

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Ecosystem

- Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 112 | Watershed Protection and Management | 10% | | 10% | |
| 123 | Management and Sustainability of Forest Resources | 10% | | 10% | |
| 124 | Urban Forestry | 30% | | 30% | |
| 125 | Agroforestry | 30% | | 30% | |
| 132 | Weather and Climate | 10% | | 10% | |
| 136 | Conservation of Biological Diversity | 10% | | 10% | |
| | Total | 100% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2014 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 3.5 | 0.0 | 1.2 | 0.0 |
| Actual Paid | 4.6 | 0.0 | 2.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 143865 | 0 | 51020 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 143865 | 0 | 51020 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

ASCC will collaborate with partners at Department of Marine and Wildlife Resources to establish mangrove plantings on degraded watersheds and coastal areas. This will involve the Forestry Researcher to determine which mangrove species to propagate and the best methods for greenhouse propagation. Also, this will involve the propagation and care of mangrove plants by Forestry Extension.

ASCC will conduct site visits on private/communal/public land, meet with landowner/land manager, and write-up a multi-year stewardship plan (including proper urban tree care) for each site. The Forest Researcher and Extension personnel will work together to visit the sites, meet with stakeholders, and form a comprehensive management plan specific for each site. ASCC will hold community outreach events (e.g., in schools and villages) to teach youth about the importance of ecosystem health, urban trees, etc.

Forestry Extension personnel will continue to propagate and distribute seedlings of agroforestry plants to the general public. The Forest Researcher will conduct research on the best propagation techniques, soil medium, etc., for specific species, and Extension personnel will propagate and care for the plants and promote their use by land owners and land managers.

ASCC will conduct site visits on private/communal land with invasive species concerns and write-up management plans for specific sites and for specific invasive plant species. The Forest Researcher will research the proper techniques for effectively managing invasive plant species, and the Extension personnel will disseminate this knowledge to the landowner/land manager.

2. Brief description of the target audience

- Scientists involved in environmental resources protection.
- Policymakers in the Executive and Legislative branches of local government.
- Students.
- Farmers.
- Forestry clients.
- General public.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2014 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 0 | 0 | 0 | 0 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2014 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of improved watersheds and coastal areas.

| Year | Actual |
|------|--------|
| 2014 | 3 |

Output #2

Output Measure

- Number of landowners with forest stewardship plans.

| Year | Actual |
|------|--------|
| 2014 | 10 |

Output #3

Output Measure

- Number of youth educated about the importance of ecosystem health.

| Year | Actual |
|-------------|---------------|
| 2014 | 2818 |

Output #4

Output Measure

- Number of fruit trees propagated and distributed through the Tree of Life nursery.

| Year | Actual |
|-------------|---------------|
| 2014 | 279 |

Output #5

Output Measure

- Number of sites with invasive plant management plans.

| Year | Actual |
|-------------|---------------|
| 2014 | 2 |

Output #6

Output Measure

- Number of water samples analyzed for bacterial contamination and Total Dissolved Solids.

| Year | Actual |
|-------------|---------------|
| 2014 | 0 |

Output #7

Output Measure

- Number of schoolchildren informed about watershed protection.

| Year | Actual |
|-------------|---------------|
| 2014 | 2818 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Improved watersheds and coastal areas |
| 2 | Forest Stewardship Plans |
| 3 | Youth education workshops |
| 4 | Propagation and distribution of fruit trees |
| 5 | Invasive plant management plans |
| 6 | Coliform and E. coli tests and Electrical Conductivity analyzes (for TDS) |
| 7 | Visits to public and private elementary and middle schools |

Outcome #1

1. Outcome Measures

Improved watersheds and coastal areas

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2014 | 3 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Stream littering such as pig wastes, trash, sedimentation, invasive species, soil erosion, and human activities are major threats and challenges to fresh water quality in American Samoa. These threats also affected fresh water fish, mangroves, marine life and coral reefs. American wetlands, including coastal mangroves and fresh water marshes, are threaten by filling for development and by sedimentation and nutrient overload from agro forestry.

What has been done

Conducted 23 workshops on conservation, climate change, and land management planning of how to be good stewardess. The programs also provided technical assistance, and building partnerships with villages, landowners, and environmental government agencies.

Results

Forestry program established partnership with the villagers. Landowners were able to continue watershed monthly cleanup. Partnership and collaboration with other environmental agencies to provide outreach services for the community.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 136 | Conservation of Biological Diversity |

Outcome #2

1. Outcome Measures

Forest Stewardship Plans

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2014 | 10 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

American Samoa continues to depend on the forest to provide food and sustainable resources. With climate change issues as sea level rises and rising temperature in the ocean and scorching heat, the island of American Samoa continues to see the importance of being good stewards toward lands by restoring their native forests and reforesting barren lands. Invasive plant species has threatened and invaded the forests which is affecting the native flora and fauna and posing a threat to the habitats of native plants and animals.

What has been done

Forestry program provided natural resources assistance to the landowners' including technical and educational support. The programs also conducted workshops and activities with landowners to maintain good care of their forestland and identifying invasive species.

Results

Landowners and farmers are working cooperatively with the program in managing their forestland and related issues. Forestry program have developed new management plans for ten Landowners. Forest Stewardship staff continues to work closely with GIS specialist in obtaining and conducting survey of forest landowners.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |

| | |
|-----|--------------------------------------|
| 124 | Urban Forestry |
| 125 | Agroforestry |
| 132 | Weather and Climate |
| 136 | Conservation of Biological Diversity |

Outcome #3

1. Outcome Measures

Youth education workshops

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2014 | 35 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

People are constantly littering the streams and watersheds, damaging watershed and fresh water quality. Forest areas have been clear out by human activities and building development. Exotic plants are growing rapidly replacing native trees. In addition, rising of sea level and scorching heat continues to be life threatening to American Samoa. Workshops are very important to educate and to inform the community of how important natural resource and the surrounding environment is to daily lives.

What has been done

The programs conducted 23 workshops on conservation education, climate change, and land management activities with landowners. 12 conservation education workshops were conducted in the schools. All workshops were to educate, support and strengthen the communities management planning and implementation of coastal stabilization, traditional forestry practices, sustainable use of natural resources, and maintaining a healthy rainforest.

Results

The program registered 10 new landowners and distributed 969 natives and non-native trees to landowners, school tours, and walk-in individuals.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 124 | Urban Forestry |
| 125 | Agroforestry |
| 132 | Weather and Climate |
| 136 | Conservation of Biological Diversity |

Outcome #4

1. Outcome Measures

Propagation and distribution of fruit trees

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2014 | 114 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a need in American Samoa to increase consumption of fruit trees to address the many non-communicable diseases. Parents continued to be concerned about children not consuming enough fruits and vegetables.

What has been done

The Ag. Extension Program continued to multiply and distributed recommended varieties of fruit trees to farmers, homemakers, students, and interested residents. The "Fruits of Life" greenhouse is used for multiplication of fruit-tree planting materials, and a teaching lab for Agricultural students and farmers on methods of asexual propagation.

Results

In 2014, the staff propagated 279 Fruit seeds and distribute 114 seedlings. 76 people were growing budded/grafted fruit trees in their backyard.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 124 | Urban Forestry |
| 125 | Agroforestry |
| 132 | Weather and Climate |
| 136 | Conservation of Biological Diversity |

Outcome #5

1. Outcome Measures

Invasive plant management plans

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2014 | 2 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In 2012, a State-wide Assessment and Strategies for Forest Resources (SWARS) identified the rapid growth and spread of exotic invasive plants in American Samoa rainforest. Invasive species are destroying and replacing native plants, and it's one of the greatest threat to American Samoa's rainforest.

What has been done

The Cooperative Forest Health Protection and Invasive Plants Management Project focused on two infested invasive species sites. Of the 40 acres surveyed, an estimated 30 acres still require treatment. The program have collected data, apply herbicide, and mechanically remove unwanted

plants. The field agents continues to conduct maintenance work to the infected sites.

Results

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 124 | Urban Forestry |
| 125 | Agroforestry |
| 132 | Weather and Climate |
| 136 | Conservation of Biological Diversity |

Outcome #6

1. Outcome Measures

Coliform and E. coli tests and Electrical Conductivity analyzes (for TDS)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2014 | 0 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 124 | Urban Forestry |
| 125 | Agroforestry |
| 132 | Weather and Climate |
| 136 | Conservation of Biological Diversity |

Outcome #7

1. Outcome Measures

Visits to public and private elementary and middle schools

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2014 | 12 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It important to build ad develop the youth knowledge, interests, and their mindsets at an early age on why trees and natural resources are important to daily lives and the future.

What has been done

Conducted 35 workshops on conservation, climate change, and land management planning. Educated the youth on how to be good landowners in the future and take full responsibility for their actions. Conducted 12 outreach workshops for the schools to educate in Forestry Health, Forest Stewardship, and Urban Forestry. Tree planting activities were conducted around school campuses.

Results

Forestry Program were able to establish 3 new greenhouse nurseries at three different schools. Schools were provided with native trees for coastal plants, beautification plants, and medicinal plants. Staff continues to work with the schools to maintain a healthy greenhouse nursery.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 124 | Urban Forestry |
| 125 | Agroforestry |
| 132 | Weather and Climate |
| 136 | Conservation of Biological Diversity |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Staff and/or funding changes, Ch)

Brief Explanation

American Samoa's limited land area, invasive species, agriculture and economic development had affected programming and outcomes. Out of 34,082 acres of land on Tutuila island, only 18,000 acres have less than 45% slopes. Land for development and agriculture are limited. Many landowners do not have any existing management plans to care for and manage their own lands. The spread of exotic invasive species throughout the island, population increase, and climate change will negatively impact the future of forests and natural resources in American Samoa.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In FY 2014, the Forestry program conducted workshops and activities that directly reached 2818 residents of American Samoa. The forestry together with participants were able to plant trees for climate change and energy sustainability. Based on the feedback, clients are satisfied but there is still a need to understand more about climate change and sustainable energy. Program evaluation indicated the following:

- Program staff should be more visible in the community to assist and encourage landowners to plant more native trees to address climate change.
- Continue to work with village councils to manage watersheds and coastal areas.
- Extend the program to Aunu'u and Manu'a
- Hire more professional staff.

Key Items of Evaluation