

Hawaii Conservation Reserve Enhancement Program
Annual Report
October 1, 2009



This report includes actions carried out during the State fiscal year 2009.

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INTRODUCTION

The Hawaii Conservation Reserve Enhancement Program (CREP) was authorized on January 15, 2009 by the U.S. Secretary of Agriculture Ed Schafer and the State of Hawaii Governor Linda Lingle. The program was created through the Agreement Between the U.S. Department of Agriculture Commodity Credit Corporation and the State of Hawaii Concerning the Implementation of a Conservation Reserves Enhancement Program Agreement Under the Conservation Reserve Program for the Islands of Maui, Hawaii, Molokai, Lanai, Kauai, and Oahu (Agreement). This report includes actions taken during the State fiscal year 2009 (July 1, 2008 – June 30, 2009), with emphasis on the January 15, 2009 to June 30, 2009 period, as required under the Agreement to implement provisions of the Hawaii CREP.

The objectives of the Hawaii CREP are to enhance stream water quality; reduce coral reef degradation and enhance near shore coastal waters; increase groundwater recharge; restore native, threatened and endangered species habitat; and control the spread of invasive species in upland areas in select areas of six of the main Hawaiian Islands. The Hawaii CREP has targeted 15,000 acres for enrollment into the program over a five year period, focusing initially on Maui and Hawaii Island in the first and second year of program implementation.

BACKGROUND

The Hawaii CREP was initiated by the Environmental Defense Fund and State of Hawaii Department of Land and Natural Resources (DLNR) in July 2004 through the submission of the Hawaii Conservation Reserve Enhancement Program Proposal to the U.S. Department of Agriculture. The U.S. Department of Agriculture agreed to partner with the State to develop a Hawaii CREP for 15,000 acres across Maui, Hawaii, Molokai, Lanai, Kauai, and Oahu. The Hawaii CREP aims to provide farmers and ranchers with a sound financial package for conservation and enhancement of the natural resources of Hawaii.

The Hawaii CREP is a twenty year incentive program that invites landowners and lease holders to join during a five year enrollment period and requires a fifteen year contract agreement with both Farm Service Agency (FSA) and State of Hawaii. Under the program, landowners are required to implement watershed conservation practices that contribute toward achieving the State's identified goals of:

- A ten percent reduction in sediment and nutrient runoff into streams, from current levels.
- A five percent increase in coral reef cover and substantial increases in coral diversity on coral reefs throughout the State, from current levels.
- A ten percent increase and improvement of wildlife and plant habitats of at least ten endangered species through restoration of native forest ecosystems and riparian buffers, from current levels.
- Substantial reforestation of native vegetation in riparian buffer zones as well as rare and declining native habitats, from current levels.
- Substantial increases in groundwater recharge through the planting of trees in upland pastures, from current levels.
- Substantial reduction in and control of invasive species in watersheds within the CREP target areas and on enrolled marginal pasturelands and cropland, from current levels.

Conservation practices vary depending on cropland or marginal pastureland enrollment, but include hardwood tree planting, riparian forest buffer, wetland restoration, rare and declining habitat: tropical dryland forest recovery, wildlife habitat buffer, and wetland buffer, all of which include numerous aspects of restoration. Participants will receive similar benefits to what is offered under the Conservation Reserve Program including an annual rental payment, cost-share reimbursement, and additional incentive payments from federal partners. To further promote Hawaii CREP, the State provides participants with an additional annual rental payment, funds conservation easement purchase or donations, and offers cost-share reimbursement for specific practices that are either strongly encouraged or extremely expensive for the landowner. The State will also provide technical assistance to interested parties, monitor and report on process toward goals, as well as aid the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) in the development of applicants' Conservation Plans, as needed.

The State's commitment to the program is to provide twenty percent of the total program cost, ten percent of which is paid directly to landowners and ten percent that can be met by an in-kind contribution by the State. During the 2006 Regular Legislative Session, the Hawaii Legislature approved an increase in base funding for the Forest Stewardship Special Fund to support the ten percent match payable to landowners for the Hawaii CREP in the amount of \$250,000 annually. Funding for this special fund is authorized by H.R.S. §195F-4 and supported by conveyance tax revenue to financially assist landowners in managing, protecting, and restoring important natural resources in Hawaii's forested and formerly forested lands. The in-kind contribution portion will come from efforts by the DLNR, other State agencies, and partners that contribute to the Hawaii CREP goals through management activities, monitoring efforts, and/or administration of the program.

ACCOMPLISHMENTS

A Hawaii CREP Administrative Coordinator has been on staff with the Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) since November 2005 in a part time role for program development and facilitation. In February 2007, the full time State CREP Administrative Coordinator position was filled to aid in the continued development of the program and agreement negotiations.

The Hawaii CREP Agreement was authorized on January 15, 2009 by the U.S. Secretary of Agriculture Ed Schafer. A press release was issued shortly after notification of authorizing signature by the State FSA on January 22, 2009 and by DLNR on January 28, 2009. The State of Hawaii elected to forego a 'signing ceremony' for the Hawaii CREP as the federally administration was in the process of changing leadership. However, a partner recognition and kick off event was held on March 9 to 13, 2009 to formally introduce the program, provide for staff training, and announce the sign-up date of April 1, 2009 for 3000 acres on Maui and Hawaii Island for Hawaii CREP enrollment. Speaking at the press conference was the Lieutenant Governor James "Duke" Aiona Jr., National CREP Program Manager Lana Nesbit, NRCS Director Larry Yamamoto, Hawaii Department of Agriculture Deputy Director Duane Okamoto, and DOFAW Administrator Paul Conry. Numerous community and media representatives were in attendance, generating a substantial amount of media attention with more than eight news print and web articles. Additionally, with the assistance of FSA's Paul Lehman, KHON featured an on-air

interview with Steve Peterson (Hawaii FSA) and Paul Conry (DOFAW) about the new Hawaii program on March 10, 2009. Hawaii CREP staff training for FSA, NRCS, and DOFAW was conducted from March 9 to 11, 2009 with an additional training date of April 16, 2009. The kick-off week culminated with a visit to potential Hawaii CREP lands on Maui and discussion with interested producers on perceived limitations in the program.

Outreach for the Hawaii CREP has been ongoing since 2007 with initial introduction of the CREP at landowner assistance workshops through the State. Within this reporting period, the State participated in or spoke on behalf of the Hawaii CREP at a number of outreach events, including a landowner assistance workshop on Molokai, State Technical Committee meetings, State Agriculture Day, Watershed Partnership meetings, Hawaii Cattlemen Association, and other community outreach days, among others.

PROGRAM PARTICIPATION LEVEL

As the program was only recently initiated on January 15, 2009, no Hawaii CREP participants have been officially enrolled in the program as of this reporting period (ie: no contracts agreements have been finalized). However, as of September 2009, two Hawaii CREP contracts were ready for producer signature. Initial interest in the program was high with approximately 20 producers expressing interest in the program for an estimated total of approximately 1300 acres. Currently all but two of these producers are waiting for completion of their conservation plans. An outreach event is planned for October to announce the addition of an additional 3000 acres available on Maui and Hawaii Island for continuous enrollment.

DOFAW has also worked toward adding additional acres to other private landowner watershed and habitat restoration programs that support the goals of Hawaii CREP, including such programs as the Hawaii Forest Stewardship Program and Natural Area Partnership Program. These two programs offer financial assistance on a total of 33,996 acres of private lands managed for watershed and restoration purposes. A total of 37 acres were added to these programs during this reporting period. Also during this period approximately 3,500 acres terminated their contractual agreements and four new projects, totaling 8,500 acres, are in process and expect to be initiated during the next State fiscal year.

<i>Private Acres Enrolled in Active Watershed and Habitat Restoration Programs with the State</i>	
<i>Program</i>	<i>Acres</i>
Hawaii CREP	0
Forest Stewardship Program	5,643
Natural Area Partnership Program	28,353
Total	33,996

PROGRAM FUNDING

Direct Incentive Contribution

That State of Hawaii has agreed to provide incentive payments to enrolled producers through three different types of payment including a Hawaii CREP Incentive Payment (HCIP); conservation

easement purchase; and cost-share reimbursement for practice installation. No State or Federal producer contracts for Hawaii CREP were finalized as of June 30, 2009, thus no CREP funds were directed to producers for annual or cost-share reimbursements. There were no CREP funds spent to support the purchase of permanent conservation easements in CREP watersheds; however, the State is actively pursuing the acquisition of three conservation easements. Hawaii CREP funds may be directed to the purchase of these conservation easements as appropriate.

The State CREP Administrative Coordinator expenditures for salary and overhead is contributed towards the State’s direct incentive contribution requirement. Approximately **\$34,187.29** in salary and fringe/overhead was contributed towards the Hawaii CREP during the state fiscal year 2009 through the Hawaii CREP Administrative Coordinator position.

<i>State CREP Administrative Coordinator - Salary and Fringe FY09</i>	
July 1, 2008 to December 31, 2008	\$13,405.71
January 1, 2009 to June 30, 2009	\$20,781.58
Total FY09	\$34,187.29

In-kind Contribution

DLNR actively works toward improving and protecting the natural resources of the state through both direct management activities on public lands as well as providing financial assistance to conservation partners. The following is a list of programs and activities that contribute to the Hawaii CREP goals and may be included as in-kind contributions to the program.

- Hawaii Forest Stewardship Program (FSP) - provides technical and financial assistance to private landowners and/or managers interested in conservation, restoration, and/or timber production on their land. Management activities supported by the program include long-term management plan development, site preparation, fencing, soil amendments, seedling acquisition, planting, invasive species control, irrigation, weed control and mulching, trail construction, habitat improvement, fuel breaks, riparian buffers, research, education, and non-commercial thinning. <http://hawaii.gov/dlnr/dofaw/forestry/fsp>
- Natural Area Partnership Program (NAPP) - provides financial assistance to privately managed lands for conservation and restoration of rare native habitats. Management activities include out-planting of rare native species, invasive species control, fence construction, and habitat improvement and expansion. <http://hawaii.gov/dlnr/dofaw/napp>
- Watershed Partnerships Program (WP) - supports partnerships over public and private lands focused on protection and improvement of watershed values across a landscape scale. The State is a partner in multiple partnerships and provides financial assistance for the implementation of management activities under the partner approved management plans. Management activities include invasive species control, fence construction, restoration, rare species habitat improvement and out-planting, water protection, and erosion control. <http://hawaii.gov/dlnr/dofaw/wpp>
- Forest Reserve System (FRS) - manages public lands to protect and enhance important mauka (upland) forested lands for their abundance of public benefits and values. Management focuses on protection of forested watersheds for production of fresh water, maintenance of biological integrity of native ecosystems, enhancement of recreational

opportunities, and support of production of high quality forest products.

<http://hawaii.gov/dlnr/dofaw/forestry/FRS>

- Natural Area Reserve System (NARS) - manages public lands to protect and preserve unique natural assets of Hawaii's environment. Management activities include non-native animal control, non-native pest control, restoration and habitat enhancement, monitoring, public education, and research. <http://hawaii.gov/dlnr/dofaw/nars>
- Invasive Species Committees (ISC) – established for the control and eradication of harmful invasive species infestations throughout the State of Hawaii and for preventing the introduction of other potential harmful invasive species. Activities include research, survey, control, and eradication of invasive species. <http://www.hawaiiinvasivespecies.org/hisc/>

Monitoring activities of Hawaii CREP goals and accomplishments are also counted towards the State's required in-kind contribution. The State of Hawaii contributed \$1,561,645.00 towards the Hawaii CREP through in-kind contributions during this reporting period; the table below details the contributions from each program.

<i>Hawaii CREP In-kind Contributions</i>		
<i>Program</i>	<i>Full Year</i>	<i>Partial Year (01/01/2009 to 06/30/2009)</i>
FSP	\$54,969	\$54,969
NAPP	\$951,744	\$158,910
WP*	\$0.00	\$0.00
FRS & Monitoring**	\$554,932	\$432,049
NARS*	\$0.00	\$0.00
ISC*	\$0.00	\$0.00
Total	\$1,561,645.00	\$645,928.00

*no in-kind match was recorded this reporting period for these programs, but contribution to Hawaii CREP goals is included in Hawaii CREP Goals & Monitoring Program section below.

**Monitoring efforts are documented together with Forest Reserve System for this reporting period.

Federal Contribution

No producer contracts were finalized as of the June 30, 2009, thus no federal payments have been issued for Hawaii CREP.

Total Hawaii CREP Program Funding

Total Hawaii CREP program funding as of June 30, 2009 is \$1,595,832.29 primarily from State in-kind contributions.

<i>Hawaii CREP Total Program Funding – July 1, 2008 to June 30, 2009</i>		
	<i>Full Year</i>	<i>Partial Year (01/01/2009 to 06/30/2009)</i>
Federal Contribution	\$0.00	\$0.00
State Contribution		
- Direct Incentive Contribution	\$34,187.29	\$20,781.58
- In-kind Contribution	\$1,561,645.00	\$645,928.00
Total	\$1,595,832.29	\$666,709.58

CREP REVIEW/ADVISORY COMMITTEE

The CREP Review Committee met on September 17, 2009 to discuss the program's implementation to date. Representatives from USDA FSA and NRCS and DLNR-DOFAW participated in the meeting. The review committee had the following recommendations based on comments and concerns raised during the meeting:

- Some producers/landowners feel they are limited or excluded from Hawaii CREP because of the riparian requirement for pastureland enrollment. They do not feel that enrolling only a riparian area versus enrolling a large mauka (upland) tract on their ranch is effective or efficient, especially in regards to fencing.
 - The Committee feels that this may best be addressed through individually talking to landowners about utilizing other conservation programs in conjunction with Hawaii CREP. For example, landowners may utilize NRCS's EQIP or other related programs (FSP) to enroll lands adjacent to Hawaii CREP riparian buffers.
- There are foreseeable issues with the requirement to install all Conservation Practice components within one year, especially on larger acre enrollments. Some producers have been discouraged from enrolling into the program because of this short timeline, especially in areas where invasive species are a major issue and will require a large amount of man-power to control.
 - This is a responsible concern for program implementation and enrollment. Large acreage enrollment and invasive species control is essential to the success of the Hawaii CREP. The Committee recommends that FSA and NRCS encourage enrollment of these projects with the understanding that extensions may be granted from the County Committees to projects as needed and appropriate.
- As of this reporting period, the Adjusted Gross Income (AGI) limitation is still an issue for larger landowners enrollment into the program. Two AGI waivers have been submitted for review and approval by the Farm Service Agency Administrator. Additional landowners have expressed interest in the Hawaii CREP, but are waiting to see if the AGI waivers are being considered.
 - The Committee received approval of the two submitted AGI waivers on 9/15/2009, with an approximate turn around time on the 1st waiver request at 2 months. The Committee recommends that landowners interested in the program and waiting to hear about the outcomes of the AGI waiver, be notified that waivers have been granted and encouraged to apply for the program. Additionally, FSA and DOFAW should put together an informational document for landowners interested in the program and potentially subject to the AGI limitation. This informational document should include basic information needed to submit a waiver request and resources to gather environmental data for their project.
- The cost to the State for administration of the Hawaii CREP Incentive Payment (HCIP) to small acre projects (5 acres or less) outweighs the actual payment distributed to the producer annually. The State would like to reevaluate how this payment will be distributed to smaller acreage projects.
 - For projects under 5 acres, DLNR will issue a one-time payment equal to the HCIP over the fifteen year contract agreement. This will allow the producers to receive their full payment under the program and cut down the administrative cost of the HCIP.

- Consultation with the State Historic Preservation Office is required for CREP projects that may impact historical or cultural sites through their management of the area. DOFAW was originally designated to consult with this office, however; upon further review, the already established relationship between NRCS/FSA and the State Historic Preservation Office may be a better avenue for this consultation.
- With two CREP contracts nearing completion, concern was expressed about the State of Hawaii CREP Agreement condition that requires producers to carry at least \$1,000,000 in liability insurance for the duration of their CREP project. This requirement may unnecessarily limit producer enrollment in the program, especially on smaller scale projects.
 - The Committee recommends that the State review whether this condition is a necessary for the Hawaii CREP. The USDA contract agreements for Hawaii CREP do not require producers to carry insurance for entrance into the program.
- The Hawaii CREP producer sign-up date began on April 1, 2009. To date, no contracts have been completed. Approximately 20 producers with a total 1300 acres have expressed interest in the program; two producer contracts are ready for signature and the other 18 applicants awaiting completion of their Conservation Plans.
 - The Committee recommends that FSA and NRCS discuss how to improve this process in order to get producers enrolled in the program.
- The initial enrollment and interest in Hawaii CREP was good, with all of the current producers signing up within the first couple of months of open enrollment. A press release was originally planned to announce the addition of another 3000 acres available for Hawaii CREP enrollment on Maui and Hawaii Island; however as the program does not currently have any contracts completed, the Committee recommended that the program forego the press release. Instead, additional outreach is planned for local agricultural groups and organizations to encourage enrollment into CREP.
- The State of Hawaii, Department of Hawaiian Homes Land (DHHL) is very interested in enrolling a portion of their managed lands into the Hawaii CREP. The DHHL manages a portion of State lands for the betterment of the Hawaiian people under both direct leases to Hawaiian descendents and for agricultural and cultural products for Hawaiian people. DHHL is currently exploring options for enrollment of their managed lands under Hawaii CREP, including enrollment of lands under DHHL for only the available cost-share portion of the program or through lease agreements on lands eligible for Hawaii CREP to an appropriate entity. They are also exploring getting recognition as a tribal entity by the U.S. Government.

HAWAII CREP GOALS & MONITORING PROGRAM

10% reduction in sediment and nutrient runoff into streams, from current levels

Stream monitoring and progression toward goals, as stated in the Hawaii CREP proposal, can be difficult to estimate, especially across six islands. However, accompanying water quantity benefits achieved through CREP are critical to ensuring Hawaii maintains an adequate supply of fresh water. For reporting purposes under Hawaii CREP, the State will utilize ongoing water quality monitoring programs by the Hawaii Department of Health's (HDOH) Clean Water Branch and Environmental Planning Office as well as additional monitoring efforts by the University of Hawaii and DLNR's DOFAW and Division of Aquatic Resources (DAR).

The HDOH monitors water bodies that are known to be water quality impaired in watersheds across the state. HDOH also compiles information from other agencies and organizations in their water quality monitoring efforts and provides reports on the status of State surface waters. Per the 2006 State of Hawaii Water Quality Monitoring and Assessment Report, as approved by the U.S. Environmental Protection Agency (<http://hawaii.gov/health/environmental/env-planning/wqm/wqm.html/>), the Hawaii Department of Health's 2006 303(d) List of Impaired Waters contains a total of 93 stream segments with seventeen new streams listed out of 376 perennial streams. The most common impairment was turbidity, with 101 segments exceeding limits. The next most common impairments were high levels of nitrite/nitrates, total nitrogen, and total phosphorus. Total Maximum Daily Loads (TMDLs) of pollutants are being developed for all water bodies on the List of Impaired Waters; identification of these streams will assist Hawaii CREP with identifying potential areas for more directed program outreach.

The University of Hawaii at Manoa's Center for Conservation, Research and Technology (CCRT), DOFAW, and Intelesense Technologies (<http://www.intelesense.net/>) have recently begun a small scale stream quality monitoring effort at four initial sites across Oahu, Kauai, and Maui. This project utilizes "smart technology" to transmit real-time data from on-site monitoring equipment to an internet based portal, which has the ability to process and display the collected data remotely. DOFAW and CCRT are exploring the use of this technology for deployment of monitoring equipment in remote locations to determine the current water quality of managed lands and restored sites over time. These efforts will ultimately determine if this technology will be able to be employed on CREP projects and will give the State an idea of impacts of current management efforts. To date, two sites have been launched on Oahu; one as a test bed for new equipment (Makiki) and one in a stream system associated with a relatively intact State-managed native forest (Poamoho). As this is largely a research and development project, both sites are currently offline awaiting better cell reception to transmit data.

5% increase in coral reef cover and substantial increases in coral diversity on coral reefs throughout the State, from current levels

Hawaiian coral reef health and diversity is dependent on a number of influences. Sedimentation from land based erosion and its associated turbidity impact are cited as some of the most common threats for Hawaiian reef systems. Recent work by the U.S. Geological Survey (USGS) on Molokai found that Kawela stream alone contributed 9,000 tons of sediment over a two year period. Furthermore, with trade wind pattern influence on the island, the sediment does not 'flush out' and fine sediment is resuspended almost daily. USGS, through their ongoing research on Molokai's southern reef system, has identified soil erosion control as the best management tool for both the nutrient and turbidity impacts on Molokai reefs (<http://pubs.usgs.gov/sir/2007/5101/>). Restoration of native communities on degraded agricultural lands as well as the exclusion of ungulates and other browsing animals are the primary methods Hawaii CREP aims to reduce the impact of sedimentation on reefs throughout the state. However, the results from restoration work many not be seen or fully understood for a number of years after installation of management practices. As there is no current comprehensive, state-wide water quality monitoring program on coral reef health and diversity, reporting for Hawaii CREP will utilize ongoing coral reef monitoring programs from the U.S. Geological Survey (USGS), DAR, HDOH, University of

Hawaii, the Local Action Strategy to Address Land-based Pollution, and the Coral Reef Assessment and Monitoring Program (CRAMP) (<http://cramp.wcc.hawaii.edu/>).

Results from monitoring programs throughout the State were correlated in the 2008 The State of the Coral Reef Ecosystems of the Main Hawaiian Islands Report (Friedlander et al). Major finds for this report that may relate to the goals of Hawaii CREP are included below:

- Sediment discharge is probably the leading land-based pollutant causing alteration of reef community structure in the main Hawaiian Islands.
- The HDOH 2006 303(d) List Of Impaired Waterbodies contains a total of 209 marine areas, 39 of which were recently added to the list. Turbidity was the most common pollutant to trigger a marine water listing with 154 occurrences. The HDOH believes these occurrences are due to polluted runoff from selected watersheds. (<http://hawaii.gov/health/environmental/env-planning/goals/indrpt2009.pdf>)
- Long-Term Monitoring programs includes sites in Hawaii that have been monitored for greater than 10 years and provide a historical perspective on coral reef change. The long-term trends in the majority of the stations (19 out of 27) showed a decline in percent coral cover over their respective study periods. Possible explanations for the major declines include reef slumping, eutrophication and sedimentation.

Additional monitoring for CREP enrolled acres is being explored with DAR, CRAMP, and local 'Reefcheck' organizations (volunteer community-based monitoring protocol to measure coral reef health).

10% increase and improvement of wildlife and plant habitats of at least 10 endangered species through restoration of native forest ecosystems and riparian buffers, from current levels

The State of Hawaii has the unfortunate recognition of having the most threatened and endangered species in the nation with 330 species listed (274 plants and 56 animals). Due to this large number the state and federal partners continue to work towards preserving and expanding these species through protection and restoration of their critical habitats. The Plant Extinction Prevention Program (PEP), which seeks to prevent the extinction of species that have fewer than 50 individuals remaining in the wild, and the wildlife management sections of DOFAW are the primary programs that focus on rare species recovery. The state also offers assistance to landowners for the purposes of expanding, protecting, and restoring endangered species and their habitat through the NAPP, FSP, and WP. Through these programs, as well as management of public lands, approximately 22 endangered plant species were out-planted or protected, and a total of 67 acres of habitat was improved for two endangered bird species, the Palila (*Loxioides bailleui*) and the Hawaiian petrel (*Pterodroma sandwichensis*). Other threatened or endangered species are also likely to have benefited from these reforestation efforts.

Federally Listed Plant Species Outplanted:

<u>Scientific name</u>	<u>Listed Status</u>
<i>Argyroxiphium kauense</i>	Endangered
<i>Argyroxiphium sp</i>	Endangered
<i>Bidens micrantha subsp. Kahealaha</i>	Endangered
<i>Clermontia lindseyana</i>	Endangered

<i>Clermontia peleana</i> subsp. <i>peleana</i>	Endangered
<i>Clermontia pyrularia</i>	Endangered
<i>Cyanea duvalliorum</i>	Species of Concern
<i>Cyanea platyphylla</i>	Endangered
<i>Cyanea tritomantha</i>	Candidate
<i>Cyrtandra tintinnabula</i>	Endangered
<i>Diellia erecta</i> f. <i>alexandri</i>	Endangered
<i>Diplazium molokaiense</i>	Endangered
<i>Flueggea neowawraea</i>	Endangered
<i>Gardenia remyi</i>	Candidate
<i>Gouania</i> sp.	Endangered
<i>Nothocestrum pletatum</i>	Endangered
<i>Phyllostegia hispida</i>	Endangered
<i>Phyllostegia mannii</i>	Endangered
<i>Phyllostegia warshaueri</i>	Endangered
<i>Phytolacca sandwicensis</i>	Species of Concern
<i>Pleomele hawaiiensis</i>	Endangered
<i>Psychotria hobdyi</i>	Proposed Endangered
<i>Remya kauaiense</i>	Endangered
<i>Scaevola coriacea</i>	Endangered
<i>Schiedea laui</i>	Endangered
<i>Sicyos macrophyllus</i>	Species of Concern
<i>Solanum sandwicense</i>	Endangered
<i>Trematolobelia grandifolia</i>	Species of Concern

Substantial reforestation of native vegetation in riparian buffer zones as well as rare and declining native habitats, from current levels

Reforestation efforts supported by the State of Hawaii are primarily through DOFAW’s public land management (FRS, NARS, and the Wildlife Section) as well as assistance programs, including FSP, NAPP, and WP. Accomplishments for these programs are accounted for in one of two ways: (1) acres of land reforested with native species and (2) number of individuals planted. During this reporting period, approximately 1977 acres were reforested with native species and approximately 36,000 native plants were planted across the state. Over 82 of these restored acres are classified as tropical dryland forests, which are considered rare and declining habitat for Hawaii under CREP.

Substantial increases in groundwater recharge through the planting of trees in upland pastures, from current levels

Most of the water supply in Hawaii depends on underground aquifers, which are replenished mostly by upper elevation forested areas. Upper elevation forests contribute to total available water through interception of water droplets from clouds that blanket the mountains daily. Increasing tree cover and forested areas in upper elevation degraded lands across the State will contribute to water availability and groundwater recharge. For the reporting purposes of Hawaii CREP, acres of upper elevation reforestation and/or number of seedlings planted are documented from FRS and NARS management as well as the assistance programs of FSP, NAPP, and WP.

Approximately 1305 acres of upper elevation watershed were under active restoration management, and over 33,000 seedling were planted in the upper elevation areas.

Substantial reduction in and control of invasive species in watersheds within the CREP target areas and on enrolled marginal pastureland and cropland, from current levels.

Invasive species all over the nation can have negative impacts on the environment, health, and economy. In Hawaii, there is an ever present invasive species problem that affects overall environmental and human health, agricultural communities, and many of the State’s endangered species. The Invasive Species Committees (ISC) represent the primary program focused on the control and eradication of incipient invasive species across the State. The Committees are island-based partnerships of government agencies, non-government organizations, and private businesses working to protect each island from the most threatening invasive pests. Each ISC partnership has a paid staff and field crew to implement rapid response and control plans. Other state supported programs also contribute to the control of invasive species including NAPP, FSP, NARS, FRS, and WPs.

The accomplishments for these programs are accounted for in one of two ways: (1) acres of land surveyed, monitored, and controlled for invasive species and (2) number and type of invasive species removed or controlled. During this reporting period, approximately 102,000 acres were managed for invasive species control. Over 321,000 individuals of 58 different species were removed or controlled across the State.

Invasive species removed or controlled:

<u>Common Name</u>	<u>Scientific name</u>
Albizia	<i>Falcataria moluccana</i>
Australian tree fern	<i>Sphaopteris cooperi</i>
Banana bunchy top virus	BBTV
Banana poka	<i>Passiflora mollissima</i>
Banyan	<i>Ficus benghalensis</i>
Barbados gooseberry	<i>Pereskia aculeata</i>
Black bamboo	<i>Phyllostachys nigra</i>
Black wattle	<i>Acacia mearnsii</i>
Bo tree	<i>Ficus religiosa</i>
California grass	<i>Brachiaria mutica</i>
Cape ivy	<i>Delairea odorata</i>
Cattails	<i>Typha latifolia</i>
Christmas berry	<i>Schinus terebinthifolius</i>
Common guava	<i>Psidium guajava</i>
Cuban oergano	<i>Plectranthus ambonicus</i>
Devils backbone	<i>Bryophyllum diagremontianum</i>
Faya tree	<i>Myrica faya</i>
Ficus	<i>Ficus spp</i>
Fireweed	<i>Erechtites valerianifolia</i>
Fountain grass	<i>Pennisetum setaceum</i>
Giant reed	<i>Arundo donax</i>
Gorse	<i>Ulex europaeus</i>

Guinea grass	<i>Panicum maximum</i>
Himalayan blackberry	<i>Rubus discolor</i>
Himalayan raspberry	<i>Rubus ellipticus</i>
Ironwood	<i>Casuarina equisetifolia</i>
Ivy gourd	<i>Coccinia grandis</i>
Java plum	<i>Syzygium cumini</i>
Kahili ginger	<i>Hedychium sp</i>
Karaka nut	<i>Corynocarpus laevigatus</i>
Kiawe	<i>Prosopis spp</i>
Koa haole	<i>Leucaena leucocephala</i>
Koster's curse	<i>Clidemia hirta</i>
Lantana	<i>Lantana camara</i>
Light brown apple moth	<i>Epiphyas postvittana</i>
Mexican sunflower	<i>Tithonia diversifolia</i>
Mexican Tree poppy	<i>Bocconia frutescens</i>
Miconia	<i>Miconia calvescens</i>
Milk thistle	<i>Silybum marianum</i>
New Zealand flax	<i>Phormium tenax</i>
Pampas grass	<i>Cortaderia selloana & jubata</i>
Passionfruit	<i>Passiflora coccinea</i>
Pickleweed	<i>Batis maritima</i>
Plume poppy	<i>Macleaya cordata</i>
Privet	<i>Ligustrum sp</i>
Rose apple	<i>Syzygium jambos</i>
Rubber vine	<i>Cryptostegia grandiflora</i>
Silk oak	<i>Grevillea robusta</i>
Smoke bush	<i>Buddleja madagascariensis</i>
Spanish heath	<i>Erica lusitanica</i>
Sphagnum moss	<i>Sphagnum sp</i>
Stinging nettle caterpillar	<i>Darna pallivitta</i>
Strawberry guava	<i>Psidium cattleianum</i>
Tibouchina	<i>Tibouchina herbacea</i>
Tumbleweed	<i>Salsola tragus</i>
Thimbleberry	<i>Rubus rosifolius</i>
Veiled chameleon	<i>Chamaeleo calyptratus</i>
Wax myrtle	<i>Morella cerifera</i>

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