

Application for approval of a wildlife trade operation to enable the export of dried blood samples received from clients in Australia to a laboratory in South Africa for analysis.

Brief background

Molecular Diagnostic Services (Pty) Ltd is a specialist molecular diagnostic laboratory that provides a diagnostic service to the human, veterinary and avian fields. We have devised a simple collection device that contains a small strip of special paper. This paper serves to capture a small spot of blood that can be analysed. The rule is that as long as you can see the blood that is sufficient. Samples would contain less than 5 ul of the birds blood. This dried blood sample is placed in a small secure plastic tube and sent to the MDS Australia (163 Swan Drive, Fernleigh Park, Googong, NSW, 2620) laboratory, who then courier the samples to the laboratory in South Africa for analysis.

The dried blood spot is the safest way to transport a small blood sample. The sample is used mainly for the purposes of DNA sexing however it is also possible to test that sample for other pathogens such as Psittacine Beak and Feather Disease Syndrome Virus (PBFDV), Avian Polyoma virus (APV) and Chlamydia.

Immediately on receipt of the sample in the laboratory it is heated and the DNA extracted from the sample for analysis. The sample is stored for 30 days after analysis and then is discarded as biological waste.

It is important that it is emphasised that the sample is used solely for diagnostic purposes and not for cloning or other genetic purposes or propagation of any sort. It is not sold on or given to a third party and is discarded.

General comments

I firmly believe and support the good work that is being done by the authorities to legislate the protection of endangered animals and I commit to comply to their requests and support their objectives where ever possible.

Please find below a formal application.

Application to receive dried blood spots of avian species for the sole purpose of DNA analysis

1. Source of blood spots

A pin head blood spot (less than 5 ul) will be taken from a pin prick of the claw of avian species.

1.1 Origin of samples

The samples are sent from bird owners from all parts of Australia.

1.2 What is being sent

The technology is so sensitive that all that is required is a small pin head size blood sample immobilised on a special paper that is inserted into an inert labelled plastic tube. The sample can be collected from avian species at any age. In the molecular laboratory the DNA is extracted and analysed to determine the sex of the sample or to determine if there is any viral or bacterial DNA in that sample. Some of the viruses tested for include psittacine Beak and Feather Virus (PBFDV), Avian Polyoma virus (APV), Pacheco's Disease virus and Chlamydophilia psittaci. The most common request is to establish the sex of the sample.

1.3 Species Covered

Some of the species are listed in the category I II and III of the CITES list. The anticipated list of birds will not be CITES I birds nor those on the EPBC list of threatened species. This list can be found at <http://www.environment.gov.au/cgi-bin/sprat/public/publicthreatenedlist.pl>. An anticipated list of the species that would be expected to be analysed is attached as Appendix I.

2. Goals and Objectives

We are a specialised molecular diagnostic company that performs molecular diagnostic work. Our sole objective is to request permission to receive a small pin head spot of blood from birds so that we can do the tests and return the results to the owner or veterinarian who submitted the samples.

3. Harvesting details

Typically the breeder, owner or veterinarian will carefully hold the bird and briefly prick the claw with a sterile needle. After a brief pause a piece of special paper is removed from a sterile tube and touched against the bead of blood that appears at the prick site. Once collected the paper is returned to the tube and sent to the laboratory for analysis. This is a single procedure that takes a few minutes to perform. The timing of the procedure depends on whether the bird needs to be sexed or to be screened for the presence of a pathogen. Once collected the DNA is stable at room temperature for many months.

4. Impact of harvest on the taxa and the relevant ecosystem

The procedure is performed as an alternate to surgical sexing with many advantages. In my view there are many advantages with the procedure. In addition to the DNA sexing the same sample can be tested for the presence of pathogens this is an important tool to monitor and reduce the spread of pathogens.

5. Monitoring and assessment

A list of the species pertaining to the submitted blood samples is recorded and issued to the CITES representative in South Africa who will then issue a CITES import permit. For Australia it is anticipated that a list of the species sent would also be issued to the CITES representatives in Australia. A data base of the species analysed at the laboratory is also kept. Otherwise this section which asks about the monitoring and assessment is not really relevant to the objectives and intentions of this application.

6. Management strategies

The objective of this application is to request permission to receive a small blood sample from the bird solely for analysis. The numbers and species that we receive will form part of a database. It is possible that information gained in this manner could be used as a reliable proxy to estimate the numbers of the different species that exist. It is not our intention to use this information to manage any process however it might turn out to be a useful tool to monitor the populations of the different species. This is all speculative and

following discussions with the CITES authorities in Australia it was decided that this section is not relevant in this application as the management strategies referred to are those that relate to ensuring sustainability.)

7. Compliance

We only do the testing of a small blood sample. We do not keep material, give it away or sell it on. We solely analyse it. Thirty days after it has been extracted it is then discarded safely as biological waste according to accredited procedures.

8. Reports

We will happily provide annual reports on the number of samples received and the species.

9. Background information

The technology of DNA analysis has reached a stage where it is accurate and reliable. The ability to determine the sex of a species from a small blood sample is well established in forensic, paternity and other applications. For sexing there are alternate procedures such as morphological identification and endoscopic visualisation however DNA sexing has many advantages and is fast becoming the preferred method of sexing. Our laboratory uses 11 different DNA sexing methods. The tests are different for the different species. It is fairly difficult to morphologically determine the sex of certain species especially at a young age. DNA sexing is rapidly becoming the method of choice for avian sexing. We are a focused and specialised laboratory that offers this service as part of our livelihood. This application is to request permission to be able to receive samples so that we can offer our service. As the conservation and preservation of rare species is of international importance we want to assure the authorities that we do not use the material for any use other than to analyse the sample, the most common analysis being to determine the sex of the sample.

Additional details

All the laboratory analysis of the samples takes place at Molecular Diagnostic Services (PTY) Ltd South Africa. All biological waste is discarded by a professional company called Compass waste. A certificate is received from the company each time the waste is discarded.

We do not harvest or culture any material. The owner of the bird collects the pin prick drop of blood and submits it to our local depot in Australia who then send it to the laboratory in South Africa for analysis.

Appendix I

A list of some of the species that will be submitted

Appendix 1		
CODE	SPECIES	
Captive bred	<u>Common Name</u>	<u>Latin Name</u>
Captive bred	African Grey	<i>Tockus nasutus</i>
Captive bred	African Lovebird	<i>Agapornis spp.</i>
Captive bred	Amazon - Lilac Crow	<i>Amazona finschi</i>
Captive bred	Amazon - Yellow Head	<i>Amazon ochrocephala oratrix</i>
Captive bred	Blue Bonnet	<i>Northiella haematogaster</i>
Captive bred	Caique	<i>Pionites</i>
Captive bred	Cockatiel - Cherokee, Reversed Pearl Pied, Lutino	<i>Nymphicus hollandicus</i>
Captive bred	Cockatoo - Black	<i>Calyptorhynchus (Calyptorhynchus) lathami</i>
Captive bred	Cocaktatoo - Gang Gang	<i>Callocephalon fimbriatum</i>
Captive bred	Cockatoo - Moluccan	<i>Cacatua moluccensis</i>
Captive bred	Cockatoo - Sulphur Crested	<i>Cacatua galerita</i>
Captive bred	Conure - Blue throated	<i>Pyrrhura cruentata</i>
Captive bred	Conure - Golden Crown	<i>Aratinga aurea</i>
Captive bred	Conure - Green Cheeked	<i>Pyrrhura molinae</i>
Captive bred	Conure - Green Cheeked Cinnamon	<i>Pyrrhura m. molinae / Pyrehura m. restricta</i>
Captive bred	Conure - Jenday	<i>Aratinga solstitialis jandaya</i>
Captive bred	Conure - Maroon Bellied	<i>Pyrrhura frontalis</i>
Captive bred	Conure - Nanday	<i>Nandayus nenday</i>
Captive bred	Conure -Sun	<i>Aratinga solstitialis</i>
Captive bred	Conure Yellow sided Greencheek	<i>Pyrrhura hypoxanthus</i>
Captive bred	Corella - Long Billed	<i>Cacatua tenuirostris</i>
Captive bred	Crimson Wing	<i>Aprosmictus erythropterus</i>
Captive bred	Dove- Barbary (ringneck)	<i>Streptopelia risoria</i>
Captive bred	Finch - Diamond Firetail	<i>Stagonopleura guttata or Emblemata guttata</i>
Captive bred	Finch - Gouldian	<i>Chloebeia gouldiae / Erythrura</i>
Captive bred	Finch - Little Singing, Masked	<i>Poephila personata</i>
Captive bred	Indin Ringneck - Grey	<i>Psittacula krameri manillensis</i>
Captive bred	Indian Ringneck- White tail,	"
Captive bred	Indian Ringneck - Whitehead	"
Captive bred	Indian Ringneck Sky-blue	"
Captive bred	Indian Ringneck - Cream	"

Captive bred	Indian Ringneck - Green Lacewing	"
Captive bred	Indian Ringneck - Lutino	"
Captive bred	Indian Ringneck -Lacewing (blue)	"
Captive bred	Lorikeet - Red Collar	<i>Trichoglossus chlorolepidotus</i>
Captive bred	Lorikeet - Scaly Breasted	<i>Trichoglossus chlorolepidotus</i>
Captive bred	Lorikeet - Cinnamon Scaly Breasted	<i>Pseudeos fuscata</i>
Captive bred	Lorikeet - Mustard Scaly - Breasted	
Captive bred	Lorikeet - Purple Crown	<i>Glossopsitta porphyrocephala</i>
Captive bred	Lorikeet - Little	<i>Glossopsitta pusilla</i>
Captive bred	Lorikeet - Dusky	<i>Glossopsitta pusilla</i>
Captive bred	Lorikeet - Red Dusky	
Captive bred	Lorikeet - Olive Musk	<i>Glossopsitta concinna</i>
Captive bred	Lorikeet - Rainbow	<i>Trichoglossus haematodus moluccanus</i>
Captive bred	Lorikeet - Blue Fronted	<i>Charmosyna toxopei</i>
Captive bred	Lorikeet - Rainbow Grey/Green Cinnamon	
Captive bred	Lorikeet - Olive Rainbow	
Captive bred	Lorikeet - Olive red Collared	
Captive bred	Lorikeet - Varied	<i>Trichoglossus versicolour</i>
Captive bred	Love bird - Fisher Cross	<i>Agapornis p. fisheri</i>
Captive bred	Love bird - Masked	<i>Agapornis personata personata</i>
Captive bred	Love bird - Peach Face	<i>Agapornis roseicollis</i>
Captive bred	Macaw - Blue and Gold	<i>Ara ararauna</i>
Captive bred	Macaw Hahns	<i>Ara nobilis nobilis</i>
Captive bred	Parakeet - Alexandrine	<i>Psittacula eupatria eupatria</i>
Captive bred	Parakeet - Budgergiar	<i>Melopsittacus undelatus</i>
Captive bred	Parakeet - Hooded	<i>Psephotus chrysopterygius dissimilis</i>
Captive bred	Parakeet - Malabar	<i>Psittacula columboides columboides</i>
Captive bred	Parakeet - Plumhead	<i>Psittacula Cyanocephala</i>
Captive bred	Parakeet - Red Rumped	<i>Psephotus haematonotus</i>
Captive bred	Parakeet - Ringneck	<i>Psittacula manillensis</i>
Captive bred	Parakeet - Turqousine	<i>Neophema pulchella</i>
Captive bred	Parakeet - Quaker (Monk Parakeet)	<i>Myiopsitta monachus</i>
Captive bred	Parrot - Bourke	<i>Neophema bourki / mut</i>
Captive bred	Parrot - Electus	<i>Eclectus roratus</i>
Captive bred	Parrot - King	<i>Alisterus scapularis</i>
Captive bred	Parrot - Moustached	<i>Psittacula alexandri</i>
Captive bred	Parrot - Princess	<i>Polytelis alexandrae</i>
Captive bred	Parrot - Red Rump Pied	<i>Psephotus haematonotus</i>
Captive bred	Parrot - Ringneck Green	<i>Platyercus zonarius</i>
Captive bred	Superb Parrot	<i>Polytelis swainsonii</i>
Captive bred	Parrot - Twenty Eight	<i>Barnardius zonarus semitorquatus</i>

Captive bred	Pied Elegant	<i>Neophema elegans</i>
Captive bred	Pigeon - Nicobar	<i>Caloenas nicobarica</i>
Captive bred	Rosella - Crimson	<i>Platycercus elegans</i>
Captive bred	Rosella - Eastern	<i>Platycercus eximius</i>
Captive bred	Rosella - Northern	<i>Platycercus venustus</i>
Captive bred	Rosella - Pale Head	<i>Platycercus adscitus</i>
Captive bred	Weaver - Orange Bishop	<i>Euplectes orix francisciana</i>