

Hermit Crab Care Sheet

Habitat:

Our Crabs are from the Caribbean Terrestrial Hermit Crab Family- Coenobita Clypeatus

1. Tank size: Provide a tank that is at least 10 gallons in size for a small group of hermit crabs.
2. Substrate: Use a substrate of about 3-5 inches deep, such as a mix of sand and coconut fiber. This provides them with a suitable digging and burrowing environment.
3. Humidity: Maintain a humidity level of 70-80% in the tank. Use a hygrometer to monitor humidity levels and mist the tank with dechlorinated water as needed. **Hermit Crabs from Fins on Fifth do best at standard room humidity.**
4. Temperature: **Hermit Crabs from Fins on Fifth do best at room temperature of 69-75°F**

Tank Setup:

1. Hiding places: Offer various types of hiding spots like caves, hollow logs, and half coconut shells. These provide security and places for molting.
2. Climbing structures: Add branches or pieces of driftwood for climbing and exercise.
3. Shallow water dish: Place a shallow dish of dechlorinated water for drinking and bathing. Use smooth stones or aquarium gravel as a ramp for easy access in and out of the dish. Place a natural sea sponge in water. The sponge will provide any salt your crab needs.
4. Saltwater dish: **Hermit Crabs from Fins on Fifth do not require saltwater. They will consume their needed salt intake from the natural sponge used for watering.**

Feeding and Nutrition:

1. Commercial hermit crab food: Offer a high-quality commercial hermit crab food as the staple diet. Look for one that contains a mix of fruits, vegetables, grains, and protein sources.
2. Fresh fruits and vegetables: Provide a variety of fresh fruits and vegetables, such as apples, bananas, carrots, spinach, and peas. Rotate the offerings to provide a balanced diet. Limit fruits to a few times per week only.
3. Protein sources: Offer occasional protein-rich foods like dried shrimp, mealworms, or freeze-dried krill. These can be given once or twice a week.
4. Calcium and cuttlebone: Supply a cuttlebone or crushed eggshells for a calcium source to support proper shell growth and molting.

General Care:

1. Socialization: Keep hermit crabs in groups of two or more, as they are social animals. Solitary crabs may become stressed and unhealthy.
2. Molting: Provide extra care during molting periods. Provide extra humidity, avoid handling, and ensure they have plenty of substrate to burrow into.
3. Shell options: Offer a variety of empty shells in different sizes and shapes for the hermit crabs to choose from when they outgrow their current shell.
4. Regular observation: Check on your hermit crabs daily to ensure they are active, eating, and behaving normally. Look out for signs of illness, stress, or aggression.

Remember, hermit crabs require a stable and suitable environment to thrive. By providing proper care, nutrition, and attention to their needs, you can ensure their well-being and happiness.

Crab Biology

The name **Coenobita Clypeatus** (usually pronounced seen-oh-bit-a cly-pe-ait-us) may be translated as "shield-bearing monk or cloister brother," which conjures up a truer image of this often gregarious and variously cloistered resident of tropical East American shores than does "hermit crab." But, like most common names, "hermit crab" or "soldier crab" in native parlance, will certainly endure. The animal so called belongs to a small family of terrestrial decapod crustaceans quite distinct from the marine hermit crabs. The family **Coenobitidas** is composed of two genera: **Birgus** and **Coenobita**. **Birgus** is represented by a single species, **Birgus latro** (Linnaeus, 1767), the Robber Crab or Coconut Crab of Indo-Pacific islands. **Birgus** has discarded the protection of an appropriated shelter except for a brief juvenile period. **Coenobita** contains seven species that inhabit tropical regions throughout the world and that live in discarded snail shells for their entire adult lives, changing to larger shells as they grow.

The terrestrial hermit crabs and a few true land crabs of the family **Gecarcinidae** are the only decapod crustaceans (shrimps, lobsters, crabs, etc.) that have successfully migrated from the sea directly to dry land. Most land animals gradually evolved from the marine environment through brackish and fresh water to marshes and land. The direct route taken by **Coenobita** presents many adaptive problems, especially in the hot and dry climates that seem to be favored by the terrestrial hermit crabs.

Coenobita Clypeatus ranges in size from tiny but sexually mature individuals weighing little more than a gram to old males as large as a man's fist. It occurs naturally from Bermuda, where it is now rare, and southern Florida to Venezuela and perhaps Brazil. It seems to prefer dry, hard soil at some distance from the sea and it is known to live at altitudes of at least 2,300 feet (887 meters.) Although high humidity is desirable, **Coenobita** seems to avoid areas of dense vegetation or permanently humid habitats, such as marshlands and the muddy banks of brackish or freshwater pools. Hermit crabs can survive in coastal areas but they encounter stiff competition for food there from quicker and more active semi terrestrial grapsoid crabs. The hermit crab populations in these regions are consequently made up of small individuals and a few larger ones that usually carry inadequate snail shells and appear the worse for wear in comparison with those living in inland situations, where there are freshwater drinking places, shade trees, and a better 'food supply- The inland populations often occupy the heavy West Indian Top Shell, (**Cittarium-Livona**) pica.

On Curacao, the hermit crabs are usually least active about noon; they normally reach their peak of activity between sunset and 8:00 P.M. and gradually become less active from then until the following noon, but a sudden increase in humidity, as from a shower, tends to promote activity at any time. The optimum temperature range is probably between 72 degrees and 93 degrees Fahrenheit. All movements become slower at 68 degrees to 72 degrees and hermit crabs maintained at 65 degrees become more or less lethargic. Populations of **Coenobita** on Bimini in the Bahamas are more active in the daytime, possibly because nighttime temperatures are lower than they are farther south, but this reversal of the activity cycle was not observed in those inhabiting the Florida Keys.

When the hermit crabs are active and encountering each other in their travels, they often make croaking sounds, but the source of this apparent means of communication is still uncertain. Some species of the **Coenobita** have prominent stridulating ridges on the outer surface of the major claw, but no such structure is to be found in **Coenobita Clypeatus**.

As an adaptation for extracting oxygen from the air rather than from the water, the gills of **Coenobita** are reduced in number and stiffened, and the inner walls of the gill chamber are vascularized to promote the exchange of gases. Also, ventilation of the gill chamber is enhanced by the reduced side walls of the carapace or head shield of the crab. Moistening of the gills is abetted by well-developed glands in the bronchial region.

The danger of drying out or of over concentrating the body fluids through evaporation is the most critical problem confronting any animal that migrates from water to land. **Coenobita** has an advantage in this respect over the true land crabs, for it can store water in the appropriated snail shell, and this water may be used secondarily for drinking. One reason that hermit crabs so frequently try on different abandoned snail shells is to find one that fits the delicate abdomen closely, thereby minimizing evaporation. The same explanation probably accounts for the nocturnal habits of **Coenobita Clypeatus** in the southern part of its range, where daytime activity could result in severe evaporation. Experiments have shown that animals in well-fitting shells can subsist without food and water six times as long as those removed from their shells. When the crab withdraws into its shell in the daytime, the claws and walking legs form a reasonably effective seal in the shell mouth against evaporation. The parts of the animal that protrude farthest from the snail shell are most heavily calcified, and this undoubtedly helps to prevent the evaporation of body fluids.

Coenobita takes up water by dipping the tips of the claws in it, transferring drops to the mouthparts or maxillipeds and thence to the mouth and gill chamber. Very small amounts of water, such as raindrops and dew, can be utilized in this way. An alternate method is to hold both claws close together and dip them in the water; by shoveling motions, the water is forced to rise by capillary action along the fringe of hairs on the lower surfaces of the claws, and the maxillipeds, direct it to the mouth. **Coenobita** has a highly developed sensory perception for water; it prefers water of low salinity and it is able to discriminate well between different salinities. The animals seem to remain in best condition when a small amount of salt is present in the drinking water. Full-strength sea water can be used for drinking, but not for shell water-, the latter must be constantly diluted with nearly fresh water to prevent adverse concentration of the body fluids. During the dry season on Curacao, even limestone containing moisture is consumed by the hermit crabs as a source of water.

Land hermit crabs are omnivorous. They feed on all kinds of vegetable matter, as well as on protein-rich food, especially decaying flesh. On Curacao, native fruits, such as cactus fruits and the supposedly poisonous "apples" of the Manchineal Tree are devoured eagerly, and fresh droppings of horses and cows are used as a source of both food and water.

Local fishermen who use "soldier crabs" for bait claim that they can be obtained most easily by attracting them with coffee grounds. The animal obviously performs a useful function as a scavenger in tropical countries, not only along the waterfront but also around human habitations and refuse dumps. De Wilde tells of a dead donkey on Curacao that kept a group of hermit crabs busy for several weeks. Even when nothing remained of the carcass but the empty dried hide, the crustaceans continued to rattle loudly around inside of what served as a very effective sounding box. In captivity, cannibalism may result from inadequate care but, if sufficient food and water are supplied, mortality is very low, even when several hundred medium-sized animals are crowded together. The crabs were maintained in excellent condition in captivity on Curacao on a diet of cooked rice, bread and fruit- and sometimes fish or other protein-rich food.

Molting is a necessary but hazardous procedure for all arthropods, especially under other than natural conditions. All are vulnerable to attack until the new integument hardens, and they must protect themselves from all kinds of assailants and predators during this period. In captivity, hermit crabs often burrow into soil when ready to molt and remain out of sight for a month or more, during which time they consume the cast integument, presumably for its calcium content. When several individuals are kept together in captivity, slabs of some material under which the animals may retreat for privacy should be provided. A source of calcium, such as egg shell is also desirable. Some shell water is retained during molting to forestall desiccation. On Curacao, molting seems to be especially prevalent during April and May.

The sex of hermit crabs usually cannot be determined without removing the animals from the shell. Males of **Coenobita Clypeatus** are distinguished by the presence of tufts of hair concealing openings on the first segment of the last pair of legs and by the absence of appendages on the abdomen. Females have bare openings on the first segment of the third legs (counting the claws as the first pair) and three forked appendages on the left side of the abdomen for this attachment of eggs. The sex ratio of the **Coenobita** population on Curacao seems to vary with age- in very small animals (weighing less than 10 grams), there are usually from 4 to 25 females to every male-, in medium-sized crabs (20-50g), there is considerable variation from slightly more than one female to every male to three males to every female; and in large and very large individuals (50-100 g), there are more than three males to every female.

The annual migrations of **Coenobita** toward the sea are well known to inhabitants of the Caribbean region. They are always made at night and they generate such a clatter that they are said to have scared off human invasions of some of the islands in the past. Contrary to general opinion, the migrations apparently do not coincide with readiness to liberate the eggs in the sea. The hermit crabs on Curacao first migrate from island areas to a locations near, but not necessarily on, the coast, where there are sources of fresh water with which to dilute the shell water. What are assumed to be mating activities--although actual copulation has not yet been observed--seem to occur in these breeding areas about a week before the full moon in August, September and October.

As the eggs are spawned, they are attached to the abdominal appendages by the pincers on the last pair of legs. The number of eggs varies from 800 to 1,200 in young females and may reach 40 or 50 thousand in large ones. Freshly spawned eggs are dark reddish brown. During the following month, they gradually become paler, changing to gray or light blue, and the egg mass becomes less compact. Before the full moon of the month following the one that apparently attended breeding activity, the eggs are mature and will burst immediately when placed in sea water, releasing the zoal larvae. For that reason, females keep less water in the shell when they are carrying eggs than otherwise--enough water to maintain maximum humidity but not enough to cover the eggs.

No individuals of the Curacao population of **Coenobita** were seen entering the sea to release the eggs, as they were believed to do. One might assume that such immersion is avoided so that the carefully maintained salinity of the shell water will not be upset, yet the Pacific American **Coenobita Compresses** H. Milne Edwards, 1837, has been observed to approach the shore deliberately and permit the waves to wash over it. Females of **Coenobita Clypeatus** on the other hand, mount low prominences along the shore and follow a procedure

for releasing the eggs that may be unique among crustaceans. The eggs are removed in small clusters by the last legs, passed forward to the maxillipeds where they are formed roughly into balls and deposited on the tip of one of the claws- they are then "shot", by a short forward movement of the claw, onto intertidal rocks from which they are washed into the sea by the incoming tide. There is some evidence that the entire egg mass does not mature simultaneously, and parts of it are deposited on the shore on successive nights.

This breeding cycle may be repeated twice during successive lunar periods on Curacao, but the first event is the most important and the third one the least. In the northern part of its range, **Coenobita** has only a single breeding period annually.

The larval stages consist of four to six free-swimming zoeal stages, lasting for 40 to more than 60 days in the laboratory but probably less than that under natural conditions. The post larval glaucothoe stage persists for more than a month, during the last week or more of which it is non swimming and crawls ashore. It is believed that many of the larvae remain in eddies near the island where they were released and that local populations are therefore probably self perpetuating to a considerable degree. Also there is some indication that young and inexperienced crabs are guided to breeding areas by older, experienced ones. Individuals of the species are known to live in captivity for at least 11 years.