

**Feral Donkey (*Equus asinus*) Survey on  
Diego Garcia**

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Appendix H

## Introduction

Feral donkeys (*Equus asinus*) have been on Diego Garcia presumably since the end of the plantation era in 1972. It is not known how many donkeys were released at this time. In the past there have been guesses as to how many donkeys were in the population. This is the first time that a population estimate was produced using any type of scientific methodology.

## Methods

The main road (from the donkey gate to the Minni Minni conservation area) on Diego Garcia was driven in the early morning (0600 am-0900 am) and in the late afternoon (1600 pm-1800 pm). All donkeys seen were counted, sexed (when possible) and aged. Donkeys were photographed and/or marked with a paintball for identification. Paintballs were delivered by slingshot. In follow up surveys marked or recognizable donkeys were recorded as were new animals. Eight separate surveys were performed. The data was analyzed with the mark-recapture software MARK.

## Results

A total of 17 donkeys were marked/identified over the 8 marking events. Program MARK gave a population estimate of 20 donkeys with 95% confidence limits of 17-36 donkeys (note, MARK often gives a “skewed” confidence interval with the estimate not being in the exact middle of the interval). MARK also gave a capture or sighting probability of 0.26 with 95% confidence limits of 0.12-0.47. Meaning that at any given time an average of 26% of the population is visible, given the above survey method.

The biologist feels that the number of donkeys is probably around 25-36; higher than the estimate of 20, but still within the confidence interval.

## Discussion

The present donkey population appears to have decreased from previous years. During 2001 the number of donkey carcasses recovered from the antennae fields sharply increased (chart 1., data provided by Nestor Guzman). While this does not document donkey mortality elsewhere on the island it is a useful index. For whatever reason there was a large die off of donkeys during 2001.

In 1998, 41 donkeys were counted between the donkey gate and the GEODS building (Guzman unpublished data). During the present surveys no more than 9 donkeys were seen in this area. It is reasonable to extrapolate from the current population estimate and conclude that the 1998 population was around 90-100 animals. This indicates that the population has declined by about 80%.

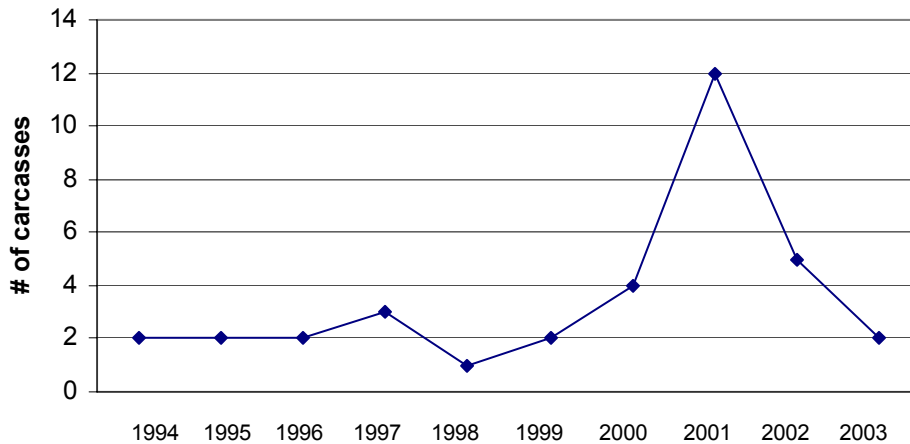
One can only speculate as to the reasons for this decline. Donkeys can survive on poor quality forage and there are few examples of an equid population overshooting the

carrying capacity of the habitat and having a massive die off (Moehlman, 2002). There have been instances of equid population crashes due to extreme environmental conditions (Moehlman, 2002). Protein content of their feed and freestanding water are considered to be limiting factors (Moehlman, 2002), so they are susceptible to drought but it is unknown if this is the reason for the population decline.

It is also unknown exactly what effect the donkey population is having on Diego Garcia. There have been no efforts to date to document this (if you don't look you won't find anything). The donkeys have been feral for over 30 years and as such the most easily observable changes probably occurred within 10 years of release (20 years ago). Based on the effects that other exotic large grazers/browsers have had on islands (Anderson and Stone 1994, Morton 1998) one can conclude that controlling or eradicating the donkey population will benefit the Diego Garcia habitat.

**Chart 1.**

**Donkey Carcasses found on Diego Garcia**



**Recommendations**

We recommend that the donkey population be regularly monitored. We also recommend that a donkey control program be implemented. Because the population is at a low point, now is the time to implement a control program. It is inconsistent to perform eradication/control of other mammalian exotics (rats and cats) and not do the same for this species (an easier and cheaper species to control/eradicate). If culling/eradication (which would eliminate the need to monitor the population) is not acceptable then the recommended control method is immunocontraception for the female donkeys.

Immunocontraception is a technique in which a vaccine is administered to the female causing an immune reaction and preventing pregnancy. The females own antibodies cover her egg and sperm cells cannot fertilize the egg (the receptor sites for the sperm

cells are blocked by the antibodies). Ovulation and animal behavior are not effected. Since there are fewer female donkeys now, this method will work quite well with a minimum of expense. After the initial vaccine, yearly booster shots are given. The immunocontraceptive vaccine is delivered via dart. The dart can be delivered from a blow-gun or dart gun. There are several types of dart guns that work on compressed air and do not violate Diego Garcia ballistic regulations.

Population monitoring and Immunocontraception can be performed by existing Diego Garcia Navy staff. Training can be provided by Navy staff with experience in immunocontraception (COMNAVMAR on Guam used this method for water buffalo population control) and population monitoring of large mammals.

### **References**

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