

COCONUT RHINOCEROS BEETLE (CRB) RESPONSE

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How to Treat Coconut Rhinoceros Beetle Infestation

There is no single treatment currently available to completely rid an area of CRB but there are several treatments and practices that can reduce the impacts of CRB. These practices are most effective when combined. If CRB are found on your property or you have CRB damage on palms, we recommend:

- Removal of all potential breeding material (mulch, compost, rich soil, stumps, dead trees, plant waste piles). Treatment is needed before removal if the material is infested.
- Avoid accumulation or bringing in new potential breeding material.
- Treatment of host palms (systemic pesticides; imidacloprid, acephate and/or netting in crowns of short trees).

Green waste management is the most effective way to reduce beetle populations. In areas with the most success in reduction of beetle populations and tree recovery, green waste management was a key component. Home owners can put their green waste in the city and county's green waste bin since it's going to a treatment facility.

Cleaning the debris from the upper crown near the spear can reduce the chance of breeding in trees. Reducing the amount of these materials in your location limits the amount of breeding material and suppresses populations. Removal and incineration of all green waste at Mamala Bay Golf Course, the first breeding site for CRB found on Oahu, has led to >95% reduction in CRB since the first detection there in 2013.

CRB Breeding Material

CRB lay eggs in any decaying plant matter, not just palm. Mulch and compost are ideal habitat for breeding but stumps, leaves, lawn thatch, and rich soil are also breeding material. CRB can also breed in leaf/frond debris in palms and rotting areas of the crown and trunk. Below are some of the most common breeding materials.

CRB feed on and damage coconut, royal, date, and fan palms. If these preferred food sources are unavailable, CRB can shift to feed on other palms and tropical crops. CRB use their front legs and horn to dig into the crown of trees. UH is researching other potential food sources in Hawai'i.

BREEDING MATERIAL



Mulch



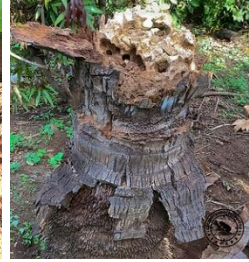
Compost



Dead Trees



Potting Mix



Stumps

CRB Host Plants



Logs



Potted Plants



Green Waste

CRB Primary Food Sources



Coconut Palms



Fan Palms



Royal Palms



Date Palms

CRB Secondary Food Sources



Hala



Banana



Sugarcane



Kalo

Mulch Treatments That Slow CRB Growth



Spread Thin

Spreading mulch and compost thinner than 2 inches dries out the material faster and allows predators (chickens and mongoose) to find CRB. If material stays moist or is irrigated this is not a treatment for CRB.



Organic Mulch Alternatives

There are several alternatives to mulch for water retention and weed control that don't put host palms at increased risk of CRB attack. Inorganic soil coverings will reduce the soil surface evaporation rate and temperature and will last much longer than mulch. Water permeable weed mat, landscaping rock, gravel, rubber chips/pellets, and recycled asphalt gravel are a few common choices. For water retention, products that are incorporated beneath the soil surface work best. Water retention crystals hold much more water than mulch and are not very expensive.

An Extensive CRB Breeding Site in Waimanalo on Agriculture Lease Land



Known by DAB for years, this 7-acre agricultural fallow site within proximity to plant nurseries was most likely also a critical factor in spreading the CRB invasion throughout the islands. Chipped green waste from tree trimmers accepted on site for many years, kept moist by occasional rains, had almost instantly created an explosive CRB breeding ground.

2025 8-11 Uncontrolled 7-acre fallow CRB breeding site brought to attention public officials.

After the problem was brought to the attention of elected officials, DAB issued the following reply:

“We’ve met with the property owner who had the greenwaste issues. He’s been accepting greenwaste, but has agreed to stop accepting and is currently working to spread the piles thin across his property to make it inhospitable for CRB to survive in. He has additional leases and we are working to do additional visits to ensure that there are no other large accumulations of CRB on those properties as well.”

However, this is contrary to what official sites state about the treatment of mulch:

Spreading mulch and compost thinner than 2 inches dries out the material faster and allows predators (chickens and mongoose) to find CRB. If material stays moist or is irrigated this is not a treatment for CRB.



Green waste mulch piles were crushed by bulldozer and supposedly spread out to no more than two inches in depth.

2025 9-15 CRB UV net traps on the adjacent plant nursery have not yet shown a significant reduction in CRBs compared to monthly highs of up to 650 CRBs caught in existing traps and often even greater numbers surrounding the traps. Another significant CRB breeding ground also exists on the adjacent agricultural site to the west of the plant nursery.

Dead Coconut trees and logs are instant, new breeding grounds for the CRB



Coconut Rhinoceros Beetle

Ph. 1 - Left 2025 3-5
Removing 35-year-old CRB-infested Coconut tree.



Ph. 2 - Right - Storing 30" size logs for controlled CRB breeding site investigation.



Ph. 3 - Left - CRBs caught in UV light/ net trap largely during early evening hours.

Ph. 4 - Right - 2025 8-20
Splitting 5.5 months old coconut logs for evaluating continued CRB-infestation. 5 CRBs were found laying eggs.



Ph. 5 -Left - Beetle-infested decaying coconut log.

Ph. 6 - Right - Entrance hole drilled by female CRB through coco bark for laying eggs.





Ph. 7 - Left
Bark removed along entrance hole (refer to Ph. 6). CRB laying eggs.



Ph. 8 - Right
CRB eggs.



Ph. 9 - Left
2nd instar larvae.



Ph. 10 - Right
3rd instar larvae.



Ph. 11 - Left
Female CRB.
3rd instar larva.



Ph. 12 - Right
Female CRB
laying on back.
3rd instar larvae.

Location: The wetter west end of Waikupanaha Street in Waimanalo compared to the drier east end. Green waste had been accepted by the lessee of the agricultural site across the street for years with HDOA trap #042736-32-01 documenting the developing CRB breeding grounds.

It takes about 4-6 months from the egg-laying stage through 3-instar molt larva phases and the final pupal stage for an adult Coconut Rhinoceros Beetle to emerge as a flying adult. The pupal stage lasts for about 18 to 28 days and varies, depending on factors such as food sources and environmental conditions such as a moist environment. Therefore, coconut logs can become continuous breeding grounds within about one month after being cut. In moist environments standing logs are more susceptible through the exposed cuts while logs laying on the ground are also attacked through the bark touching the moist soil. About 80 larvae were found in different stages of development in eight about 30" long logs with about forty collected and raised. CRBs started to emerge from pupae by the middle of September.





Ph. 13 – CRB Family Reunion. #1 = Female CRB on back. #2 = Eggs. #3 = 1st instar. #4 = 3rd instar



Ph. 14 - Left 2025 8-6
Many 3rd instar larvae were found imbedded under the bark of this log.



Ph. 15 - Right 2025 8-20
Cut sections of 5.5-months-old coconut logs. Five CRBs were laying eggs. 1st 2nd and 3rd instar larvae were also found.
K.R.

Testimony in Support of Adoption of Interim Rule to Restrict the Transportation of Material that May Introduce the Coconut Rhinoceros Beetle (CRB) to the Island of Moloka'i (9-23-2025 public hearing).

Aloha Chair Hurd and Members of the Board of Agriculture and Biosecurity

The Department of Agriculture & Biosecurity's (DAB) stated goals are to support, enhance, promote, and protect Hawai'i's agriculture and aquaculture industries (for the public good?). However, these goals must also ensure that the management of State of Hawaii Dept. of Agriculture leased land is not detrimental to or perhaps even endangers the livelihoods of neighborhoods and communities throughout Hawaii, as is happening with many of the sites having become DAB-recognized CRB breeding grounds. If this cannot be done even with the help of cooperating agencies as indicated by the uncontrolled spread of CRBs, the laws must be changed.

As related to us, conflicting and confining rules and regulations are key factors in not controlling the spread of CRBs throughout Hawaii. Many of the older leases apparently do not list conditions that could safeguard the public in relation to management of the leased land. Confining the acceptance and use of green waste could perhaps greatly limit for example, root crop and flower operations, which would affect the income from leased land and could lead to costly and time-consuming legal tangles. Little can be done at this point in many of these cases until the legislature takes decisive steps to also protect the public interest regarding invasive pests.

Official CRB websites state ***"Green waste management is the most effective way to reduce beetle populations."*** Since DAB apparently ignores its own recommendations or does not have the legal authority to effectively manage agricultural leases for the public good, DAB cannot consider sending any material to Molokai that could introduce CRBs. DAB must first demonstrate that it can shut down the still-massive CRB breeding grounds on largely agricultural lease land that have already targeted surrounding communities and nurseries unchecked for years and have spread CRBs throughout the islands. What about the continued support and use of mulch socks for erosion control even though it is acknowledged that these can quickly become unstoppable CRB breeding sites and have already killed thousands of palm trees throughout Hawaii and will continue to do so?

Official CRB websites also state:

- 1. Most properties must manage CRB to have regional improvement. If one property treats its trees and manages breeding material but nearby properties are unmanaged, the local populations could still be high and all the trees in that zone will be affected (even treated trees).*
- 2. Pesticides should be applied to all palms in an area to be the most effective because they kill beetles during feeding and are only effective when the regional population is suppressed. While these treatments are great tools, they are not a 100% protection against CRB. For trees to have the best chance of recovery, community-wide treatment and green waste management are important to have a significant impact on the beetle population in your area.*

A case in point of unmanaged CRB properties is Waimanalo on Oahu where massive CRB breeding grounds in the heart of the plant nursery district have been known to DAB for years. They bombard surrounding plant nurseries with thousands of CRBs every month with not only great financial losses to the nurseries but also to the community, as people still depend on coconuts for income and livelihood.

One plant nursery took it on its own already for several years to document the unrelenting CRB bombardment with UV light net traps that catch more than 600 CRBs per month, with an even larger number landing within the nursery itself as the traps can catch only a limited number of beetles as determined by the number of traps installed and maintained. Thus, the CRBs released from the surrounding breeding grounds on agriculture lease land greatly exceed CRBs caught in Oahu in official CRB traps every month (Attachment 1 - CRB Response). Over the seven-year period since CRB breeding grounds were first documented by DAB in Waimanalo on July 19, 2018, did the CRB breeding grounds on agricultural lease lands not produce more CRBs than documented by DAB for all of Hawaii for the same period?

Another example is the palm destruction at Waimanalo's Olomana Golf Course. Here, we must remember that palms are the symbol of Hawaii, and their loss could greatly affect the tourist industry. While no CRB breeding sites are found on site, even any observing lay person looking at the palms already dying along its easterly boundary would know where the beetles are coming from. Also known by DAB, a large CRB breeding site exists on the adjacent agricultural property owned by the State of Hawaii Dept. of Agriculture (and leased), While official UH-maintained traps could only mark the location of the beetle infestation perhaps as the Golf Course, a CRB UV light and net trap installed on the Golf Course would readily document where the CRB's are coming from and, based on the many beetles quickly trapped, that there is a large breeding site that must at least be controlled, if not eliminated.

How did all this come about? Waimanalo had already been a green waste dumping ground by tree trimming companies for some time, but few of us were aware that State agricultural lease lands were becoming unstoppable CRB breeding grounds apparently with the full knowledge of DAB. Conveniently dumping green waste at no cost or just a small tipping fee compared to sites that treated the green waste and charged tipping fees as high as \$500 per load was a great economic dumping incentive.

While official CRB sites state that CRBs can radiate 1-2 miles from known breeding areas, even a more conservative one-mile distance would cover most of Waimanalo. This is why every mulch and green waste pile is already considered an active CRB breeding ground. The quickly decomposing dead trunks or cut logs of coconut trees and fan palms can also become additional, massive CRB breeding grounds already within six months under moist conditions (Attachment 2 - CRB). While the community is being asked to come together to control the CRBs, how can it be done if DAB does not or cannot eliminate CRB breeding grounds on agricultural land?

On the Big Island thousands of cubic yards of potential host material have already been inspected (selectively?), as CRBs are quickly expanding in Kona with only three breeding sites detected by official CRB traps to date. We must acknowledge that these traps are primarily for detection surveys. Once they catch a beetle or two, it often already marks a larger breeding site nearby but does not give a measure of its size or extent. A UV net trap mounted on a pickup truck and parked in the early night hours near suspected breeding sites or a larger, portable fold-out battery-operated UV net trap system could catch CRBs more quickly and provide a much better picture of local and area-wide CRB expansion. As we witnessed, the nets are so effective because CRBs immediately dig into anything they land on and therefore hopelessly entangle themselves in the nets. Landing on the ground, they can bury themselves within less than five seconds in dry, loose soil. Landing on one's hair or one's clothing, they will dig in and hold on with their lives.

Yes, DAB employs CRB-sniffing dogs in nursery plant shipment from Oahu to other islands. However, as we witnessed during the early night hours, CRBs bombarding from adjacent agricultural breeding sites are not only caught in UV net traps. Many hit the ground while also landing directly on the nursery stock. With such CRB pressure, the chances are therefore great that CRB-sniffing dogs occasionally miss a beetle or larvae. This would also be true for a clutch of, say just 10-20 eggs, as female CRBs lay eggs in clutches with their size depending on the breeding and environmental conditions. The same can also be said for initially-treated green waste or mulch.

Waimanalo plant nursery staff we talked to are siding with the people of Molokai. Requested to ship plant material to the island before the expected ban, it was refused because of many of the reasons stated above.

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