



arvae can grow to about 3.5 inches!

A Threat to Coconut Palms Submitted by: Lori Buchanan - Molokai/Maui Invasive Species Committee (MoMISC)

The invasive and destructive coconut rhinoceros beetle (Oryctes rhinoceros) was detected in Honolulu in December 2013 at the Joint Base Pearl Harbor - Hickam during a routine survey by Hawaii Department of Agriculture and the University of Hawaii-Hilo. Coconut Rhinoceros beetle (CRB) is native to Southeast Asia and distributed through the Western Pacific Region. CRB is a large scarab beetle that is a major pest of coconut palms. First found on Guam in the Tumon Bay area in September of 2007, by early 2012, this pest had spread to all urban/suburban areas, including military housing areas (Anderson AFB). Its spread was mostly through infested yard waste and compost/mulch, as well as in

rotting breadfruit/banana used for earth ovens in Samoa. Interisland transport of goods and people may account for long distance movement of this pest to Hawaii.

The rhinoceros beetle is considered a major pest of coconut palms (Cocos nucifera) and African oil palm (Elaeis guineensis). It can also be found in betelnut (Areca catchu), Pandanus (Hala) species, banana, pineapple, and sugarcane. Adult beetles bore into the crowns (tops) of coconut palms where they feed on sap. When a beetle bores through developing leaves, those leaves, grow out with distinctive V-shaped cuts. Adults damage living palms, either killing

the tree due to direct damage, or opening up

the tree to fatal damage from other insects or pathogens. On the Pacific Islands with no

natural enemies of this beetle, the damage can be extreme. In Palau, where the beetle

first invaded in 1942, the coconut palm was eradicated entirely on some islands, with

birds. Most of Guam's avian life was wiped out by another invasive species, the brown n

tree snake, which arrived around 1950. Birds, rats and mongoose, which were

introduced to Hawaii in the 19th century, might also prev on the beetles and larvae.

When beetles bore through developing leaves, they grow out with V-shaped cuts



Please help protect Molokai from CRB. If you see this beetle anywhere in Hawaii - call 643-PEST. On Molokai, call the Molokai/Maui Invasive Species Committee (MoMISC) at (808) 553-5236 ext. 6585. Mahalo Nui Loa! Kaulupa Adams, Darrell Aea, Akita Alapai, Ella Alcon, Kief Apo, Steven Arce, Jon Borden, Jennifer Brown, Aramis Buchanan, Rick Chong, Catherine Cluett, Eric Co, George Coelho, Juanita Colon, Patricia Crandall, Kealohapauole DelaCruz, Steve Eminger, Albert Espaniola, Lenora Espaniola, Bill Feeter, Mark & Coral Gonzales, Eddie Gorospe, Paul Graesser, Michael Grinnell, Evelyn Haase, Kaulunae Hamakua, Mililani & Alapai Hanapi, Harvey James, Darlene & C.Ted Johns, Kiloaulani Kaawa-Gonzales, Beverly Treat Kalilikane, AJ & lokewe Kalima-Moses, Kawika & Kaniela Kaupu, Cody & Conan Kawano, Joe & Joe Jr. Kitagawa, Tony Ladesma, Julie Leach, Brian Leer, Ikaika Lester, Chevy Levasa, Collin Lightfoot, Doug & Lil Macmillan, Margaret Marcom, Charles Miguel, Lorri Misaki, Jimmy Naki Jr., Cavlin Nelson-Angelsen, Vicky Newberry, Audrey Newman, Kamalani Pali, Diane Pike, Gandharva & Tammy Ross, Jonathan Smith, Yasemin Soares,

Gerard Starkey, Kathy Tachibana, Robert Takeo, Apelila Tangonan, Matt Tanielu, Kelly Townsend, Garrett Watanabe, Lloyd Yonemura, State Maui DoFAW crew, Atherton YMCA on Oahu, and the Mana'e Mauka Working Group-Pia Ward, Hano & Maile Naehu, Charles Miguel, Justin Luafalemana, Palmer Naki, Joshua Pastrana & Harmonee Williams, Ililani Sawyer, Lacey Phifer, Mililani Hanapi, and James Espaniola!



ATURE'S NEWSFLASH 2014 resources. If you would like to contribute information to our publication, please send it to The Nature Conservancy, P. O. Box 220, Kualapuu 96757. Let's all make a difference by **"Thinking globally, Acting locally"! April Issue** 



The 2014 Moloka'i Earth Day theme for this year is, "He Wa'a He Moku, He Moku He Wa'a." The theme describes how your island is like a canoe, surrounded by water, isolated and with limited resources. Zennie Sawyer of "Haku Designs" provided us with another beautiful design and it is featured on the Earth Day Tees. This year's "Malama Kuleana Honua" recipient is Moses "Moke" Kim. Moke is best remembered for leading the "Hana Kupono" program at Moloka'i High and Intermediate School and has inspired many of our island youths how to mãlama 'āina. For at least 10 years, part of Moke's program was inserting a natural history slide show given to every 7th grader and followed up with a field trip to Kamakou Preserve. We hope you will join us to congratulate Moses "Moke" Kim for his significant contributions to mãlama 'āina on Moloka'i.

You will be entertained by Moana's Hula Halau and the MoBettah Band. Many conservation exhibits will be there to bring awareness to our natural resources and what they are doing to protect and preserve it. There will be lots of prizes including the dry box from "D Man" (Dennis Keanini) and bicycle from the "Molokai Bike Shop" (Phillip Kikukawa)! There will also be lots of "ono" food! The Moloka'i Earth Day Celebration requires all the participating food booths to use environmental friendly food containers and utensils. Mahalo to all of our food booth vendors for complying!

There are so many people that have been engaged over the years with the task of taking care of our precious native natural resources and on behalf of the Conservancy, we would like to give a big Mahalo to all! I would like to also give a big MAHALO to all of our local vendors who help support the annual Moloka'i Earth Day!

Mahalo to the 2014 Earth Day Planning Committee: Cheryl Corbiel, Dan Bennett, Robert Bento, Dan Emhof, Diane Mokuau, Kali Arce, Mapuana Dudoit, Penny Martin, Emillia Noordhoek, Paul Hosten, Lori Buchanan, Ed Misaki, Brian Naeole, Russell Kallstrom, and Wailana Moses.

Did You Know... by: Stephanie Dunbar-Co, TNC East Slope Project Manager & Wailana Moses, TNC Weed Control Coordinator ....it takes about 20 years for a single drop of rain to reach our aquifer?! Lucky for us that we have the "ultimate water collector", the Hawaiian rain forest!

What is the Hawaiian Rain Forest? It is ancient forest made up of thousands of species that are native to Hawaii, more than 90% of which are found nowhere else in the world. How cool is that?!? These species have been working together in isolation for over a millennia and the balance they've achieved has allowed them to weather the cycles of drought and flood for hundreds of thousands of years. Their combined effort produces and supplies us with the most valuable thing on this planet: fresh drinking water! The Hawaiian rain forest is also a:



# The 2014 Moloka î Earth Day Celebration will be on Friday, April 18, 5–9 pm at the County Kaunakakai Ball Field!

By: Ed Misaki, TNC Molokai Program Director



Your canoe is like an island, an island is like your canoe.

• Giant Living Sponge—The more complex and diverse a forest is, the more enhanced its watershed functions will be. It's extraordinary multi-layered structure—tall canopy, secondary trees, shrubs and fern layers, ground-hugging mosses and leaf litter (see photo on page 2)—efficiently absorbs water and allows it to drip slowly underground and into our aquifer and streams. Even without rain, the forest can pull moisture from passing clouds. In Hawaii, this type of water catching or interception can push water capture above and beyond total annual rainfall by as much as 30 percent! • Conserver of water—The tall thick canopy shades out the sun, resulting in less water lost through evaporation and

#### (Continued from page 1)

transpiration. The dense vegetation blocks wind which pulls moisture from the land. The many layers of vegetation slows the fall of rain water and once the ground is Hawaiian voyaging canoe, Hawaiiloa, was saturated, buffer the release of stored water, reducing immediate flow in wetter built...created as much as possible from times and maintaining it in dry. Long after the rain stops, the forest will continue to native materials. During its make, the deliver fresh water for human use.

- **Reef Saver**—Without a healthy forest to anchor soil and slow the impact of heavy long search through the native forests of the rainfall, large amounts of soil will wash off our steep mountains and into the ocean. Big Island identified only two living koa trees polluting streams, destroying coral reefs and degrading coastal fishing resources. "If large enough for her hulls. For master the forests are healthy, so too are our reefs."
- Direct Link to the Hawaiian Culture—Hawaiian cultural traditions reflect a came as a shock, and he found that he long, intimate relationship with the native forests. Till today, the forest and its could not remove the trees from the forest. many gifts provided for the spiritual and material needs of the culture is celebrated Instead he traveled to the Pacific Northwest in chant, song, and dance. The land was the 'āina, or "that which feeds", and its rich where he asked two tribes of Native diversity helped shape, inspire and evolve the native culture and its traditions. Americans for a gift of two large spruce Hawaiians saw themselves as part of nature—as the youngest descendant of the trees. The experience instilled in Nainoa a 'aina, they were the caretakers, while the plants and animals were the older siblings strong conviction that preservation of the who showed them guidance. Today, the revival and even survival of an authentic native forest is fundamental to Hawaiian Hawaiian culture is tied directly to the preservation of the forests and the natural cultural revival. environment.
- Storehouse of Biological Riches—Sheltering over 10,000 unique species, more plant or bird or forest, we lose a living than 90% of which are found nowhere else on our planet, the Hawaiian rain forest is **part of our ancient culture.**" - Nainoa known world-wide as one of Earth's Biological Treasures. Hawaii has almost as Thompson, Polynesian Voyaging Society many types of native forests as there are U.S States, including the nation's only

Tropical rain forest. To this day, scientists are still cataloguing what lives in the native forests. A biologically diverse ecosystem plays a critical role in providing a healthy rich genetic pool which allows living things to survive by adapting to change, regulate climate and atmosphere, foods and medicine, purify water and air, and maintaining soil systems.

Where is the Hawaiian Rain Forest? There used to be many types of native Hawaiian forest systems covering the entire island from the top of the mountain all the way to the sea. Can you imagine 'Ohi'a lehua and sandalwood trees scattered throughout Kaunakakai?!? ...what a sight that must've been! Due to habitat loss and the continual introduction of non-native invasive weed and animal species, our Hawaiian forests continue to decline and disappear, and can only be found in the remote parts of our island. The most intact forests are found at the very top of the east Moloka'i mountains and in a few small pockets scattered across the island. Truthfully, there is not much left and we need to make a tremendous effort to save what we can...for as long as we can.



### What will happen if we continue to lose our Hawaiian

In the early 1990s the first double-hulled

Hawai'iloa hit a significant problem: a year

navigator. Nainoa Thompson, the discovery

"Each time we lose another Hawaiian

**Rain Forest?** We will lose everything mentioned above...we will continue to see stream water levels decline, reefs will get smothered by sedimentation and ocean resources will also steadily decline, the revival of an authentic Hawaiian culture will never be fully achieved, and our best defense against the tides of climate change, drought, flood and fire will be lost. As the quality of our environment decline so to does our own quality of life....and the quality of life we pass onto our children.

What can you do to help save our Hawaiian Rain Forest? Learn about your island's native natural resources and the efforts being made to save them (See Watershed Partnership article on Page 3). **Remember Hawaii's history** so our future generations don't have to relearn the lessons of the past: Hawaiians took great care to protect and preserve the upland forests, which they recognized and respected as the "wao akua"...the greatest gift from that realm was water...this allowed them to live sustainably for almost 1,000 years. Livestock introduced to Hawaii by the rest of the world (i.e. Europeans, Americans, etc.) in the 1800s—Pigs, goat, sheep, deer and cattle—were allowed to multiply and run free which resulted in massive forest lost on all islands, stripping the vegetation and life from the land. Take Action to support the efforts being made to save the last of our Hawaiian forests and all the other native ecosystems left on Moloka'i-shrublands, sand dunes, reef, and streams!

You can learn more about the Hawaiian Rain Forest by joining us at the Earth Day event on April 18th! TNC along with 40 other organizations will have interactive educational displays with lots of cool information. There will also be lots of prizes and FREE native plants! Please come join us. Mālama Moloka'i!



## The East Moloka'i Watershed Partnership

Fast Moloka'i Watershed PARTNERSHIP

By: Wailana Moses, TNC Weed Control Coordinator

- controlled.
- defenses (thorns, poisons, etc.) making them extremely vulnerable.
- 3 document management activities.
- management activities.
- 5. for the expansion which is currently in the draft stages.
- 6.
- Assisting the Molokai/Maui Invasive Species Committee (MoMISC) with Early Detection and Rapid Response to 7.



The East Moloka'i Watershed Partnership (EMoWP) was formed in 1999 to protect the best remaining native Hawaiian forests on Moloka'i (see map). This partnership is made up of land-based and agency partners who share a common goal of maintaining a healthy watershed to sustain the future water supply for our island. In order to reach this goal, Partners along with many volunteers work collectively together to actively manage these areas through the following key strategies:

1. Reducing the most damaging threats to the upper forest systems, which are invasive feral animals and weed species. Important Facts: Before humans stepped on the shores of Hawaii in the ninth century A.D., it is estimated that a new species successfully arrived in Hawaii, without assistance from humans, every 100,000 years. This gave our native ecosystems a lot of time to welcome the new addition. Today, new species are being introduced to Hawaii at a rate that is 2 million times faster than this natural rate! Everyday something new is coming into Hawaii...new weeds, bugs, frogs, stinging ants, snakes and many more scary stuff that could impact our environment (see page 4). Not all non -native species are bad but there are some that do become "invasive" which means it will out-compete our native species, take over an area, changing the habitat, and cause great damage that may be irreversible if the threat is not

2. Fencing the upper watershed to protect it from further feral animal intrusion and giving the forest system an opportunity to recover naturally. Currently, there is about 20 miles of fence that exists (see map below) and is being managed by partners in an effort to control deer, goat and pig populations that are impacting our forests. According to USGS, the combined strategies of fencing off the upper watershed and reducing feral goat populations has resulted in 10 times less erosion in Kawela since 2008! Important Fact: Hawaii's Native ecosystems and its' species evolved over a millennia without the presence of people or hooved animals (deer, goats, pigs, cows, etc.) thus they lost most of their

Monitoring the health of our native ecosystems (forests, shrublands, streams, sand dunes, and reef) to guide and

**Community Outreach** to educate the local community about our native resources and engage them in hand's-on

**Continual development** of the EMoWP through fundraising, capacity building, and expansion to preserve more of Moloka'i's native forest ecosystems. After 13 years of watershed management, the EMoWP is finally expanding eastward in an effort to preserve the intact native rain forest ecosystems found there. The Nature Conservancy's Moloka'i Program with the support of the Mana'e mauka landowners, the EMoWP, community members and groups, and the Mana'e Mauka Working Group (MMWG) is working on the "East Slope Watershed Start-Up Management Plan"

**Fire Prevention and facilitation** of the Moloka'i Fire Task Force to address wildland fires which is a huge threat. Our native forest ecosystems are not adapted to fire so once they burn it is very unlikely that they will come back.

address new invasive species that arrive on Moloka'i. The goal is to eliminate the new invasive pest before it begins to impact our environment and our lives.

The Nature Conservancy's (TNC) Moloka'i Program facilitates the EMoWP. It currently has 5 dedicated local staff members: Ed Misaki, Russell Kallstrom, Brian Naeole, Stephanie Dunbar-Co, and Wailana Moses. The support and collective hard work of partners, local organizations, the community, contractors, and many individuals and volunteers are the reasons why the EMoWP has successfully managed our native rain forests for over a decade!

For more info about the EMoWP visit this website online: http://hawp.org/ or you can call me at 553-5236 ext. 6588 or email wmoses@tnc.org. We will also be available at the Earth Day event with a lot of information. I hope to see you there!