

RESTORATION OF NUUTELE & NUULUA, ALEIPATA ISLANDS, SAMOA
PROTECTION OF FRIENDLY GROUND DOVE DURING PROPOSED RAT
ERADICATION

D.J. Butler 23/3/05

Introduction

For one of the species potentially at some risk of poisoning under the proposed rat eradication regime, the Friendly Ground Dove, Nu'utele and Nu'ulua hold populations that are nationally significant. The complete loss of these populations would threaten the survival of the taxon in Samoa. Some authors consider the Samoan doves to be a separate race (*Gallicolumba s. stairi*) from those in Fiji and Tonga (Watling, 2001). Outside Samoa, the race is only found on the small island of Ofu, American Samoa where it is threatened. So the loss of Nu'utele and Nu'ulua birds could threaten the race with extinction.

Options for protection

Various options were looked at for addressing the risk to ground doves:

One was to treat the two islands separately – using rat eradication on one to assess the risk to the species before deciding how to go about the other island. The idea was that if significant dove mortality occurred on the first island this could be re-stocked from the second island before it was treated. If no significant mortality was detected then the second operation could go ahead using the same methodology. This option was rejected because of the expense involved in holding a helicopter in Samoa for long enough, or bringing one there twice, in order to sufficiently separate the operations.

Conducting feeding trials with non-toxic baits was considered to try and confirm whether the doves were at risk. However even if birds did not appear to take baits under experimental conditions there was no guarantee that they would not do so during the drop. Covering part of the area with ground bait stations was also looked at, but not enough is known about the birds' home ranges to be sure that they would not also use cliff areas treated from the air.

The option of holding birds in captivity so that they are not exposed to baits was chosen. Within this option there are two possible approaches. One would involve holding birds in temporary aviaries that would exclude baits on the islands or adjoining mainland, then releasing them immediately that the risk of poisoning had passed. This would presumably be taken as the point that any remaining baits had broken down so completely that they would be unavailable to doves. The trials conducted in June suggested baits to still be partly intact after seven days so a significantly longer period than this would be needed. Temporary aviaries have been used frequently in New Zealand bird conservation programmes and designs are available. It would be feasible to build aviaries in sections on the main island Upolu in Samoa and ship them to the Aleipata Islands for erection there.

The second approach would be to hold birds in a more permanent situation to allow them to breed and then return an increased number to the islands at a later date. Such captive breeding is very important for conservation in many countries and clearly can work in the South Pacific. The Tongan Bird Park provides an example of a facility that has been sustained for many years becoming both a tourist attraction and a source of significant conservation outcomes at times. It is also worth noting that the Samoa's National Biodiversity Strategy contains two relevant actions: '3.1.5. Explore the feasibility of establishing captive breeding/spawning programmes as a security from the impacts of natural disasters and alien species introductions' and '3.1.6. Explore and assess the feasibility of setting up an aquarium/zoo for conservation of species' so any initiative would contribute to wider goals than just the eradication. The obvious site for any captive locality would be the Vailima Botanic Gardens which already houses the headquarters of the country's Parks & Reserves staff. Such an option could maybe obtain its own funding and support, perhaps from an Australasian zoo.

The temporary holding approach was favoured by most experts who commented on this issue and has been chosen.

Some of those involved question whether enough birds can be caught in a relatively short period before the operation as would be required. An expedition to attempt to net birds, refine capture techniques, and colour-band those caught is planned for later in 2005. This would identify the likely effectiveness of this approach, allow it to be improved, and provide a means to estimate the population by subsequent observations of banded vs unbanded birds. It would also be an opportunity to trial aviaries and captive husbandry techniques, though as the final section shows there are previous successful programmes to base this on.

Avicultural assistance sought

The project seeks avicultural assistance to accomplish the following tasks:

- Test and refine capture and holding techniques for ground doves during an expedition in 2005 (1-2 weeks between June-Sept)
- Assist with capture of ground doves prior to aerial poisoning operation (c.1 week – between June-Sept. 2006)
- Oversee the captive care of ground doves in temporary aviaries for c.2 weeks during and after poisoning operation
- Design/source temporary aviaries that could be transported to the islands or built on site
- Organise/trial food for birds
- Provide basic veterinary care for the birds while in captivity
- Involve local staff in all elements of the operation so that they developed some experience in/understanding of such work.

Note: This schedule is provisional and depends on gaining approvals and funding for the operation, so no firm commitments are expected at this stage.

The person(s) sought should be self-reliant, able to work as part of a team in an isolated situation camping in tropical conditions.

Institutional Arrangements

Arrangements would be negotiated between the project partners (expected to be the Ministry of Natural Resources & Environment, Samoa; the Secretariat for the Regional Environment Programme; and an outside funding agency) and the Zoological Institution offering assistance. It is hoped that the institution would be able to cover as a minimum the salary(ies) of its staff participating in the project and ideally their travel/living allowances. In return for assistance the institution could expect to obtain opportunities for publicity and contribute to what is believed to be the first aerial eradication of rats in the Pacific Islands and the conservation of one of Samoa's most threatened birds.

Assistance could be seen as a 'one-off' specific to this project. However Samoan agencies may be interested in discussing some longer-term cooperation towards developing their own capacity for captive rearing of wildlife, as mentioned in the National Biodiversity Strategy & Action Plan.

Capture and Husbandry of Ground Doves

The following notes were prepared by Dieter Rinke, formerly in charge of the Tongan Bird Park and now Conservation Director, Walsrode Bird Park, Germany as advice to a programme for the Tuamotu Ground Dove in Tahiti.

"The doves are easy to keep on a simple small seed mix, which is available for small doves such as Diamond Dove etc. (all these small Australians). I also offered fruit of various kinds, cut into small cubes. A vitamin and mineral powder is added to the fruit mix on three days per week. I captured approximately 60 Ground Doves (*Gallicolumba stairii*) in Tonga to start a captive breeding programme, 20 of which were taken from a remote island to a breeding centre on Tongatapu, the remaining were measured and released.

Ground Doves are extremely nervous, and they injure the fronts above the beak, when trying to escape through wire. The transport boxes should be all wood with small holes around the tops of the sides of the box. It should be dark inside, so that they do not move much. The boxes should be small, perhaps 20 by 30 cm, and 15 cm high. Each bird needs a separate compartment, because they can be rather aggressive. Birds can be kept in such boxes up to 24 hours.

The capture cages should be made from sack-cloth in order to prevent any injuries. Sack-cloth normally gives them enough light to find water and food. The Ground Doves from Tonga easily ate any mix of small seeds (ideally a prepared mix for small doves), a dried food mix for insectivorous birds, and small berries. Again, I had difficulties to keep birds together in small enclosures, so separate cages should be provided. I had several birds not getting enough food when several were kept together in one box or cage.

The aviaries should be well planted, giving them places to hide, and should not be too high (2 to 2.2 metres only), because when frightened, they fly straight up and often hit the roof of the aviary. Some artificial horizontal branches (diameter 2 to 4 cm) should be provided, because the birds prefer thicker branches to sit on. Wire mesh size is approx. 16 mm. The back and one third of the sides of the aviaries should be closed

walls (I used thin sheets of timber), and the back third of the aviary should have a roof (I used corrugated iron or plastic), so that the birds have some shelter.

Whenever I approached the cages and aviaries, I "talked to them", so that they were prepared that someone approaches the aviary. The doves should be kept in pairs only. They easily started breeding. I used halved whole coconuts (including the fibres), taking out the shell and the copra. The birds could nest in the cups of soft fibre then. Several of these "artificial nests" were put at various places and different heights within each cage. Very important: the aviaries must be absolutely safe to prevent rats and mice from penetrating the enclosures.

In Tonga, I reared 64 young doves in three years from six pairs. Most of the offspring were released on remote Tongan islands - but I never had a chance to check whether the releases were successful.

Capture cages are those, which I used in the field to keep the birds in during the time between capture and transportation. As far as I remember, these cages were approximately 80 cm by 50 cm and 50 cm high. The Tongan Ground Doves are also very tame and can be approached very closely. However, they can easily be frightened, especially after capture, when they have been in human hands, and if one surprises them when approaching. Ground Doves in general have the habit to fly up very fast and straight once they are frightened. We used mist nets, which we placed close to the ground. I had no hand nets, but if the birds are very tame, this method could be successful. If the first attempt fails, however, the use of hand nets may not be possible any more. The birds can remain in the transport box for some time, perhaps up to 48 hours, if food and water are provided. Food is easy, because you can spray seeds on the ground of the box. For water, we use plastic cups, which we nail into one corner of the box, put in a sponge, and fill it up with water. You can also give finely cut fruit, but these get bad very fast, so you would need to replace it during transfer. This is not good for the birds."