

# **CONSERVATION CORNER**

## **DRAFT THREAT ABATEMENT PLAN For Psittacine Circoviral (Beak and Feather) Disease Affecting Endangered Parrots**

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Psittacine Circoviral (beak and feather) Disease affecting endangered parrots was listed in April 2001 as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A process is defined as a key threatening process under the Act if it “threatens or may threaten the survival, abundance or evolutionary development of a native species or ecological community”.

Psittacine Circoviral Disease (PCD), also called Psittacine Beak and Feather Disease (PBFD), is a common and potentially deadly disease of parrots caused by a circovirus named Beak and Feather Disease Virus (BFDV). It appears that there is only one strain of Beak and Feather Disease Virus and that it specifically affects members of the parrot family. The disease appears to have originated in Australia and is widespread in wild populations of Australian parrots, but has also spread to other parts of the world such as America and Europe with exportation of Australian birds. Parrots exhibit two behaviours that particularly favour the transmission of the virus within a population: they live in flocks and they nest in tree hollows. The number of parrots in a population infected with the virus varies between species and locations, and potentially from year to year.

The potential effects of the disease on parrot populations range from inconsequential to devastating, depending on environmental conditions and the general health of the parrots. In captivity the disease can cause very high death rates in nestlings, and this is likely to also occur in the wild, particularly in cases where the virus is introduced to populations where breeding females have low levels of immunity.

The virus is present in the most widespread and common parrot species; in particular Sulphur-crested Cockatoos, Corellas and Galahs and so can be expected to have an Australia-wide distribution. In wild populations of Sulphur-crested Cockatoos, Galahs, Little Corellas and Long-billed Corellas in New South Wales, between 41% and 94% of the flock had antibodies to BFDV. The level of threat and distribution of the virus can be affected by the movements of these common parrot species into areas occupied by

threatened parrots; an example is the recent arrival of Galahs and Little Corellas onto Kangaroo Island where the endangered Glossy Black Cockatoo lives and breeds in the same habitat. Although many parrot populations thrive despite continuous exposure to the virus, when a population is threatened, genetic diversity is reduced and combined with factors such as habitat alteration and diminished food supply, susceptibility to disease will increase. Also, when populations become small, the loss of a few breeding individuals can significantly alter the viability of the species. As an example of the additive effect the virus can have on the decline of a species: in Norfolk Island Green Parrots there is a significant sex bias towards males as a consequence of increased predation of nesting females by rats. This sex bias may contribute to increased stress on females during the breeding season, which could predispose them to disease.

**Examples of Parrot Species in which lesions suggestive of beak and feather disease have been identified worldwide.** This list is not inclusive, it is provided to indicate the range of species that are at risk. (\* indicates native Australian species)

**Cacatuidae:** Black Palm Cockatoo\*, Citron Cockatoo, Cockatiel\*, Galah\*, Gang-gang Cockatoo\*, Glossy Black Cockatoo\*, Goffin's Cockatoo, Long-billed Corella\*, Major Mitchell's Cockatoo\*, Moluccan Cockatoo, Red Tailed Black Cockatoo\*, Red-vented Cockatoo, Little Corella\*, Sulphur-crested Cockatoo\*, Triton Cockatoo, Umbrella Cockatoo, Yellow Tailed Black Cockatoo\*

**Loridae:** Blue-streaked Lory

**Psittacidae:** African Grey Parrot, Australian King Parrot\*, Australian Ringneck\*, Black Parrot, Blue and Gold Macaw, Blue-fronted Amazon Parrot, Bourke's Parrot\*, Budgerigar\*, Cape Parrot, Crimson Rosella\*, Eastern Rosella\*, Eclectus Parrot\*, Golden-shouldered Parrot, Green-winged Macaw, Hooded Parrot\*, Indian Ring-necked Parakeet, Jandaya Conure, Meyer's Parrot, Northern Rosella\*, Orange-bellied Parrot\*, Pale-headed Rosella\*, Princess Parrot\*, Rainbow Lorikeet\*, Red-bellied Parrot, Red-lored Amazon, Red-rumped Parrot\*, Regent Parrot\*, Rose-ringed Parakeet, Scaly-headed Parrot, Scaly-breasted Lorikeet\*, Scarlet

Macaw, Senegal Parrot, Superb Parrot\*, Swift Parrot\*, Vasa Parrot, Western Rosella\*

**Genus Agapornis:** Black-cheeked Lovebird, Fisher's Lovebird, Masked Lovebird, Nyassa Lovebird, Peach-faced Lovebird

While eradication of the disease is not possible, well-developed management plans based on current knowledge can assist in reducing the impact of the disease on threatened parrot populations.

This Threat Abatement Plan has two broad goals: to protect threatened native species from Psittacine Circoviral Disease, and to prevent further species from becoming threatened by reducing the chance of exposure to the pathogen.

### **Identifying priority species**

Although all parrots are susceptible and therefore a priority, some species appear to suffer greater impact from this disease than others. Priority under the plan needs to be given to those nationally listed threatened species considered most likely to be at risk from the disease, or to species that are not currently nationally listed but which are at risk of becoming listed due to this threat. The following Australian parrots have experienced clinical disease and/or mortality due to PCD, and meet the above criteria:

- Orange-bellied Parrot *Neophema chrysogaster*;
- Norfolk Island Green Parrot *Cyanoramphus novaezelandiae cookii*;
- Swift Parrot *Lathamus discolor*; and
- Naretha Blue-bonnet *Northiella haematogaster narethae*.

These species should receive the highest priority with respect to disease management resources. This list must remain open to regular review.

### **Determining priorities for action**

It is obviously important to identify which species, ecological communities and regions will most benefit from coordinated action against Psittacine Beak and Feather Disease. A number of recovery plans that have already been developed that identify species that are known or thought to be threatened by the pathogen and areas of habitat that are critical for the survival of these species. In terms of national action to abate the threat

posed by Psittacine Beak and Feather Disease, implementation of recovery plans for these species should be accorded high priority.

### **Identifying and prioritising information gaps**

The priority information gaps that require actions are:

- Determine prevalence of the virus and the disease in priority species and the parrot species that they are most likely to come in contact with e.g. those that use the same sized nest hollows and with which they breed in the same area.
- Determine the most effective and safest disinfectant for use on nest boxes in the wild and in captivity.
- Develop a low risk vaccine (e.g. recombinant protein vaccine or a DNA vaccine) and novel methods of delivery for field use.

### **Reference:**

An electronic copy of the Draft Threat Abatement Plan can be viewed on the Internet at:

<http://www.deh.gov.au/biodiversity/threatened/tap/pubs/p-circoviral.pdf>