

## Chapter 1 : Rhino Beetle Care Sheet

*Dynastinae* or rhinoceros beetles are a subfamily of the scarab beetle family (*Scarabaeidae*). Other common names - some for particular groups of rhinoceros beetles - include Hercules beetles, unicorn beetles or horn beetles.

Rhinoceros Beetles are among the largest of beetles in the world. The Rhinoceros Beetle is aptly named because it has horns on its head, very much like the rhinoceros does. Rhino Beetles reach 60 millimetres in length. They have two horns, one on the top of the head and the other projecting forward from the middle of the thorax. Each horn is slightly forked at the end. The two horns almost meet and by moving its head the beetle can pinch weakly with them. The male Rhinoceros Beetles use their horns in mating battles against other males. Scientists believe that the beetle has become so strong to be able to forage through heavy litter on the jungle floor and dig its way to safety. Using its horns, it can dig its way out of a sticky situation by burying itself underground, escaping danger. The best protection they have from predators is their usually large size combined with being nocturnal activity being at night. During the day, they hide under logs or in vegetation and are invisible from the few predators big enough to want to eat them. The fearsome appearance of these beetles is increased by the loud hissing squeaks they give when disturbed. The hissing squeak is merely a bluff and is produced by rubbing the abdomen against the ends of the wing covers. If a squeaking beetle is examined closely, the abdomen can be seen moving in time with the squeaks. Their larval stage is long, several years in some species. As with all beetles, the Rhinoceros Beetle larvae grubs hatch from eggs and develop into pupae and these eventually develop into adult beetles. Each female lays about 50 white eggs. Adults feed on nectar, plant sap and fruit. In spite of their size, they do not eat very much. The larvae, on the other hand, eat a great deal of rotting wood or the compost in which they live. Rhino beetles have three instars, that is, they go through three molts before changing into the pupae stage. It is not possible to say what the average life span is because the name rhino beetle refers to about different species of scarab beetles, some live in tropical countries and some live in North America and so the length of their lives varies a lot. In spite of their fierce appearance, they are all totally harmless. They cannot bite or sting or hurt you with their horns. The horn of the male is not used for protection but rather for the occasional battle with another male over a feeding site. The victorious male with the feeding site can then often attract a mate. Female Rhino Beetles have no horns. The females are quite plain and less frequently seen. Rhinoceros beetles are the strongest animals on the planet, proportionally. They can lift up to times their own weight. To put this into perspective, if a human of average height and weight had the strength of the rhinoceros beetle, it would be able to lift a 65 ton object. You would also think something as massive as an elephant would be able to carry more weight than a little insect. That would be like an elephant carrying elephants on its back. Rhinoceros Beetles can fly strongly and are attracted to lights at night. They are generally noticed when they come to house lights or when they are seen lying beneath street lights and on the concrete tarmacs of petrol stations. In Brisbane they are only seen in the summer months, but in the tropical north they can be found at anytime of the year. Rhinoceros beetles are popular childrens pets in Asia. They are clean, easy to maintain and safe to handle. In Asian countries, male beetles are also used for gambling fights since they naturally compete for female beetles with the winner knocking the other off a log. More Fascinating Animals to Learn About.

**Chapter 2 : coconut rhinoceros beetle - *Oryctes rhinoceros***

*Rhinoceros beetle, (subfamily Dynastinae), also called elephant beetle, Hercules beetle, or Atlas beetle, any of numerous species of beetles, some of which are among the largest beetles on Earth, named for the impressive hornlike structures on the frontal portions of males.*

Top of page The entomopathogenic virus *Oryctes rhinoceros nudivirus OrNV*, which was originally discovered in Malaysia Huger, , attacks both the larval and adult stages of *O*. It has since been introduced into Fiji Bedford, d , , the Maldives and other islands in the South Pacific to control *O*. *Oryctes* larvae also succumb to attack by the green entomopathogenic fungus, *Metarhizium anisopliae* Sundara Babu et al. However, tests have shown that *O*. Latch tested 34 isolates of *Beauveria bassiana* and *B. Bacterial pathogens* which have the potential to control larval stages of *Oryctes* were identified as *Acinetobacter calcoaceticus* Kannan et al. A list of predators and parasitoids for *O*. Wood a also reported the barn owl *Tyto alba javanica* as a predator of the beetles. Other natural enemies affecting *O*. Means of Movement and Dispersal Top of page *O*. The larvae may also be transported to new areas in floating logs. Top of page On oil palms, *O*. Spears may collapse or emerged fronds may break off along the petiole or midrib Wood, In young palms where the spears are narrower and penetration may occur lower down, the effects of damage can be much more severe than in older palms Wood, a. The young palms affected by the beetle damage are believed to have a delayed immaturity period Liau and Ahmad, Thus, early oil palm yields could be considerably reduced after a prolonged and serious rhinoceros beetle attack. Although Wood et al. In India, the infestation in oil palm was more prevalent in mature plantations year old compared to immature or younger plantings Dhileepan, Similarly, on coconut the reduction in leaf area of the palms influences nut production Zelazny, a but the attack was more towards the tall, mature trees, from about 5 years of age onwards Bedford, c. Serious attacks on coconut may be observed in areas adjacent to a breeding site with a high beetle population, especially in the coastal region of Peninsular Malaysia. Detection and Inspection Top of page On both oil palms and coconuts, *O*. This causes tissue maceration and the presence of a fibrous frass inside the feeding hole is an indication of its activity within Catley, Larval, pupal as well as adult population may be detected and inspected by digging into or breaking open its possible breeding sites its possible breeding grounds. The difference is the three tubercles on the thoracic ridge for *O*. The larvae of *Xylotrupes gideon* are more hairy than those of *O*. The head capsule at each larval stage is also smaller Wood, a. *Aegus chelifer* larvae are relatively hairless, relatively more translucent, with an orange head and a longitudinal anal slit Wood, a. *Coelodera diardi* larvae appear to be very similar to the second-instar *O*. When placed on a slippery surface they swiftly move away on their backs. See Description for keys to larvae and adults, also Bedford a for a description of the *Chalcosoma atlas* larva from Malaysia, and Bedford for the larva of *O*. Prevention and Control Top of page Physical Control A method for trapping adults has been developed and tested by Hoyt and Bedford The whole trap is set at a height of 1. There was no chemical attractant used in this trap: When a small quantity of the synthetic chemical attractant ethyl dihydrochrysanthemumate chrislure was applied to the coconut cap of the Hoyt trap, catch was increased Bedford, compared to dispensing the lure from a more expensive metal vane-type trap Barber et al. Chrislure was subsequently superseded by ethyl chrysanthemumate rhinolure Maddison et al. To control beetle infestation, the density of the traps should be increased at the borders of a known source of infestation rather than inside the field Young, The use of light traps for controlling populations has been found to be ineffective: Wood a indicated that beetles do not often enter traps although they are attracted to the light source. However, light traps may be useful for monitoring purposes. It has been synthesised and is available commercially for details of synthesis and types of traps available, see Bedford a. It is reported to be 10 times more attractive than ethyl chrysanthemumate. The pheromone is stored in a small, heat-sealed, polymer membrane bag and placed between interlocking metal vanes mounted on a plastic bucket. The beetles attracted by the pheromone are trapped inside the bucket. It is very useful as a monitoring tool, and as an economical control method particularly in young oil palm replant areas when placed at one trap per 2 ha Norman and Basri, ; Oeschlager, ; Bedford, Cultural Control Sanitation within and surrounding the

plantations, especially destruction of the potential or existing breeding sites of this pest, provides an important basis for its control Wood, a; Turner, Manure heaps and pits may have to be covered or alternatively turned regularly for the removal of the grubs Catley, This restricts the damage in oil palm to low levels Wood et al. Removal of the adults from the point of attack in young palms by using a hooked piece of wire winking can be considered a common mechanical control technique to reduce the number of adults in an infested area. This practice is often costly, labour intensive and needs to be conducted regularly, provided that sufficient labour is available. However, some additional damage may be inflicted to the young palms during the search for the adults, making the practice not entirely satisfactory. Biological Control Early attempts at biological control of *O.* None of those that became established was able to provide satisfactory control. Endemic natural enemies of *O.* OrNV and the pathogenic fungus *Metarhizium anisopliae* have been utilized further for field control of this pest in several countries George and Kurian, ; Latch and Falloon, ; Zelazny, b ; Bedford, ; Darwis, For OrNV, the adult beetles are dipped in a suspension of ground, infected grubs. They are then allowed to crawl about for 24 hours through sterilized sawdust mixed with the above suspension. OrNV suspension may also be applied directly to the mouthparts of adults to infect them for release Ramle et al. A supply of beetles for infecting and release may be obtained from a mass-rearing facility. The fungus *Metarhizium anisopliae* var. Chemical Control Most of the chemicals applied are targeted to control the adult stages attacking the spear of the palm. The point of application is therefore at the base of the leaf sheath Sadakathulla and Ramachandran, Granular formulations of the insecticide gamma-BHC were effective as this facilitates applying them in the frond axils and thereby lowering costs compared to spraying liquid formulations Ho and Toh, Eleven types of insecticides were evaluated for the control of the adults in the nursery and immature stages of the oil palm Chung et al. On immature oil palm, the most effective treatment in reducing the number of broken spears and spear dieback, was lambda cyhalothrin. Cypermethrin was effective in reducing the number of holes on spears and fronds. Systemic insecticides have been used in trunk injections in tall coconut palms in Malaysia, but their effectiveness is uncertain. Juvenile hormone mimics have been tested on pupae of *O.* The use of long residual insecticides for drenching the breeding sites i. Insecticidal treatment at the bottom soil of manure pits may also be useful to suppress the larval stages Visalakshi et al. Wood a developed four categories of damage to young oil palms which may be used to determine the severity of infestation in a particular area. Slight damage - limited signs of damage to fronds with little or no damage to spears. Medium damage - numerous damaged fronds but with new healthy spears. Severe damage - many fronds damaged and only short, distorted spears emerging. Spear rot does not affect all spears. Dead palms - fronds severely damaged, all spears rotting and can be lifted out easily with no live spears to emerge. Some palms of this category may recover. The number of beetles found affecting young palms per hectare can also be considered as threshold levels for initiating control measures. IRHO recommended the detection of adult beetles per hectare of oil palms for the first 2 years of the crop, to initiate control measures. However, the level can be increased to adults per hectare once the palms have grown for more than 2 years IRHO, Winking frequency also depended on the numbers found per hectare. Monthly winking is suggested for adults, fortnightly for adults and weekly for more than 10 adults per hectare IRHO, The occurrence of the date palm borer *Oryctes rhinoceros* Linnaeus in light traps in Wadi Hadramout in Insect pests of economic significance affecting major crops of the countries in Asia and the Pacific region. Preliminary study on the efficacy of certain bacterial insecticides on the rhinoceros beetle. Madras Agricultural Journal, 58 6: Attractant for the coconut rhinoceros beetle. Journal of Economic Entomology, The rhinoceros beetle *Oryctes rhinoceros* in young oil palms replanted after rubber on some estates in Western Malaysia. Proceedings of the Malaysian Crop Protection Conference Incorporated Society of Planters, A field key to identify some rhinoceros and other beetle larvae breeding in coconut palm habitats in Papua New Guinea. Simplified field key to identify larvae of some rhinoceros beetles and associated scarabs Coleoptera: Scarabaeoidea in Papua New Guinea coconut developments. Annals of the Entomological Society of America, 93 1: Comparison of two attractant trap types for coconut rhinoceros beetles in New Guinea. Journal of Economic Entomology, 66 3:

### Chapter 3 : Dynastinae - Wikipedia

*The Rhinoceros Beetle (or Rhino Beetle) belongs to the subfamily (Dynastinae) and is part of the family of scarab beetles (Scarabaeidae).. Rhinoceros Beetles are among the largest of beetles in the world.*

Be sure it is a type that will keep the air inside reasonably humid. Bug bedding konchuu matto “ if not planning to breed beetles, many types are okay. For ease, store-bought beetle-specific bedding is recommended. Decaying branches, food dishes kuchiki; esasara “ also sold at stores, although branches from outside are okay too; the branches give the beetles places to hide and the food dishes keep the beetle jelly from spilling onto the bedding. Apparently, bananas are also good for rhinoceros beetles. Also, keeping leaves, which can be store bought, in the case helps keep the soil moist. Rhinoceros Beetle Care 1. Beetles like to burrow during the day in this moist bedding. Beetles are quite susceptible to dehydration. In nature, they hide under leaves and in dark places. Also, to keep the case hydrated, one website advises putting vinyl over the case and poking holes in the vinyl to let some air in. Leaves in the case also help keep the soil from drying out. Also, too much humidity or leaving food for too long is inviting unwanted bugs and mites. This is quite important, and a lesson learned through experience: For this reason, many people keep the beetles outside. If you keep the beetle inside, make sure to take measures to prevent these mites from multiplying. One method is a charcoal mixture put into with the matting. Some brave souls go as far as to pick the mites off the beetle gently with a toothpick. That being said, they are very strong and their legs are quite prickly. Keeping in mind that they can fly, but that they are pretty much harmless unless their prickly legs deter you , rhinoceros beetles can be picked up. In addition to the basic matting, beetles also like leaves, logs, etc. Disclosure Keep in mind that I am not a beetle expert. The information provided here was compiled and translated from the Japanese sources listed below.

## Chapter 4 : Rhinoceros Beetle - Facts, Information & Pictures

*Japanese rhinoceros beetles are a very popular subject in gambling, like Siamese fighting fish and cricket fights. In the most popular game, two different male beetles are placed on a log. [2] They will battle each other, trying to push each other off the log, the one to stay on the log is the winner.*

They are famously huge insects! Like their familiar mammalian namesake, many species boast a large top horn projecting forwards from the thorax. A bottom horn may also jut upward from the head. Adults are relatively simple to keep, and so are larvae. The United States has numerous rhino beetle species that make it into the pet trade on a limited basis, but two species especially are always in high demand. The Eastern US offers up *Dynastes tityus*. These often have a yellow color, like a very ripe banana. Their top horn tends to be about the same length as the bottom horn. The Western species, *Dynastes granti*, has a body shape more similar to the gigantic South American *Dynastes hercules* beetles, with their significantly longer top horn. Both US *Dynastes* are usually available in the hobby on a yearly basis I know a place, usually in the warmer months but extending a bit into the fall season, if not winter. Yet, few will disagree that D. What follows are some basic recommendations for keeping them, but a serious hobbyist should definitely consider investing in the book: It is available, [HERE!](#) Below, I will outline very general care in separate paragraphs for both adults and larvae for live pet rhino beetles. The size of the tank does not matter for your adult pet rhino beetles. It should, however, have a substrate. Rhino beetles like to burrow during the day both US *Dynastes* spp. Larvae go through three stages: L1, L2 and L3 larval instars. Then they build a pupal cell out of dirt and oral secretions and shed again to become a pupa. It is during this phase that you can see the adult beetle is finally taking shape. The larval period, from the time the egg hatches, until the adult US *Dynastes* emerges takes months for D. These numbers can vary, but the ranges are generally accurate. Larvae require a compost soil base with plenty of rotting wood from hardwood trees oak, for example. They will make nutritional use out of softer types of hardwood wood, decaying leaves and even the soil itself. As your substrate is replaced by oblong pellets, you will want to add more of the unprocessed ingredients. All these components will ideally be heat-treated or cold-treated. Baking in the oven, microwaving or freezing substrate are recommended to kill any potential hiding pests children, please ask an adult for help. The size of the container for larvae depends on their size. An L1 larva can be kept in less than a cup of substrate, while a 32 ounce deli cup is really pushing the limits as a minimum sized container for an L3 larva. Generally, bigger is better, though it is easier to observe the progress of your larva if you keep it in a reasonably small container. The cages for both larvae and adults should have minimal ventilation, especially for the former. There are a number of pests that prey on the eggs of rhino beetles, but these are relatively rare in captive bred beetles. Below are three videos of *Dynastes granti* egg mites. If you see any "pests" in the soil, it is immediately time to start rescuing all the eggs by moving them to a new substrate. The first video shows how plump a single mite can get as it feeds on the egg. The second video shows babies that the adult mite had spawned. The third video, fortunately, shows that the egg hatched just before the baby mites began to attack the egg. The fourth video shows parasitic nematodes and the damage they cause internally to the egg. A female will only lay eggs in a substrate that is somewhat moist. Both males and females will benefit by the availability of a wet substrate. Aside from buffering the air in the tank through evaporation, the beetles will take advantage of minimum of 4 inches of substrate to burrow in. This prevents them from drying out too much. Interestingly, the elytra and pronotum abdominal and thoracic portions of the "shell" will darken when the humidity is high. If it is, increase ventilation by adding air holes in the cage. Larvae can tolerate dry soil for a few weeks or more with no apparent issues, but optimal growth and feeding requires moisture. Temperature Room temperature is fine for both adults and larvae. Slightly warmer temperatures may help speed growth. Eggs can take 30 D. Warmer temps will shorten the span, while cooler temps will prolong hatching for many months. The overwintering period for captive bred *Dynastes tityus* can be broken by exposure to room temperature for a few months. Warmer temperatures may decrease the "overwintering period". Watered down maple syrup, brown sugar or other sugary liquids can be offered in shallow cups milk caps, for example, alternatively or exclusively. Fruit

has a tendency to mold or attract flies. Liquids tend to dry up. Many hobbyists prefer to use beetle jelly products. Many keepers supplement the diets of the beetle larvae with dried dog food pellets. Protein supplementation helps to grow big beetles!

### Chapter 5 : Japanese rhinoceros beetle - Wikipedia

*Rhinoceros beetles are herbivorous insects named for the horn-like projections on and around the males' heads. Most are black, gray, or greenish in color, and some are covered in soft hairs. Another name given to some of these insects is the Hercules beetle, because they possess a strength of Herculean proportion.*

See Article History Alternative Titles: Atlas beetle, Dynastinae, Hercules beetle, elephant beetle Rhinoceros beetle, subfamily Dynastinae , also called elephant beetle, Hercules beetle, or Atlas beetle, any of numerous species of beetles, some of which are among the largest beetles on Earth, named for the impressive hornlike structures on the frontal portions of males. These beetles have rounded, convex backs, and their coloration varies from black to mottled greenish gray. Some are shiny, almost metallic, whereas others may be covered with short, fine hairs, giving them a velveteen appearance. Some species, such as the Hercules beetle *Dynastes hercules* , can grow to more than 18 cm 7 inches long, of which 10 cm 4 inches may be horn. The Hercules beetle and rhinoceros beetle D. Found in American tropical forests, these two species have double horns that are oriented vertically. The upper horn curves forward from behind the head, whereas the lower emerges from the head itself. Another striking specimen is the cm 5-inch elephant beetle *Megasoma elephas* of the lowland rainforests in Central and South America. Shorter, conical horns project forward from each side of the thorax. The American rhinoceros beetle *Xyloryctes jamaicensis* is a dark brown scarab a little more than 25 mm 1 inch long. The male possesses a single upright horn; the female has only a small tubercle. One European species, *Oryctes nasicornis* , has rear-pointing horns. The eastern Hercules beetle D. The larvae can damage plant roots, and the mm 2. European rhinoceros beetle European rhinoceros beetle *Oryctes nasicornis*. The horns are used not to inflict injury but rather to force rivals from the disputed area. In spite of their fierce appearance, these beetles are harmless and feed only upon plant material. The larvae of *Megasoma* spend three to four years between egg and adult , developing in large rotting logs. Like many species of rhinoceros beetles, they are threatened by the trade in exotic insects, and deforestation contributes to their increasing rarity. Rhinoceros beetles belong to many genera in the subfamily Dynastinae of the scarab beetle family Scarabaeidae. This very large family also includes the dung beetles. Learn More in these related Britannica articles:

**Chapter 6 : Three Horned Rhinoceros Beetle - Learn About Nature**

*The Rhinoceros beetle is best identified by the presence of a horn protruding from its head. This horn is used to keep other males away from a female.*

Chalcosoma Moellenkampii South East Asia consists of three big categories of Dynastid rhinoceros beetles, which are categorized under the genre Chalcosoma. It is said that they are the biggest and the utmost remarkable beetles in this universe. Of these, the biggest and the one that arouses our admiration is the Moellenkampii beetle, which is scientifically known as Chalcosoma Moellenkampii. In Greek, Chalkos means Copper and as the name suggests they have the glittering of a metal. The Moellenkampii beetles and other rhinoceros beetles coexist in a group called Scarabaeidae. The Moellenkampii beetles can be identified by their huge forward protruding horns, two on the chest and another one on the head which is a pointed protrusion. Males and females differ much on account of their physical measurements. While measuring from the topmost part of the horn to the edge of elytra, males belonging to this family may sometimes grow up to mm whereas that of Chalcosoma Moellenkampii as well as Chalcosoma Atlas may reach up to mm. Only experts can differentiate between the females belonging to the three Chalcosoma categories, as they have very much identical features. Males of Chalcosoma family can be identified with the help of the following features: The development of the larvae depends upon its habitat and those that are developing under severe circumstances grow only to a limited size, even when they become adults. Males of Atlas beetle have three horns – two on the chest and the other on the head. Adult males of immense size have extremely large horns, which are longer than its body, and their head-horn has a pointed deflection where as the smaller males have a tiny horn and their head horns are somewhat erect with three pointed hooks. The horns and physique of the bigger beetles are doubtlessly allometrically related of body size to shape, that means, in comparison with the physical measurement of the body, their horns are of considerable dimension. On the other hand, small sized beetles have a little horn. Their reproductive organs, namely, parameters are almost the same dimensions, so that all males are able to copulate with the other gender. Beetles of Chalcosoma category reside mainly in areas having heavy rainfall and in estates of palm. They shift to new areas at night by winging. Usually males and females encounter in their eating places. Bigger males drive away the smaller ones in order to establish their power over the territory as well as over the females arriving there. If two evenly huge males come face to face, they oppose one another with their long horns, attempting to clasp the enemy in the midst of the movable head horn and the chest-horns, and also with anterior legs, straining hard to cast the opponent from the tree. Small sized males of other beetles are rather cunning as they avoid visible confrontation with the belligerent bigger males and instead, they strive to copulate with females when bigger ones are competing with one another. Such demeanor is not evident in Chalcosoma Moellenkampii but in Chalcosoma atlas, two families of beetles have many resemblances, so chances of such actions exist. The Three Horned Rhinoceros Beetle is not as common as Chalcosoma Atlas among its collectors, because even in confinement their uncontrollable temperament tempts them to combat with each other and thus get injured. Chalcosoma atlas larvae are bellicose in nature, and if disturbed, they are prepared to sting, as supposed to be the nature of Chalcosoma Moellenkampii. Eggs are placed in holes either dug out of the earth or of some decayed tree trunk. There are three phases of growth of larvae until it gains up to a bulky weight of gms. In the final phase, larvae form a big elliptical protective covering in the rotten log or soil and change completely into pupa. In short, the entire duration from egg to a matured beetle is about 13 – 18 months. Wheel of Life The name rhino beetles include about three hundred categories of Scarab beetle. Their average life expectancy is unpredictable as a few of them live in tropical countries and some in North America. The life cycle changes according to the place they live. Females come up with around fifty white eggs. The eggs brood, and form larvae. Their larval phase is very much elongated and in some categories, it may take a lot of years. Rhino beetles have three stages of development that means, they undergo three molts before converting into the pupae phase. Finally, pupae progress into a grown up beetle. Adults take in only a little food like honey, plant fluids and fruits, but larvae eat the bulk of decaying timber or natural fertilizers. Providing Nourishments Commonly adult beetles

devour juice from the trees, but when we catch it, it can be given apple, banana, diluted maple syrup, or any other sweet fluids in cups of little depth. Fruits draw the attention of the flies so many beetle collectors use jam, which is very simple. Much care has to be taken while caring for the larvae. In addition to decayed logs and foliage, some used to give desiccated minute balls of dog food to the larvae as protein supplements while attempting to rear big beetles. Breeding Rhinoceros beetles have specific males and females, which creates its offspring through intercourse in the course of drizzling. Males become hostile and some categories of rhinoceros beetles fight with each other with their big horns to win over the females. Though there are many differences in physical measurements, both kinds of males are able to mate with every female beetle. Females are able to produce fifty eggs and they place it mainly in holes dug into the earth. After going through several phases, these eggs become matured beetles.

**Chapter 7 : Outstandingly Interesting Facts About Rhinoceros Beetles**

*Eupatorus gracilicornis* Male. Five-Horned Rhinoceros Beetle. So buy plenty and SAVE. The picture that is shown is of one of the ones we have available. very slightly.

Economic Importance Back to Top Malaysia: Adult *Oryctes rhinoceros* cut through leaves and bore holes into palm crowns. Damage is exacerbated by the tendency of beetles to aggregate. In *Oryctes rhinoceros* was declared established in Guam. Moore had previously concluded that "accidental transport of other scarab beetles from Guam to Hawaii is well documented. Coconut rhinoceros beetle is not established in the mainland United States; however, the risk of accidental transport remains in our increasingly connected world. If you suspect that you have found this beetle, immediately contact your local state agency. Visual signs such as holes bored at the base of leaves and V-shaped feeding damage help locate this beetle. Recently, acoustic detection was used to find *Oryctes rhinoceros* in live and dead palms on Guam Mankin and Moore Once detected, management and control are required to mitigate the economic impact of a beetle infestation. Typical V-shaped damage to coconut leaves by *Oryctes rhinoceros*. Historical control of scarab beetle pests has included chemical and biopesticides, biological control predators, parasitoids, and pathogens , and trapping with lures Jackson and Klein Traps for the coconut rhinoceros beetle contain 4-methyloctanoate, an aggregation pheromone produced by the male beetle. In breeding sites, the fungus *Metarhizium anisopliae* may be applied for larval control and is distributed by adults. This fungus acts as a biopesticide on immature stages of the beetle Bedford Viruses in the genus *Nudivirus* have also been associated with *Oryctes rhinoceros* and may play a role in controlling the beetle in regions where they are invasive Bedford Infection by *Oryctes rhinoceros nudivirus* deforms and may kill larvae, and hinders oviposition by females Bedford However, the nudivirus may harm other species and genera of scarabs. In Korea, farmers of *Allomyrina dichotoma* Japanese rhinoceros beetle face a potential disaster if the nudivirus were to infect their populations, which consist of hundreds of larvae grown together in large plastic containers. These beetles are cultivated for sale as pets and to be used in gambling. There is also concern that the nudivirus may be transmitted to wild populations of *Allomyrina dichotoma*. There is no clear indication that the *Oryctes rhinoceros nudivirus* is the major pathogen responsible for losses of *Allomyrina dichotoma* in Korea and tests are ongoing Lee et al. Managing the coconut rhinoceros beetle involves removing or destroying organic material that supports larval development such as decaying logs and stumps, removing dead palms, and removing piles of leaves and grass Schmaedick A study on burning the downed and decomposing trunks of oil palms has shown that only partial burning of sites is ineffective in managing population levels of *Oryctes rhinoceros* Abidin et al. Population dynamics of *Oryctes rhinoceros* in decomposing oil palm trunks in areas practicing zero burning and partial burning. Journal of Oil Palm Research Advances in the control of rhinoceros beetle, *Oryctes rhinoceros* in oil palm. How *Oryctes rhinoceros*, a dynastid beetle, uses its horn. Science, New Series Abstract for *Casuarina equisetifolia*, Australian pine. The coconut rhinoceros beetle *Oryctes rhinoceros* with particular reference to the Palau Islands. Bulletin of the Bernice P. Coconut rhinoceros beetle, *Oryctes rhinoceros*: Ecology of the coconut rhinoceros beetle, *Oryctes rhinoceros* L. Coleopterists Society Monographs 5: First report of *Oryctes rhinoceros nudivirus* Coleoptera: Scarabaeidae causing severe disease in *Allomyrina dichotoma* in Korea. Journal of Insect Science Pests of the coconut palm. Food and Agriculture Organization of the United Nations: Morphometric analysis of *Oryctes rhinoceros* L. Scarabaeidae from oil palm plantations. The Coleopterists Bulletin *Oryctes rhinoceros* Beetles, an oil palm pest in Malaysia. Annual Research and Review in Biology 4: Mankin RW, Moore A. Acoustic detection of *Oryctes rhinoceros* Coleoptera: Dynastinae and *Nasutitermes luzonicus* Isoptera: Termitidae in palm trees in urban Guam. Journal of Economic Entomology Assessment of the rhinoceros beetle infestation on Guam. Guam as a source of new insects for Hawaii. Rhino beetles take aim at new palm species, an interview with Eradication Project Logistics Manager for the Department of Agriculture, Roland Quitugua. Kuam News Network, Guam. Pests and Diseases of American Samoa number 8.

### Chapter 8 : *Oryctes rhinoceros* (coconut rhinoceros beetle)

*Oryctes rhinoceros* (L.), the coconut rhinoceros beetle, is a pest species occurring throughout many tropical regions of the world. Adults can cause extensive damage to economically important wild and plantation palms.

Some species have been anecdotally claimed to lift up to times their own weight. Each has a horn on the head and another horn pointing forward from the center of the thorax. The horns are used in fighting other males during mating season, and for digging. The size of the horn is a good indicator of nutrition and physical health. A pair of thick wings lie atop another set of membranous wings underneath, allowing the rhinoceros beetle to fly, although not very efficiently, owing to its large size. Their best protection from predators is their size and stature. Additionally, since they are nocturnal, they avoid many of their predators during the day. When the sun is out, they hide under logs or in vegetation to camouflage themselves from the few predators big enough to want to eat them. If rhinoceros beetles are disturbed, some can release very loud, hissing squeaks. The hissing squeaks are created by rubbing their abdomens against the ends of their wing covers. Rhinoceros beetles are relatively resilient; a healthy adult male can live up to 2–3 years. The females rarely live long after they mate. The larvae feed on rotten wood and the adults feed on nectar, plant sap and fruit. First, the larvae hatch from eggs and later develop into pupae before they reach adult status see picture at left. The females lay 50 eggs on average. Contrary to what their size may imply, adult rhinoceros beetles do not eat large amounts, unlike their larvae, which eat a significant amount of rotting wood. Interactions with humans[ edit ] Use by humans[ edit ] Rhinoceros beetles have become popular pets in parts of Asia, [3] due to being relatively clean, easy to maintain, and safe to handle. Also in Asia, male beetles are used for gambling fights. Rhinoceros beetles could play a big part in the next generation of aircraft design. Usually though, beetle population densities are not as high as in some other pest insects, and food trees which are typically already sick or dying from some other cause are preferred. The fungus *Metarhizium anisopliae* is a proven biocontrol agent for beetle infestation in crops. Tribes and Genera, with selected species[ edit ].

**Chapter 9 : Rhinoceros Beetle | eBay**

*"Rhinoceros Beetle" by Susan Hawthorne is a story about a boy's childhood obsession which becomes a reality when he grows into a man. The story presents ideas and assumptions which viewers can relate to real life.*

**Dynastinae** The Dynastinae subfamily is further divided into tribes, with particular classifications favored by particular researchers with no universal consensus many of the tribes were named more than years ago and modern methods of classification sometimes conflict with the criteria used back then. They are found all over the world except in the polar regions. **Physical Characteristics** Rhinoceros beetles are among the largest insects in the world and certainly are the largest beetles. Many species are more than 6 inches long, while the larvae of the Goliath beetle *Megasoma actaeon* can grow to more than grams in weight. The adult Goliath beetle itself, along with the elephant beetle *M.* Male rhinoceros beetle female rhinoceros beetle Many rhinoceros beetles are more than inches long, and can weigh up to grams. These beetles are also exceptionally strong, with the Hercules beetle having been observed to lift times its own body weight. Rhino beetles are covered in a hard sheath. As mentioned before, their front wings form a protective covering for their rear wings. Because of their size, most rhinoceros beetles are not good fliers, and instead, rely on camouflage to stay safe. For this reason, they stay under logs or in the dark undergrowth to keep away from their few predators. Some rhino beetles can produce a hissing sound by rubbing their front wings against their abdomens. This is a warning sign if the beetle is persistently disturbed. **The Horn** The horn-like appendage is undoubtedly the most conspicuous physical characteristic of rhinoceros beetles and is the source of their name. Only the males have the horns, which are used in fights between rival males and sometimes for digging underground. According to a study published in the journal *Science*, the length of the horn is directly related to the state of nutrition experienced by the male beetle while growing up. This is why the horn has evolved to be so important in mating displays. This is due to the fact that tissues in the horn are much more sensitive to insulin-like growth factors IGFs than elsewhere in the body. IGFs are responsible for growth in most complex organisms, and their levels rely on nutrition. To test this idea, the scientists disabled the gene that activated the IGF pathway in these beetles. **Life Cycle** Female rhinoceros beetles lay around 50 eggs may differ between species. These beetles have a very long larval stage, sometimes extending to more than 3 years. The larvae mostly eat rotten wood. After that, the larvae pupate; in some species they emerge as fully formed adults, while in some, they emerge as nymphs and undergo several further stages, called instars, to reach adulthood. The adults eat plant nectar, sap, and fruits. Adult beetles eat significantly less frequently than their larvae, and certainly much less than their size may suggest. These tough and well-armored beetles live for years, though the females die soon after reproduction. The following images show each stage in the life cycle of a Hercules beetle. The first image is a larva, the second is a nymph, and the third is the adult. **Larva Adult Interaction with Humans** Rhinoceros beetles are popular as pets, particularly in eastern Asia. They are also quite clean pets, with no mess to clean up in their wake. In the same region, male beetles are used as combatants in gambling fights, due to their large size and tendency to attack other males. Some are also eaten in many parts of the world, though the larvae are usually preferred over adults. The larvae are reported to carry proportionally more protein than popular sources of protein such as meat or legumes.