

Tropidacris cristata (Giant Grasshopper)

Order: Orthoptera (Grasshoppers and Crickets)

Class: Insecta (Insects)

Phylum: Arthropoda (Arthropods)



Fig. 1. Giant grasshopper, *Tropidacris cristata*.

[<http://www.backyardnature.net/yucatan/biggrass.htm>, downloaded 29 March 2015]

TRAITS. The giant grasshoppers (genus *Tropidacris*) of South and Central America have a body length of about 10cm and a wingspan of about 18cm and are some of the largest insects in the world (Carbonell, 1986). Two species, *Tropidacris cristata* and the similar *Tropidacris collaris*, range within South America north of the southern cone. The name *Tropidacris dux* is also sometimes used, but this now refers to a subspecies of *T. cristata*. Only *T. cristata* is found in Trinidad, this species has mainly orange hindwings (Carbonell, 1984) (Fig. 2). *T. collaris* has yellow antennae and green to blue hindwings. The nymphs (immature stages) show warning coloration of black and yellow (Fig. 3) and are often found in groups, while the adults are well camouflaged in vegetation. The forewings resemble leaves while the hindwings possess a striking coloration (Rowell, 1983).

DISTRIBUTION. Adult *Tropidacris* ranges around South America, north of the southern cone and are often encountered along areas of the Caribbean coast and the llanos region of Venezuela (Starr, 1998). The habitat range for *T. collaris* shows a wide range from humid forest to more open, drier formations and *T. cristata* is largely lacking from open, dry formations (Carbonell, 1986).

HABITAT AND ACTIVITY. The giant grasshopper is not often encountered in large numbers but can be found in more open drier formations in a humid forest. Nothing much is known of these species (Rowell, 1983). They are typically diurnal meaning that they are active in the day just like any other grasshopper. With this sparseness of biological information, a study was done by Dr. Starr in Venezuela, where he found that the giant grasshopper was found in large amounts in a dry gulch about 150 m long, bordered with sedges, grass and herbaceous plants (Starr, 1998). They would be found in these areas as the grasshoppers source of food is primarily grass, leaves, crops and plants. In the study done by Dr. Starr in Venezuela, he was told by locals that this high abundance of grasshoppers in one location was rare and is a seasonal phenomenon however they were very vague about the season.

FOOD AND FEEDING. The giant grasshopper is strictly an herbivore just as any other grasshopper. The nymphs can only feed on small tender plants such as grass, clovers and fresh shoots but as they grow older their mandibles grow and are able to eat tougher plants (Carbonell, 1986). The adult giant grasshopper aren't picky with their plant type but their favorite foods are plants in the grass family such as wheat, corn, alfalfa and barley. They can digest the driest of plants as they have specialized digestive systems where there are chemicals in the stomach and saliva which break down the carbohydrates in the food to provide energy (Carbonell, 1986). The diet of a giant grasshopper is important to know because in large populations they can act like locusts and can cause millions of dollars in damage to a farmer's crop very quickly (Starr, 1998).

POPULATION ECOLOGY. The giant grasshopper as well as any other grasshopper is an important part of any disturbed as well as any healthy grassland ecosystem as they participate in nutrient cycling, the stimulation of plant growth and plays an important role in the food chain (Stebaev, 1972). On the other hand, as stated earlier, if the population increases to an uncontrollable amount it can become enemies of agriculturalists. Regardless of decades of research, there is still little understanding of the ecology and behavior of giant grasshoppers. In 2001 the Field Naturalists' Club toured the Irois forest near the south western side of Trinidad and it was found that the giant grasshoppers were seasonally abundant in that area and it regularly occurs around that time of the year. These findings work well with the theory that the species *T. cristata* has very little or no breeding in northern Trinidad but has a regular seasonal breeding cycle in southern Trinidad. The rare occurrences of giant grasshoppers in the north can be due to centripetal movement out of the breeding areas and prove to be a genetic dead-end and the scarcity of the species in the north is most likely due to the absence of a breeding population even if conditions are ideal (Starr, 1998).

REPRODUCTION. Not much has been published about the reproduction of the giant grasshopper itself but it would not be much different as compared to any other grasshopper. The male grasshoppers' reproductive organ is the testes containing sperms and the delivery system of the sperms call the aedeagus. The female's reproductive organ consists of the ovaries which take care of the eggs and the ovipositor which lays eggs as well as the entry place for the male's reproductive

organ (Rowell, 1983). During copulation the male mounts the female and inserts its aedeagus into the female's ovipositor where the sperm is used to fertilize the female's eggs. When the female is ready to lay she uses specialized horns on her abdomen to dig about an inch into the ground and lays her eggs into the hole via the ovipositor (Rowell, 1983). Reproduction takes place in the cooler months and hatching of the eggs usually takes place in the warmer months as eggs can hatch in a matter of weeks in warmer months but it can take up to nine months in colder months (Starr, 1998).

BEHAVIOUR. In order to communicate, grasshoppers mainly use sound and sight but as many other animals scent and touch is important in reproduction. They can vibrate their wings in order to make loud sounds that would attract females (Hammond, 2015).

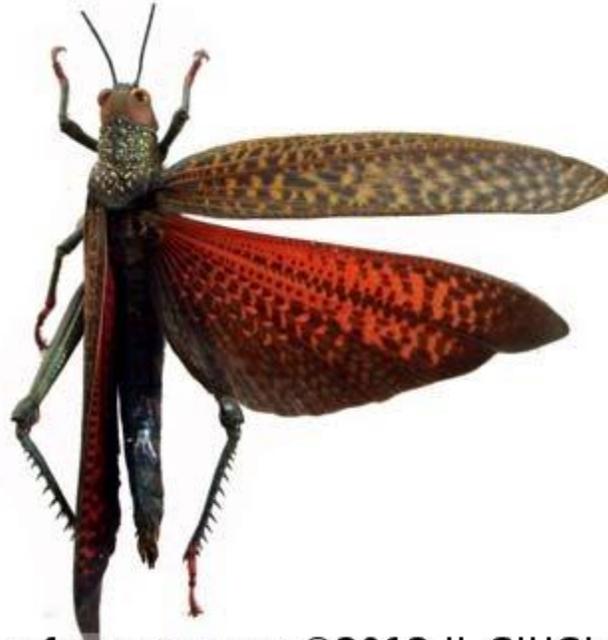
APPLIED ECOLOGY. The giant grasshopper is not a member of the IUCN's list of endangered species but there are conservation threats as people eat these creatures. The large size of the giant grasshopper has caused it to be often mistaken as birds and has been shot down by hunters (Carbonell, 1986). They are also used as pets as the price of a *Tropidacris* species is high as compared to other insects. The giant grasshopper can be a pet as well as a pest as they can be detrimental to a farmer's crop. When they are in large populations they can cause serious damage to crops and any vegetation in their destructive path (Starr, 1998).

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Fig. 2. Coloured hind wing of *Tropidacris cristata*.

[<http://www.entomoservice.fr/index.php?cPath=22&language=en>, downloaded 27 April 2015]



Fig. 3. Nymph of *Tropidacris cristata*.

[<http://www.discoverlife.org/mp/20q?search=Tropidacris+cristata>, downloaded 27 April 2015]

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