Report for 2002VI1B: Environmental Education and Hands-on Training on Mangrove Restoration Techniques

There are no reported publications resulting from this project.

Report Follows:

Summary Report on

Environmental Education and Hands-on Training on Mangrove Restoration Techniques

Problem and Objectives

Mangrove wetlands provide an important buffer between land and coastal marine communities. They slow the flow of stormwater, filter runoff, and help remove destructive pollutants before they enter fragile coastal environments. Unfortunately, the number of mangrove areas in the Virgin Islands has significantly declined in the last fifty (50) years because mangrove ecosystems have been routinely bulldozed to make space for marinas and other coastal developments. Additionally, hurricanes have also taken their toll on these wetlands.

Although mitigation has decreased the rate of mangrove habitat loss, limited awareness and a poor understanding of the role played by mangroves continue to hinder these efforts. There is a need to increase local awareness of the importance of mangroves in the Virgin Islands and to demonstrate the benefits of restoring lost or damaged wetlands.

The objectives of the project are to train a target group of ten (10) high school students on mangrove restoration techniques, and to increase awareness of the function of mangroves in reducing non-point source pollution.

Methodology and Accomplishments

In order to achieve the objectives the staff of the Center for Marine and Environmental Studies (CMES) first solicited for student interns to assist with the project (May 2002). Putting a notice in the newspaper to alert high school students of the opportunity did this. As a result, several students were given an orientation/training session on wetlands, mangroves and the project (June 2002). Students were then given an on-site training session at the University of the Virgin Islands (UVI) Wetlands and the area to be restored was identified (June 2002).

The students assisted with the first mangrove planting in July 2002 by planting fifty (50) red mangroves at the site. They also collected two hundred (200) black mangroves and planted them in tree cones using a media of mud from the site and potting soil. The germination rate was low, so additional seeds were planted in a media composed of a higher percentage of potting soil. These seeds grew well and were put in the UVI greenhouse for several weeks (July 2002-Sept. 2002). After the black mangrove seedlings were about six (6) inches tall, they were removed from the greenhouse and exposed to a greater amount of sunlight in an attempt to "harden" them to full exposure

(Oct. 2002). The black mangrove seedlings were planted at the site in Dec. 2002 and Jan. 2003.

Part of the program was to teach students how to conduct tours at the UVI wetlands. This reinforced what they learned and also allowed other students to see their peers doing outreach activities.

Students were given a training session on how to conduct wetland tours at the site and got an opportunity to watch and assist with the tours. The students then conducted tours while Center for Marine and Environmental Studies (CMES) staff watched. The students were enthusiastic and seemed to enjoy the experience of giving tours (July 2002).

As an additional outreach component to this project a website was developed where basic information on the project can be found (http://rps.uvi.edu/VIMAS/wriipage.html).

Principal Findings

Monitoring conducted at the site showed that only a few red and black mangrove seedlings had survived the transplant. A subsequent planting with differing conditions (different elevations, level of shade) showed similar results (Jan. 2002).

Based on these results, additional research was done in an attempt to find a way to increase mangrove survival at the site. The question was put out on the mangrove discussion list and several responses were received. In addition, contact was made with individuals who had been involved with mangrove restorations and discussed our results with them. All researchers suggested an alternative approach to black mangrove planting. They suggested that hand broadcasting of seeds be done repeatedly rather than starting the plants growing in the greenhouse. They indicated that a low survival rate should be expected, less than ten percent (<10%), which has still a higher survival rate than trying to transplant them. It was determined that transplanting easily shocks black mangroves and therefore survival is often low.

Because of the findings, a decision was made to request an extension of the grant in order to do additional plantings. Although the transplant results were a bit disappointing, the enthusiasm and initiative shown by the interns was inspiring. Thus the requested no-cost extension will also make allowance for the recruitment a new group of local high school students to this project and provide additional opportunities in conservation techniques for Virgin Islands youth.

Future Plans/During Extension Period (Feb. 2003-Aug 2003)

- Identify additional interns available (Feb. 2003 – March 2003)
- Collect and plant black and red mangrove seeds/propagules (March 2003)
- Monitor success of seedlings (March 2003)

- Collect additional seeds/propagules as needed
- Monitoring seedlings (March 2003-Aug.2003)

Train interns about UVI Wetlands (March 2003-April 2003)
Run Wetland tours with interns (March 2003-Aug. 2003, based on availability of tours)
Final report (Aug. 2003)

Students involved with the project to date and academic level

Name	Grade	School
Lamin Jackson	9	Good Hope School
Daniel Hodge	11	Educational Complex
Amaris Chew	10	Educational Complex
Candace Cornwall	10	Educational Complex
Michael Camacho	12	Central High School
Manuel Camacho	11	Central High School
Amalee Lockhart	12	Educational Complex