

Reprinted from the JAMAICA NATURALIST

CITATION:

Wilkins, Laurie. Notes on the Jamaican Hutia, *Geocapromys brownii* and a reintroduction of a captive bred population. Jamaica Naturalist, Vol. 1, 11-14. 1991.

Published by the

NATURAL HISTORY SOCIETY OF JAMAICA

<http://naturalhistorysocietyjamaica.org/>





Geocapromys brownii - The Jamaican Hutia or Indian Coney (Photo Peter Vogel)

NOTES ON THE JAMAICAN HUTIA, *Geocapromys brownii* AND A REINTRODUCTION OF A CAPTIVE BRED POPULATION

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INTRODUCTION

The Jamaican Hutia, *Geocapromys brownii*, also known as the Indian Coney, is the only surviving endemic terrestrial mammal found in Jamaica. This large rodent, weighing up to 2.5 kg, is a member of the the Capromyidae, a family whose distribution is restricted to the islands in the Caribbean, including the Bahamas.

The genus *Geocapromys* was once more widely distributed than it is today with three species in Cuba, one each from Jamaica, the Cayman Islands, Little Swan Island and one species with three subspecies from the Bahamas. All but two of these are extinct. The most recent extinction reported by G. Clough (1975), that of Little Swan Island Hutia, occurred sometime in the late 1950's or early 1960's. The extinction was believed to be the result of the introduction to the island of a box of cats. The Bahamian Hutia *Geocapromys ingrohami*, is apparently thriving on three islands. It was introduced to two islands from a third, East Clara Cay, where it was rediscovered in the 1960's.

Little is known of the ecology or behaviour of free-living Jamaican conies, except that they are nocturnal herbivores that live in social family groups of 2-6 individuals, although as many as 10 have been reported (Anderson *et al* 1983). They are believed to be sedentary, inhabiting semi-permanent warrens in limestone fissures, solution holes and caves that are common landscape features in Jamaica. Natural populations have been found in such diverse habi-

tats as the xeric scrub forests of Hellshire Hills, wet montane forests of the John Crow Mountains and the karstified, mid-elevation dolines characterized by the Red Hills of St. Catherine and the Cockpit Country of Trelawny.

The species has been successfully bred in captivity at Jersey Wildlife Preservation Trust, Channel Islands, Great Britain and The Hope Zoo, Kingston, Jamaica. Observations in captivity suggest that conies are monogamous and give birth twice per year to one, two or occasionally three offspring (Oliver 1975; Oliver *et al* 1986). Animals may live twelve years in captivity, during ten of which they are reproductively active.

STATUS

The status of the Jamaican coney had remained uncertain for many years. It is known, from fossil and archaeological remains to have been widely distributed throughout the island (Fig. 1 from Oliver 1982; Anderson *et al* 1983). That they were also once abundant is suggested by the heavy dependence on conies for food by the Arawaks, as revealed by the archaeological sites, located approximately 6 km and 5 km respectively, from Kingston, which disclosed that conies constituted 81% (Bellevue) and 50% (White Marl) MNI (minimum number of individual vertebrae present in each sample [Jamaica Archaeological Society; Wing, pers. comm]). Conies have undoubtedly been hunted since those times, and remain a favoured food item in some areas today (Oliver 1982; Wilkins, obs.).

Brief status surveys by Mittermeir (1972) and Clough (1975) concluded that the coney was endan-

gered and populations were restricted to three major areas - Hellshire Hills, Worthy Park and the John Crow Mountains.

The first island-wide survey was conducted for three months in 1981. At that time Oliver (1982) described sixteen surviving populations. He reported that although the coney was in no immediate danger of extinction, factors such as continued deforestation, hunting and predation by feral animals such as mongooses, cats and dogs could lead to their further decline.

More recently a five week reconnaissance survey conducted during 1987 by this author, revealed that three populations had disappeared since 1981; namely from Milestown, the Santa Cruz Mountains and the Dry Harbour Mountains. Further, there have been no reports of conies in the Cockpit Country for many years, even though many people were penetrating deep into it for farming or for timber removal. The population at Hellshire Hills appears to have declined, as many suitable coney holes were abandoned and showed no signs of recent occupancy.

Deforestation could account for these losses, including large scale charcoal burning activities in Hellshire. However, there is no apparent cause for the absence of animals in the Cockpit Country. It is hoped that the animals may still be surviving in the interior.

These preliminary findings, and concerns voiced by Jamaican researchers about rapidly changing land-use patterns and accelerated habitat destruction, prompted the

more thorough investigation underway which at the present time is being conducted in cooperation with William Oliver at the Jersey Wildlife Preservation Trust.

The objectives of the study are:

- 1) to define the current limits of distribution of natural populations,
- 2) to evaluate the impact of present-day hunting activities on remaining populations, and
- 3) to assess the future survival prospects of remaining populations with regards to local conditions and trends.

The early results of the present survey are mildly encouraging. Early fears concerning the Hellshire population have been borne out, as transects throughout Hellshire show that the population is severely fragmented and depleted. Two other populations, however, have apparently remained stable. There is one population around Worthy Park in northwestern St. Catherine and one along the southwestern face of the John Crow Mountains. At Worthy Park, numerous occupied warrens were found at a number of locations, with fresh signs of occupancy by family groups including juveniles. Conditions in the John Crow Mountains are such that warrens are more difficult to enumerate, as signs do not persist and the assessment is more subjective. Nevertheless the forest is relatively intact; hunting pressure and population pressure is low. The presence of animals was confirmed by hearing animals calling at night, the capture (and release) of an individual, and fresh signs.

Many other populations reported in 1982 in St. Catherine, Clarendon, St. Thomas and Portland still persist (Oliver, Pers. Comm.), but some of these are at great risk as hunting pressure continues and /or habitats have become more disturbed and fragmented.

REINTRODUCTION

As a result of a successful captive-breeding programme, and given the uncertain future of wild coney populations, a reintroduction programme was initiated and developed by Jersey Wildlife Preservation Trust (Oliver, 1987). This author was brought in to do the post-release monitoring (Wilkins, 1987).

In March and April 1986, 41 captive-bred conies were reintroduced to a privately owned 74 hectare of wet limestone secondary forest in the parish of Westmoreland. That conies once occupied this region is known from a fossil recovered from Knockova Cave, situated approximately 10 km NW of the release site (Anderson, *et al* 1983).

Extensive pre-release preparations were made (Oliver *et al* 1986) and every precaution was taken to insure the animals' survival.

Ten artificial stone burrows were built incorporating and enhancing natural rock features to provide additional protection to the released groups. These were enclosed by a chicken wire fence to confine animals so that they could become habituated to their new surroundings.

While in captivity, the animals had been weighed, measured, ear-tagged and marked for later field identification. A patch that was shaved from each animal provided an ideal way to recognize individuals at close proximity after release.

Ten pairs of small family groups up to seven individuals were moved to their respective release burrows in the familiar nest boxes they had used since leaving Jersey, including their acclimatization period at Hope Zoo.

While confined on site, they were fed a combination of cultivated and preferred natural vegetation. After one week the enclosures were removed and the animals were allowed free access to the surrounding forest. Supplementary feeding was continued for several weeks, gradually diminishing amounts and increasing the intervals between feedings until the animals appeared to be self-sufficient. The release of ten

groups took approximately six weeks. Nocturnal observations began as soon as animals were released.

After the early groups had been independent for a period of 2-6 weeks, as many animals as possible were recaptured, weighed, inspected for external parasites and their general health assessed. Faecal pellets were collected for urolysis for internal parasites before and after release. The animals were dusted with fluorescent powder, released and tracked in order to determine their exact movements and the plants that were being eaten.

The early results of the reintroduction were encouraging. All animals gained weight from 30 to 300g for adults and remained in good health. Faecal analysis indicated internal parasite load to be negligible. Site fidelity was high as most groups remained in their burrows or in close proximity. By the end of the first phase of the reintroduction, ten weeks after the first group was released, animals were behaving in a manner coexistent with what was known of wild coney behaviour. They had established and marked trails, utilized a home range, foraged long distances and fed on a variety of plants.

Two additional monitoring sessions were conducted: November 1986 and May 1987, eight and thirteen months after the initial release. Table 1 summarizes the recapture/resighting information for all three monitoring periods. At the end of three months, 38 of 41 animals were accounted for. Eight months after the release only 8 animals could be found, including a pair with newborn twins. Most animals had stayed in the vicinity of their release burrows.

After thirteen months, only 2 solitary males were found, one of which was wild born. A return visit two and a half years after the release, in October 1988, disclosed no survivors.

Although the animals had become more secretive as time

lapsed, their sedentary and predictable habits made it possible to relocate them. While it is possible that some individuals may have survived undetected, it is unlikely that there is a breeding population present.

Unfortunately, most animals disappeared between the second and third monitoring period. Although all burrows were inspected, no remains could be found, and it is not possible to determine the cause of disappearance. Dispersal has been ruled out, as the forested mountain is an island in the middle of cleared pastureland.

Predation by humans is not considered a possibility. There is no hunting tradition, the burrows were camouflaged and the uninitiated would have had difficulty in finding or capturing the animals. Predation by owls, mongooses, feral cats and dogs is more likely, since some of these predators may have an impact on the wild populations; dogs certainly are the most serious predator of wild conies.

The period during which the animals disappeared was one of heavy rains, so illness perhaps pneumonia, could be a contributory factor.

It is unfortunate that at the end of an intensive effort such as the one undertaken, we do not know the end of the story. It is nevertheless an important test case. The reintroduced animals reverted to instinctive behaviour and appeared to have adapted to the local conditions quickly, yet most of the animals apparently did not survive.

CONCLUSIONS

There remain many unanswered questions concerning the nature of the threats to the Jamaican coney. They are adaptable animals that persist in some areas on the edge of extensive human disturbance, yet populations decline or disappear in other vast unoccupied areas. Future research may address some of these questions as well as revealing more about the biology of these interesting rodents.

Protection and education are the highest priorities. The coney, like

other Jamaican wildlife, needs a sanctuary. Another, and in some ways more important area, is one located to the north and west of Worthy Park, namely Ty Dixon and Coco Ree.

Geologically, numerous steep limestone hills, each riddled with labyrinth solution holes - "bad holes" according to hunters, combined with lush, deep, narrow valleys provide the two most important elements necessary to enhance survival - protection and forage. Its proximity to the privately owned and protected lands of Worthy Park would be an added benefit.

Finally, the coney is a protected species. Hunters and rangers alike are ignorant of the wildlife protection laws or they blatantly ignore them. Enforcement of these laws could make a difference as many hundreds of animals are still killed each year by hunters, even though hunting in most areas has declined.



Coneys feeding on peanuts

TABLE I. RESIGHTING OF RELEASED GROUPS

Group No. 1 Name	Date of Release	No./SEX Date of Release	No. Animals Resighted During Monitoring Periods		
			April-May '86	Nov.'86 Jan.'87	May-June '87
1. Beggars's Roost	21/4/86	4M 3F	7	2	0
2. Sinkhole	18/4/86	1 pair	2	0	0
3. Fig Tree	10/4/86	2M 2F	4	0	0
4. Mosquito Hollow	03/4/86	2M 2F	3*	0	0
5. Yankee Land	25/3/86	5M 1F	6	0	0
6. Beyond Petition	10/4/86	3M 2F	4*	4**	1+
7. One-Day-One	02/5/86	1 pair	2	1	0
8. Another One Day	25/4/86	1pair	2	0	0
9. Tree Root	25/4/86	1 pair	2	0	0
10. Outpost	02/5/86	5M 2F	6*	1	1
TOTAL		41	38	8	2

* Early Losses ** Includes 2 infants born in wild + Wildborn

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