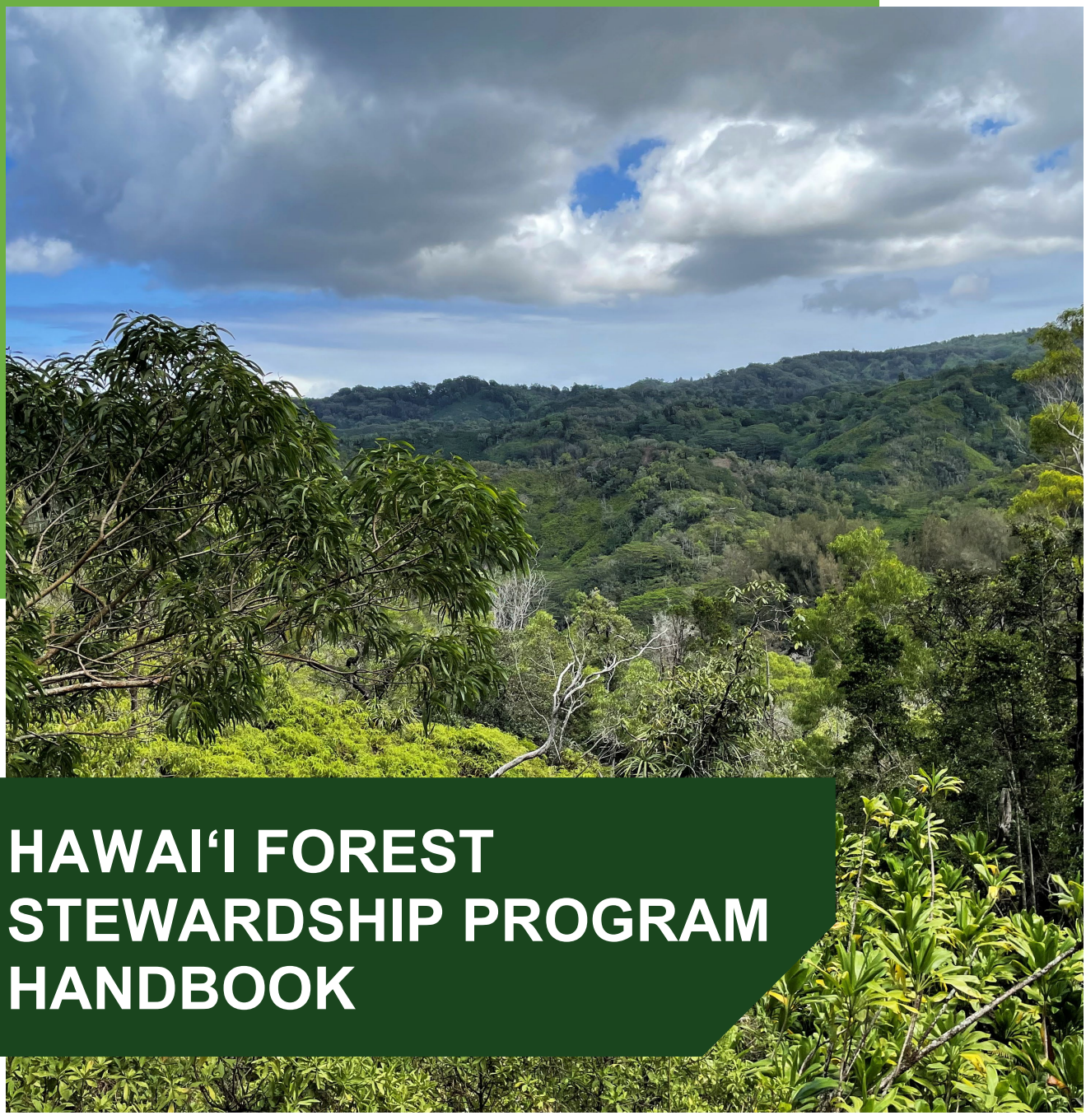

HAWAIʻI FOREST STEWARDSHIP PROGRAM HANDBOOK

Department of Land and Natural Resources
Division of Forestry and Wildlife (DOFAW)
1151 Punchbowl Street, Room 325
Honolulu, Hawaiʻi 96813
(808) 587-0160
https://dlnr.hawaii.gov/dofaw

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List of Acronyms and Other Abbreviations

Acronym	Meaning
BLNR	Board of Land and Natural Resources
DLNR	Department of Land and Natural Resources
EA	Environmental Assessment
EQIP	Environmental Quality Incentives Program
FSAC	Forest Stewardship Advisory Committee
FSP	Forest Stewardship Program
NRCS	Natural Resources Conservation Service
OCCL	Office of Conservation and Coastal Lands
OEQC	Office of Environmental Quality Control
SHPD	State Historic Preservation Division
USDA	United States Department of Agriculture

Forestry and Wildlife Contact Information

Forest Stewardship Program Coordinator
Forestry and Wildlife Cooperative Resource Management Forester
1151 Punchbowl Street, Room 325, Honolulu, HI 96813
Phone: 808-587-0166

Statewide Service Forester
1151 Punchbowl Street, Room 325, Honolulu, HI 96813
Phone: 808-587-0177

Branch Offices:

Hawai'i Island
19 E. Kawili St.
Hilo, HI 96720
808-974-4221

Maui County
685 Haleakala Hwy
Kahului, HI 96732
808-973-9778

Kaua'i
3060 Eiwa St.
Lihue, HI 96766
808-274-3433

O'ahu
2135 Makiki Hts. Dr.
Honolulu, HI 96822
808-973-9778

State Tree Nursery
66-1220A Lalamilo Rd., Kamuela, HI
Phone: 808-887-6061

Forest Stewardship Website:
https://dlnr.hawaii.gov/forestry/lap/fsp/

Forestry and Wildlife Website:
https://dlnr.hawaii.gov/dofaw

Figure 1. Ecosystem restoration using native and indigenous plants. Kaneohe, O'ahu.

PROGRAM OVERVIEW

The Hawai'i Forest Stewardship Program (FSP) provides planning and financial assistance to private forest landowners, lessees, and land managers, hereafter referred to as landowners, to promote long-term management that protects and restores important natural resources on Hawai'i's forested and formerly forested lands. Important forest resource values include but are not limited to watersheds, native vegetation, forest resources and products, native wildlife habitat, and rare and endangered species. FSP supports the active management private forests and related resources to increase the social, economic, and environmental public benefits of these lands.

FSP supports a variety of management goals, including management plan development, forest product development (timber and non-timber forest products), native forest restoration and conservation, agroforestry, fire pre-suppression, watershed enhancement, native wildlife habitat, recreation, and community education and outreach.

Based on management goals, FSP assists eligible landowners in developing and implementing a Forest Stewardship management plan that covers a period of at least 10 years. Management plans include all objectives, resource descriptions, resource concerns, practices, timelines, and budgets for the project.

Authorized in 1991 through the passage of Act 327 of the Hawai'i State Legislature, FSP is implemented by the Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (Forestry and Wildlife), in partnership with the United States Department of Agriculture (USDA) Forest Service. FSP is implemented pursuant to Chapter 195F, Hawai'i Revised Statutes (HRS), and Section 109, Hawai'i Administrative Rules (HAR).

PROGRAM BENEFITS

The Forest Stewardship Program connects landowners with the information and tools they need to manage their forests and the resources they provide. A prepared forest stewardship management plan provides a comprehensive 10-year roadmap to managing your forest by identifying your goals and management activities needed to meet them.

Landowner and Public Benefits

- Income opportunities
- Recreational opportunities
- Native habitat protection and improvement
- Watershed enhancement
- Fire threat reduction
- Cultural connection and perpetuation
- Community education and outreach
- Soil conservation
- Biological diversity
- Carbon storage
- Creation of forestry related jobs
- Production of renewable energy
- Tax benefits
- Generational planning

Financial Incentives

- 75% cost-share reimbursement for the development of a 10-year forest management plan
- Up to 50% cost-share reimbursement for implementation of management plan practices at allowable cost-share rates set for the program
- Cost-share reimbursements are subject to change/availability of program funding.
- See Appendix F for more information

Other Incentives

Approved Forest Stewardship management plans may be submitted to your local Natural Resources Conservation Service (NRCS) office for potential financial assistance through their programs. See Appendix I for more information.

Figure 2: Wiliwili (*Erythrinia sandwicensis*) flowers in bloom. Waikoloa Dry Forest, Hawai'i. Photo by JB Friday.

APPLICANT ELIGIBILITY

Own or lease at least 5 contiguous acres of land that is forested, formerly forested, or suitable for growing trees. Lease must be 10 years minimum.

AND

Intend to actively manage **at least 5 acres** to enhance forest resource values for both private and public benefit for **at least 10 years.**

Eligible Entities

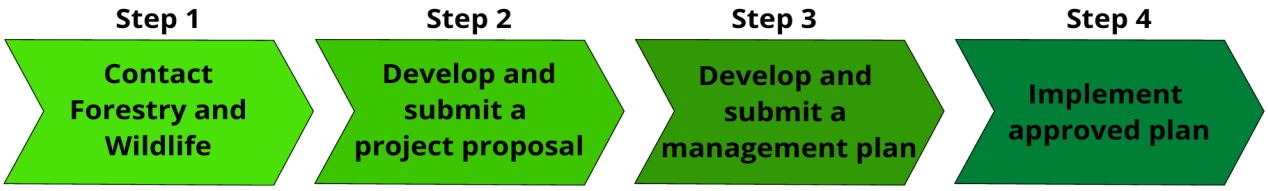
- individuals
- groups of multiple landowners
- lease or license holders
- non-governmental organizations
- associations
- joint owners
- corporations

FOREST STEWARDSHIP ADVISORY COMMITTEE

The Forest Stewardship Advisory Committee (FSAC) advises and assists Forestry and Wildlife in matters regarding FSP. The FSAC holds quarterly meetings to review and approve FSP project proposals and management plans, rank and prioritize projects for funding, and submit their recommendations to the State Forester for approval. The FSAC is comprised of voluntary representatives from government agencies, professional foresters, resource consultants, conservation organizations, non-profit and land trust organizations, and private landowners among others. For more information, please visit https://dlnr.hawaii.gov/forestry/lap/fsp/advisory-committee/

Figure 3. FSAC members visiting FSP projects in Kane'ohe, O'ahu (left), and Makawao, Maui (right).

PROGRAM PROCEDURES



Proposal and Management Plan Submission

Proposals and management plans are accepted on a continuous basis.

Step 1 **Contact Forestry and Wildlife** staff to discuss your proposed project

- Forestry and Wildlife staff will verify project eligibility, discuss project proposal development, and/or recommend other programs for assistance (see Appendix I).

Step 2 **Develop and submit a project proposal** for review by the FSAC

- See Appendix B for the project proposal template. Refer to Appendix A for the FSP Program Priorities when developing your proposal.
- Proposals must include at least three quotes for the development of the plan.
- Forestry and Wildlife staff will review your draft proposal prior to the FSAC meeting.
- The FSAC will approve, reject, or defer proposal submissions. Deferred proposals may be recommended for resubmission with revisions.

Step 3 **Develop and submit a management plan** for review by the FSAC

- See Appendix C for the management plan template. Refer to Appendix A for the FSP Program Priorities when developing your plan.
- Depending on proposed management activities, your project may be eligible for programs under other agencies, such as NRCS.
- Forestry and Wildlife staff will review your draft plan prior to the FSAC meeting.
- The FSAC will approve, reject, or defer plan submissions. Deferred plans may be recommended for resubmission with revisions.
- Cost-share reimbursement for management plan development will be provided upon final approval of the plan by the FSAC and the State Forester, and submission of a W-9 Form and draft invoice. Compliance on Hawai‘i Compliance Express may also be required.

Step 4 **Implement approved plan**

- Implementation of your management plan may begin after final approval by the FSAC and State Forester.
- All projects with approved FSP management plans will be monitored by Forestry and Wildlife for the life of the plan per Forest Service requirements.
- See page 8 for more information on cost-share assistance for approved plans. Expenses incurred before the plan is approved will not be eligible for cost-share.

Note: It is highly recommended that landowners hire a professional forester or someone with expertise in natural resource management, to prepare the management plan. **Forestry and Wildlife staff will not write the proposal or plan for you.**

Request for Cost-Share Assistance

Projects with approved plans may request cost-share assistance for the implementation of management practices. Cost-share assistance is **subject to availability of program funding, FSP ranking and prioritization, and compliance with other requirements.**

Forestry and Wildlife will rank eligible requests under a competitive process. The FSAC will review projects and provide recommendations on funding priorities. Program priorities described in Appendix A will be considered during this process. Requests that do not rank high enough for funding may be resubmitted in the future. If applicants are unsuccessful in obtaining FSP cost-share assistance, other financial assistance programs may be available (see Appendix I).

FSP Agreements

All projects that are approved for cost-share assistance for implementation of management practices must enter into a Program Implementation Agreement (FSP Agreement), which is a written forest stewardship management contract with the state.

Agreement Approval Process	The Board of Land and Natural Resources (BLNR) authorizes all FSP Agreements. The BLNR may approve, deny, or request that adjustments be made to management plans and/or agreements. Upon approval from the BLNR, agreements are reviewed and approved by the Department of the Attorney General before being finalized. You will not be reimbursed for expenses incurred before the agreement start date.
Term	FSP Agreements are generally a minimum of 10 years. For commercial timber production projects, the agreement term may be longer and include a payback provision (see Appendix H). Projects may include an additional voluntary maintenance period beyond the initial 10 years.
Other Requirements	Submission of a W-9 Form, federal and state tax clearances, compliance on Hawai‘i Compliance Express, and/or other required forms. Environmental compliance may be required (Appendix G).
Progress Reports	Annual and semi-annual progress reports are required. Reports should describe project activities, accomplishments, challenges, cost documentation, and pictures.

Invoices	Invoices may be submitted at the same time as progress reports and should align with your implementation and budget schedule (receipts are not required). Upon verification of practice completion via site visit by Forestry and Wildlife staff or review of your progress report, Forestry and Wildlife will process your reimbursement request. All payments will go directly to the applicant. Unused balances may be carried over to future years or other practices, upon Forestry and Wildlife approval.
Monitoring	Projects will be monitored annually by Forestry and Wildlife staff to verify practice completion and discuss progress or challenges.
Addendums and Revisions	Revisions to your management plan may be made as necessary. Minor changes may be made as a plan addendum and can be approved by Forestry and Wildlife staff. Substantial changes may require a plan and agreement revision subject to approval from the FSAC, State Forester, and BLNR.

Distribution and use of approved Forest Stewardship Management Plans

FSP provides useful information for landowners who may be considering forest management. Approved management plans will be made available for copy and distribution to the public upon request. The following information will be publicly available as required by the Freedom of Information Act: name, address, project location, and funding provided. Management plans distributed to the public may be used by potential applicants for informational purposes only. Management plans that plagiarize previously approved plans will not be accepted.

Figure 4: Native species diversity in a wet forest. Mountain View, Hawai‘i.

ELIGIBLE MANAGEMENT OBJECTIVES

FSP supports enhancing forest resource values for private and public benefit on lands with natural or planted forest trees or on lands suitable for growing trees. The following objectives are supported by FSP:

Management Plan Development

Management plan development is one of the primary goals of FSP. Plans guide actions to achieve management goals by identifying objectives, resource concerns, practices, budgets, implementation schedules, and monitoring protocols over a period of at least 10 years.

Forest Products

Forests may be managed to enhance and protect ecosystem services while generating revenue and providing rural employment and economic diversification. FSP supports sustainable growth and management of native and non-native forests for timber or other forest products. FSP does not provide cost-share support for harvesting activities. See Appendix H for commercial timber project requirements.

Native Species Restoration and/or Protection

Restoring, managing, and protecting native forests is essential for a healthy ecosystem and native biodiversity. Restoration and protection activities include planting native species, invasive species removal, and maintaining/enhancing existing native forest cover.

Native Wildlife Habitat Improvement

Habitat for native wildlife can be improved through activities that enhance native forest health, mitigate threats, and address specific wildlife species needs such as shelter, forage, and nesting.

Figure 5: Maʻo (*Gossypium tomentosum*) growing amongst other native species planted in a restoration project. Waimea, Oʻahu.

Watershed, Riparian, and/or Wetland Protection and Improvement

Forest protection and restoration can enhance watershed, riparian and/or wetland health and function by improving water quality/quantity, reducing soil erosion, and creating native habitat.

Agroforestry

Agroforestry is the integration of trees and shrubs into crop and animal farming systems to create environmental, economic, and social benefits. Common agroforestry systems include multi-story, silvopasture, and forest farming. The tree components of agroforestry systems are eligible for cost-share, however the crops are not. See Appendix E for more information on agroforestry.

Forest Recreation Enhancement

Enhancement of forest recreation activities, such as hunting, hiking, and bird watching, includes building trails and installing educational and informational signage to provide safe and quality outdoor experiences.

Education and Community Outreach

To share knowledge and engage with the community, projects may include components such as public access, educational workshops, or other organized volunteer opportunities with community members, organizations, schools, or other interested groups.

Fire Prevention

Wildfire is a major threat to Hawai'i's natural resources, particularly in drier areas. Projects in high fire threat areas should plan for and implement fire prevention and control measures, such as the developing a fire response plan and installation/maintenance of fuelbreaks and water sources.

Figure 6: Koa seedlings being planted at a timber production project. Kamuela, Hawai'i.

Carbon Storage or Sequestration and/or Biomass Production

Conservation, reforestation, and natural regeneration can help to maintain or enhance a forests' capacity to store carbon. Forest biomass may also be harvested for renewable energy production.

Non-Eligible Management Objectives

Orchards

Orchards are not eligible for FSP cost-share assistance.

Non-Forestry Related Agriculture

FSP does not support non-forestry related agriculture such as vegetable crops and pasture management for livestock.

Landscaping/Gardening

FSP does not support landscaping to improve the appearance of an area with trees, shrubs, or flowers, or growing of plants in a garden plot. The establishment or maintenance of botanical gardens where collections of plants are grown and maintained for display is also not supported.

ELIGIBLE MANAGEMENT PRACTICES

This section contains summaries of practices that are eligible for cost-share assistance through FSP. Proposed management practices should be appropriate to and support your management objectives. Detailed practice descriptions can be found in Appendix D.

1. **Management Plan Development**
   All projects must have an approved management plan that guides actions to achieve management goals over a period of at least 10 years. Management plans must identify objectives, resource concerns, practices, budgets, implementation schedules, monitoring and maintenance activities, among other items. See Appendix C for the management plan template.

2. **Fence**
   Installation of fencing to protect the project area and control the movement of feral and/or domestic animals, such as pigs, sheep, deer, cattle, horses, and goats. Fences MUST be maintained for at least ten years in a manner that preserves their intended function and facilitates the accomplishment of management objectives.

Figure 7. Fence protecting a restoration area with naturally regenerating koa. Hilo, Hawai‘i.

3. **Tree and Shrub Site Preparation**
   Improvement of site conditions prior to the planting of trees and/or shrubs and/or to encourage natural regeneration of desirable trees through the reduction or removal of undesirable vegetation via mechanical or chemical methods, tilling or ripping soil, and the removal of slash or debris.

4. **Tree and Shrub Establishment**
   Establishment of trees or shrubs by planting seedlings, cuttings, direct seeding, or natural regeneration for forest restoration or enhancement, timber production, agroforestry, windbreak, greenbreak, and soil stabilization. This practice also includes the application of fertilizer and soil amendments at the time of planting.

5. **Groundcover Establishment**
   Establishment of temporary or permanent groundcover such as grasses, ferns, and understory plants to reduce soil erosion, for water quality improvement, limiting the establishment of invasive species, and wildlife habitat enhancement.

6. **Fertilizers/Soil Amendments**
   Application of organic or inorganic fertilizers and soil amendments, such as compost, to improve plant health on an as needed basis (not at the time of planting).

7. **Irrigation**
   Installation of irrigation systems to apply water to plantings to ensure seedling survival and growth in areas where rainfall is not dependable. Installation of water infrastructure for firefighting may also be supported.

Figure 8: Establishment of pigeon pea (*Cajanus cajan*) as nitrogen fixing groundcover. Kapa‘a, Kaua‘i

8. **Mulching**
   Application of plant residues or other suitable materials to the land to conserve soil moisture, suppress weeds, reduce energy use associated with irrigation, control erosion, improve soil health, and assist with plant establishment.

9. **Weed Control**
   Removal, reduction, or control of invasive species via chemical, mechanical, or manual methods for assuring planting survival and growth, forest restoration, erosion control, wildfire threat reduction, and watershed enhancement.

10. **Fuelbreak**
    Installation of a fuelbreak, where vegetation on a strip or block of land is treated, removed, and manipulated to reduce the risk of wildfire. Fuel breaks are located at strategic locations where there is a need to control the spread of fire.

11. **Trails and Access**
    Installation of trails, roads, informational signage, or water crossings to enhance forest management, public access and/or educational opportunities, fire protection, or recreation.

12. **Tree Thinning**
    Manipulation of species composition and structure in stands of desirable trees by cutting or killing selected trees (thinning) or understory vegetation to improve forest health and productivity, reduce damage from pests, reduce wildfire risk, restore natural plant communities, improve wildlife and pollinator habitat, or obtain other ecosystem services.

13. **Tree Pruning**
    Removal of selected branches, shoots, or roots via pruning to improve the health, form, productivity, and value of trees. Pruning can also address safety concerns, encourage growth of understory plants, and reduce fuel loads.

14. **Forest Health and Protection**
    Use of site-specific management practices to mitigate or eliminate damage from feral ungulates, mammalian predators, insects/disease, and other pests to improve growing conditions for desired plants, prevent the spread and introduction of invasive species and disease, and improve native wildlife habitat.

15. **Erosion Control**
    Mitigation of soil erosion in areas such as very steep sites, stream and channel banks and riparian areas through activities such as erosion control matting, terracing, or other grading.

16. **Monitoring and Maintenance**
    All projects are required to monitor their progress to determine if management is effective and successful. Monitoring activities may include measuring survival and growth of plantings, tracking increases/decreases in species of plants and/or animals, inspecting the condition of installed infrastructure such as fencing etc.

    Cost-shared practices must be maintained for at least ten years. “Maintain” means that improvements will not be willfully removed or destroyed and routine maintenance, including replacement as necessary, will be conducted to ensure that improvements will serve the intended purpose under normal conditions.

Example Projects

For examples of current projects, please visit: https://dlnr.hawaii.gov/forestry/lap/fsp/stewards/.

Figure 9: A variety of native species planted at a FSP project at the base of the Ko'olau Mountains. Kaneohe, O‘ahu.

APPENDIX A. FSP PROGRAM PRIORITIES EVALUATION

Due to limited state funding and numerous applicants, Forestry and Wildlife will rank and prioritize approved Forest Stewardship management plans and projects that are eligible to receive state funding through a Program Implementation Agreement. The Forest Stewardship Advisory Committee (FSAC) will review projects and provide recommendations on funding priorities to the Division of Forestry and Wildlife (DOFAW).

Program priorities include but are not limited to public benefits including:

- Enhancement and protection of key watershed areas
- Development or adaptation of new forestry and conservation techniques
- Economic diversification and rural employment
- Preservation or restoration of valuable natural resources including native plants, animals, and ecosystems

Projects and plans will be prioritized for state funding using the evaluation criteria below. These criteria were developed using information on priority lands for FSP from a spatial analysis project, HRS 195F, and input from the FSAC.

Forest Integrity: considers existing forest cover, potential increase in forest cover, and the scale of ecological and economic benefits

- High priority: The project is on existing forestland or will significantly increase forest cover and is of a size that will increase ecological and/or economic benefits on a regional landscape scale.
- Medium priority: The project is on previously forested land and will moderately increase forest cover, management includes restoration or the installation of a timber plantation and is of a size that will increase ecological and/or economic benefits at a local scale.
- Low priority: A small portion of the project is on previously forested land, management will only marginally increase forest cover, and project is at least the minimum size (5 acres).

Native Biodiversity: considers existing native habitat, how management actions will protect or improve native habitat, presence of threatened/endangered (T/E) species or critical habitat, and the management/creation of habitat for T/E species.

- High priority: The project site contains mostly intact native habitat, T/E species or critical habitat are found on site, and management will protect, enhance, and expand existing native habitat/critical habitat with primarily native species.
- Medium priority: The project has some intact native habitat, T/E species can be found in adjacent areas, and management will restore/create habitat utilizing primarily native species
- Low priority: The project site contains little to no native species habitat, no T/E species are found on site or in adjacent areas, and utilization of native species is limited.

Water: considers enhancement of existing riparian areas or wetlands if found on site (vegetation restoration, sedimentation mitigation, habitat improvement), proximity to priority watersheds, and impact on watershed function (increase forest cover, reduce soil erosion, habitat creation, etc.)

- High priority: The project will significantly improve riparian or wetland areas found on site, is located within a priority watershed (DOFAW, Environmental Protection Agency, Board of Water Supply, etc.), and significantly improve watershed function.
- Medium priority: The project will moderately improve riparian or wetland areas on site, is adjacent to a priority watershed, and will moderately improve watershed function.
- Low priority: No riparian or wetland areas are located on site; the project is not adjacent to a Forestry and Wildlife priority watershed and will marginally improve watershed function.

Strategic: considers a projects proximity to other protected or managed areas (forest reserves, national parks, FSP or Forest Legacy projects, etc.), the impact of the project on those adjacent protected areas, and if/how the project is contributing to a strategic initiative or landscape management plan (such as a Watershed Partnership, Department of Health, Board of Water Supply, Community Wildfire Protection Plan etc.)

- High priority: The project will significantly enhance the efforts of adjacent to protected or managed areas and will significantly contribute to a strategic initiative or landscape management plan.
- Medium priority: The project is within 3 miles of a protected or managed area and will complement the efforts of those areas, the project will moderately contribute to a strategic initiative or landscape management plan.
- Low priority: The project is beyond 3 miles of a protected or managed area and is not associated with or will not contribute to a strategic initiative or landscape management plan.

Economic Productivity: considers the project's potential for economic impact and market viability

- High priority: The project has potential for high local economic impact (economic diversification, employment, net present value over $100,000 or IRR over 10%) and demonstrates market viability for forest products which are locally or globally marketed and can be processed with local infrastructure.
- Medium priority: The project has potential for moderate local economic impact (economic diversification, rural employment, NPV of $50,000-$100,000 or IRR of 6-10%) and demonstrates market viability for forest products.
- Low priority: The project has potential for small or no local economic impact (NPV < $50,000 or IRR below 6%) and does not demonstrate market viability or economic productivity is not a goal.

Feasibility and Sustainability: considers a project's cost effectiveness (total cost/acre), use of other funding sources (NRCS, Fish and Wildlife Service, etc.), and overall feasibility,

sustainability, and likelihood of success (uses best management practices, threat management, considerations for labor resources etc.)

- High priority: The project will be highly cost effective, will use other funding sources to support a moderate to large portion of the project, will be highly sustainable and has a high likelihood of success.
- Medium priority: The project will be moderately cost effective, will use other funding sources to support a small portion of the project, will be moderately sustainable and has a moderate likelihood of success.
- Low priority: The project will not be cost effective, will not use other funding sources, will not be sustainable and has a low likelihood of success.

Additional Considerations: considers community involvement (education and outreach with school or community groups, volunteer days, etc.), public benefits (recreation, education, fire threat reduction, cultural practices, native seed sources, etc.), collaboration with Forestry and Wildlife partners (University of Hawai‘i, Hawai‘i Association of Watershed Partnerships, Invasive Species Committees, NRCS, Hawai‘i Wildfire Management Organization, etc.), and the use of experimental/innovative forestry or conservation techniques

- High priority: Community outreach and education will be an important component of the project, the project will provide multiple public benefits, will collaborate with multiple Forestry and Wildlife partner programs, and incorporate new or experimental/innovative forestry or conservation techniques.
- Medium priority: The project will incorporate some community outreach and education, provide some public benefits, collaborate with one Forestry and Wildlife partner programs, and incorporate moderately new or experimental/innovative forestry or conservation techniques.
- Low priority: The project will not incorporate community outreach and education, provide limited public benefits, is not collaborating with Forestry and Wildlife partner programs, and is not incorporating new or experimental/innovative forestry or conservation techniques.

APPENDIX B. FSP PROPOSAL TEMPLATE

Hawai‘i Forest Stewardship Program
Project Proposal Form

Applicants interested in participating in the Hawai‘i Forest Stewardship Program (FSP) must contact the Statewide Service Forester at **foreststewardship@hawaii.gov** to discuss project eligibility, review the FSP handbook, and submit this project proposal via email for review by the Forest Stewardship Advisory Committee (FSAC).

Upon submission and review of your project proposal, the FSAC will either:
1) approve your proposal and invite you to complete a full management plan,
2) defer your proposal ask you to provide more information, or
3) reject your proposal.

1. Landowner Information

Landowner Name:
Mailing Address:
Email:
Phone Number:
Length of Ownership:
Lease/License Holder Name (if applicable):
Effective Date of Lease and Lease Term (if applicable):
How did you hear about FSP?

Applicant Information (if different from above)
Applicant Name:
Mailing Address:
Email:
Phone Number:

2. Property Information

Island:
Property Address:
Tax Map Key number(s):
Property Acreage:
Proposed Acres of FSP Project Area:
State Land Use Designation:
County Zone Designation:
Farm Service Agency Tract Number (if applicable):

3. Project Vision and Goals

In 2-3 paragraphs, provide a brief overview of the property (size, location, historic land use if known, current conditions) and describe your long-term vision and goals for the property and project.

4. Description of the Project Area

Existing vegetation/forest type(s):

Describe the existing forest cover type(s), estimate of percent forest cover, and list the common native, non-native, and/or invasive species. List any known federally or state listed threatened or endangered plant species.

Existing wildlife:

Describe the presence/distribution of wildlife on the property and list the common native, non-native, and/or invasive species. List any known federally or state listed threatened or endangered wildlife species.

Other threats:

If applicable, describe any threats to forest health (other than invasive plants and animals), such as fire, climate change, erosion, or insects and disease.

Elevation (in feet):

Average annual rainfall (in inches):

Use http://rainfall.geography.hawaii.edu/.

Topography/Slope:

Gulches or waterways:

If applicable, describe any gulches, streams or waterways.

Historical and Cultural Sites/Resources

Describe any known historical or cultural sites or resources.

Land Use for FSP Project Area

Check all that apply.

	Pasture or Range land	Crop land	Forest	Other - please describe
Historic	☐	☐	☐	Click or tap here to enter text.
Current	☐	☐	☐	Click or tap here to enter text.
Proposed	☐	☐	☐	Click or tap here to enter text.

5. Forest Management Objectives

Check all objectives that apply to your project.

☐ Native species restoration and/or protection
☐ Growth/management of native or non-native forests for timber and/or forest products
☐ Native wildlife habitat improvement
☐ Agroforestry (multi-story, forest farming, silvopasture)
☐ Watershed, riparian, and/or wetland protection and improvement
☐ Forest recreation enhancement

☐ Education and community outreach
☐ Fire prevention
☐ Carbon storage or sequestration and/or biomass production
☐ Other:

6. Other Project Benefits

Check all benefits that your project will provide.

☐ Economic diversification/employment (commercial production of a significant scale)
☐ Fire threat reduction
☐ Erosion and sedimentation reduction
☐ Seed source
☐ Use of experimental/innovative forestry or conservation techniques
☐ Enhance efforts of nearby protected/managed areas or strategic plans or initiatives
☐ Access to or protection of cultural resources or practices
☐ Education and community outreach
☐ Public recreational or ecotourism opportunities
☐ Other:

7. Proposed Practices

Check all management practices that may be used to achieve your project objectives (see FSP handbook for practice descriptions and program cost-share rates).

☐ Management plan (required)
☐ Fence
☐ Tree and Shrub Site Preparation
☐ Tree and Shrub Establishment
☐ Ground Cover Establishment
☐ Fertilizers/Soil Amendments
☐ Irrigation
☐ Mulching
☐ Weed Control
☐ Fuelbreak
☐ Trails and Access
☐ Tree Thinning
☐ Tree Pruning
☐ Forest Health and Protection
☐ Erosion Control
☐ Monitoring and Maintenance

***In 2-3 paragraphs below**, briefly describe how your project will use the management practices checked above to achieve the forest management objectives selected in section 7, and provide the public benefits selected in section 8.*

8. Preliminary Planting List

Include a preliminary list of species (including both common and scientific names) you are considering planting, categorized by forest layer. Management plan development will include further preparation of a planting list.

Overstory:

Understory:

Groundcover (if applicable):

9. Maps

Include the following maps with your proposal submission. If you do not have mapping software, you may visit topozone.com or googlemaps.com

1) Property location map: A map showing the general location of your property on the island in relation to towns, major topographic features, and nearby protected areas.
2) Project area map: A zoomed in map with aerial imagery showing the boundary of both the property and FSP project area.
3) Project attributes map: A zoomed in map showing your FSP project area and any important property or project attributes, such as existing/proposed infrastructure (i.e., fences, houses, trails, roads), water resources, management zones (if any), etc.

10. Partner Organizations

List and briefly describe any applicable partnerships and how they have been or will be involved with the project. Partners may include, but are not limited to, other cost-sharing programs, resource management agencies and organizations, pro-bono contractors, for-profit or non-profit organizations, community groups, and schools.

11. Preliminary Estimated Costs

Complete the proposal estimated budget spreadsheet to show preliminary estimated costs for the project. Development of a management plan will include a detailed budget. Please see Appendix D and F of the FSP Handbook for more information on allowed cost-share rates under the program.

Project proposals must include at least three quotes for the development of a management plan to be considered eligible for cost-share assistance. Quotes may be obtained from a professional forester, resource management consultant, or someone with expertise in natural resource management. If you are unable to obtain three quotes, please contact the Statewide Service Forester at **foreststewardship@hawaii.gov.**

Note: FSP may reimburse 50% of the actual cost of approved practices at the allowable cost-share rates set for the program. **Allowable reimbursements are subject to a variety of factors including project scale, type, actual project costs, and availability of funding.**

12. Project photos

Include photos of your project site with captions. Photos should show existing vegetation, the project area, on-going management activities if any, or other important features of the project area.

APPENDIX C. FSP MANAGEMENT PLAN TEMPLATE

Hawai‘i Forest Stewardship Program
[Project name] Management Plan

Note: This template is provided to assist plan writers with developing plans that meet FSP plan criteria. Plan writers may choose to use other formats but must incorporate all plan elements included in this template. Italicized text is provided as guidance for the plan writer and should be deleted and replaced with plan content.

A cover photo may be included here.

Landowner Information
Landowner Name:
Mailing Address:
Email:
Phone Number:
Lease/License Holder Name (if applicable):
Effective Date of Lease and Lease Term (if applicable):

Applicant Information (if different from above)
Applicant Name:
Mailing Address:
Email:
Phone Number:

Plan Writer Information
Plan Writer Name:
Company Name (if applicable):
Mailing Address:
Email:
Phone Number:

Property Information
Island:
Property Address:
Tax Map Key number(s):
Property Acreage:
Acres of FSP Project Area:
State and County land use district or (zone) designation:
Farm Service Agency Tract Number (if applicable):

Date of plan completion:

Signature Page

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.

Applicant Name: _____

Applicant's Signature: _____

Date: _____

Plan Writer Certification: I have prepared this Forest Stewardship Plan. Resource professionals have been consulted and/or provided input as appropriate during the preparation of this plan.

Plan Writer Name: _____

Plan Writer's Signature: _____

Date: _____

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

State Forester's Name: _____

State Forester's Signature: _____

Date: _____

Forest Stewardship Advisory Committee Approval: This plan was reviewed and approved by the Forest Stewardship Advisory Committee on _____

I. Executive Summary

Summarize the following: property description (location and size of property and project area), past and current land uses, current forest conditions (forest type, vegetation, wildlife, forest health, threats, other resource concerns), landowner vision/goals, and management objectives.

II. Introduction

A. Property Description

Describe the property location, size, elevation, rainfall, general topography (slope, aspect, other notable topographical features), adjacent land uses/ownerships, nearby protected areas (e.g., State Forest Reserves, National Parks, etc.).

B. Property History and Land Use

Describe the history of the land and ownership including length of current ownership, past and current land use and management activities, and other relevant historical information about the property or area. This information can be based on personal knowledge, property records, and local information sources.

C. Project Vision and Goals

Describe the landowner's overall vision and goals (short-term and long-term) for the property and project.

D. Overview of Management Objectives and Project Benefits

Provide a brief overview of the landowner's specific management objectives that will contribute toward the achievement of the overall vision and long-term goals. Describe the public benefits the project will provide.

III. Land and Resource Description

A. Existing Vegetation/Forest Types

Describe the existing forest cover type(s) and vegetation. List the native, non-native, and/or invasive plants that are present, and describe their general distribution/density on the property. Describe any federally or state listed threatened or endangered species present on the property and note if the property contains any plant critical habitat as designated by the U.S. Endangered Species Act.

B. Existing Wildlife

Describe the native (specify if threatened and endangered), non-native, and/or invasive animals species known to be present on, nearby, or transit through the property and describe their general distribution/density. Note if the property contains any wildlife critical habitat as designated by the U.S. Endangered Species Act.

C. Threats to Forest Health and Function

i. Invasive Species

Describe the impacts of invasive plants and animals on forest health and function. Describe any current forest management activities addressing these species, if any.

ii. Other Threats

Describe other existing or potential threats to forest health, including diseases, insects, fire, future impacts from climate change, erosion, and natural disasters. Describe any current management activities addressing these threats.

D. Soils

Describe the soil type(s) and their condition. Refer to the USDA Web Soil Survey: https://websoilsurvey.sc.egov.usda.gov/

E. Forest Products (timber resources and non-timber forest products)

If applicable, describe any existing timber species, including approximate age, density, past and/or current management activities, etc. Include information on any non-timber forest products, including species used for food and fiber, and cultural uses (medicinal, lei making etc.).

F. Water Resources

Describe present water resources and their condition, including streams, wetlands, and ponds.

G. Historic and Cultural Sites and Resources

Describe any known historic, archaeological, or cultural sites on the property.

H. Recreational Opportunities and Aesthetic Qualities

Describe existing recreational opportunities and aesthetic values of the property.

I. Infrastructure and Access Conditions

Describe existing infrastructure (e.g., dwellings, nurseries, roads, stream crossings, fences, water, or electrical improvements, etc.) and access conditions (e.g., public access, access to the project area, issues with trespass, etc.).

IV. Management Objectives and Practices

A. Management Objectives

List and describe management objectives. This section should include more detail than the overview provided in section 4.D. If the project area is broken down into multiple management units, include a table with unit acreages or briefly describe the units.

B. Management Practice Implementation

List and describe all FSP management practices that will be implemented to achieve management objectives and goals. See Appendix D in the FSP Handbook for practice criteria/considerations and plan narrative requirements.

V. Budget Summary and Practice Implementation Schedule

Budget Summary: *The budget summary should be generated from a spreadsheet template provided by FSP staff. The summary is a table that includes the total cost of implementation by year, as well as a breakdown of applicant contributions and FSP contributions.*

Practice Implementation Schedule: *The practice implementation schedule should also be generated from a spreadsheet templated provided by FSP staff. The implementation schedule provides a year by year breakdown of management practices and anticipated costs.*

VI. Maps

The following maps must include a title, defined scale, legend, and north arrow. Maps may be consolidated in this section or incorporated throughout the plan.

1. **Location Map:** General location of the property on the island and relation to towns, major topographic features, nearby protected areas, etc.
2. **Property and Project Area Map:** A zoomed in map with aerial imagery showing the boundary of both the property and FSP project area.
3. **Project Attributes Map:** Show the FSP project area and project attributes, such as management units (with unit name or # and acreage noted), existing/proposed infrastructure (e.g., fences, dwellings, trails, roads, fuelbreaks), water resources (streams, ponds), significant natural or cultural features, other proposed management practices such as windbreaks, agroforestry or timber areas, etc.
4. **Soil Map:** Use **NRCS Web Soil Survey at** http://websoilsurvey.nrcs.usda.gov/.
5. **Optional maps:** Other maps may be included to further describe the project area and project. These may include, but are not limited to, rainfall, elevation, vegetation, zoning, and hydrology. See http://climate.geography.hawaii.edu/ for maps of rainfall, solar radiation, air temperature, and more.

VII. Other Attachments

Other attachments may include, but are not limited to, surveys, forest stand inventories, letters of support, economic analysis etc. Relevant pictures (e.g., present site conditions, important features or attributes, current management, existing infrastructure, etc.) may be included throughout the plan or in this section. Pictures should be of a reasonable size and include captions.

APPENDIX D. DETAILED ELIGIBLE MANAGEMENT PRACTICE DESCRIPTIONS

The practices described below are supported by FSP and eligible for cost-share assistance.

1. Forest Stewardship Management Plan Development

Definition and Purpose

Management plans serve to guide management actions to achieve management goals over a period of at least 10 years. All FSP projects must have an approved management plan prior to implementation and award of cost-share assistance.

Criteria and Considerations

- See Appendix C for the management plan template and plan requirements. Required plan elements should be described in as much detail as possible.
- Plans must meet content and standard requirements detailed in national U.S. Forest Service FSP guidelines (https://www.fs.fed.us/spf/coop/library/fsp_standards_guidelines.pdf).
- Forestry and Wildlife staff will provide technical expertise during plan development but **will not write the plan for you**. It is highly recommended that you seek the assistance of a professional forester, natural resource manager, or resource management consultant. Contact Forestry and Wildlife staff for a list of professional consultants.

Plan Addendums vs. Revisions

Over the course of your 10-year plan, adjustments or alterations may be made as necessary. Minor changes to your plan, such as timing or implementation methods, may be made at any time in the form of a plan addendum approved by Forestry and Wildlife staff.

Significant changes to project scope, implementation schedule (e.g., extensions), practices, or budget are considered means for a formal plan revision. Plan revisions may occur at any time but are encouraged to be considered in year 5. Plan revisions are subject to approval by the FSAC, State Forester, and BLNR.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (75%)
$3,000 - $10,400 per plan	$2,250 - $7,800 per plan

2. Fence

Definition and Purpose

Fencing is used to facilitate the accomplishment of management objectives by protecting the project area from feral and/or domestic animals (e.g., pigs, sheep, deer, cattle, horses, goats) and illegal trespassing.

Criteria and Considerations

- Management plan should provide specifications on fencing type (e.g., electric, barbed wire, cattle proof, etc.), height, materials (e.g., wire, panels, posts, gates, etc.), configuration, and difficulty of installation.
- The type of fence and configuration must facilitate accomplishment of project objectives.
- Fences may be permanent, portable, or temporary. Natural barriers may also be used when appropriate.
- Fence design and location should consider topography, soil, livestock management, erosion problems, human access, and durability of materials.
- Unique circumstances related to cost of fencing, such as need for helicopter access, prevalence of deer, and difficult site conditions should be described.
- Vegetation may be cleared to facilitate fence construction and maintenance. Clearing should avoid the removal of desired vegetation, limit soil erosion, and account for potential influx of undesired vegetation.
- Fence configuration and design should be as cost-effective and efficient as possible (e.g. perimeter fencing may reduce overall project cost/acre vs fencing individual trees or numerous smaller management units).
- Effective feral animal removal must be done in tandem with fence construction. Please see the Forest Health and Protection Practice for more information on animal removal.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of installed fence infrastructure. Recommended monitoring and maintenance activities include:
  - Maintain fences for at least 10 years in a manner that preserves their intended function, such as protecting seedlings from feral or grazing animals.
  - Routine inspection of fences and gates periodically for damage or following storm events.
  - Repair and replacement of fence components as necessary.

Figure 10: Example of ungulate fencing. Volcano, Hawai'i.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share covers initial clearing and installation activities. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$10 - $20 per foot	$5 - $10 per foot

NRCS practices that may qualify

A) Fence (382): This practice facilitates the accomplishment of conservation objectives by providing a means to control the movement of animals and people, including vehicles via a constructed barrier. NRCS does not offer funds for fencing with the sole purpose

of excluding wild animals or pests. In limited circumstances, NRCS may support fencing only when it is necessary to facilitate plant establishment and is cheaper than using individual plant protection, or to protect ecologically sensitive sites. Consult your local NRCS office for the current NRCS fence policy and eligibility.

3. Tree and Shrub Site Preparation

Definition and Purpose

Tree and shrub site preparation covers all activities related to the treatment of areas to improve site conditions prior to the planting of trees and/or shrubs, or to encourage natural regeneration of desirable trees.

Figure 11: Example of site preparation by clearcutting and chipping non-native trees. Kaneohe, O‘ahu.

Criteria and Considerations

- Site preparation activities include the removal or control of undesirable vegetation or slash/debris via appropriate mechanical or chemical methods to facilitate tree planting or seeding and protect the site from erosion. Grazing may be used as a site prep method.
- Treatment/disposal of woody plant residues created during site preparation activities falls under this practice. Methods must be described and may include, but are not limited to, chipping, piling, and off-site removal. Materials must be managed and/or disposed of in a manner that will prevent the spread of weeds to new sites.
- The management plan should identify which undesired species will be removed or controlled, by which methods, in what location(s), and to what level or quantity.
- Activities should protect or minimize damage to desirable vegetation. Impacts to wildlife, habitat, cultural resources, and aesthetics should also be considered.
- Activities should protect the site from excessive erosion or runoff.
- Elevation contours should be followed when using heavy soil-moving equipment.
- Tilling and sub-soiling may be needed in areas where the soil is compact.
- Scarification may be used to promote the regeneration where seeds may be present in the soil.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of site preparation activities. Recommended monitoring and maintenance activities include:
  - Monitoring for erosion issues and maintaining erosion control measures as necessary.
  - Ensuring that undesirable vegetation is controlled until planting occurs.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)

$400 - $2,000 per acre $200 - $1,000 per acre

NRCS practices that may qualify

A) Tree/Shrub Site Preparation (490): The treatment of areas to improve site conditions for establishing trees and/or shrubs. This practice is used to control undesirable vegetation and expose planting areas to permit artificial establishment of woody plants.
B) Deep Tillage (324): Performing tillage operations below the normal tillage depth to modify adverse physical or chemical properties of a soil.
C) Woody Residue Treatment (384): This practice is used to treat slash and debris appropriately to ensure it is not an unacceptable fire, safety, environmental, or pest hazard.

4. Tree and Shrub Establishment

Definition and Purpose

This practice involves establishment of woody plants by planting seedlings or cuttings, direct seeding, and/or through natural regeneration. The application of plant nutrients and soil amendments at the time of planting is also included under this practice. Woody plants maintain or improve plant diversity, productivity and health, create and improve wildlife habitat, control erosion, improve water quality, sequester carbon, among other purposes.

Figure 12. Outplanting koa in former pastureland. Kamuela, Hawai'i.

General Criteria and Considerations

- Management plan should identify desired species to be planted, source of planting materials, intended purpose, planting density, planting method, and timing.
- Cost-share support under this practice may include 1) seedling acquisition, 2) planting, 3) fertilizers/soil amendments, and 4) hand watering. The cost per plant should be broken down by these components in your practice description, if applicable.
- Nutrients may be applied at time of planting if needed to maintain vigor.
- Species, density, and arrangement must be appropriate for the site based on the site conditions and intended purpose/desired outcome.
- Plant materials should be viable, high quality, and appropriate to your site.
- Plantings must be protected from competing vegetation, pests, ungulates/livestock and fire.
- If wildlife habitat is an objective, target wildlife species must be identified, and established plant species must provide forage, browse, seed, cover, or nesting habitat.
- Planting densities should reflect anticipated seedling mortality.
- Species diversity, including use of native species, should be considered to support wildlife and pollinator needs.
- Establishment of more expensive plants in larger containers must be justified.
- The use of direct seeding is allowed but must be described. Quotes may be needed.
- Choose appropriate planting season and handling methods to increase survival rates.
- Proposed species for planting that have a high Weed Risk Assessment score

(PlantPono.org) will NOT be approved unless there is significant environmental justification for their use.
- If you intend to collect, plant, or propagate threatened or endangered species, see Appendix G for permit information.

General Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of installed groundcover. Recommended monitoring and maintenance activities include:
  - Periodic inspection of planting sites at appropriate times following planting, seeding, or natural regeneration to determine survival rate.
  - Replanting when survival is not adequate to ensure outplantings meet intended purpose.
  - Ensure plantings are protected from adverse impacts including insects, disease, competing vegetation, damaged fences, fire, and damage from livestock and wildlife. Take appropriate actions to prevent or mitigate adverse impacts.
  - Applications of supplemental water and/or nutrients as needed to maintain vigor.

FSP supports tree and shrub establishment for restoration (including wildlife habitat), timber production, agroforestry, windbreak, greenbreak, and soil stabilization purposes. In addition to the general criteria and considerations above, specific considerations are detailed below.

Figure 13: Native species planted to stabilize soil on an erosion scar (left) and create a riparian forest buffer (right). Waimea Valley, O‘ahu.

Restoration

- Restoration plantings should assist with enhancement of watershed function and the recovery of ecological processes and biological diversity of a degraded area.
- When selecting species, consider the target ecosystem, function provided, and wildlife needs (if applicable).

Timber Production

- Management plan should describe intended purpose of timber plantings. If intended for eventual harvest, see Appendix H for more information.
- Trees may be native or non-native. When selecting species, consider purpose, value, growth rate, and management needs.
- Planting arrangement should be conducive to future management and harvesting.

Figure 14. Mahogany (*Swietenia spp.*) planting. Pepe'ekeo, Hawai'i.

Agroforestry

- See Appendix E for more information on agroforestry.

Greenbreak

- Greenbreaks are vegetative firebreaks in which fire-prone vegetation is replaced with native trees/shrubs to reduce fuel loads and flammability
- Characteristics of fire-resistant plants include high moisture content, low levels of volatile compounds, and large leaves.
- Greenbreaks can slow the spread of fire, especially when used in conjunction with existing non-flammable features such as roads, streams, and rocky areas.

Figure 15. Mexican cypress windbreak. Kamuela, Hawai'i.

Windbreak

- Windbreaks are plantings of single or multiple rows of trees or shrubs that protect areas, such as new plantings (including agroforestry), from the negative effects of wind, such as soil erosion, plant growth inhibition, and other damages.
- Windbreaks should be oriented perpendicular to the wind direction to be effective.
- Windbreaks should be planted prior to planting of the area you want to protect.
- Rows should be oriented on or near the contour where water erosion is a concern.

Soil Stabilization

- Areas that have, or are expected to have, high erosion rates, such as steep or riparian areas, may need to be stabilized through the establishment of trees or shrubs.
- Selected species should have the capacity to effectively stabilize the area.

Fertilizers/Soil Amendments

- Management plan must describe the purpose, type, amount, source, placement, and timing of applied plant nutrients and soil amendments.
- Amendments must be used in accordance with registered uses, direction on labels, and all other applicable federal, state, and local policies.
- Soil testing should be done prior to application.
- Sources of nutrients include, but are not limited to, commercial fertilizers, animal manures, green manures, plant or crop residues, compost, and organic materials.
- Yearly application of fertilizers and/or soil amendments will not be supported.
- Inorganic fertilizer should not be applied in areas where polluted runoff might enter streams or wetlands.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share covers acquisition, planting, initial fertilizer/amendment applications, and hand watering. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$2 - $16 per seedling	$1 - $8 per seedling

NRCS practices that may qualify

A) Tree/Shrub Establishment (612): Establishing woody plants by planting seedlings or cuttings, direct seeding, or natural regeneration.
B) Riparian Forest Buffer (391): Establishing or enhancing an area predominantly occupied by trees/shrubs located adjacent to watercourses or water bodies.
C) Alley Cropping (311): Trees or shrubs are planted in sets of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the sets of woody plants that produce additional products.
D) Forest Farming (379): Establishing or enhancing stands of trees or shrubs that are managed as an overstory with an understory of woody and/or non-woody plants that are grown for a variety of products.
E) Silvopasture Establishment (381): An agroforestry application establishing a combination of trees or shrubs and compatible forages on the same acreage
F) Windbreak/Shelterbelt Establishment and Renovation (380): Windbreaks or shelterbelts are single or multiple rows of trees or shrubs in linear configurations.
G) Critical Area Planting (342): Establishing permanent vegetation on sites with high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

5. Groundcover Establishment

Definition and Purpose

This practice is the establishment of temporary or permanent groundcover to protect from soil erosion, enhance habitat for wildlife, improve water quality, improve soil health, or limit the establishment of invasive species. Types of groundcover include grasses, sedges, rushes, ferns, legumes, and forbs.

Criteria and Considerations

- Species selected must be appropriate for site conditions, have physical characteristics to provide adequate protection, not be invasive and be for the duration that they are needed (i.e., annual or perennial species).
- Management plan should identify proposed species, intended purpose, area to be covered (acres), source of materials, planting method, and timing.
- Implementation of this practice should be in conjunction with other practices as well as appropriate weather conditions to prevent soil erosion.
- This practice may be used in agroforestry systems.
- Groundcovers may be planted in riparian areas to improve stream bank stability, reduce erosion, and improve water quality.

Figure 16: Native sedge, *Carex* wahuensis, planted to establish groundcover. Kaneohe, Oʻahu.

Maintenance and Monitoring

- Management plans should describe monitoring and maintenance of installed groundcover. Recommended monitoring and maintenance activities include:
  - Period inspection of survival and effectiveness to ensure groundcover is meeting its intended purpose.
  - Monitoring of competition from weeds and other invasive species.
  - Revegetating bare spots as needed.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share covers acquisition, planting, initial fertilizer/amendment applications, and hand watering. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$800 - $2,800 per acre	$400 - $1,400 per acre

NRCS practices that may qualify

A) Conservation Cover (327): Establishing and maintaining permanent vegetative cover to reduce soil erosion and sedimentation, improve water/air quality, enhance wildlife habitat and pollinator habitat, improve soil quality, and manage plant pests.
B) Cover Crop (340): Crops including grasses, legumes and forbs for seasonal cover and other conservation purposes.
C) Riparian Herbaceous Cover (390): Grasses, sedges, rushes, ferns, legumes, and forbs tolerant of intermittent flooding or saturated soils, established or managed as the dominant vegetation in the transitional zone between upland and aquatic habitats.
D) Critical Area Planting (342): Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical, or

biological conditions that prevent the establishment of vegetation with normal seeding/planting methods.

6. Fertilizers/Soil Amendments

Definition and Purpose

This practice is the application of organic or inorganic fertilizers and soil amendments to improve plant health on an as needed basis (not at the time of initial planting).

Criteria and Considerations

- Management plan must describe the purpose, type, amount, source, placement, and timing of applied plant nutrients and soil amendments. Justification of frequency must be included. In most cases, annual application will not be supported.
- Amendments must be used in accordance with registered uses, direction on labels, and all other applicable federal, state, and local policies.
- Soil testing should be done prior to application.
- Sources of nutrients include, but are not limited to, commercial fertilizers, animal manures, green manures, plant or crop residues, compost, and organic materials.
- Inorganic fertilizer should not be applied in areas near streams or wetlands where polluted runoff might enter.

Monitoring/Maintenance

- Management plans should describe monitoring and maintenance of fertilizer and soil amendment applications. Recommended monitoring and maintenance activities include:
  - Periodic monitoring of plant health following application of fertilizers/soil amendments.
  - Additional application of fertilizers/soil amendments as necessary.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Figure 17: Green waste collected on site (ltop); and utilized as green manure in future planting sites (bottom). Makawao, Maui.

Total Actual Cost	FSP Cost-Share Rate (50%)
$50 - $300 per acre	$25 - $150 per acre
$0.50 - $1 per plant	$0.25 - $0.50 per plant

Only one unit (per acre or per plant) may be selected.
Selected unit must be appropriate to proposed work.

NRCS practices that may qualify

A) Soil Carbon Amendment (336): Using Amendments derived from plant or animal residues to improve the physical, chemical, and biological properties of the soil.

Financial assistance for application of fertilizer through NRCS programs is offered as part of the overall cost for certain scenarios under various planting practices at the time of planting.

7. Irrigation

Definition and Purpose

In areas where rainfall is not dependable, irrigation systems may be installed to apply water to plantings to ensure survival and growth during early development. Projects in high fire threat areas should implement fire prevention and control measures, such as developing a fire response plan and water infrastructure that supports firefighting.

Figure 18: Drip irrigation being utilized to help establish recent outplants in an agroforestry plot. Makawao, Maui,

Criteria and Considerations

- Irrigation systems must be adapted for site conditions (soil, topography, rainfall, etc.) and capable of cost effectively and efficiently applying water without excessive water loss or erosion. Management plan should identify the source of water, location of irrigation systems, timing of installation, and duration of irrigation needed.
- For annual rainfall projections, please visit the Hawai‘i Rainfall Atlas at http://rainfall.geography.hawaii.edu/.
- Consider working with an irrigation specialist to determine the best system for your project
- Irrigation shall not be used to maintain mature trees.
- Mulch may be applied to help maintain soil moisture under the FSP Mulching practice.
- If multiple areas are to be planted, irrigation components should be reusable and moved as necessary once plants are established.
- Installation of water infrastructure for firefighting may be supported,

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of installed irrigation infrastructure. Recommended monitoring and maintenance activities include:
  - Periodic monitoring, repair, and replacement of all irrigation components as needed.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$1 - $6 per foot (drip irrigation only)	$0.50 - $3 per foot
$0.64 - $1.70 per gallon (catchment systems)	$0.32 - $0.85 per gallon

Selected unit must be appropriate to proposed work. For reservoirs, ponds, or other irrigation systems, provide 3 quotes and/or consult with the FSP coordinator to determine the allowable cost-share rate.

NRCS practices that may qualify

Financial assistance for irrigation to support seedling survival is embedded in the payment offered per seedling under NRCS programs.

8. Mulching

Definition and Purpose

Mulching is the application of plant residues or other suitable materials to the land surface for the purposes of conserving soil moisture, suppressing weeds, reducing energy use associated with irrigation, erosion control, improving soil health, and assisting with vegetative cover establishment.

Criteria and Considerations

- Mulching materials will depend primarily on the purpose(s) for application, site conditions, and the material's availability.
- Materials should consist of natural and/or artificial materials that are of sufficient dimension depth and durability to achieve the intended purpose.
- Management plan must indicate the purpose of the mulch, justification for the use of mulch, type of material used, source (on-site or off-site), percent cover and thickness of mulch material (typically 2 to 4 inches), and timing of application.
- Mulch should be evenly applied and, if necessary, anchored to the soil.

Figure 19: Mulch being used around mamaki (*Pipturus albidus*) and koa (*Acacia koa*) outplantings. Honoka'a, Hawai'i.

- To conserve soil moisture, mulch should be applied prior to moisture loss.
- Mulch materials with a high-water holding capacity and/or high impermeability to water droplets may adversely affect the water needs of plants.
- Mulching may also provide habitat for beneficial insects and provide pest suppression but may also contain harmful pests such as the Coconut Rhinoceros Beetle.
- Mulch that is excessively thick or tightly packed may result in soggy, anaerobic conditions.

- Keep mulch 3 to 6 inches away from plant stems and crowns to prevent disease and pest problems.
- Additional weed control may be needed around the plant base area.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of mulched areas. Recommended monitoring and maintenance activities include:
  - Periodic inspection of mulched areas and reapply mulch or repair as needed to accomplish the intended purpose.
  - Evaluation of the effectiveness of the mulch (application, amount of cover provided, durability, etc.), and adjustment of the management or type of mulch to better meet the intended purpose.
  - Routine monitoring and control of undesirable weeds in mulched areas.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$0.14-$0.32 per square foot	$0.07-$0.16 per square foot
$18.62-$42.56 per plant	$9.31-$21.28 per plant
$6,098-$13,938 per acre	$3,049-$6,969 per acre

Only one unit (per square foot, plant, or acre) may be selected.
Selected unit must be appropriate to proposed work.

NRCS practices that may qualify

A) Mulching (484): Applying plant residues or other suitable materials produced to the land surface.

9. Weed Control

Definition and Purpose

Weed control is the removal, reduction, or control of invasive species for the purposes of assuring planting survival and growth, forest restoration, protection of soil and control of erosion, reduction of fine fuel loads and wildfire hazard, enhancement of wildlife habitat, or enhancement of watershed. This practice excludes weed control activities done in preparation for planting; for these purposes, refer to Tree and Shrub Site Preparation (Item 3, page 29).

Figure 20: Rows sprayed with herbicide in advance of tree planting. Kamuela, Hawai'i.

Criteria and Considerations

- Weed control shall be applied in a manner to achieve the desired control of the target species and protection of the desired species. Weed control activities may include chemical (herbicide), mechanical (mowers, chainsaws, etc.), biological (grazing), physical (weed mat), or manual treatments (handheld tools), either alone or in combination.
- Plans should identify the target weed(s), describe the control methods, and indicate the timing and frequency of control activities. Control methods should be designed specifically for the particular target weed(s).
- Approved biological control agents may be used for invasive plants.
- Herbicides:
  - Must be applied using approved materials, procedures, and site-specific application criteria listed on pesticide labels and in accordance with registered uses and all other applicable federal, state, and local policies. State-issued licenses may be required when using chemical pesticide treatments.
  - Treatment must be applied in a manner to minimize negative impact to non-target plants and protect the health and vigor of desired plant species.
  - Minimize adverse environmental impacts to non-target species, water quality, and adjacent land uses by using the lowest rate of the least toxic alternative when possible and not spraying in windy conditions.
- Treatment/disposal of woody plant residues created during weed control activities falls under this practice. Methods must be described and may include, but are not limited to, chipping, piling, and off-site removal. Materials must be managed and/or disposed of in a manner that will prevent the spread of weeds to new sites.
- The frequency and cost of weed control activities should decrease over time as the canopy fills in.
- Establishment and maintenance of ground covers and understory plants, and application of mulch can assist with weed control. Please see the Tree and Shrub Establishment practice and Mulching practice for more information.

Figure 21. Weed mat suppressing weeds. Kaneohe, Oʻahu.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of implemented weed control activities. Recommended monitoring and maintenance activities include:
  - Periodic evaluation of regrowth or reoccurrence of target species over time.
  - Spot treatment of individual plants or areas needing retreatment as needed.
  - Incorporation of new pest management technology, responding to changes, and avoiding development of plant resistance to herbicide chemicals.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$200 - $1,400 per acre	$100 - $700 per acre

NRCS practices that may qualify

A) Brush Management (314): The management or removal of woody plants including those that are invasive and noxious. This practice is not used for site preparation.
B) Herbaceous Weed Treatment (315): The removal or control of herbaceous weeds including invasive, noxious, and prohibited plants.
C) Woody Residue Treatment (384): This practice is used to treat slash and debris appropriately to ensure it is not an unacceptable fire, safety, environmental, or pest hazard.
D) Tree/Shrub Site Preparation (490): This practice may involve weed control prior to tree/shrub establishment.
E) Forest Stand Improvement (666): This practice may target selected weed species within an otherwise healthy stand of trees.

10. Fuelbreak

Definition and Purpose

A fuelbreak is a strip or block of land on which vegetation, debris and detritus have been treated, removed, and/or modified to reduce the risk of the spread of wildfire crossing that piece of land. Fuelbreaks are located at strategic locations where there is a need to control the risk of the spread of fire to resources and structures being protected.

Criteria and Considerations

- Plans should include locations of planned fuelbreaks, installation and maintenance methods and timing, species to be removed, and layout of fuelbreaks (width, length, etc.).
- Fuelbreaks should be located to minimize risk to the resources and structures being protected and can be maintained through chemical, mechanical, and managed grazing methods.
- Projects in high fire threat areas should prepare a fire response plan that details the location of water sources, contact information, and access points for first responders.
- Design, layout, and plant species selection should enhance multiple uses and consider effects on cultural resources, wildlife habitat, threatened and endangered species, natural areas, and wetlands.

Figure 22. Fuelbreak being installed with a dozer. North Kona, Hawai'i.

- Attempt to create fuelbreaks near ridge crests and valley bottoms.
- For more information on greenbreaks, vegetative firebreaks in which fire-prone vegetation is replaced with native trees/shrubs to reduce fuel loads and flammability, please see the Tree/Shrub Establishment practice.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of installed fuelbreaks. Recommended monitoring and maintenance activities include:
  - Routine inspections (at least annually) of encroaching vegetation to assure the desired level of fire spread risk is maintained.
  - Treatment or grazing of vegetative fuel breaks to avoid build-up of excess litter and to control noxious and invasive plants.
  - Sufficient thinning and horizontal separation of overstory stands should be maintained between canopies of adjacent trees to reduce the potential of a crown fire.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share covers installation activities only. Weed control in fuelbreak areas may be covered under the weed control practice. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$200 - $1,000 per acre	$100 - $500 per acre

NRCS practices that may qualify

A) Fuel Break (383): A strip or block of land on which the vegetation, debris and detritus have been reduced and/or modified to control or diminish the risk of the spread of fire crossing the strip or block of land.
B) Woody Residue Treatment (384): This practice is used to treat slash and debris appropriately to ensure it is not an unacceptable fire, safety, environmental, or pest hazard.

11.Trails and Access

Definition and Purpose

Trails: Trails may be constructed to enhance management or public access for educational opportunities, fire protection, timber harvest and for other conservation or recreational purposes. A trail or walkway is a path with a vegetated, earthen or artificial surface used for the movement of animals, people, or off-road vehicles.

Access: Activities that manage impacts from animals, people, and vehicles to the project area may include, but are not limited to, installation of gates for enhancing or managing public access. Signs may be designed, purchased, and installed to identify important project features, provide public information, and/or for safety. Stream or water body crossings may be installed to enhance management or public access. FSP does not typically provide cost-share support for stream crossings. NRCS may provide engineering assistance and cost-share support for stream crossings. See NRCS practices that may qualify below.

Roads: A road is an established route for the movement of vehicles and equipment. FSP

will only consider providing cost-share support for road installation under special circumstances such as significant public benefits. NRCS may provide engineering assistance and cost-share support for road installation. See NRCS practices that may qualify below.

Criteria and Considerations


Figure 23. Trail for management access and recreation. Glenwood, Hawai'i.

- Management plans must include details on the purpose, location, and design of trails, stream crossings, signs, and roads and the public benefits provided.
- Plans must include a description of access activities, including the purpose and need for management to enhance or manage access for animals, people, and/or vehicles), timing (temporary or permanent), and placement of gates and/or signs.
- Roads, bridges, stream crossings, and elevated trails should be designed with professional engineering assistance and include details on width, grade, and surfacing.
- The design should safely accommodate the planned use, site topography, and minimize erosion and adverse on-site and off-site impacts to native forest, wetlands, streams, and wildlife habitat during construction and use.
- Incorporate safety into the design. Where needed, install directional and warning signs, handrails, and gates. Apply armor such as gravel to sloped or permanently wet surfaces and include culverts or water bars as needed.
- Road, trail, or stream crossing construction may require permits and environmental compliance, depending on the scale and location of the project (see Appendix G)
- Your budget should specify the cost for each component (trail, access, water crossing, signs) as appropriate.

Monitoring and Maintenance

- Plan must include provisions for maintaining all road and trail surfaces, signs, and drainage structures for ten years following installation.
- Schedule regular inspections (at least annually) and after significant runoff events. Inspections must include drainage structures, surfaces, vegetation, stream crossings, and safety features, as appropriate.
- Remove sediment from water control features, repair eroded areas or damaged surface materials and re-grade to maintain design grades and dimensions.
- Repair safety features, as required.
- Maintain vegetated areas in adequate cover and re-seed areas where vegetation has been damaged or destroyed.

Cost-Share

Applicant must obtain at least 3 written quotes for trail and access work and/or consult with the FSP coordinator to determine the allowable cost-share rate.

NRCS practices that may qualify

A) Trails and Walkways (575): A trail is a constructed path with a vegetated or earthen surface. A walkway is a constructed path with an artificial surface. These are used for the movement of animals, people, or off-road vehicles (not designed for use on public roads).
B) Access Road (560): Roads constructed for movement of equipment or vehicles.
C) Forest Trails and Landings (655): Construction of a temporary or infrequently used route, path, or cleared area for periodic access for management activities or removal and collection of forest products (e.g., timber harvest activities).
D) Stream Crossing (578): A stabilized area or structure constructed across a stream to provide a travel way for people, livestock, equipment, or vehicles.
E) Access Control (472): The temporary or permanent exclusion of animals, people, vehicles, and equipment from an area.

12. Tree thinning

Definition and Purpose

Forest stand improvement is the manipulation of species composition, stand structure, or stand density by thinning (cutting or killing selected trees or understory vegetation) to achieve desired forest conditions or obtain ecosystem services. The purpose of this practice is to improve forest health and productivity, reduce damage from pests, reduce fire risk, restore natural plant communities and improve wildlife and pollinator habitat. For removal of invasive or undesirable species, please see Weed Control practice (Item 9, page 38).

Criteria and Considerations

- This practice is used to thin what would typically be desirable species that are present at higher densities than optimal or desired in a forest or timber stand.
- Management plan should describe the extent of treatment area(s) and identify preferred tree and understory species to be retained to achieve all planned purposes and landowner objectives. The cover type, spacing, density, size-class distribution, number of trees, and amount of understory species to be retained should be described.
- The current and desired future condition of each stand that will be treated should also be described (initial and post-treatment stocking).

Figure 24: Foresters selecting koa trees to remove from timber production stand. Kona, Hawai'i. Photo by JB Friday.

- Treatment/disposal of woody plant residues created during forest stand improvement activities falls under this practice. Methods must be described and may include, but are

not limited to, chipping, piling, and off-site removal.

- Implement forest stand improvement in ways that avoid buildup of insect, disease, or invasive weed populations, minimize soil erosion, avoid damage to remaining vegetation, and that maintain hydrologic conditions.
- Manage for specific or a variety of cover types, species, size-classes, and stocking rates at the appropriate scale that meet desired habitat requirements and minimize disturbance.
- Select trees for removal with the assistance of a professional forester.
- Protect site resources by selecting the season, method, felling direction and timing of tree felling, and heavy equipment operation.
- Comply with applicable State and local laws if herbicides are used.
- Plan for slash (biomass waste) disposal after thinning so that it does not interfere with other management activities or cause unacceptable fire, safety, environmental, or pest hazards. Comply with State best management practices for water quality.
- Timber harvest should be conducted in accordance with an approved timber harvest plan and any required permits and environmental compliance (see Appendix G).

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of implemented improvement activities. Recommended monitoring and maintenance activities include:
  - Monitoring forest stand improvement sites with periodic inspections for assessment of forest health and productivity resulting from thinning.
  - Monitor insects, diseases, invasive plants and other pests, storm damage, and soil erosion
  - Implementation of additional treatment or mitigation if needed.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$200 - $1,000 per acre	$100 - $500 per acre

NRCS practices that may qualify

A) Forest Stand Improvement (666): The manipulation of species composition, stand structure, or stand density by cutting or killing selected trees or understory vegetation to achieve desired forest conditions or obtain ecosystem services.
B) Woody Residue Treatment (384): This practice is used to treat slash and debris appropriately to ensure it is not an unacceptable fire, safety, environmental, or pest hazard.

13. Tree Pruning

Definition and Purpose

Pruning is the removal of all or parts of selected branches, leaders, or roots from trees to maintain or increase plant productivity, improve health and vigor, reduce excessive pressure from plant pests, and/or reduce wildfire or safety hazards. Pruning can also promote better form and health by increasing the penetration of light and air movement.

Criteria and Considerations

- Management plans should include information on location, objective(s) for pruning, treatment method by species or vegetation type, and the number of trees/shrubs per acre to be pruned. Timing and mitigation measures relative to considerations for disease, insects, and wildlife impacts should also be included. Treatment/disposal of woody plant residues created during pruning activities falls under this practice. Methods must be described and may include, but are not limited to, chipping, piling, and off-site removal.

Figure 25: Koa being pruned of lateral branches for timber production. Kamuela, Hawai'i.

- Maintain the health and vigor of trees by removing the minimum amount of living biomass required to achieve the pruning objective. Maintain recommended crown ratios for the treated species.
- Removing live branches and foliage decreases energy reserves and ability to photosynthesize. Improper pruning methods that remove too much material, or lead to structural defects and breakage, can impact the health and vigor of trees and shrubs.
- Time pruning to minimize negative impacts to the site, soils, vegetation, and wildlife.
- Do not create conditions (e.g., sap flow from fresh cuts) that will attract detrimental insects or increase the potential for disease.
- Consider the potential impacts of vegetative residue on soil, water, animal, plant, energy, and air resources (e.g., retaining residues on site vs. removal). Soil quality is improved through inputs of vegetative residue that supply nutrients and organic matter.
- Sanitize and disinfect all equipment as needed to minimize the spread of pathogens before and after pruning.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of implemented pruning activities. Recommended monitoring and maintenance activities include:
  - Periodic inspection of plant condition.
  - Implementation of additional treatment or mitigation if needed.
  - Control of locally invasive and noxious plants that may establish due to increased light penetration.

Cost-Share

The FSP cost-share rate is 50% of the total actual cost. Cost-share is not typically provided for monitoring and maintenance activities. See Appendix F for more information on allowable cost-share rates.

Total Actual Cost	FSP Cost-Share Rate (50%)
$200 - $400 per acre	$100 - $200 per acre
$0.46 - $0.94 per tree	$0.23 - $0.47 per tree

Only one unit (per acre or tree) may be selected.
Selected unit must be appropriate to proposed work.

NRCS practices that may qualify

A) Tree and Shrub Pruning (660): The removal of all or part of selected branches, leaders or roots from trees and shrubs.
B) Woody Residue Treatment (384): This practice is used to treat slash and debris appropriately to ensure it is not an unacceptable fire, safety, environmental, or pest hazard.

14. Forest Health and Protection

Definition and Purpose

Forest health and protection is the use of site-specific management practices to mitigate or eliminate management risks from feral ungulates, mammalian predators, insects/disease, and other pests to improve growing conditions for desired plants, prevent the spread and introduction of invasive species and disease, and improve wildlife habitat.

Criteria and Considerations

- Management plans should identify target pest species, current levels or presence, and methods of prevention, avoidance, monitoring, and/or suppression to be employed to minimize and mitigate pest management risks for identified natural resource concerns.
- Methods should be as cost-effective and efficient as possible.
- Control methods and considerations for common pest management types/problems:
  - Insects/Diseases
  - Pesticides may be used to reduce and/or eliminate insect or disease pests. Pesticides must be applied using approved materials and procedures and consider environmental hazards and site-specific application criteria listed on pesticide labels and in accordance with registered uses and all other applicable federal, state, and local policies. State-issued licenses may be required when using chemical pesticide treatments.
    - See Appendix J for resources on Rapid ʻŌhiʻa Death (ROD) prevention/treatment.
    - Use of approved biological control agents for insects.
  - Ungulates
    - Reduction and/or elimination of feral ungulates through trapping, snares, hunting, or other approved methods.
    - Landowners are encouraged to work with USDA Animal and Plant Health Inspection Service (APHIS) for information or resources for management of feral ungulates.

Figure 26. Leaves of a strawberry guava (*Psidium cattleianum*) infected with galls of the *Tectococcus ovatus* biocontrol (top); and tree tube around an ʻōhiʻa seedl-ing (bottom).

- Mammalian predators
  - Reduction and/or elimination of mammalian predators through trapping or other approved methods.
- Other Pests
  - Reduction and/or elimination of non-native snails, slugs, and other pests using chemical control or other approved methods.
- Tree protection
  - Tree tubes may be used for tree protection.

Monitoring and Maintenance

- Management plans should describe monitoring and maintenance of implemented forest health and protection measures. Recommended monitoring and maintenance activities include:
  - Routine monitoring for success/effectiveness of control efforts.
  - Routine monitoring of your project for new forest health threats.
  - Maintenance or modification of forest health protection measures as necessary.
  - Staying updated with common pests in your area.

Cost-Share

Applicant must obtain at least 3 written quotes for the implementation of the proposed forest health and protection measures and/or consult with the FSP Coordinator to determine the allowable cost-share rate.

NRCS practices that may qualify

NRCS offers financial assistance for forest health treatments through other applicable practices such as forest stand improvement, brush management, herbaceous weed control, tree/shrub establishment, etc.

15. Erosion Control

Definition and Purpose

Use of erosion control practices to protect areas with high soil erosion, very steep and/or inaccessible sites, and stream and channel banks and riparian areas from erosion.

Criteria and Considerations

- Management plans should include a description of the current or potential erosion issues, and purpose(s), quantity, materials, location, and approach for erosion control. These can include but are not limited to the following:
  - Matting and/or other erosion control materials such as coir logs or rocks.
  - Terracing, water diversions, or other grading.
  - Other project needs, materials and/or methods will be considered on a case-by-case basis.
  - Additional permits or engineering support may be required depending on the scope of proposed activities.
- Consult with the FSP Coordinator on proposed practices prior to submission of the management plan.
- Tree/shrub or groundcover establishment, mulching, and weed control are also methods to control erosion, and are supported under those practices, respectively.

Monitoring and Maintenance

Management plans should describe monitoring and maintenance of implemented erosion

control measures. Recommended monitoring and maintenance activities include:

- Routine monitoring for success of erosion control efforts.
- Maintenance or modification of erosion control methods as needed to meet intended purpose.
- Routine monitoring for new erosion issues.

Cost-Share

Applicant must obtain at least 3 written quotes for the installation of proposed erosion control measures and/or consult with the FSP Coordinator to determine the allowable cost-share rate.

NRCS practices that may qualify

A) Streambank and Shoreline Protection (580): Treatment(s) used to stabilize and protect banks of streams or constructed channels, and shorelines of lakes, reservoirs, or estuaries

B) Lined Waterway or Outlet (468): A waterway or outlet having an erosion-resistant lining of concrete, stone, synthetic turf reinforcement fabrics, or other permanent material.

Figure 27: Coconut coir logs used to capture eroding soil. Waimea, O'ahu.

NRCS also offers financial assistance for erosion control through other applicable outplanting practices including critical area planting (342), and tree/shrub establishment (612).

16. Monitoring and Maintenance

Monitoring

All projects are required to monitor progress to determine if management is successful. Monitoring will help inform future plan implementation or if any changes to management are needed. Monitoring activities may include measuring survival and growth of plantings, tracking increases/decreases in species of plants and/or animals, inspecting infrastructure such as fences and gates etc. Management plans must describe monitoring activities for each practice, including monitoring frequency, and information to be recorded. Please see the "Monitoring/Maintenance" section under each practice description for more information.

Maintenance

Cost-shared practices must be maintained for at least ten years following installation. "Maintain" means that improvements will not be willfully removed or destroyed and routine maintenance, including replacement and repair as necessary, will assure that under normal conditions the improvements will serve the intended purpose. Management plans must describe the anticipated frequency of maintenance for each practice. Please see the "Monitoring/Maintenance" section under each practice description for more information.

In the event a natural disaster such as flood, wildfire, hurricane, or earthquake etc. causes

damage to cost-shared improvements, projects may work with the FSP coordinator to determine the availability of funding for project budget revisions to provide state cost-share support for maintenance and/or replacement of the damaged improvements.

Figure 28: Foresters monitoring 12 year old *Eucalyptus microcorys* in a timber production stand. ʻŌʻōkala, Hawaiʻi. Photo by JB Friday.

Cost-Share

Under most circumstances, FSP will not provide cost-share support for routine monitoring or maintenance activities. Cost-share support for monitoring and maintenance may be considered on a case-by-case basis for projects that are experimental/demonstrative or may require intensive monitoring or maintenance to be successful. Projects may work with the FSP coordinator to determine if cost-share support for monitoring or maintenance is justified.

Reporting

Outcomes, progress, accomplishments, and challenges should be documented in required progress and annual reports. Reports should also describe any proposed modifications based on monitoring.

NRCS practices that may qualify

Upland Wildlife Habitat Management (645): Provide and manage upland habitats and connectivity within the landscape for wildlife.

APPENDIX E. AGROFORESTRY GUIDELINES

Definition and Purpose

Agroforestry is the intentional integration of trees and shrubs into crop and animal farming systems to create environmental, economic, and social benefits.

Goals

Your management plan must state the goal(s) of your agroforestry project upfront. Below are types of agroforestry goals supported by FSP.

1. **Commercial:** Projects that intend to be commercially viable at any scale must provide an economic analysis that includes information on potential/existing markets or market analysis for agroforestry products.
2. **Educational/Demonstration:** Plan should include a description of outreach activities including specific groups you are working with and how knowledge from the project would be shared with the community.
3. **Subsistence:** Subsistence agroforestry systems are typically small in size (under 2 acres), have high diversity, and primarily meet basic needs for families or small groups.
4. **Non-market environmental benefits:** Example benefits include carbon sequestration, erosion prevention, wildlife habitat, increased infiltration. Plan must provide reasonable and project-specific justification to support the environmental benefits.

General Criteria and Considerations

- Management plan should identify desired species to be planted, source of planting materials, intended purpose, planting density, planting method, and timing. A description of how species composition and tree canopy cover changes over short and long-term time frames and successional stages should also be included.
- Optimal planting arrangement is determined by landowner. Planting in a grid can help facilitate access for management and harvest.
- Agroforestry projects smaller than 5 acres may be supported as a component of a larger project that is at least 5 acres.
- Funded plantings shall not exceed a 20% mortality rate over the contract period.
- 100% fruit trees and understory plants may be supported; however, support of fruit trees will be limited to cost-share rates equivalent to forest species.
- Any single fruit tree or species producing commercially valued non-timber products cannot exceed 20% of total plants within the project area.
- Windbreaks for forestry purposes are eligible for cost-share.
- Agroforestry in ʻōhiʻa forests should include considerations for ROD.

Activities and Components NOT Supported by FSP

- Removal of existing native species agroforestry. FSP would support the clearing of non-native invasive species, including below native overstory, to provide space for agroforestry species.
- Listed invasive species. Coffee and other agricultural crops listed as invasive species may be components of a project, with justification, but are not eligible for cost-share.
- Common understory and groundcover agricultural crops. Crops may be components of a project, but crops are generally not eligible for cost-share unless there is a clear resource benefit (e.g., groundcover such as sweet potato needed to prevent erosion or cover crops that enhance soil productivity).

- Pasture (forage) management. Landowners should seek pasture management expertise from other sources such as NRCS or University of Hawai'i Cooperative Extension.
- Projects with non-forest land uses (e.g., orchards). Orchards are land in row crops or close-grown crops that constitute a monoculture or multiple species where few species dominate. Conversion from non-forest uses to mixed agroforestry is supported.

Table 1. Examples of typical planting densities for orchard crops*

Crop	Density (tree/acre)
Macadamia nut	50-100
Breadfruit	50-100
Citrus	145
Coffee	605-865

**Per UH CTAHR horticulture extension agents (pers. comm. J.B. Friday, March 8, 2019)*

Allowable Agroforestry Species

Species selected should adapted to the site (e.g., elevation, annual rainfall, etc.).

- Source: AgroforestryX (© 2019 Permanent Agriculture Resources): https://www.agroforestryx.com
- Hawai'i County Species List: https://www.hawaiipropertytax.com/forms/Native%20Forest%20Dedication%20-%20Species%20List.pdf
- Contact NRCS for assistance with agroforestry species lists

Common Agroforestry Systems

1. Mixed Agroforest (NRCS Forest Farming)

Definition and Purpose

Mixed agroforests are closed-canopy forests with high species diversity and complex canopy structure and arrangement installed for food production, controlling invasive species, increasing species diversity, increasing carbon sequestration, or improving water and soil quality, wildlife habitat, and soil erosion control.

Figure 29: Diversity of plants in an agroforestry system. Makawao, Maui. Photo by JB Friday.

Requirements

Species diversity criteria:

- At least 4 overstory (emergent/high) species and 4 understory (medium/low) species
- Each species shall comprise a minimum of 5% of total plants within respective overstory/understory category (Figure 30, Table 2)

Forest cover and canopy structure:

- A minimum of 150 trees/acre (understory and overstory), of which at least 25 must be overstory (out of minimum 150 total). (Figure 30, Table 2)

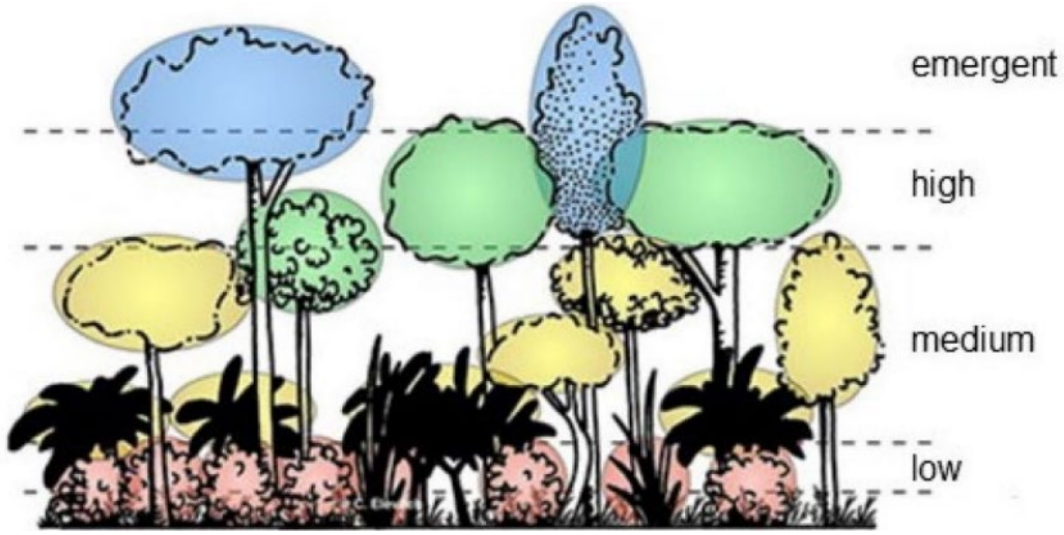


Figure 30. Diagram of relative canopy positions in a typical mixed agroforest. Color coordinated with Table 2. Used with permission from AgroforestryX.com (©2019 Permanent Agriculture Resources).

Table 2. Canopy strata or height classes grouped by overstory and understory canopy zones. Height ranges in feet and typical light levels are shown for each canopy stratum and required minimum genera and stem density for each canopy zone. Color coordinated with Figure 29.

Canopy Zone	Stratum (height class)	Color	Light requirements	Height range	Min Genera	Min Density (stems/acre)
Overstory	Emergent		Full sun	40+ ft	4	25
	High		≈80% sunlight	≈18-40 ft		
Understory	Medium		≈60% sunlight	≈10-20 ft	4	125
	Low		≈40% sunlight	≈2-12 ft		
Across all					8	150

Source: https://efotg.sc.egov.usda.gov/api/CPSFile/29656/379_PI_PS_Multi-Story_Cropping-Mixed_Agroforest_2021

Example

Table 3 is an example of traditional Pacific-island agroforestry, the canopy is comprised of widely spaced breadfruit trees, other fruit trees (coconut, mango, and avocado), along with Honduran mahogany. Larger trees are spaced out so that fruit trees receive full sun during the middle of the day. Bananas and papaya are planted in smaller gaps in the canopy. The lower understory is comprised of taro and yams in small canopy gaps, and ginger is planted in the shade.

Table 3. Example of Pacific-island mixed agroforestry

Zone	Height Class	Species
Overstory	Emergent	Ulu
	High	Coconut, mango, avocado, mahogany
Understory	Medium	Banana, papaya
	Low	Taro, yam, ginger

2. Forest Farming

Definition and Purpose
Planting of non-timber forest products under a forest canopy that is established, modified or maintained to provide shade and habitat that improve productivity and ecosystem health and diversity.

Example
Figure 3 shows a forest farming system in South Kona on Hawai'i Island where coffee has been planted as an understory crop beneath a native ʻōhiʻa forest canopy.

Figure 31: Coffee under ʻōhiʻa trees. South Kona, Hawaiʻi.

3. Alley cropping (*for agroforestry*)

Definition and purpose
Trees or shrubs planted in sets of single or multiple widely spaced rows, creating "alleys" in which agricultural crops are grown.

Example
Figure 4 shows an alley cropping system on Molokaʻi, in which kukui (*Aleurites moluccana*) and milo (*Thespesia populnea*) trees are grown in rows with red ginger, a shade tolerant plant, interplanted in between.

Figure 32: Alley cropping system on Molokaʻi.

4. Silvopasture

Definition and purpose
Establishing a combination of trees or shrubs and compatible pasture forage on the same acreage to provide benefits to grazing animals (e.g., shade, improved forage) as well as environmental benefits.

Example
A silvopasture system where remnant indigenous manele (*Sapindus saponaria*) provide shelter for cattle on a hot day at Puʻuwaʻawaʻa on Hawaiʻi Island.

NRCS practices that may qualify for mixed agroforest operations*

- Alley Cropping (311)
- Forest Farming (379)
- Silvopasture Establishment (381)
- Windbreak/Shelterbelt Establishment and Renovation (380)
- Tree/Shrub Establishment (612)

*Landowners also seeking support from NRCS should work directly with NRCS to determine eligible activities as they may differ from FSP.

References

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APPENDIX F. COST-SHARE REIMBURSEMENT AND ALLOWABLE RATES

Management practices implemented under an approved FSP management plan are eligible for up to 50% cost-share assistance from FSP. The provision of cost-share assistance is **contingent upon** availability of program funds, FSP prioritization, and compliance with other requirements. See page 6 for more information on requirements for receiving cost-share assistance.

All cost-share funds are paid on a reimbursement basis. Reimbursements will be provided upon receipt of required progress reports, invoice(s), and Forestry and Wildlife staff verification that the practice was installed/ completed as required. All reimbursement payments will go directly to the applicant; FSP does not provide direct payments to any hired contractors.

Figure 33. Outplanted koa on former pastureland. Makawao, Maui

Allowable Cost-Share Rates

Each eligible management practice has a set allowable cost-share rate. The table below shows the low and high end of the allowable cost-share rates, which represent 50% of allowable total actual costs of completing/installing the practice. FSP will provide up to 50% cost-share reimbursement of the total actual cost within the established rates.

The total cost of implementing management practices will depend on a variety of factors such as project scale, objectives, and current and desired site conditions. Cost-share reimbursements may cover the costs of purchasing or renting materials and supplies, contracts for services, and “in-kind” contributions such as labor and use of your own equipment or materials.

If costs for certain practices are estimated to be higher than the allowed rates, or a rate is not established, **requested cost-share must be justifiable**. To be allowed an exception to the listed cost-share rates, you must consult with the FSP coordinator to provide further details and justification. Quotes for proposed work may be required.

Practice	Unit	FSP Cost-Share (low end)	FSP Cost-Share (high end)
Management Plan	per plan	$2,250	$7,800
Fence	per foot	$5	$10
Tree and Shrub Site Preparation	per acre	$200	$1,000
Tree and Shrub Establishment	per seedling	$1	$8
Groundcover Establishment	per acre	$400	$1,400
Fertilizers and Soil Amendments	per acre per plant	$25 $0.25	$150 $0.50

Practice	Unit	FSP Cost-Share (low end)	FSP Cost-Share (high end)
Irrigation	per foot (drip only) per gallon (catchment) Other systems	$0.50 $0.32 *	$3 $0.85 *
Mulching	per square foot per plant per acre	$0.07 $9.31 $3,049	$0.16 $21.28 $6,969
Weed Control	per acre	$100	$700
Fuelbreak	per acre	$100	$500
Trails and Access	*	*	*
Tree Thinning	per acre	$100	$500
Tree Pruning	per acre per tree	$100 $0.23	$200 $0.47
Forest Health and Protection	*	*	*
Erosion Control	*	*	*
Monitoring and Maintenance	*	*	*

**Applicant must obtain at least 3 written quotes for the proposed work and/or consult with the FSP Coordinator to determine the allowable cost-share.*

Match Requirements

FSP will provide up to 50% cost-share reimbursement of the total actual cost of eligible practices within the established rates. Applicants are required to provide a 50% match. Eligible forms of match include cash match paid toward the installment of the practice or in-kind match of labor and/or equipment (see table below). Cash may come from private, county, or federal financial and technical assistance programs, provided that funds supplied from all assistance programs, including FSP, do not cover more than 90% of the actual cost of the practice. State funding is not an eligible match.

Allowable In-Kind Rates

In-kind match refers to non-cash contributions to the project, such as labor costs and the use of your own materials or equipment. When calculating your 50% required contribution to the project, use the rates in the table below to determine labor and equipment cost estimates. Labor costs include fringe.

In-kind Contributions	Unit	Rate
General (unskilled) Hand Labor	per hour	$27
Specialized (skilled) Hand Labor	per hour	$53
Line Posts	each	$23
Corner Posts	each	$26
Equipment with Operator		
½ and ¾ ton truck	per hour	$45
1 ton truck	per hour	$52
1 ½ ton truck	per hour	$58
2 ton truck	per hour	$65
2 ½ ton truck	per hour	$71
5 ton truck	per hour	$84
20 ton tandem dump truck	per hour	$110
12 ton tandem dump truck	per hour	$97

2 and 4 wheel drive tractor	per hour	$77
2 wheel drive tractor >40 hp	per hour	$90
In-kind Contributions	**Unit**	**Rate**
D-2 or TD6 w/ attachments	per hour	$97
D-4 or TD9 w/ attachments	per hour	$135
D-6 or TD14 w/ attachments	per hour	$155
D-7 or TD18 w/ attachments	per hour	$194
D-8 or TD20 with attachments	per hour	$232
D-9 or TD25 w/ attachments	per hour	$290
Back-hoe	per hour	$110
Loader	per hour	$129
Compressor	per hour	$32
Power saw	per hour	$32
Power post hole digger	per hour	$45
Power sprayer	per hour	$39
Bobcat	per hour	$84
Manlift	per hour	$45
Mulcher	per hour	$32

Pay-back Provisions

If the landowner does not comply with the terms of the approved FSP contract agreement or sells or transfers all or part of the FSP managed property during the term of the approved FSP contract agreement, they are required a to pay back to the state all of the cost-share funds received as well as potentially pay a penalty of interest on funds received. If the new landowner contractually agrees to assume responsibility for the term remaining on the FSP contract agreement, the landowner would not be required to reimburse the state for the cost-share assistance received.

If the FSP plan includes commercial timber production, the landowner will be required to pay back to the state a percentage of the funding assistance that is received through the program with each future commercial timber harvests as set forth in the contract (see Appendix H).

Taxes

Cost-share reimbursement payments are considered as income and are thus normally subject to state and local taxes. A guide to federal income tax regulations affecting private forests, and other resources are available online at: https://www.srs.fs.usda.gov/pubs/42921

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.

Figure 34: Native Loulu (*Pritchardia spp.*) growing in a stewardship project. Volcano, Hawai'i.

Oʻahu:

Administering Agency: City and County of Honolulu, Real Property Assessment Division

Purpose: Tree Farming. Tree farming is the growing of commercial tree species and other forest products in quantity sufficient to establish a business in the sale thereof.

Eligibility: Private property or minimum 20-year lease; minimum 10 acres; suitable for, or already engaging, in tree farming, as defined by HRS 186 Tree Farm Designation

Incentive: Agricultural property tax reduction (1-5% of fair market value, depending upon the length of dedication).

Time Frame: 1, 5, or 10-year dedication

Contact: (808) 768-3799 (Downtown Office) or (808) 768-3980 (City Hall Office)

Links: https://sammade.github.io/aloha-io/title-12/chapter-186/section-186-2/

Hawaiʻi Island:

Native Forest Dedication Program

Administering Agency: Hawaiʻi County, Real Property Tax Division

Purpose: Preservation, restoration, and conservation of native forest:

1. Native forest: lands which have sixty percent or greater native species forest cover.
2. Successional forest: lands which have new lava substrates currently unsuitable for cultivation such that soil depths and/or organic matter are less than 10 cm.
3. Functional forest: lands which have sixty percent or greater native species forest cover combined with non-native/non-invasive species forest cover.

Eligibility: Private property or minimum 20-year lease; Minimum 3 acres with at least 2.75 acres of intact and contiguous native forest; forest management plan; see links for detailed criteria for each category

Incentive: Low tax assessments

Time Frame: 20-year or 50-year dedication, depending on type.

Contact: (808) 961-8354 (Hilo Office), (808) 323-4881 (Kona Office)

Links: https://www.hawaiipropertytax.com/forms/Native%20Forest%2019-59%20%20Information%20(rev%201-2021).pdf
http://www.hawaiipropertytax.com/dedications.html

Agricultural Tax Rates

Administering Agency: Hawaiʻi County, Real Property Tax Division

Purpose: Commercial tree farming (“fast rotation forestry” and “slow rotation forestry”)

Eligibility: Private property.

Incentive: Agricultural property tax reduction; rates based on crop and productivity.

Time Frame: Depends on dedication and acreage dedicated.

Contact: (808) 961-8354 (Hilo Office), (808) 323-4881 (Kona Office)

Links: http://www.hawaiipropertytax.com
http://www.hawaiipropertytax.com/forms/RP%20Form%2019-57%20(Non-Dedicated%20Agricultural%20Use%20Information).pdf

Maui:

Administering Agency: Maui County, Real Property Tax Division

Purpose: Tree farms (not specifically addressed in Code but could be considered “crop”).

Eligibility: Private property or lease; minimum 5 years previous agricultural land use.

Incentive: Tax assessment 50% of fair market value.

Time Frame: 20-year dedication; 10-year dedications for short-rotation tree farms.

Other Requirements: Petition Director of Finance.

Contact: (808) 270-7798

Links: https://www.mauicounty.gov/1952/Real-Property-Assessment-Division

Kaua‘i:

Administering Agency: Kauai County, Real Property Assessment Division

Purpose: Tree farm. Property must be suitable for a merchantable tree farm crop.

Eligibility: Private property or lease; minimum 10 acres; management plan; land in urban district not eligible.

Incentive: Exemption from Real Property Tax

Time Frame: Harvesting must take place 6-25 years after planting.

Contact: (808) 241-4224

Links:

https://qcode.us/codes/kauaicounty/view.php?topic=iii-5a-11-5a_11_26

Figure 35: Timber production of Spanish Cedar (*Cedrela odorata*). ‘Ō‘ōkala, Hawai’i. Photo by JB Friday.

APPENDIX G. ENVIRONMENTAL COMPLIANCE AND PERMITS

It is the responsibility of the applicant and/or consultant to complete all required state environmental reviews, permits, and compliance for their FSP project. **Compliance documents must be approved prior and included with requests for state FSP cost-share assistance.** Projects requesting federal financial assistance have federal compliance and permitting requirements which are generally coordinated by the federal agency involved.

Archeological and Historic Sites

Under state historic preservation laws, FSP projects that use state and/or federal funding for project implementation or require state and/or county permits may require consultation and review by the State Historic Preservation Division (SHPD) if the project has the potential to impact historic properties.

Landowners first need to determine if there are any known or potential archeological, burial, or historic sites present on their FSP project site. SHPD's Hawai'i Cultural Information System website contains an interactive map of previously identified historic sites and surveys that can be used to determine if there are historic sites on or near your project. Known historic properties are also listed on the Hawai'i and/or National Register of Historic Places. A historic property is any building, structure, object, district, area, or site which is over 50 years old. FSP projects may require an archeological inventory survey to determine if historic properties are present.

Figure 36: Protected and maintained ahu. Moaulunui, Kaho'olawe. Photo by Forest and Kim Starr.

Forms and project documentation for SHPD project review are submitted electronically to SHPD. For more information on historic preservation requirements, online maps, and project submittal information and forms, please visit: **http://dlnr.hawaii.gov/shpd/**

Burial sites are protected by law. If you discover a burial site: stop all activity in the area; leave remains in place; contact SHPD and your County Police Department. Reporting a burial site disturbance is required by law.

Grading Permits and Soil Conservation Plans

FSP projects that involve grading, stockpiling, grubbing, and trenching may require permits for soil disturbing work. Each county is responsible for issuing these permits. For more information, please visit your county's website:
O'ahu: http://www.honoluludpp.org/AboutDPP/CivilEngineeringPermits.aspx
Hawai'i: https://www.hawaiicounty.gov/departments/public-works/engineering
Maui: https://www.mauicounty.gov/1223/Grading-Grubbing-Permits
Kaua'i: https://www.kauai.gov/Government/Departments-Agencies/Public-Works/Engineering

In some cases, an approved soil conservation plan may be acceptable. Contact your local Soil and Water Conservation District for more information or see https://dlnr.hawaii.gov/swcd/

Environmental Assessments (EA)

FSP projects that may require a state Environmental Assessment (EA) include those that involve the establishment of commercial timber, use state or county lands or funds, are located in the Conservation District or shoreline setback area, and/or contain any archaeological or historic sites. Projects may be exempt from these requirements, depending on the project scope, location, and the sources of cost-share funds used to implement the project. The FSP Coordinator can provide general guidance on requirements and samples of approved stewardship plans and EAs, if necessary.

The State Office of Environmental Quality Control (OEQC) facilitates the environmental review process (commonly known as the Hawai'i Environmental Policy Act or HEPA), pursuant to Hawai'i Revised Statutes (HRS) §343. Information on the environmental review process can be found on OEQC's website at: https://health.hawaii.gov/oeqc/

Conservation District Use Permit

Projects located in the Conservation District may require approval or permits from the Office of Conservation and Coastal Lands (OCCL). The Conservation District has five subzones arranged in a hierarchy of environmental sensitivity, ranging from the most environmentally sensitive to least sensitive, and more sensitive lands have greater permitting requirements. The use of Conservation District lands is regulated by Chapter 183C, HRS and Title 13 Chapter 5, HAR. These rules and regulations identify land uses that may be allowed by discretionary permits as well as impose fines for violations.

For more information, please visit: https://dlnr.hawaii.gov/occl/

Threatened and Endangered Species

Figure 37: *Schidea trinervis*, a federally listed endangered species. O'ahu.

FSP projects involving processing, collecting, propagating, planting and/or selling federally threatened or endangered species require a state permit.

For more instructions and permits, please call (808) 587-0166 or visit: http://dlnr.hawaii.gov/ecosystems/rare-plants/permits/

A Safe Harbor Agreement is a voluntary agreement involving private landowners who voluntarily manage their lands to the benefit of federally endangered, threatened, proposed, and candidate species. This agreement provides assurances that future property-use limitations would not be required as a result of these conservation efforts.

For more information, please call (808) 587-0166 or visit:
http://dlnr.hawaii.gov/wildlife/hcp/safe-harbor/
https://www.fws.gov/endangered/landowners/safe-harbor-agreements.html

APPENDIX H. COMMERCIAL TIMBER PROJECT REQUIREMENTS

FSP projects that include commercial timber production have additional requirements and considerations.

Timber Harvest Plan and Economic Analysis

Commercial timber projects should have a timber harvest plan developed by a professional forester prior to harvest. It is very important to consider the extraction method in the plan, as this could be very costly and/or inflict serious ecosystem damage.

If management objectives include commercial timber production, the FSP plan must include an economic analysis, such as a net present value or internal rate of return calculation. Plans 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.

For more information on financial analysis for tree farming, visit:
http://www.ctahr.hawaii.edu/oc/freepubs/spreads/RM-9_forest_econ_calc.xls

Figure 38. Koa timber production project. Kamuela, Hawai'i.

Forest Stewardship Agreement Payback Provision

Commercial timber projects using state cost-share assistance may be required to include a payback provision in the FSP agreement. These projects must pay back to the State a percentage of the funding assistance that is received through the program with each future commercial timber harvest as set forth in the FSP agreement. Pay back is typically 50 percent of total cost-share funding received, but the rate of payback and total amounts are negotiable. A payback provision may be included as a special condition of the FSP agreement, stipulating that this provision will survive beyond the term length of the FSP agreement.

Environmental Compliance and Permits

Projects requesting state cost-share assistance that include the establishment of commercial timber with the intent of eventual harvest must be accompanied by an Environmental Assessment (EA). The FSP Coordinator can provide samples of approved stewardship plans and EAs.

APPENDIX I. FSP-NRCS FINANCIAL INCENTIVE PROGRAMS

The USDA-Natural Resource Conservation Service (NRCS) offers multiple programs that provide financial and technical assistance to forest landowners, depending on the type of project. For more information on available programs and eligibility requirements, please contact a NRCS representative at your local USDA Service Center.
https://www.nrcs.usda.gov/wps/portal/nrcs/main/pia/contact/local/
https://www.nrcs.usda.gov/wps/portal/nrcs/main/pia/programs/

Figure 39. Restoration project that enrolled in both FSP and EQIP. Honoka'a, Hawai'i.

Landowners that are interested in receiving assistance from NRCS are encouraged to engage with both NRCS and FSP during FSP proposal development. NRCS programs have eligibility requirements, practices, and cost-share rates that should be considered as you develop your proposal.

Note: Completion of a Forest Stewardship management plan does not automatically guarantee eligibility or availability of funding through NRCS programs. Participants must complete the planning and application process with NRCS to be considered for funding. Some FSP approved activities may not be supported by NRCS.

NRCS Practices

If you are considering applying for NRCS programs, your Forest Stewardship management plan should include NRCS practices and practice codes under the appropriate FSP practice in your management plan budget table (see table below).

For more details on NRCS practices, please visit:
https://efotg.sc.egov.usda.gov/#/state/HI/documents/section=4&folder=-3

Note: FSP and NRCS programs cannot provide cost-share assistance for the same practices in the same area(s). For example, in a 1-acre management unit, only one program can provide cost-share assistance for tree shrub site preparation. Within this 1 acre unit, FSP could pay for tree shrub site preparation and NRCS could pay for tree shrub establishment. NRCS funding may not be used as match for state cost-share assistance.

FSP Management Practices	NRCS Practices that may qualify
Fence	382 - Fence 612 - Tree/Shrub Establishment
Tree and Shrub Site Preparation	490 - Tree/Shrub Site Preparation 324 - Deep Tillage 384 - Woody Residue Treatment
Tree and Shrub Establishment	612 - Tree/Shrub Establishment 391 - Riparian Forest Buffer

	311 – Alley Cropping (for agroforestry) 379 – Forest Farming (for agroforestry) 381 – Silvopasture Establishment 380 – Windbreak/Shelterbelt Establishment and Renovation 342 – Critical Area Planting
Groundcover Establishment	327 – Conservation Cover 340 – Cover Crop 390 – Riparian Herbaceous Cover 342 – Critical Area Planting
Fertilizers and Soil Amendments	336 – Soil Carbon Amendment
Irrigation	N/A (embedded within other payments)
Mulching	484 – Mulching
Weed Control	314 – Brush Management 315 – Herbaceous Weed Control 384 – Woody Residue Treatment 490 – Tree and Shrub Site Preparation
Fuelbreak	383 – Fuelbreak 384 – Woody Residue Treatment
Trails and Roads	575 – Trails and Walkways 560 – Access Road 655 – Forest Trails and Landings (conservation use) 578 – Stream Crossing 472 – Access Control
Tree Thinning	666 – Forest Stand Improvement 384 – Woody Residue Treatment
Tree Pruning	660 – Tree and Shrub Pruning 384 – Woody Residue Treatment
Erosion Control	580 – Streambank and Shoreline Protection 468 – Lined Waterway or Outlet
Monitoring and Maintenance	645 – Upland Wildlife Habitat Management

APPENDIX J. USEFUL RESOURCES

Program links

Forest Stewardship Program website: www.hawaii.gov/dlnr/dofaw/forestry/fsp
Division of Forestry and Wildlife website: www.hawaii.gov/dlnr/dofaw
Forest Stewardship Advisory Committee: https://dlnr.hawaii.gov/forestry/lap/fsp/advisory-committee/
Hawai'i Compliance Express: https://vendors.ehawaii.gov/hce/
FSP Current Projects: https://dlnr.hawaii.gov/forestry/lap/fsp/stewards/

Resources for management planning

Annual Rainfall Projections: http://rainfall.geography.hawaii.edu/
NRCS Web Soil Survey: http://websoilsurvey.nrcs.usda.gov/
Hawai'i County Species List and Their Associated Habitats: https://www.hawaiipropertytax.com/forms/Native%20Forest%20Dedication%20-%20Species%20List.pdf
Plant Pono/Weed Risk Assessment: https://plantpono.org/
Rapid 'Ōhi'a Death: https://cms.ctahr.hawaii.edu/rod/
Animal and Plant Health Inspection Service: https://www.aphis.usda.gov/aphis/resources/pests-diseases/hungry-pests/pest-tracker/states/hawaii
Agroforestry Design Tool: https://www.agroforestryx.com
General Agroforestry Information: https://agroforestry.org/
Hawai'i Forestry Extension: cms.ctahr.hawaii.edu
Agroforestry Design Tool: https://www.agroforestryx.com
Weed Fire Risk Assessment: https://www.pacificfireexchange.org/weed-fire-risk-assessments
Threatened and Endangered Species:
https://ecos.fws.gov/ecp/
For consultation purposes: https://ipac.ecosphere.fws.gov/

Environmental Compliance and Permits

Environmental Review Program: https://planning.hawaii.gov/erp/
Submittal form for EA documents: https://planning.hawaii.gov/erp/submittal-form/
2014 Citizen's Guide: https://files.hawaii.gov/dbedt/erp/OEQC_Guidance/2014-GUIDE-HEPA-Citizens-Guide.pdf

State Historic Preservation Division: http://dlnr.hawaii.gov/shpd/
OHA Kipuka Database for Historic Sites Information: http://kipukadatabase.com/kipuka/
Grading and Grubbing Permits for land clearing:
Oahu: http://www.honoluludpp.org/AboutDPP/CivilEngineeringPermits.aspx
Hawai'i Island: https://www.hawaiicounty.gov/departments/public-works/engineering
Maui: https://www.mauicounty.gov/1223/Grading-Grubbing-Permits
Kauai: https://www.kauai.gov/Government/Departments-Agencies/Public-Works/Engineering
Soil Water Conservation Districts: https://dlnr.hawaii.gov/swcd/
Office of Conservation and Coastal Lands: https://dlnr.hawaii.gov/occl/
Rare Plant Permits: http://dlnr.hawaii.gov/ecosystems/rare-plants/permits/

Office of Environmental Quality Control: https://health.hawaii.gov/oeqc/
Safe Harbor: http://dlnr.hawaii.gov/wildlife/hcp/safe-harbor/
https://www.fws.gov/service/safe-harbor-agreements

Commercial Timber Economics

Tree Farming Financial Analysis: http://www.ctahr.hawaii.edu/oc/freepubs/pdf/RM-9.pdf
Worksheet for financial analysis for tree farms: http://www.ctahr.hawaii.edu/oc/freepubs/spreads/RM-9_forest_econ_calc.xls

Taxes

Federal Income Tax Guide: timbertax.org, https://www.srs.fs.usda.gov/pubs/42921

Oʻahu Tax Incentive for Tree Farms	https://www.capitol.hawaii.gov/hrscurrent/vol03_ch0121-0200d/HRS0186/HRS_0186-.htm https://www.honolulu.gov/rep/site/ocs/roh/Chapter_8_Art_1-11.pdf
Hawaiʻi Island Native Forest Dedication Program	https://www.hawaiipropertytax.com/forms/Native%20Forest%2019-59%20%20Information%20(rev%201-2021).pdf http://www.hawaiipropertytax.com/dedications.html
Hawaiʻi Island Agricultural Tax Rates	http://www.hawaiipropertytax.com http://www.hawaiipropertytax.com/forms/RP%20Form%2019-57%20(Non-Dedicated%20Agricultural%20Use%20Information).pdf
Maui Tax Incentive for Tree Farms	https://www.mauicounty.gov/1952/Real-Property-Assessment-Division
Kauaʻi Tax Incentive for Tree Farms	https://qcode.us/codes/kauaicounty/view.php?topic=iii-5a-11-5a_11_26

Other Financial Incentive Programs

NRCS Programs: https://www.nrcs.usda.gov/wps/portal/nrcs/main/pia/programs/
USDA Service Center Locator:
https://www.nrcs.usda.gov/wps/portal/nrcs/main/pia/contact/local/
NRCS Practices: https://efotg.sc.egov.usda.gov/#/state/HI/documents/section=4&folder=-3
US Fish and Wildlife Service Programs: https://www.fws.gov/service/consultation-and-technical-assistance
General Cost-share and Incentive program information:
https://cms.ctahr.hawaii.edu/forestry/Education-Outreach/Forestry-Incentive-Programs

Figure 40: Koʻolau summit. Windward, Oʻahu. Photo by David R. Sischo.