

Reintroduction of the critically endangered Antigua Racer *Alsophis antiguae* to Rabbit Island, Antigua

Daltry J.C.

Fauna & Flora International, Jupiter House, 4th Floor, Station Road, Cambridge CB1 2JD, UK

SUMMARY

Ten Antigua racers *Alsophis antiguae* were introduced to Rabbit Island in 1999. Breeding was first recorded in 2002 and by 2006 the population was estimated at 40-50 individuals.

BACKGROUND

The Antigua racer *Alsophis antiguae* is a harmless colubrid snake which used to be abundant throughout the Lesser Antillean islands of Antigua (and its many satellite islands) and Barbuda (total area of 440 sq km). It is an ambush predator, feeding mainly on Watts' anole *Anolis watsi*, spotted anole *Anolis leachi*, and Antigua ground lizards *Ameiva griswoldi*. It is a diurnal, ground dwelling species preferring habitat with a dense canopy cover, undergrowth and an accumulation of leaf litter.

In the late nineteenth century the Asian mongoose *Herpestes javanicus* was introduced to Antigua in order to control the invasive black rat *Rattus rattus* which was destroying European settlers' sugar cane crops. The mongooses had negligible impact on the rats, but preyed on the more easily captured endemic species, and decimated the population of the Antigua racer. In 1936 H.W. Parker declared the species extinct on the main island of Antigua.

Antigua racers persisted for a few more decades on some of the mongoose-free offshore islands, but by the 1980s, they were confined to a single islet, Great Bird Island lying 2.5 km off the north-east coast of Antigua. This 9.9 ha islet represents less than 0.1% of the species' original range. Awareness of the plight of the Antigua racer was raised in 1991 in an article in the journal *Oryx*, and the species was listed by IUCN as Critically Endangered in 1996.

In 1995, a survey was undertaken on Great Bird Island to assess the status of the Antigua racer. The survey estimated the population size to be approximately 51 adult and sub-adult racers. Non-native black rats were common and identified as a serious threat to the racer population. As a result, the Antigua Racer Conservation Project (ARCP) was created and the decision made to eradicate rats from Great Bird Island (see Daltry 2006a for rat eradication, and Daltry 2006b for the resulting racer population increase).

To avoid having the racer population confined to one small islet and the associated risks of extinction that this posed, and to allow the population to increase, it was considered important to establish more populations on suitable islands within the species' historical range. A reintroduction plan was developed by ARCP in 1999, and officially endorsed by the IUCN/SSC Reintroduction Specialist Group in the same year. The goal of the plan (still under implementation) was to reintroduce Antigua racers to at least four islands in order to establish a population of at least 500 breeding adults. The first reintroduction summarised here, took place in 1999 when Antigua racers were translocated from Great Bird Island to neighbouring Rabbit Island (see Daltry 2006c for details of the second translocation to Green Island).

ACTION

Reintroduction plan: A reintroduction plan was developed by ARCP in 1999, and officially endorsed by the IUCN/SSC Reintroduction Specialist Group in the same

year. The goal of plan, which is still under implementation, was to reintroduce Antiguan racers to at least four islands in order to establish populations totalling at least 500 breeding adults.

Study site: Rabbit Island (2 ha in area) lies less than a kilometre south-west of Great Bird Island. The island is covered in low trees and bushes, with many cacti and annual herbaceous plants. The island was selected as a site for reintroduction for a number of reasons. It has well-developed forest cover, a high density of prey species, an absence of mongooses, it is close in proximity to Great Bird Island, and it is not significantly affected by flooding during hurricanes. The island is uninhabited and is rarely visited by people. In 1998, black rats were successfully eradicated from the island – a vital prerequisite before releasing any racers. Its most notable disadvantage, however, was its small size and the absence of one of the racer's key prey species, *Ameiva griswoldi*.

Reintroduction and monitoring: Between 30 November and 7 December 1999, five male and five female racers of various sizes were caught and translocated from Great Bird Island to Rabbit Island. At this time, many of the racers on Great Bird Island were perceived to be starving, and the removal of ten was deemed appropriate to help relieve the competition for food among the racers remaining on Great Bird. All of the racers were marked with PIT tags, measured and had DNA samples taken (the last 2 mm of the tail, preserved in ethanol).

Five racers were then simply put into cloth bags, taken to Rabbit Island, fed one or two live lizards, and released. For these individuals, the entire translocation process was completed within 24 hours of their capture on Great Bird Island.

The other five racers were taken to mainland Antigua for several days in order to be anaesthetised with methoxyflurane (Metofane™, C-Vet, England) and surgically implanted with miniature radio-transmitters. They were then fed on lizards and released. The transmitters enabled close monitoring for up to six months, after which time the batteries would expire.

The epoxy-coated radio transmitters had transmission frequencies of 173.23 - 173.34 MHz (model SB-2, Holohil Systems Ltd., Ontario). Each complete package weighed 4 g,

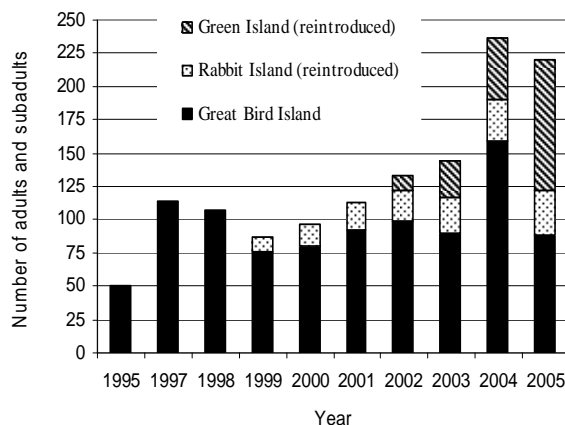


Figure 1. The world population of Antiguan racers *Alsophis antiguae* from 1995 to 2005 (all islands).

equivalent to 2.5-5.3% snake body mass. The transmitters had a 15 cm flexible whip antenna, which was implanted under the snake's skin. Receiving equipment was an M57 receiver (Mariner Radar Ltd, UK) with a 3-element Yagi antenna. The reception distance was up to 100 m (as little as 3 m when the snakes were deep below ground).

CONSEQUENCES

Monitoring: The radio-tagged racers were tracked four times a day for two weeks during three separate periods until the batteries expired in mid 2000. The released snakes behaved completely normally on the island, and were found to be hunting and feeding successfully. Project researchers continue to visit Rabbit Island every year, to search for racers and to measure any that are caught. Unmarked racers - all of which have been born on the island - are marked with PIT tags.

Reintroduction success: The first offspring on the island was recorded in 2002 – a female that had already reached adult size. Between 10 November and 4 December 2003, ten adult and ten sub-adult racers were captured on Rabbit Island. These included five of the original ten 'founder' stock released in 1999 and the others were evidently their progeny. At least three other young adults/ sub-adults were also seen, but evaded capture. The population (in 2006) is currently estimated to number around 40-50 adults and sub-adults. The world population of racers from 1995 to 2005 is shown in Figure 1.

Conclusions: The translocation of Antiguan racers to Rabbit Island to date has been successful. Many of the released animals have been recaptured in subsequent years, and found to be very healthy, indicating high survival rates. The presence of many young has confirmed that the reintroduced racer population is successfully breeding. Offspring from Rabbit Island have been translocated to found a second new population on Green Island.

REFERENCES

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