

Species Spotlight: Madagascar Hissing Cockroach

There are more than 4,500 species of cockroaches found worldwide, with approximately 1% of these species found in the United States. Even in small numbers, visitors (and staff!) may approach cockroaches with fear and revulsion. The Madagascar hissing cockroach (*Gromphadorhina portentosa*) is a great ambassador, helping to bust myths and shed light on a fascinating insect species. Madagascar hissing cockroaches (MHC) are endemic to the island of Madagascar. As they are found naturally in a tropical climate, keeping MHCs requires a warm, humid room in a relatively calm environment; temperatures should range from 75°-85°, with humidity around 70%. In the wild, these insects live on the jungle floor. In human care, substrates may vary and can include cypress bark, coco fiber, wood chips, organic soil, and peat or sphagnum moss or various mixes of these substrates. One of the most important components for housing is to ensure that the tank has a secure lid and the MHCs are properly contained. Vaseline or "Insect a Slip" can be used around the top of the tank to create a barrier and prevent the cockroaches from climbing on the lid.

MHCs feed on detritus in the wild, assisting in the breakdown of organic materials. Zoo diets may rely on dog food for basic nutrients, although feeding fresh produce mimics a more natural diet. This can include fruits such as banana, orange and apple, as well as vegetables such as carrots, potato, and leafy greens. Like most cockroaches, MHCs are colonial insects that display a variety of social behaviors,



including grooming and sparring. Adult males have large bumps on their pronotum which appear quite horn-like and are used when battling for females. In addition, both sexes may spar with their antennae, which are also important in communication during courtship and mating. Female MHCs are ovoviviparous, developing eggs inside their bodies and eventually giving live birth. Because of this, some facilities that exhibit MHCs may limit their ambassador/contact animals to the males of the species.

One of the most interesting and perhaps least understood MHC behaviors is, of course, the hissing. Aside from the spiracles used for respiration, these cockroaches have one modified pair of spiracles on their abdomen; the forcing of air through this pair results in the hissing sound for which the species is known. While

Madagascar hissing cockroach enclosure for touch opportunities

all MHCs hiss when disturbed, male cockroaches also use a variety of hisses when aggressing against each other or when courting females.

Even though hissing can be interpreted as a sign of stress, overall it is difficult to determine how cockroaches are impacted by handling. Allowing for individual choice is important for any ambassador animal, and with a little creativity this can include the invertebrates in your program. Creating display tanks that allow for MHCs to choose between rest and public contact is just one option. Offering high-value foods when in these situations may also help reward cockroaches for their participation. These actions can then become opportunities for interpretation, teaching program



participants how Zoos and Aquariums value all the animals in our care.

View of enclosure highlighting choice option for roaches

Note food placed on side where touch opportunities are offered

Please note that before acquiring any invertebrate, be sure to have all the appropriate permits in place. Many species are regulated by federal and state laws, including USDA/APHIS. MHCs are not currently a regulated species but that status could change so it is best to check first before acquisition. Check for permit questions at: the APHIS website.

For more information on AZA recommendations for housing, diet and other health considerations contact the Terrestrial Invertebrate Taxon Advisory Group. More information can also be found on PARIS:

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