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**REINTRODUCTION OF NOISY SCRUB-BIRDS TO THE  
DARLING RANGE**

**APPROVED**

**A proposal to re-establish an Endangered species in its Type Locality  
for consideration by the Director of Nature Conservation and the Director, WA  
Threatened Species and Communities Unit.**

**Proposed by**

**Alan Danks**

**on behalf of the South Coast Threatened Birds Recovery Team**

**April 1997**

# REINTRODUCTION OF NOISY SCRUB-BIRDS TO THE DARLING RANGE

## SUMMARY

The Noisy Scrub-bird Recovery Plan identifies the need for additional scrub-bird populations at sites distant from those currently existing in the Albany Management Zone in order to achieve the objective of reduced reliance on management and possible upgrading from the Endangered category to Vulnerable. Translocation of birds from Two Peoples Bay to new sites have shown that, given suitable habitat, this technique can successfully establish new populations of Noisy Scrub-birds.

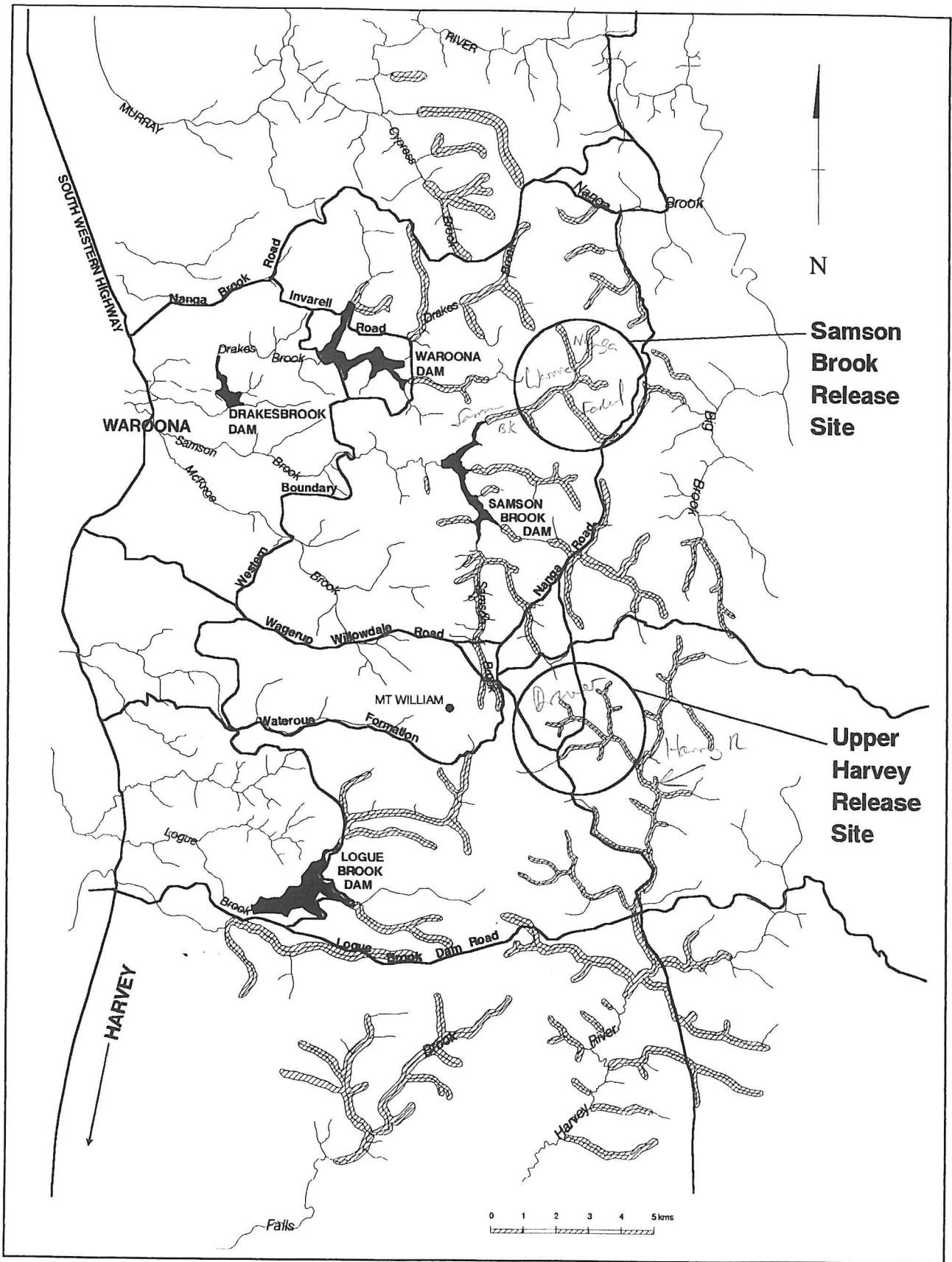
Release site surveys have identified habitat suitable for Noisy Scrub-birds in the Darling Range. This area, between the Murray River gorge and the Harvey Dam, includes the Type locality where the species was originally discovered last century. The habitat occurs in the riparian zone along creeks and streams. These areas are generally not affected by spring prescribed burns nor by the bauxite mining activities which focus on mid-slope deposits.

It is proposed to reintroduce Noisy Scrub-birds into this part of their historical range in two stages. The first - to take place in May / June 1997 - will involve the release of a small group of male birds from Two Peoples Bay at two sites within the release area. Monitoring of these birds through radio-tracking and singing males will show whether they persist in the area. Their persistence will verify the capacity of the release site to support Noisy Scrub-birds and justify the release of females to begin the establishment of a breeding, self-sustaining population of Noisy Scrub-birds in the Darling range.

In line with the requirements of CALM's policy on translocations (Policy Statement No. 29: Translocation of Threatened Flora and Fauna) this document provides details of the proposed translocation, the source of the birds and the methods which will be used to capture, house and transport them to the new site. The techniques that will be used to monitor the birds at the release site and in the source population are described and background information about the biology and ecology of Noisy Scrub-birds and the results of previous translocations are summarised.

## KEY INFORMATION

<b>Proponent:</b>	Alan Danks, Reserve Manager Two Peoples Bay, Leader, Noisy Scrub-bird Project.
<b>Species:</b>	Noisy Scrub-bird <i>Atrichornis clamosus</i> .
<b>Status:</b>	Endangered. Recovery Plan (Danks et al 1996).
<b>Number to be translocated:</b>	Initially, 10 - 15 males; if these persist they will be followed by 5 - 10 females in 1998.
<b>Reason for proposal:</b>	Recovery of species requires development of additional large population well separated from existing populations in East Albany Management Zone (Recovery Plan).
<b>Translocation type:</b>	Reintroduction. Release site is near Type locality.
<b>Source:</b>	Mt Gardner, Two Peoples Bay Nature Reserve.
<b>Release sites:</b>	Samson Brook, Dwellingup District (Swan Region). Upper Harvey River, Mornington District (Central Forest).
<b>Release site tenure:</b>	State Forest. Within ALCOA mining lease.
<b>Monitoring:</b>	Immediate post-release monitoring by radio telemetry; in the longer term singing males will be regularly counted and their locations mapped.
<b>Costs:</b>	Total costs (ex salaries) of translocation project \$40 000.
<b>Funding:</b>	Salary of Technical Officer for project paid by Environment Australia (ESP). ALCOA has offered to pay \$10 000 for radio-tracking project.
<b>CALM costs:</b>	South Coast Region: salary of project leader. Mornington District: salary costs of assistance in releases and monitoring. Fire management - protection and suppression of wildfire when necessary. Similar for Dwellingup District. <b>Executive Director has indicated he will find funding for the translocation project.</b>
<b>Predator control:</b>	Foxes currently controlled in release area by aerial dispersal of dried meat 1080 baits under Western Shield.



Proposed Noisy Scrub-bird release sites in the Darling Range.




**ENDORSEMENTS**

  
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**Proponent**

  
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**Date**

This proposal is endorsed by the South Coast Threatened Birds Recovery Team:

  
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**Chairman,**  
**South Coast Threatened Birds Recovery Team**

  
.....  
**Date**


This proposal is endorsed by the South Coast Region:

  
.....  
**Leader Nature Conservation Group**

  
.....  
**Date**


This proposal is endorsed by the WA Threatened Species and Communities Unit:

  
.....  
**Director, WATSCU**

  
.....  
**Date**

The proposal is approved by the Director of Nature Conservation:

  
.....  
**Director, Nature Conservation**

  
.....  
**Date**

# REINTRODUCTION OF NOISY SCRUB-BIRDS TO THE DARLING RANGE

## 1.0 INTRODUCTION

The Noisy Scrub-bird has been the subject of research and conservation management since its rediscovery as a living species over 35 years ago at Two Peoples Bay. The conservation program which has been maintained by CALM, has been very successful and the Noisy Scrub-bird has become a “flagship species” whose conservation has brought benefits to several other threatened species including the rediscovery of Gilbert’s Potoroo. Translocation of scrub-birds to new sites in the Albany area has been an important part of this success story because the establishment of additional populations by this means has allowed the total population to increase far beyond the capacity of habitat at Two Peoples Bay and, of equal importance, has reduced the species vulnerability to wildfire.

A new translocation to a site in the Darling Range is now proposed which, if successful, could lead to a very significant increase in the size and distribution of the Noisy Scrub-bird population. The proposed release area is 300 km from the existing population on the south coast. It is also very close to the locality where the species was first discovered last century and, if the environmental changes of the last 150 years have not undermined the capacity of the habitat to support Noisy Scrub-birds, it should be possible to establish a large population in this area. Scrub-birds apparently disappeared from the Darling Range soon after European settlement last century so a successful reintroduction of scrub-birds would be very satisfying from an historical perspective. This project is somewhat unusual since it is proposed to release scrub-birds into habitat within areas covered by bauxite mining leases. Fortunately, bauxite mining operations leave scrub-bird habitat along the streams intact and should not effect the ability of the area to support a large population.

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### 1.1 Reasons for the proposal

The Noisy Scrub-bird Recovery Plan recommends the establishment of a large population of birds additional to those in the Albany Management Zone (Recovery Plan Section 3.1 Recovery Objectives). The development of such a population in a western management zone would increase the size of the overall population. The existence of an additional, distant population would lower the species’ vulnerability to wildfire. Together, these gains would help the species meet the Mace and Lande (1991) criteria for upgrading to the Vulnerable category.

## 1.2 Translocation Strategy

- Release site surveys were undertaken during 1996 and 1997 which showed the suitability of riparian vegetation in the creek lines of the Darling Range between the Murray River gorge and the Harvey Dam as potential habitat for Noisy Scrub-birds.
- It is now proposed to capture a small group of adult male birds (10 - 15) from the Mt Gardner area in Two Peoples Bay Nature Reserve and release them at two sites (Samson Brook and the Upper Harvey River) in the Darling Range release area.
- These males should quickly establish territories in their new area. Territorial song will enable their presence and position within the release area to be monitored on a monthly basis.
- Radio-tracking will be used to study post-release behaviour of some individuals and closely monitor their fate during the critical early period after release.
- The survival of this pioneer group of scrub-birds through the following 12 months will verify the ability of the release area to support the species.
- Survival of these birds (or a significant number of them) at the release site will justify the release of female scrub-birds (five to ten individuals) from Two Peoples Bay into the areas where males have established territories.
- After the release of females, annual counts of singing males in the release area will be used to determine any increases in number which result from breeding in the new population.
- The effect of removal of individuals on the parent population at Two Peoples Bay will be monitored by annual counts of singing males and, where practicable, close observation of replacements.
- Additional releases of scrub-birds into the Darling Range may be considered at a later date in order to increase numbers or improve the genetic structure of the new population.

## 2.0 BACKGROUND TO THE PROPOSED REINTRODUCTION

Background information on the species in question is a requirement for Translocation Proposals under CALM's Policy No. 29: Translocation of Threatened Flora and Fauna (CALM 1995). Detailed information on the biology and ecology of the Noisy Scrub-bird, its former and present distribution and its current management and conservation status are contained in the Noisy Scrub-bird Recovery Plan (Danks et al. 1996) and references

therein. A copy of the Plan is included with this proposal. A summary of information about the scrub-bird relevant to this translocation proposal is presented here.

### 2.1 Biology and Ecology

The Noisy Scrub-bird *Atrichornis clamosus* is a small (34 - 55 gm), cryptic insectivore which inhabits low forest and dense scrub on the south coast near Albany. It is semi-flightless and feeds primarily among leaf litter and debris on the ground and the shrub and sedge layer of its habitat. Research at Two Peoples Bay has shown that, in the breeding season at least, they eat mainly ants, beetles and spiders (Smith and Calver 1984, Danks and Calver 1993, Welbon 1993). These invertebrate groups are present in high numbers in the leaf litter of areas inhabited by Noisy Scrub-birds (Danks and Whisson unpub. data).

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The males are larger and more conspicuously marked than the females. They are also highly territorial and defend their territories with a loud, resonant song. The females on the other hand, do not sing, are even more elusive than the males but carry out all the nest building, incubating and chick rearing unaided - a process which may take six to nine months.

Breeding occurs in winter with most eggs being laid in the last week of June. Only one egg is laid and the female raises a maximum of one chick per year. Females are able to breed in their first year. Males, however, do not attain adult plumage until their second year when they may also begin to sing territorial song. Adult males and females spend little time together and nest sites are usually on the periphery of, or in between, several male territories. The breeding system has not been studied in detail but observations suggest a polygynous mating system.

Known predators of Noisy Scrub-birds are very few. Mardo *Antechinus flavipes* has been observed to take an egg from a nest (Smith and Robinson 1976). The feral cat *Felis catus* has been suspected of destroying one nest and a Collared Sparrowhawk *Accipiter cirrhocephalus* was the likely predator of a young male scrub-bird at Two Peoples Bay (Danks pers. obs.). Evidence from Two Peoples Bay suggests that fox predation has not effected the scrub-bird population. The number of singing males there increased during a period when foxes were present and, since fox numbers have been reduced due to control measures introduced in 1988, has not shown a greater rate of increase (Danks et al. 1996, Danks 1997).

### 2.2 Former and Present Distribution

John Gilbert discovered the Noisy Scrub-bird at Drakes Brook in the Darling Range in November, 1842. Later in the same year he found the bird in the Augusta area and, in 1843 described a larger population around Albany and as far inland as Mt Barker (Gilbert 1843, Whittel 1943, Fisher 1992). The bird apparently disappeared quickly from the Darling Range as it was never recorded from there again. In the Albany area specimens were taken by two later collectors, George Masters and William Webb and considered not

uncommon there in the 1860s and 1880s (Webb 1895). The last record in the Augusta area was in 1889 and it was also in this year that the last nineteenth century specimen was taken near Albany. Thereafter, despite dedicated searches, no sign of the bird was found until a small remnant population was rediscovered at Two Peoples Bay in 1961 (Webster 1961).

Sub-fossil remains of *Atrichornis* have been found in Holocene deposits in Skull Cave near Augusta and dated at 2900 - 7875 years before the present (Baird 1991). Climate and vegetation similar to the present is considered to have prevailed in the south west of Western Australia at that time. The *Atrichornis* remains made up 19% of the avian material in the deposit which Baird (1991) decided was probably formed by accumulation of Barn Owl *Tyto alba* pellets. This relatively high proportion may indicate that the scrub-bird was fairly common at that time.

### 2.3 Reasons for Decline

By the time of European discovery the scrub-bird appears to have declined from its previously more widespread distribution possibly due to climatic changes. The rapid decline in numbers of Noisy Scrub-birds between mid- and late-nineteenth century, however, is considered to have been due to habitat clearance for agriculture and large scale, repeated wildfires (Smith 1977, Smith 1987). Such fires would remove the essential protective lower storey vegetation over large areas for several years. Repeated extensive fires which did not leave sufficient refuge areas, would result in the extinction of local populations. If the nineteenth century population was as discontinuous as the records indicate, it is not hard to imagine the species rapidly disappearing from the west coast areas. A similar process would have occurred and had the same effect in the Albany area with the exception that at Two Peoples Bay natural fire refuges existed in the deep gullies on Mt Gardner where a small population of less than 100 individual scrub-birds (along with perhaps the only remaining Gilbert's Potoroos) were able to survive.

## 3.0 CONSERVATION MANAGEMENT

Efforts to conserve the Noisy Scrub-bird since rediscovery have included the establishment of Two Peoples Bay Nature Reserve and the management of this reserve mainly for conservation of the scrub-bird. The primary management tool has been exclusion of fire from scrub-bird habitat (Orr et al. 1996). Research on the species' ecology and biology was carried out during the 1970s by CSIRO which provided biological and ecological information important in the management of the species (Smith and Robinson 1976, Smith 1977 and Smith 1985). Captive breeding, with the aim of producing birds for reintroduction, was also attempted (Davies and Smith 1980). Trends in the scrub-bird population have been monitored since 1970 by annual counts of the number of singing males (Smith and Forrester 1981, Danks et al 1996).

### 3.1 Translocations

The Noisy Scrub-bird cannot readily disperse through the landscape because of its poor flight capabilities. Translocation to new sites in the 1980s and 1990s has therefore been a vital technique for increasing the bird's range and population size. Regular translocations of birds from Two Peoples Bay since 1983 have resulted in an increase in the size of the population from 40 singing males in 1970 to 474 in 1994 - the last year the whole population was censused. The overall population, divided now into seven "subpopulations", has spread along about 50 km of the coast east of Albany. This development has provided considerable additional security against the threat of fire. (Danks 1994, Danks 1997).

Noisy Scrub-birds have been translocated to seven sites on the south coast. Four (57%) of these have been successful in the sense that the birds have persisted at the release site and / or developed breeding populations. These successful translocations have all been within 30 km of Two Peoples Bay. In contrast, translocations to sites west of Albany have not succeeded in establishing new populations. The results of all Noisy Scrub-bird translocations are discussed in Danks (1994) and Danks et al. (1996). A brief summary is presented here.

The first translocations of Noisy Scrub-birds took place in 1983. During this pilot project techniques for catching, transporting and maintaining scrub-birds were developed and these methods have been refined during subsequent translocation projects. A total of 18 males were released at Mt Manypeaks and by 1988 the number of singing males had increased to 26 indicating local breeding was occurring since the possibility of natural immigration into the Manypeaks area from Two Peoples Bay was considered remote at that time. By 1994 the number had reached 224 singing males and the Mt Manypeaks population had become larger than the parent population. In the last few years this population has expanded east into nearby habitat in the Waychinicup area and inland from Normans Beach to the west

As well as the direct conservation benefit which the development of the Mt Manypeaks population conferred on the species, the success of this translocation was also important because it proved that it was possible to establish a new population by translocation and that the birds were capable of breeding and quite rapidly increasing their numbers in the new area.

Other successful transfers were achieved at Mt Taylor in Gull Rock "National Park", Bald Island Nature Reserve and the Mermaid Point area in Waychinicup National Park although the birds in the latter area are being overtaken by those dispersing from Mt Manypeaks. These populations are small and, due to habitat limitations, are likely to remain small ie. less than 50 singing males. Nevertheless, their existence helps spread the population in the Two Peoples Bay area providing considerable additional fire security for the species.



### 3.2 Unsuccessful Translocations

In 1986 and 1987 attempts were made to establish scrub-birds in the Nuyts Wilderness area of Walpole-Nornalup National Park 150 km west of Two Peoples Bay. Although a few birds persisted in the release area for a year or two, nothing more has been heard of these birds after 1989. Similarly, the scrub-birds released at Quarram Nature Reserve in 1989 and 1990 did not persist more than a month at the site. In 1994 an attempt to establish scrub-birds in Torndirrup National Park, south of Albany, also failed. These failures are most likely linked to habitat deficiencies at the release sites (Danks 1994). Recent sampling of leaf litter invertebrates at Nuyts and the Torndirrup release sites showed low numbers compared to scrub-bird territories sampled concurrently on Mt Gardner which might indicate insufficient food supplies for scrub-birds at these release sites (Dank and Whisson unpub. data).

### 3.3 Release strategies

In the first series of scrub-bird translocations, undertaken from 1983 to 1990, the aim was to transfer around 30 birds (ie roughly 15 males and 15 females) to each of the three release areas. Capturing this number of Noisy Scrub-birds required considerable effort over two breeding seasons. It also meant that a relatively large number of birds were being risked at a new site without evidence that the habitat would support them apart from visual assessment of vegetation structure. If this strategy had continued, the long term loss of females due to failed translocation attempts, might have had a significant impact on the source breeding population.

For these reasons it was decided to limit the initial releases at future sites to a small group of males which are relatively easily captured and whose presence can be easily monitored at the release site. Their persistence at the site would prove the capacity of the habitat to support scrub-birds. If they did not persist, their loss would be of less consequence for the source population than the loss of a larger group of males and (especially) females. This strategy has been used in translocations to four sites between 1990 and 1994 and resulted in the formation of three persistent groups (75% success rate) compared to only one successful translocation out of releases at three areas (33%) with the previous strategy in operation between 1983 and 1990. In addition, the higher success rate has been achieved with fewer birds and less effort than for the previous series of translocations.

### 3.4 Genetic Considerations

The Mt Gardner population, derived by growth of the small population rediscovered in 1961, contains all the genetic heterozygosity of the species. Populations such as that at Mt Many Peaks, which was founded from a small group of individuals captured on Mt Gardner, will have considerably less genetic variation. It is possible that a small gene pool will have negative implications for the survival of a scrub-bird population, however, the benefits gained from larger population size and wider distribution counter balance this to a large degree. In the longer term, genetic considerations may become more important. In the Two Peoples Bay area, natural gene flow is (currently) possible between most of the

subpopulations due to the existence of corridors of natural vegetation through which scrub-birds can move (Danks 1991).

The development of a new population from a small group of individuals necessarily means a restricted gene pool in the new population. Obviously, larger founder groups captured from the Mt Gardner population will contain more of the species' genetic potential than the smaller groups used in recent scrub-bird translocations. However, successful scrub-bird translocations (in the short term at least) have occurred with group sizes of 5 - 10 males followed by a similar number of females as was the case at both Bald Island and Mt Taylor.

### **3.5 Effects of Removal on the Parent Population**

Annual counts have been made of singing males in the Noisy Scrub-bird population at Two Peoples Bay since 1970. This has allowed any effects of removing birds from the source population to be assessed. Between 1983 and 1994, when 95 birds (52 males and 43 females) were translocated from Mt Gardner, the number of singing males in this area increased from 120 to 179. Observations in territories where males have been removed show they are usually replaced within days by another male. At the population level at least, the current harvest would appear to be sustainable. Some areas of the mountain, however, have contributed a larger share than others and some, eg Tick Flat, show reduced rates of increase since the mid-1980s which may be attributable to the removal of breeding birds.

### **3.6 Recovery Team and Recovery Plan**

In 1992 a Noisy Scrub-bird Recovery Team was formed to regularly review progress in scrub-bird conservation, discuss issues affecting the program and produce a Recovery Plan for the species. The Recovery Team met twice each year reviewing and discussing all aspects of scrub-bird conservation until late in 1996 when it merged with the Western Bristlebird and Ground Parrot Recovery Teams to form a combined South Coast Threatened Birds Recovery Team.

The Noisy Scrub-bird Recovery Plan (Danks et al 1996) reviewed current information on the bird's biology and existing conservation measures and outlined a strategy for future management to the year 2002. On the basis of a draft of this Plan produced in 1992, the Australian Nature Conservation Agency (now Environment Australia) provided funding for the program which enabled the employment of a Technical Officer. The Plan is due to be reviewed in 1997.

## **4.0 CONSERVATION STATUS**

The Noisy Scrub-bird population in the Albany Management Zone was estimated to contain about 1200 individuals in 1994 (Danks et al 1996). The increase in size, range and division into several subpopulations is a great improvement on the single, tiny population



present at the time of rediscovery. However, this is still a small population which would need to more than double in order to reach the figure of 2500 individuals suggested by Mace and Lande (1991) as the upper limit for taxa in the Endangered category. Despite fire protection strategies and improved suppression capabilities, Noisy Scrub-birds remain particularly vulnerable to wildfire. A large scale, intensive wildfire in the Two Peoples Bay area could severely reduce the number of birds.

The Noisy Scrub-bird was listed as Endangered and ranked equal ninth in priority for conservation action in the joint review of the status of Australian birds carried out by the Royal Australasian Ornithologists Union and Australian Nature Conservation Agency (now Environment Australia) (Garnett 1992a, 1992b). The Noisy Scrub-bird Recovery Plan, using the Mace and Lande (1991) ranking criteria, also classified the species as Endangered. In 1995 CALM's Scientific Ranking Panel applied IUCN's (1994) criteria and also recommended Endangered as the appropriate category for the Noisy Scrub-bird. This category has been endorsed by the WA Minister for the Environment.

## 5.0 RELEASE AREA SURVEYS

Since 1994, surveys for suitable release sites have been undertaken in areas between Albany and the Frankland River. Areas such as Mt Lindesay and Crossing Block near Walpole had some areas of potential habitat but did not have the right characteristics for establishing a large scrub-bird population (see Noisy Scrub-bird Annual Reports 1994, 1995, 1996). In the Darling Range, on the other hand, in the area where the species was first discovered, surveys in 1996 located large areas of riparian habitat in the streams which flow across the Darling Scarp between the Murray River gorge and the Harvey Dam. This is basically the area where John Gilbert found the species in 1842 and includes the type locality at Drakes Brook. Although subject to many changes, this area still carries habitat which appears to have the potential to support Noisy Scrub-birds. It should, therefore, be possible to develop a scrub-bird population of a reasonably large size in this area.

The results of the survey work are presented in detail in the release site survey report (Danks and Whisson 1997) which accompanies this proposal. Important considerations in the assessment of habitat values during these surveys were: vegetation structure; the presence of leaf litter invertebrate groups known to be important in scrub-bird diet; and post-fire age of the vegetation. The vegetation in the riparian zones typically consists of fringing *Eucalyptus megacarpa* with *Agonis linearifolia* closer to the stream or swamp with sometimes very dense and tangled formations of *Gahnia trifida* and *Hypocalymna angustatum* shrubs. This vegetation is similar to that in which Noisy Scrub-birds occur in the Angove River area near Two Peoples Bay. Ants, beetles and spiders were found in the leaf litter at a number of Darling Range sites in numbers comparable to the sites on Mt Gardner which were sampled at the same time. The post-fire age of the riparian vegetation

was generally 15 - 20 years since these wetter areas usually do not burn during spring prescribed burning operations.

#### **5.1 Status of the translocation site**

The surveys found a number of sites in this area which could be used as initial release sites for the re-introduction of scrub-birds to the Darling Range. Samson Brook, Upper Harvey River and Falls Brook were the most favourable sites (see map). These release sites are in State Forest within CALM's Dwellingup (Swan Region) and Mornington (Central Forest Region) Districts. They are also within ALCOA's bauxite mining lease which covers large areas of the Darling Range. Noisy Scrub-birds established at any of these sites will, now or in the future, have to contend with the effects of bauxite mining in close proximity to their habitat.

Bauxite mining operations, which target mid-slope lateritic gravel deposits, leave the riparian vegetation - potential Noisy Scrub-bird habitat - intact. This is done to ensure continued water quality in the important water supply catchments of the Darling Range. Fortuitously, this approach also protects Noisy Scrub-bird habitat values. The extraction of ore and the construction of tracks and haul roads in the mining area affords considerable fire protection to the stream zone vegetation which has been instrumental in allowing the development of high quality scrub-bird habitat and, when scrub-birds are present in these areas in the future, will also provide protection from wildfire. The Samson Brook site is within ALCOA's current bauxite mining envelope and provides an opportunity to test the compatibility of this project with bauxite mining (Danks and Whisson 1997).

#### **5.2 Fire Management**

Fire management concerns in the release area and at particular sites have been addressed through discussions with Dwellingup and Mornington District fire operations staff. Generally, prescribed burning away from the riparian zone is practicable and should provide protection to scrub-bird habitat in the streams. In particular locations, such as the Upper Harvey area, existing roads, tracks and rail formations provide opportunities for use as fire boundaries. The retention of edge vegetation will be an important consideration as this contains valuable feeding habitat for scrub-birds.

#### **5.3 Fox control**

Although, generally it is thought that foxes play little role in limiting Noisy Scrub-bird populations under ideal conditions, in the re-introduction situation where the birds may be disorientated, exposed and unable to find food as efficiently as in their home territories, reduction and control of fox numbers may improve the birds' chances of survival. Under the Western Shield program regular 1080 baiting for foxes is carried out over most of the release area.

## **6.0 SUPPORT FOR THE PROPOSAL**

CALM staff in both the Mornington and the Dwellingup Districts have been enthusiastic in their support for the proposed release of scrub-birds into the Darling Range. The report on the release site surveys, which documents the evidence for the assessment that habitat suitable for scrub-birds exists in the Darling Range, has been endorsed by the members of the South Coast Threatened Birds Recovery Team.

ALCOA's Environmental manager, John Gardner, has expressed his company's support for the project aimed at re-establishment of Noisy Scrub-birds in the Darling Range. His staff, in particular Willowdale Mine Environmental Scientist Allison White, have been enthusiastic in their guidance and assistance during release site surveys and have committed to further assistance during the proposed release and monitoring stages. ALCOA has also indicated an interest in providing funds for part of the project (see attached letter).

## **7.0 CAPTURE OF NOISY SCRUB-BIRDS**

### **7.1 Source Population**

Individual scrub-birds for translocation to the Darling Range will be taken from the Two Peoples Bay population. The main source area will be Mt Gardner where most of the birds for previous translocations have originated and baseline data exists for monitoring the effects of removals. Some areas on Mt Gardner have provided large numbers of scrub-birds for previous translocations. For the Darling Range releases it is proposed to focus more on the remoter areas to reduce capture pressure on those territories which have been heavily harvested in the past (eg Wave Sign, Firebreak Valley). Nevertheless, captures will be spread around the mountain so that the whole population, and therefore its genetic diversity, will be sampled.

### **7.2 Size of the Founder Group**

As pointed out earlier, Noisy Scrub-birds have been successfully established at new sites with small groups of founders. For the Darling Range translocation the initial group of 10-15 males released at two sites, will be used to verify habitat suitability. The later addition of females (up to 10 birds) to the surviving males will complete the founder group.

Noisy scrub-birds are, however, difficult and time-consuming to catch and the actual number of birds obtained, as well as their points of origin, is not always predictable. In the case of difficulties in obtaining the required number of birds for translocation, the Mt Manypeaks area would be considered an alternative source. This is now the largest Noisy Scrub-bird population and least likely to suffer from the effect of removal of individuals for translocation, although it is probably genetically less diverse than the original Mt Gardner population.

### **7.3 Capture Methods**

Noisy Scrub-birds are most reliably captured during the winter breeding season when the males are particularly active in territory defence. Territorial males will be captured using song playback and a mist net arrangement which was originally designed during the 1983 translocation and has been improved with use since then. If applied with patience and skill the technique is reliably successful. However, it requires the targeting of particular males in particular territories and therefore requires a familiarity with many potential sites and their history over a number of years. It also requires extensive pre-capture preparation including making song recordings and cutting mist net lines. Favourable weather conditions - good cloud cover and little wind - are also needed. Three or four alternative sites need to be available at any one time so that the effects of weather, particularly wind, can be minimised. Some of the existing capture sites around Mt Gardner, established in previous translocation projects, will be used to save preparation time.

Females will be captured from nests. This has proved to be the most reliable method in the past although finding scrub-bird nests can be time consuming and, in most years in which it has been done, fewer than eight nests can be found.

### **7.4 Holding**

Birds captured on Mt Gardner will be transferred from the capture site to a holding facility at the Two Peoples Bay research station which has been used for this purpose over the last 14 years. Captured birds will be banded, weighed and inspected for body condition, general health, presence of ectoparasites, etc. before entering the aviaries. Their behaviour and food intake can be monitored during their time in captivity which may last from one or two days to several weeks while waiting for other birds to be captured to form a group suitable for transport to the release site. The aviaries have the capacity to hold four adult males and scrub-birds have been maintained in them for periods of up to three weeks.

The captive Noisy Scrub-birds will be fed a diet of live invertebrates including cockroaches, termites, slaters and mealworms (tenebrionid beetle larvae). Colonies of these invertebrates will be maintained in the special invertebrate housing facilities which have been developed at the Two Peoples Bay research station.

### **7.5 Transport and Release**

When a number of birds (maximum of four) have been captured and weather at the release site is favourable, the birds will be transported by vehicle in specially designed carry boxes to the release area. The carry boxes have been used in all previous scrub-bird translocations and provide safe, secure, well ventilated and comfortable containers for the birds. The birds can be inspected and fed while inside the carry boxes. In past translocations these boxes have been strapped to back packs to transport scrub-birds into remote areas, the birds arriving their release site without any apparent distress. They have also been used to successfully transport the birds up to 300 km (Walpole and return) by

vehicle and for short helicopter flights and boat trips off shore during the Bald Island transfers in 1992 - 4.

In previous Noisy Scrub-bird translocations birds have been released either singly or in small groups of up to five individuals. The size of the group has largely depended on the number of individuals to hand at the time. Timing of releases depends largely on weather conditions at the release site. The aim is to introduce the birds to their new environment at around midday under mild conditions to allow the birds time to find food and roost sites in unfamiliar surroundings.

## **8.0 POST-RELEASE MONITORING**

### **8.1 Monitoring the release site**

The fate of male scrub-birds at the release site will be monitored by regularly counting and mapping those that are singing. The number of singing males present at the release site after one month (which is a measure of the number of males which have established territories) will give an indication of the level of success of the initial stage of the translocation. The number which survive to the following breeding season will provide a measure of the ability of the release area to support scrub-birds through the range of conditions which occur during a year at the release site. Over a period of years, after the release of females, annual counts of singing males in the release area can indicate local breeding and growth of the population.

Post-release behaviour will be studied by radio-tracking individuals for periods of up to two-weeks at the release site. Both male and female scrub-birds have been tracked in two release areas before, although to date only birds released into areas already containing established males. Although only of short duration, this work has shown the birds to roost at or close to their initial release site for several days while undertaking exploratory excursions or interacting with resident males. Later, wider movements may bring them to a site where they settle for longer periods (Danks et al. 1991).

### **8.2 Monitoring the parent population**

Annual counts of singing males at Two Peoples Bay will continue in order to monitor the effects of removing birds for translocation. Effects on the population may not be apparent for several years. Closer monitoring of the territories from which individual males have been removed will also be carried out. For efficiency, this will be done during the period of captures.

### **8.3 Other Species**

As an insectivore, the Noisy Scrub-bird will compete with other insectivores foraging on the ground and in the lower shrub layer. A number of small insectivores including the Mardo and several birds in the weight range of 10 - 80 gm, such as Red-winged Wren, White-browed Scrub-wren, White-breasted Robin, Golden Whistler and Shrike Thrush,

are present in the dense riparian vegetation along streams in the Darling Range release area. These species are also present in areas inhabited by scrub-birds at Two Peoples Bay. During the release site surveys, the White-breasted Robin was often seen or heard in the dense vegetation along streams which will be the habitat of scrub-birds. This robin was found by John Gilbert in the same areas as the scrub-bird in the Darling Range last century.

#### **8.4 Funding**

Funding for the translocation of Noisy Scrub-birds to the Darling Range have been guaranteed by the Executive Director. South Coast Region will provide the salary for the project leader. Environment Australia provides the Technical Officer's salary. Mornington District will provide several staff members who will work in the capture team at Two Peoples Bay, be involved in the releases and some of the radio-tracking work and take on much of the longer term post-release monitoring. In addition ALCOA has kindly offered to contribute to the cost of the radio-tracking project (see accompanying letter.).

#### **9.0 ATTACHMENTS:**

Noisy Scrub-bird Recovery Plan  
Release Site Survey Report  
Letter from ALCOA

#### **10.0 REFERENCES**

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