File Note: Naretha Bluebonnet Breeding Program, Summary report

1. BACKGROUND

1.1 Legal Status

The Naretha Bluebonnet subspecies is not considered to be threatened in Western Australia, but is classified as 'Specially Protected Fauna under the Wildlife Conservation Act 1950. This special status has arisen because the species has in the past been a target for illegal trapping operations which have resulted in the destruction of nest hollows. The species was also very poorly represented in private aviculture collections. At the establishment of this program only one Naretha Bluebonnet was held under licence by private aviculturists in Western Australia. A small inbred population of six of the parrots was also held at Perth Zoo (sourced from a single wild pair caught in 1977).

1.2 Program Objectives

The Naretha Bluebonnet Breeding Program was first proposed by a private aviculturist in July 1990. Following detailed discussions and correspondence, it was approved by the Executive Director in January 1991.

A major priority is given within Western Australia to threatened species conservation, including captive breeding programs for species such as the Numbat, Chuditch (or Western Quoll) and Western Swamp Tortoise, which are joint operations of CALM and the Perth Zoo. There is, however, clearly a limit to the number of programs that can be funded.

While private individuals have little capacity to assist in breeding programs for the above species, the better private aviculturists have a wealth of experience in bird breeding. It had been suggested that such people were ideally placed to assist with captive breeding programs, as they have the facilities and time to provide close care and monitoring of the birds at a level equivalent to, if not greater than, would be the situation for many zoo or other Government programs. This study provided an ideal opportunity to examine the abilities of aviculturists to contribute to such breeding programs.

The principal objectives of the program were therefore to:

(a) gather information on the breeding, morphology, genetics and captive growth rates of Naretha Bluebonnets;

(b) establish a stock, of known genetic source, of the species in captivity; and,

(c) examine, through a trial, the contributions that private aviculturists could make in captive breeding programs for threatened species.

A subsidiary objective of this program, was the hope that nest robbing pressures would be reduced if the species eventually became widely available in aviculture (and therefore of lower individual specimen value).

2.0 PROGRAM OPERATIONS

2.1 Organisation and structure of the program

A Naretha Bluebonnet Committee was established by CALM to supervise the program. The Committee comprised six private aviculturists selected by the program proponent, as well as the Perth Zoo and CALM.

In 1992 the Committee was extended to include a further two private aviculturists.

CALM retained ownership of the original 40 bluebonnets, which were provided on loan to the member aviculturists. Member aviculturists paid all costs for the program including CALM's supervision of capture operations, DNA testing and husbandry costs. Member aviculturists were granted ownership of 50% of the young bluebonnets they bred where both parent birds were CALM birds and 75% of the progeny where only one parent was a CALM bird. In cases where an uneven number of offspring had been raised the 'extra' offspring was provided to the aviculturist concerned.

2.2 Capture Operations

Capture operations were structured and monitored to ensure that there was no significant impact on wild populations. Only 40 birds were collected from the wild in the presence of a CALM Wildlife Officer in late January 1991. Each bird was leg banded and measured and transported to Perth in individual cages. Blood samples were taken from each bird for use in DNA 'fingerprinting' and future electrophoresis study.

3.0 RESULTS

3.1 Captures

Of the 40 Naretha Bluebonnets captured in 1991, 17 were female and 23 male. During the first year of the program only 2 of the wild taken narethas died (1 male, 1 female). A further 2 narethas were put down (1 male, 1 female) after being found to have chronic 'feather and beak' disease.

3.2 DNA Fingerprinting and Wild Population Status

Blood samples taken from each of the original birds were passed to Dr John Weatheral and Mr David Groth of Curtin University for DNA analysis. The analysis showed a very high degree of outbreeding in the bluebonnets, with only 16% of band sharing between the 40 sampled. The high variation in DNA suggested that wild bluebonnets were functioning as a large population, with no signs of inbreeding depression. With only a 16% band sharing, the DNA fingerprinting indicated a degree of outbreeding amongst bluebonnets similar to that measured for human populations.

The above DNA results provide considerable evidence that wild populations were not under any current threat of extinction.

The proven occurrence of 'feather and beak' disease in wild naretha populations was noteworthy and supported findings of the disease in wild populations of other psittacine species.

All first generation offspring were also DNA 'fingerprinted' to provide additional baseline fingerprint data and security over future trade in the species.

3.3 Breeding biology, morphology and growth

A paper giving details of breeding requirements, data and results is being prepared. The following table gives a summary of breeding results from the program.

Year	1991/92	1992/93	1993/94*	Total
Surviving Young	43	45	26	114

(* The program was closing in 1994 and there were also reportedly unfavourable weather conditions during the breeding season.)

Overall 114 Naretha Bluebonnets were bred in the program over three years from the original 17 pairs collected from the wild.

3.4 Captive Stocks

At the commencement of the p ogram only one naretha was licensed in private collections, with a further six inbred birds at the Perth Zoo. After the conclusion of the program in 1994, this number had increased dramatically. As at 1996, ov er 200 Naretha Bluebonnets were known in captivity, an increase of over 2700%.

3.5 Contributions of Avi ulturists

The NBB program ran for 3.5 years and involved 8 private aviculturists. The program demonstrated clearly that good private aviculturists could be very successful in captive breeding programs. Those aviculturists with good skills and devotior to the program produced very good breeding records and results. As the program progressed towards it s closure in 1994, the attention to record keeping detail declined somewhat as did the numbers of young pr duced. While it is not clear whether the numbers produced declined only because of poor weather duri ng the 1993/94 breeding season, the decline in record keeping was almost certainly a result of the enthus asm for the program declining towards its conclusion.

Overall the program demonstr ted that, where aviculturists are highly motivated and adequately coordinated by CALM, they can be of con iderable assistance in joint study programs for native birds.

During the program CALM di posed of 53 Naretha Bluebonnets by a tender process. These tenders returned over $23,000 for CALM's use in native bird programs.

3.6 Incentives for an ille al harvest

Prior to the program commen ing, narethas were virtually unobtainable through legal channels and estimated to be worth $2,000 per pair. As a result of the program, the commercial value of Naretha Bluebonnets stabilised to around $750.0(per pair by the end of 1996. This reduction in price, combined with the significant numbers of breedi ng pairs in captivity and the retention of the 'specially protected' wild status (max. $10,000 fine for illegal aking), should have reduced the incentive to poach wild bluebonnets.

4.0 OVERVIEW

It is clear that the Naretha Bl ebonnet Breeding Program was a resounding success. In just 3.5 years and at virtually no cost to CALM, narethas went from being poorly known in the wild and in aviculture, and a target of nest robbers; to dem onstrating that the species was reasonably abundant in the wild and aviculture (with over 200 in collections by 1996), with reduced incentives for poaching.

CALM also collected consid rable morphological, breeding and keeping information on the species, which is suitable for publication, an l established a trust account for future avian fauna programs with contributions of over $23,000 from the sale of captured and bred Naretha Bluebonnets.

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