Tri-Isle Resource, Conservation & Development Council, Inc.
Maui Invasive Species Committee (MISC)

Miconia / Invasive Species Containment
Progress Report
July 1 – December 31, 2004

Submitted to the
Maui County Department of Water Supply
March 18, 2005
SUMMARY OF PROJECT OBJECTIVES AND RESULTS

Funds from the County of Maui Department of Water Supply allowed the Maui Invasive Species Committee (MISC) to make significant progress controlling the most serious plant threats on Maui. Using the 728 square-mile island of Maui as a Weed Management Area, MISC surveyed and controlled the following priority target species: miconia (Miconia calvescens), pampas grass (Cortaderia jubata and C. selloana), fountain grass (Pennisetum setaceum), ivy gourd (Coccinia grandis), giant reed (Arundo donax), and rubber vine (Cryptostegia grandiflora) and downy rose myrtle (Rhodomyrtus tomentosa). MISC continues to monitor locations of four other target species: Jerusalem thorn (Parkinsonia aculeata), Malabar melastome (Melastoma candidum), yellow Himalayan raspberry (Rubus ellipticus), and a chenopodium (Enchylaena tomentosa). These invasive plants threaten Maui’s major watersheds, its resource-dependent economy, and its unique and vulnerable native ecosystems, which contain 79 endangered or threatened plant species and many more species of concern.

County funds are highly leveraged. MISC’s work also benefits from the funding and/or cooperation of other partners, including: Haleakala National Park (NPS), the Pacific Islands Exotic Plant Management Team (NPS-PIEPM), U.S. Geological Survey-Biological Resources Division (USGS/BRD), U.S. Fish and Wildlife Service (FWS), USDA Forest Service (USFS), Hawaii Department of Land and Natural Resources (DLNR), Hawaii Department of Agriculture (HDOA), University of Hawaii, The Nature Conservancy of Hawaii (TNC), East Maui Watershed Partnership, and Maui Land & Pineapple Co. (ML&P).

During the project period, MISC conducted ground and aerial surveys to locate and map target species. Field crew used mechanical and/or chemical methods to control and remove target plants on the ground. Aerial spot-spraying was used to treat otherwise inaccessible plants. Approximately 53,000 invasive plants were removed or treated. Many thousands of acres of natural areas on Maui were protected from the further spread of these targeted invasive species.

PROJECT ACCOMPLISHMENTS: JULY 1, 2004 – DECEMBER 31, 2004

PRIORITY PLANT SPECIES

Miconia (Miconia calvescens)

- A crew of seven invasive species field workers, based in Hana, continued to focus exclusively on control of miconia. A crew of five to six field crew members, based in Makawao, worked approximately half time on miconia.
- Crew treated newly-discovered miconia infestations and re-treated areas where new plants were emerging from established seed banks. Treatment included aerial spot-spraying of individual trees and on-the-ground manual or chemical control.
- Aerial spray operations, supported by funding from the National Park Service, continued to successfully target miconia populations in both the core and outlying...
Infestations of the East Maui Watershed. Aerial spray operations were scheduled for four days a month over the project period, with two helicopters operating simultaneously. The helicopter operations allowed crews to cover nearly 4,000 acres for both survey and control activities.

- Aerial and ground management units were used to help ensure thorough coverage and to provide meaningful information during revisits. Ground crews found and controlled over 38,000 miconia plants.
- Continued aerial reconnaissance is needed to detect miconia in and near outlying populations. Helicopter reconnaissance is especially useful in areas where mature trees are emerging through dense vegetation and difficult to detect from the ground.

**Pampas grass** (*Cortaderia jubata & Cortaderia selloana*)
- MISC focused on inventoring and controlling pampas grass during the fall and early winter months when plants are flowering and easier to identify. Work began in July, ramped up during August and September, and continued into December. During this period, MISC surveyed 2,465 acres (1,315 by air and 1,150 by ground). Approximately 1,090 plants were controlled, including 111 mature plants.
- Survey and control work was aided by the participation of crews from Haleakala National Park and East Maui Watershed Partnership. These collaborative efforts allowed MISC to sweep large areas in upcountry Maui.
- MISC's efforts will continue to focus on West Maui and areas near the Waikamoi Preserve.

**Fountain grass** (*Pennisetum setaceum*)
- Fountain grass has been effectively controlled on Maui, with the infestation limited to a small number of sites. Because of established seed banks, surveys will need to continue for many years.
- On Maui, MISC surveyed approximately 19 acres for fountain grass and controlled 21 plants, only one of which was flowering.
- Additional surveys are needed on Lanai, where the extent of the fountain grass infestation is not accurately known.
- A single planting of fountain grass on Molokai was previously controlled and continues to be monitored.

**Ivy gourd** (*Coccinia grandis*)
- Ivy gourd infestations are located primarily in residential areas of South Maui and in and near a major golf course in West Maui.
- Control methods continue to be effective, but time consuming. MISC continues to explore ways to reduce the need to retreat infestations.
- During this period, MISC surveyed 619 acres and controlled 707 plants, of which 83 were flowering or fruiting.
Rubber vine (*Cryptostegia grandiflora*)
- MISC controlled 42 rubber vine plants, including 40 seedlings at a new location in South Maui.
- Revisits to known sites continue.
- Complete eradication is limited by landowner reluctance to allow control of remaining plants. Rubber vine continues to be a high priority for listing as a state-designated invasive species.

Giant reed (*Arundo donax*)
- MISC’s focus on giant reed has shifted to using a site-led strategy, concentrating on infestations that threaten wetland or other high-value natural areas and foregoing work on upcountry gulches. This decision was made based on the amount of time required to control giant reed and the relatively low threat to natural areas in upcountry Maui.
- During this period, MISC surveyed 117 acres and controlled 675 plants.

Downy rose myrtle (*Rhodomyrtus tomentosa*)
- Once-a-year surveys remain the appropriate interval to ensure that recruitment at previous infestations is being addressed.
- One plant was found and controlled during this period.

Other Targets
No new infestations were found of MISC’s other four invasive targets: Jerusalem thorn (*Parkinsonia aculeata*), Malabar melastome (*Melastoma candidum*), yellow Himalayan raspberry (*Rubus ellipticus*), and a chenopodium (*Enchylaena tomentosa*).

MISC continued to assess other potential targets for inclusion as priority weeds. In addition to the work described above, MISC targeted fourteen (14) species as part of a project supported by US Fish and Wildlife Service funding. Based on known distribution and feasibility of control, species were chosen as potentially eradicable, either from the entire island or from geographically distinct areas. MISC worked on the following species during this period:

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Latin Name</th>
<th>Island/Local</th>
<th>Acres Surveyed</th>
<th>Plants Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water wattle</td>
<td><em>Acacia retinoides</em></td>
<td>Island-wide</td>
<td>16.5</td>
<td>42</td>
</tr>
<tr>
<td>Bingabing</td>
<td><em>Macaranga mappa</em></td>
<td>Island-wide</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Parasol leaf tree</td>
<td><em>Macaranga tanarius</em></td>
<td>Local</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Fire tree</td>
<td><em>Morella faya</em></td>
<td>Local</td>
<td></td>
<td>130</td>
</tr>
<tr>
<td>Cape pittosporum</td>
<td><em>Pittosporum viridiflorum</em></td>
<td>Island-wide</td>
<td>79</td>
<td>127</td>
</tr>
</tbody>
</table>

PUBLIC EDUCATION & OUTREACH
- During this time period, MISC had display booths at the Maui County Fair (four days), and a booth at the Arbor Day celebration at Maui Nui Botanical Garden.
These events allowed MISC staff to talk directly with local citizens and community leaders about invasive species issues on Maui.

- A presentation was given to a Maui Community College class. MISC participated in the Hoike o Haleakala curriculum workshop for local high school teachers and spoke to two different community groups, the Maui Outdoor Circle and Upcountry Rotary. MISC also attended the reception for the new principal of Kamehameha School on Maui.
- MISC staff attended meetings of the Maui Association of Landscape Professionals (MALP) and participated in a MALP field trip to Keanae Arboretum.
- The second annual Malama i ka Aina award program for landscape professionals was co-sponsored by MISC, MALP and Maui County. The award was presented in November to a local arborist. MISC publicized the award program by meeting with industry groups, publishing newspaper articles, procuring paid advertising, and producing PSA spots.
- Press releases or newsletter articles produced during this time addressed the following topics: the Hoike o Haleakala curriculum workshop, the Hana snake search, results of the Malama i ka Aina Award, and benefits of early detection of invasive species.
- MISC’s other media activities included assisting with the production of a video on miconia by providing comments on a draft.
- MISC continued to provide administrative and fiscal support for the Molokai Subcommittee of MISC (MoMISC) and maintained close communication with the other island-based Invasive Species Committees, Big Island (BIISC), Oahu (OISC), and Kauai (KISC). MISC was active in the statewide Coordinating Group on Alien Pest Species (CGAPS), with two representatives on the CGAPS Steering Committee. MISC also participated in the Hawaii Invasive Species Council (HISC) Working Group on Public Outreach.

### Acres Protected, Surveyed and Monitored – July 1, 2004 – December 31, 2004

<table>
<thead>
<tr>
<th>Acres Protected:</th>
<th>Miconia</th>
<th>Pampas Grass</th>
<th>Fountain Grass</th>
<th>Ivy Gourd</th>
<th>Giant Reed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppression</td>
<td>100.87</td>
<td>0.025</td>
<td>0.005</td>
<td>0.58</td>
<td>0.15</td>
<td>101.63</td>
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<tr>
<td>Surveyed, Monitored:</td>
<td>5,429.16</td>
<td>2,465.34</td>
<td>19.11</td>
<td>619.10</td>
<td>117.22</td>
<td>8,649.93</td>
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<tr>
<td>Aerial</td>
<td>3,956.77</td>
<td>1,314.96</td>
<td>5,271.73</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ground</td>
<td>1,472.39</td>
<td>1,150.38</td>
<td>19.11</td>
<td>619.10</td>
<td>117.22</td>
<td>3,378.20</td>
</tr>
<tr>
<td>Total Acres:</td>
<td>5,530.03</td>
<td>2,465.37</td>
<td>19.11</td>
<td>619.68</td>
<td>117.37</td>
<td>8751.56</td>
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<tr>
<td>Plants Treated or Controlled:</td>
<td>50,459</td>
<td>1,090</td>
<td>707</td>
<td>675</td>
<td>52,952</td>
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<tr>
<td>Mature</td>
<td>425</td>
<td>111</td>
<td>83</td>
<td>1</td>
<td>621</td>
<td></td>
</tr>
<tr>
<td>Immature</td>
<td>50,034</td>
<td>979</td>
<td>20</td>
<td>624</td>
<td>674</td>
<td>52,331</td>
</tr>
</tbody>
</table>

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MISC Targets
- Miconia
- Pampas Grass
- Fountain Grass
- Ivy Gourd
- Giant Reed
- Rubber Vine
- Downy rose myrtle

Invasive Plant Targets of the Maui Invasive Species Committee