$150
Seedling Acquisition	500	\$2.90	\$1,450	\$700	\$750
Planting	4 acres	\$472	\$1,900	\$1,100	\$800
TOTALS			\$24,882	\$12,462	\$12,420

Year 3 - 2004

Practice Component	Units	Cost/Unit	Total Cost	LO Share	State Share
Trail Construction/ Education - Interior	5,280 ft.	\$1.63	\$8,606	\$686	\$7,920
Site Preparation	4 acres	\$2,991	\$11,964	\$9,164	\$2,800
Weed Control	2 acres	\$962	\$1,924	\$1,624	\$300
Seedling Acquisition	500	\$2.90	\$1,450	\$700	\$750
Planting	4 acres	\$472	\$1,900	\$1,100	\$800
TOTALS			\$25,844	\$13,274	\$12,570

(continue for years LO (landowner) is to receive cost-share assistance and maintain practices)

SAMPLE BUDGET SUMMARY

APPENDIX D

YEAR	Total Budget	Landowner Share	State Share
2002	\$38,717	\$22,177	\$16,540
2003	\$24,882	\$12,462	\$12,420
2004	\$25,844	\$13,274	\$12,570
2005	\$19,660	\$15,260	\$4,400
2006	\$23,060	\$17,910	\$5,150
2007	\$23,060	\$17,910	\$5,150
2008	\$23,060	\$17,910	\$5,150
2009	\$14,750	\$11,275	\$3,475
2010	\$14,750	\$11,275	\$3,475
2011	\$5,250	\$3,740	\$1,510
2012	\$4,550	\$4,550	\$0
2013	\$4,550	\$4,550	\$0
2014	\$4,550	\$4,550	\$0
2015	\$4,550	\$4,550	\$0
2016	\$4,550	\$4,550	\$0
TOTALS	\$235,783	\$165,943	\$69,840

Forest Stewardship Management Plan Development

COMPONENT DESCRIPTION	UNIT	RATE	C/S
1 to 3 SIP Practices included	acre	\$2250.	75%
4 to 6 SIP Practices included	acre	\$2625.	75%
7 to 9 SIP Practices included	acre	\$3000.	75%

Reforestation and Afforestation

Site Preparation - Lower Cost	acre	\$200.	50%
Site Preparation - Medium Cost	acre	\$400.	50%
Site Preparation - Higher Cost	acre	\$700.	50%
Planting - Light (150/acre)	acre	\$100.	50%
Planting - Medium (150-250/acre)	acre	\$150.	50%
Planting - Dense (250+/acre)	acre	\$200.	50%
Weed/Moisture Control	acre	\$150.	50%
Tree Establishment Protection	acre	\$150	50%
Fertilization/Soil Amendments - Normal	acre	\$100.	50%
Fertilization/Soil Amendments - High	acre	\$250.	50%
Seedling Acquisition - Lower Cost	tree	\$0.50	50%
Seedling Acquisition - Higher Cost	tree	\$1.50	50%

Forest and Agroforest Improvement

Site Preparation - Lower Cost	acre	\$200.	50%
Site Preparation - Medium Cost	acre	\$400.	50%
Site Preparation - Higher Cost	acre	\$700.	50%
Planting - Light (150/acre)	acre	\$100.	50%
Planting - Medium (150-250/acre)	acre	\$150	50%

Planting - Dense (250+/acre)	acre	\$200.	50%
Tree Establishment Protection	acre	\$150	50%
Fertilization/Soil Amendments - Normal	acre	\$100.	50%
Fertilization/Soil Amendments - High	acre	\$250.	50%
Non-Commercial Thinning	acre	\$100	50%
Control of Undesirable Species - Light	acre	\$200	50%
Control of Undesirable Species - Heavy	acre	\$400	50%
Seedling Acquisition - Lower Cost	tree	\$0.50	50%
Seedling Acquisition - Higher Cost	tree	\$1.50	50%

Windbreak and Hedgerow Establishment, Maintenance and Renovation

Weed/Moisture Control	acre	\$150.	50%
Site Preparation - Lower Cost	acre	\$200.	50%
Site Preparation - Medium Cost	acre	\$400.	50%
Site Preparation - Higher Cost	acre	\$700.	50%
Planting - Light (150/acre)	acre	\$100.	50%
Planting - Med.(150-250/acre)	acre	\$150.	50%
Planting - Dense (250+/acre)	acre	\$200.	50%
Tree Establishment Protection	acre	\$150.	50%
Fertilization/Soil Amendments - Normal	acre	\$100.	50%
Fertilization/Soil Amendments - High	acre	\$250.	50%
Seedling Acquisition - Lower Cost	tree	\$0.50	50%
Seedling Acquisition - Higher Cost	tree	\$1.50	50%
Non-Commercial Thinning	acre	\$100.	50%
Trickle-Drip Irrigation System	ft.	\$0.25	50%

Soil and Water Protection and Improvement

Tree Establishment Protection	acre	\$150.	50%
Mulching	acre	\$125.	50%
Water Diversion	acre	\$100.	50%
Critical Area Revegetation - Lower Cost	acre	\$300.	50%
Critical Area Revegetation - Medium Cost	acre	\$500.	50%
Critical Area Revegetation - Higher Cost	acre	\$700.	50%

Riparian and Wetland Protection Improvement

Seedling Acquisition - Lower Cost	tree	\$0.50	50%
Seedling Acquisition - Higher Cost	tree	\$1.50	50%
Planting - Light (150/acre)	acre	\$100.	50%
Planting - Medium (150-250/acre)	acre	\$150.	50%
Planting - Dense (250+/acre)	acre	\$200.	50%
Establish Permanent Vegetative Cover	acre	\$300.	50%
Site Preparation - Lower Cost	acre	\$200.	50%
Site Preparation - Medium Cost	acre	\$400.	50%
Site Preparation - Higher Cost	acre	\$700.	50%
Tree Establishment Protection	acre	\$150.	50%
Fertilization/Soil Amendments - Normal	acre	\$100.	50%
Fertilization/Soil Amendments - High	acre	\$250.	50%
Streambank Stabilization	acre	\$200.	50%

Wildlife Habitat Improvement

Control of Undesirable Species - Light	acre	\$200.	50%
Control of Undesirable Species - Heavy	acre	\$400.	50%
Site Preparation - Lower Cost	acre	\$200.	50%

Site Preparation - Medium Cost	acre	\$400.	50%
Site Preparation - Higher Cost	acre	\$700.	50%
Tree Establishment Protection	acre	\$150.	50%
Fertilization/Soil Amendments - Normal	acre	\$100.	50%
Fertilization/ Soil Amendments - High	acre	\$250.	50%
Seedling Acquisition - Lower Cost	tree	\$0.50	50%
Seedling Acquisition - Higher Cost	tree	\$1.50	50%
Planting - Light (150/acre)	acre	\$100.	50%
Planting - Medium (150-250/acre)	acre	\$150.	50%
Planting - Dense (250+/acre)	acre	\$200.	50%
Wildlife Watering Unit	unit	\$200.	50%

Forest Recreation Enhancement

Trail Construction - Educational	ft.	\$1.75	50%
Trail Construction - Recreational	ft.	\$1.25	50%

Forest Stewardship Project Progress Reporting Instructions

Project progress reports are due on June 30th December 31st of each year for which funding has been approved for your project according to your State of Hawaii Forest Stewardship Management Agreement. Please follow the following reporting format.

- 1) **Provide a summary of all of the management practices you accomplished during this period.** Please be quantitative where you can. For example: number of trees planted, number of acres prepared for planting, length of fencing constructed, etc.
- 2) **If you are requesting a reimbursement for this period, itemize all of your expenditures using the example tabular format that follows.** For each requested reimbursement, please provide copies of invoices or receipts. For your in-kind contributions, provide a log of hours of labor and/or equipment rental, signed by workers and/or equipment operator.

Example itemization of management accomplishments and expenses:

activity/practice	units accomplished	hard (cash) costs	in kind labor	in kind equipment use	total cost	reimbursement requested
Site Preparation	15 acres	\$376.00	\$2,246.00	\$4,878.00	\$7,500.00	\$3,750.00
Seedling Acquisition	15 acres: 3750 seedlings	\$2,812.50	\$0.00	\$0.00	\$2,812.50	\$1,406.25
Seedling Planting	15 acres	\$0.00	\$1,750.00	\$500.00	\$2,250.00	\$1,125.00
Fertilizer	15 acres	\$1,250.00	\$0.00	\$2,500.00	\$3,750.00	\$1,500.00
TOTALS		\$4,438.50	\$3,996.00	\$7,878.00	\$16,312.50	\$7,781.25

*In kind equipment use should be charged at allowable hourly rate including equipment operator. Please see Appendix G for allowable rates.

- 3) **Describe any changes you have made—or are planning to make—to your original management plan.**
- 4) **Briefly evaluate each of the technical practices you have applied to date as if you were advising another landowner about to begin a similar project. What has worked? What hasn't? What, if anything would you do differently?**
- 5) **Is there any technical information that would help you as you proceed with your project? If so, please describe.**

**ALLOWABLE HOURLY RATES FOR IN-KIND
LANDOWNER CONTRIBUTIONS**

General Hand Labor (16 years or older)	\$10.00/hour
Specialized Hand Labor	\$12.00/hour

Materials:	Line Posts	\$10.00/each
	Corner Posts	\$15.00/each

Equipment with Operator:

1/2 and 3/4 ton truck	\$15.00/hour
1 ton truck	\$17.00/hour
1-1/2 ton truck	\$20.00/hour
2 ton truck	\$22.00/hour
2-1/2 ton truck	\$25.00/hour
5 ton truck	\$25.00/hour
20 ton tandem dump truck	\$60.00/hour
12 ton tandem dump truck	\$45.00/hour
2 and 4 wheel drive tractor (40 HP)	\$35.00/hour
2 wheel drive tractor (>40 HP)	\$40.00/hour
D-2 or TD6 with attachments	\$40.00/hour
D-4 or TD9 with attachments	\$50.00/hour
D-6 or TD14 with attachments	\$70.00/hour
D-7 or TD18 with attachments	\$90.00/hour
D-8 or TD20 with attachments	\$125.00/hour
D-9 or TD25 with attachments	\$185.00/hour
Back-hoe	\$60.00/hour
Loader	\$60.00/hour
Compressor	\$20.00/hour
Power Saw	\$15.00/hour
Power post hole digger	\$15.00/hour
Power sprayer	\$15.00/hour
Bobcat	\$21.00/hour
Manlift	\$18.50/hour
Mulcher	\$15.00/hour