Control and Eradication of the Invasive Plant Species
Chromolaena Odorata

October 1, 2012—September 30, 2013

OISC field crew surveying for Devil weed (*Chromolaena odorata*) in Kahuku
Summary of Project Objectives

The O‘ahu Invasive Species Committee (OISC) was founded by a concerned group of citizens and land managers volunteering their weekends to control fountain grass and miconia on O‘ahu. Since then, OISC has grown into a partnership of federal, state and municipal agencies with a full-time field crew that works across all land ownerships.

OISC now systematically controls the island’s most damaging forest invaders, employs 13 people and educates the public about forest health and invasive species. OISC’s partners include the Hawai‘i Department of Land and Natural Resources/Division of Forestry and Wildlife, Honolulu Board of Water Supply, Hawai‘i Department of Transportation, Hawai‘i Department of Agriculture, Honolulu Botanical Gardens, and other state and federal agencies. The O‘ahu Army Natural Resources Program (OANRP) is a founding partner of OISC and one of OISC’s most supportive partners throughout its ten-year history. OISC is a project of the Pacific Cooperative Studies Unit of the University of Hawai‘i at Mānoa.

During the reporting period, OISC dedicated an average of 160 field hours a month except in January to the detection and control of Chromolaena odorata at Kahuku Training Area (KTA). OISC conducts monthly camping trips to reduce work time committed to commuting to the work site and increase efficiency in logistics. OISC works with OANRP to acquire access using KTA’s range control protocols. The initial work was focused on surveying outside the known infestation area to determine the boundaries of the C. odorata population within KTA. It was thought that once the boundaries were known, OISC would prioritize treating C. odorata along motocross trails since these trails present the highest threat of spreading outward.

OANRP staff observed that C. odorata tends to set seed between January and March so control will be weighted to happen between April and December to minimize the chance that control work will inadvertently spread this species.

OISC also conducts survey and control efforts outside the property boundaries of the Kahuku training area. The OISC outreach specialist obtains permission from private landowners on the northwestern side of KTA to survey and control populations on their properties. These efforts complement work efforts on KTA to prevent the spread of C. odorata to other locations on the island. Non-OANRP funds are supporting this work.
**PROJECT ACCOMPLISHMENTS: October 01, 2012 — September 30, 2013**

*Chromolaena odorata*, also known as Devil weed, is a state-listed noxious weed, toxic to other plants, livestock and humans, possesses the ability to root vegetatively, produces up to 800,000 wind-dispersed seeds a year and is a fire promoting species that forms dense, monotypic stands of vegetation. The OANRP discovered *Chromolaena odorata* at the Kahuku Training Area (KTA) on the north shore of Oahu in January 2011. The Biological Opinion for military activities on O‘ahu requires the Army to respond immediately to incipient weeds brought in via training operations. What is currently known about *C. odorata* supports the assumptions that the center of the population is the Kahuku Training Area and that *C. odorata* was introduced to KTA as a result of military activities:

Between 2006 and 2009, botanical surveys of all publicly accessible roads on O‘ahu were conducted by OISC’s O‘ahu Early Detection program. *C. odorata* was not found during these surveys. This means that it is unlikely *C. odorata* was introduced somewhere else and dispersed onto KTA. *C. odorata* is a major pest on the island of Guam, and units from Hawai‘i sometimes train in Guam. The seeds are wind dispersed and readily attach to clothing. One plant can produce approximately 800,000 seeds a year. Given these factors, it is highly likely the pathway of introduction was military activities.

OISC conducts survey and treatment for Devil weed in the Kahuku Training Area in partnership with the Hawai‘i Department of Agriculture and the O‘ahu Army Natural Resources Program. The OISC field crew conducted delimiting surveys to determine population distribution and density in the Kahuku region. Monthly camping trips averaged 160 fieldwork hours except in January when the work trip was cancelled due to military training. During the reporting period, OISC staff dedicated 2347 personnel hours surveying 788 acres, treating 1193 mature and 1778 immature plants totaling 2971 plants in the Kahuku Training Area.

**CHALLENGES**

There were a few challenges noted during the year of treatment. The primary challenge to a successful eradication in the KTA region is the logistics of spraying the infestation area. Logistical challenges include the actual acreage needed to spray, lack of access to a water supply, steep, uneven terrain, and multiple equipment failures. KTA is extremely hot and dry in the summer months which limits productivity and may be a be a potential safety hazard. While conducting ground surveys, the invasive vegetation, like small vines in the Passifloraceae family, create impenetrable ground cover. There are several large populations of Devil weed growing in inaccessible areas that make it nearly impossible to treat plants. Two of these hotspot location are known as Kaunala cliffs or the View. The final concern is proper decontamination of field gear and vehicles. There is inconsistent access to fresh water in KTA to rinse gear on site. The washing station has not been fully functional for most of the year and is often difficult to schedule use. A few of these challenges are being addressed. OISC plans to reduce its survey and control work during the hottest months of the year, July and August. OANRP is lending support staff and
equipment to treat difficult to reach hotspots. OISC will be incorporating a large power sprayer into its control methodology to assist in control efforts as well.

Table 1: OISC *Chromolaena odorata* Work Effort Summary
October 1, 2012 - September 30, 2013

<table>
<thead>
<tr>
<th>Location</th>
<th>Acres Surveyed</th>
<th>Mature Plants Treated</th>
<th>Immature Plants Treated</th>
<th>Total Plants Treated</th>
<th>Effort (Hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KTA</td>
<td>788</td>
<td>1193</td>
<td>1778</td>
<td>2971</td>
<td>2347</td>
</tr>
<tr>
<td>Private Property</td>
<td>335</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>112</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1123</strong></td>
<td><strong>1193</strong></td>
<td><strong>1780</strong></td>
<td><strong>2973</strong></td>
<td><strong>2459</strong></td>
</tr>
</tbody>
</table>

Figure 1: OISC *Chromolaena odorata* Work Effort in Kahuku Training Area
October 1, 2012 - September 30, 2013

**DATA MANAGEMENT**

OISC tracks its survey and control efforts in ACCESS and ArcGIS databases. It uses this data to plan field operations and report on progress. The OISC field crew completes field forms daily and is trained in the use of ARCPad and ArcGIS programs and the OISC ACCESS database. The OISC Operations Planner and Data Analyst compiles and analyzes data collected in the field to assess survey buffer areas, work effort and if target work goals are being met.
PUBLIC EDUCATION & OUTREACH
OISC's outreach specialist hosted an informational booth at Agriculture Awareness Day and the Hawaii Invasive Species Awareness week events at the State Capital, at the Bishop Museum's Science Alive event and the Landscape Industry Council of Hawaii conference highlighting the potential impact of *C. odorata* and other invasive species. OISC is working with the Hawaii Motocross Association and Mountain Bike Association on Oahu to conduct outreach to the motocross community that utilizes the Kahuku area. The OANRP and OISC outreach staff created an informational flyer that included a map of the Kahuku trail system to hand out to motocross racers at the June HMA Hare Scramble race event. The OISC manager was interviewed about the Devil weed infestation in Kahuku by Hawaii News Now in September.

OTHER
The OISC field crew conducted surveys in Kahana Valley for Devil weed over 18 acres in May. These surveys were to verify a creditable report of a satellite population of Devil found by botanist from Lyon Arboretum. During the initial delimiting survey, 26 immature plants were controlled using chemical methods.

In early August, the *Chromolaena odorata* Working Group (COWG) formed and is comprised of individuals from the Hawaii Department of Agriculture, Oahu Army Natural Resource Program, the University of Hawaii and the Department of Land and Natural Resource Division of Forestry and Wildlife. This working group was formed in response to additional sighting of Devil weed in Kahana Valley and Schofield Barracks. OISC had several staffing transitions and recruitments during this reporting period. OISC recruited two Invasive Species Field Associates an Operations Manager, and a Fiscal and Program Associate. The OISC Outreach Specialist resigned at the end of September and OISC hopes to find a replacement before the end of December.

COMPLIANCE
OISC is a project of the Pacific Cooperative Studies Unit through the Research Corporation of the University of Hawaii, an equal opportunity employer. OISC utilizes RCUH and PCSU standard operating procedures and employee guidelines. OISC employees are trained in wilderness first aid, off-trail hiking safety and pesticide safety.