The coconut rhinoceros beetle (CRB), *Oryctes rhinoceros* L.(Coleoptera: Scarabaeidae, Dynastinae), is a serious pest of coconut trees, *Cocos nucifera L.*, and other palms throughout the Pacific and Southeast Asia. The voracity with which CRB attack coconut trees is best exemplified by the 50% mortality rate reported in Palau in 1953 after CRB infestation ten year prior (Gressit 1953, Jackson 2010). In Guam, unmanaged palms appear to have the highest levels of damage, with visual assessment reporting damage in close to 100% of palms near Tumon waterfront (Moore, Jackson 2010).

CRB behaves elusively presenting a great challenge to population control efforts. Individuals in the larval stage typically remain hidden in breeding material consisting of compost and plant debris near adults. CRB typically have a predilection for saw mills and palm oil business operations due to the abundance of feeding material (Bedford 2013). CRB remain in the larval stage from 11 to 15 weeks and then pupate for an additional 3 weeks (Bedford 1976, Hinckley 1973). CRB emerge as adults after remaining teneral inside the pupa for 3 weeks. In the subsequent week, adult CRB feed for the first time typically boring into the apical meristematic tissue of palm trees and feeding on the base of unopened fronds (Bedford 2013, Hinckley 1973). Adult CRB then proceed to disperse in search for breeding sites where they can mate with other adults. This stage in the CRB life cycle is especially troublesome to pest management efforts since CRB can breed in a wide range of locations, which tend to be extremely hard for humans to find (Bedford 2013, Hinckley 1973). Sources in Malaysia and Guam have reported breeding sites in shredded palm trunk material, palm frond debris, compost heaps, and dead palm trunks, all of which are abundant in these tropical countries (Bedford 1976, Bedford 2013).

Biological control methods have played an essential role in the control of CRB populations. Biocontrol of CRB larvae mainly consists of using the fungal species *Metarhezium anisopline*, which has been reported to effectively control larvae populations, although these are not of particular economic concern (Arura 1984, Bedford 2013, Ferron *et al.* 1974). Adult CRB biocontrol mainly consists of the use of viral control agents. Infection with *Baculovirus oryctes* has successfully decimated CRB populations in various nations of Southeast Asia and the Pacific where infected individuals were released (Bedford 1985, Lomer 1985, Gorick 1980). However, recent studies report that the Guam CRB biotype has seemingly developed resistance to the viral control agent, creating an even direr situation for the control of CRB (Moore, Jackson 2010).

Traps and lures have also been employed in CRB control efforts. Traps in Papua New Guinea have had moderate success with an average of 131 CRB caught per trap over a 19 week period (Bedford 1975). Several lures have been reported to have attractant effects on CRB in bioassays. However, field tests have not had promising results (Vander Meer 1979, Vander Meer 1983). In Guam, trap systems have not provided successful control of CRB, with dishearteningly low catching rates of 0.0006 beetles per trap per day (Moore, Jackson 2010). As CRB damage progresses in Guam, the importance of finding and destroying breeding sites has become evident. Nevertheless, the cryptic locations of CRB breeding sites greatly hinder the localization of these sites. Therefore, there is a pressing necessity to develop methods to reliably discover cryptic CRB breeding sites.

Trained dogs have been utilized to detect pest insect locations in several studies with moderate success (sources), but the fact remains that predators/parasitoids or conspecifics are the most adequate agents to detect a species, and following this idea, a novel way to detect pest insects in the wild has been recently discovered. Swink (*et al.*) describes the use of the predatory wasp *Cerceris fumipennis*, a natural predator of different beetles in the Buprestidae family, to specifically target the emerald ash borer. Although this biological control agent succeeded in capturing a large amount of beetles, *C. fumipennis* could not serve as a selective control agent as it collected samples of 52 different species in 11 different genera (Swink 2013). Besides predators and parasitoids, members of the same species may be best adapted to find their conspecifics, but for conspecifics to function as a means of finding pest insects, it is necessary to have the capability of following the marked individual. This problem could potentially be addressed by studies using radio telemetry to investigate insect populations and behavior. Rink and Sinsch have utilized radio telemetry to study population migration and connectivity of the stag beetle *Lucanus Cervus* in order to define conservation efforts for the species (Rink and Sinsch 2007). Similarly, Beaudoin-Olliver (*et al.*) has implemented radio telemetry to successfully describe the flight behavior of the species *Scapanes australis* of the Dynastinae subfamily, to which CRB belongs (Beaudoin-Olliver 2003). In both of these cases, radio telemetry proved to be able to successfully track individual beetles, elucidating its potential use in the control of insect pests with conspecifics.

Adult CRB utilize an aggregation pheromone to detect the location of conspecifics in breeding sites which would otherwise be extremely hard to find (Gries 1994). This chemical communication signaling could be exploited by using radio telemetry to follow adult CRB that are seeking these cryptic breeding sites. This study seeks to develop a control mechanism that uses laboratory-reared CRBequipped with miniature radio-tracking devices to identify cryptic breeding sites, which could then be treated, removed or destroyed.