NSW

Wildlife

DISEASE INVESTIGATION

2022

TARONGA CONSERVATION SOCIETY AUSTRALIA

Australian Registry of Wildlife Health

To report a notifiable wildlife disease or mass mortality event please ring the:

Emergency Animal Disease Watch Hotline, 24 hours / 7-days

1-800-675-888

If you suspect that the event may be the result of a pollution event, please ring the:

Environment Line, 24 hours / 7-days

131 555

To enquire about sample collection and submission, please ring the:

Australian Registry of Wildlife Health, Mon-Fri

0481 468 505

The Registry does not have the capacity to conduct site visits or collect animals from the field. Animals can be hand delivered to the Registry through the Taronga Wildlife Hospital 7 days a week, 8am – 3:30pm. Samples will be best received if we are made aware prior to delivery by calling the Registry on 0481 468 505.

The Taronga Wildlife Hospital is located at the end of Whiting Beach Road, Mosman. Parking is available on the street and there are signs to direct you through the large black metal gates towards the Hospital reception.

We can help to arrange a courier to organise sample submission from further afield.

Excerpts from:
Wildlife Disease Investigation Manual 2022
Australian Registry of Wildlife Health
Taronga Conservation Society Australia
PO Box 20
Mosman NSW 2088, AUSTRALIA
www.arwh.org

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WHEN TO INITIATE AN INVESTIGATION

Consider collecting animals when there is evidence of possible infectious disease such as:

- Mass mortality,
- Behavioural abnormality (that is not explained by trauma),
- Regurgitation, vomiting, diarrhoea,
- Sneezing, coughing,
- Unexplained emaciation,
- Open sores, cutaneous lesions (nodules or lumps, oedema),
- Feathers or fur that come away readily,
- Discharge from the mouth, nose, ears, or vent/cloaca, and
- Purple discoloration or swelling of the tissues of the head of animals.

Mass mortality

Mass mortality of wildlife can be a hallmark of significant infectious disease, toxin exposure or other insult. Whenever you come across a group of more than three to five sick or dead animals where the mortality is not expected, consider undertaking an investigation. When faced with a mass mortality event in wildlife, samples must be collected as soon as possible. Animal tissues degrade very quickly, animal remains are quickly removed by predators and the cause of the event may disappear just as rapidly.

Mass mortality events where there is evidence of a bait (seed, bread, sausage, or other unusual food source) or recent chemical spraying, particularly where there may the opportunity to identify an offender, should be reported to the Environment Line for investigation.

Behavioural abnormality/neurological dysfunction

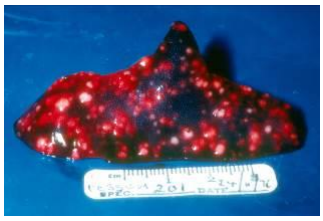
Each species has its own range of natural behaviours and activities. Changes in behaviour of an animal may relate to altered environments or food sources. Behavioural changes may also be the result of altered brain function (neurological dysfunction) from exposure to infectious agents, parasites or toxins.

Examples of unusual behaviour of concern include:

- Head tilt
- Circling
- Paralysis
- Fitting
- Star gazing (upward staring)
- Abnormal locomotion - staggering, wandering
- Altered diurnal patterns - a nocturnal species active in the daytime
- Excessive aggression
- Drooling or frothing at mouth
- Profound depression or weakness

Granuloma

A granuloma is a firm yellow or white nodule that may be found within any diseased body organ or tissue. The cut surface, or centre, of the granuloma, may be firm and dry, or moist and cheesy. Granulomas most often represent areas of chronic infection with bacteria, fungi, parasites, or the presence of a foreign body. The presence of granulomas in mammals can be a sign of tuberculosis and the affected tissues should be examined further.

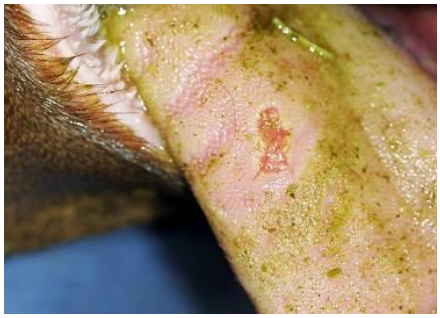


GRANULOMAS IN THE SPLEEN OF A POSSUM EXPERIMENTALLY INFECTED WITH TUBERCULOSIS (M. BOVIS)

Vesicle/ulcer

A vesicle is a fluid filled blister usually found on the skin. These lesions are of concern when they occur around the mouth, nose, or feet of a hoofed animal, because they could represent foot-and-mouth disease or another disease that mimics foot-and-mouth disease. Immediately report a vesicular lesion occurring on a mammal to the Emergency Animal Disease Watch Hotline.

TORN VESICLE



ULCER – AFTER RUPTURED VESICLE

PHOTOS OF ELK EXPERIMENTALLY INFECTED WITH FOOT-AND-MOUTH DISEASE WERE PROVIDED BY THE FOREIGN ANIMAL DISEASE DIAGNOSTIC LABORATORY, PLUM ISLAND ANIMAL DISEASE CENTRE, UNITED STATES DEPARTMENT OF AGRICULTURE. UNDIAGNOSED DISEASE

Threatened species

When threatened species are found sick or dead, an investigation should be considered, as the findings may contribute to habitat or species management.

Threatened species increase priority and level of interest, and appropriate notification processes should be followed as part of the investigation.

COLLECTION OF LIVE AND DEAD ANIMALS

When you receive a report of sick or dead wildlife make sure that you go prepared to collect the animals, environmental samples (such as water, soil, bait or other foodstuffs), photographs and information.

If you are asked to conduct an inspection of a wildlife mortality event, go as soon as possible and be prepared. Sick or dead animals may not be there the following day or they may have degraded too much to facilitate diagnosis.

Whenever possible, contact us at the Registry in advance of sample collection to ensure that appropriate materials and information are collected to answer your questions. But if you can't reach us, go ahead with gathering samples, photographs and information, as you may not get another chance.

The NSW National Parks and Wildlife Service have developed a range of Code of Practices for injured, sick and orphaned wildlife which may include information concerning sample collection and measures to reduce health and safety risks: https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/rehabilitating-native-animals/wildlife-rehabilitation-standards

Gear

- Latex, nitrile or vinyl gloves
- Lab coat, coveralls or tyvex suit
- Face mask P2/N95
- Bucket, water, soap/disinfectant Gum boots
- Hand wash
- Rubbish bag
- Containers for soil, water, bait, food sources
- Binoculars, camera, clipboard, event form, pencil
- Plastic bags sufficiently sized for the remains
- String or other bag seal/tie
- Hard sided/foam esky and frozen ice bricks
- Towels, safety goggles, and a cage for live wildlife
- Waterproof marker
- Masking tape to label and seal bags and the esky

Personal safety

Live and dead animals can contain germs that are potentially harmful, but are often easily avoided by using protective equipment and following basic hygiene procedures.

- Wear gloves when handling dead animals - vinyl, latex or dish-washing gloves.
- Wash your hands very well after handling animals.
- Consider wearing a P2/N95 face mask if the animal displayed respiratory signs or aerosolisation of pathogens is likely.
- Change your clothes before you contact live animals, food, or your children.
- Be careful when handling, pouring, and transporting chemicals. Additional information regarding appropriate PPE, chemical safety and potential environmental concerns are available from the NSW Environment Protection Authority (EPA).
- Vaccinated and trained personnel should only handle bats (flying foxes and microbats) and their titre levels must be appropriate.
- Trained personnel should only handle dangerous animals especially for identification and transport purposes e.g. monitor lizards and venomous snakes as these pose a greater risk.

- Be careful handling live animals. Beaks, teeth and claws/talons can inflict considerable damage. If you don't feel comfortable handling a live animal, contact a local wildlife rehabilitation group to seek help.
- Contact the Emergency Animal Disease Watch Hotline before entering property or handling animals if there is any concern about zoonotic disease.
- Consider significant zoonoses including anthrax prior to handling or opening carcasses (see anthrax belt image below).

https://www.dpi.nsw.gov.au/biosecurity/animal/humans/anthrax

- Licensed wildlife rehabilitators can be contacted to assist with the rescue and handling of sick, injured and orphaned wildlife. They are legally authorised to provide care to wildlife until determined suitable for release in accordance with training, relevant codes of practice and licence conditions.

Sydney Wildlife Rescue 02 9413 4300 (Sydney metropolitan area)

WIRES (Wildlife Information Rescue and Education Service) 1300 094 737 (State-wide)

Wildlife rehabilitation groups exist that cover large areas in NSW and can assist with rescuing and handling injured wildlife. To view the full list visit:
https://www.environment.nsw.gov.au/topics/animals-and-plants/native-animals/rehabilitating-native-animals/licensed-wildlife-rehabilitation-providers-in-nsw

Live animals

- Consider contacting a wildlife rehabilitator, vet or vet nurse to help you handle the animal.
- Cover the animal with a towel or blanket to help calm and protect the animal during capture.
- Wear safety glasses when handling birds that have pointed beaks and can reach out with their necks (penguins, herons, cormorants, ravens).
- Wear leather gloves to handle birds with sharp talons such as magpies, currawongs, ravens, and birds of prey.
- Carefully handle marine turtles by the shell, or in a large bucket. Do not pick them up by their limbs as this can cause injury.
- Keep the animal calm in a warm, dry, dark, quiet place during transport. Limit visual and auditory stimulation which may cause further stress.
- Offer only small volumes of water if there is not a direct transportation option.
- Keep pets and people away from the animal.
- Live animals requiring rehabilitation should be transferred to a licensed wildlife rehabilitation group/carer as soon as practicable
- The timely release of protected animals back to the wild is the desired outcome of wildlife rehabilitation. Release at any place other than the point of capture must only be carried out in accordance with a licence authorising release or by an authorised licensed wildlife rehabilitation provider.

Dead animals

- Fish and amphibians decompose very quickly. Consider collecting sick live animals.
- In any outbreak situation consider collecting a combination of sick, live animals and dead animals.
- Wear nitrile, latex or vinyl gloves to handle animal remains. Also consider using a shovel, tongs or inverted plastic bag to avoid direct contact with blood, bodily fluids or remains. Knot the bag tightly on itself or with a piece of string.
- Bag each animal individually.
- Use the masking tape to label each bag with the species (if known), date, location and any animal identification (ear tag, microchip number).
- Collect the freshest remains possible.
- Decomposed remains with maggots can be useful for the diagnosis of botulism, but contact the lab in advance of submitting these kinds of samples. Ensure that you collect these samples individually in tightly sealed bags to avoid contamination of other remains.
- Collect as many carcasses as possible. Aim for up to 20 small animals, and 5-10 medium to large animals.
- Place protective equipment and any rubbish into your rubbish bag.
- Wash your hands and boots thoroughly. Wash and disinfect the containers and all equipment upon return. Dispose of waste responsibly.

Record keeping

To enable further investigation into potential wildlife diseases it is important to record details about the place, time and location the animal was found. Please refer to Appendix 3: Wildlife Incident Report Form and Appendix 4: Morbidity and Mortality Log. These forms should be completed and submitted along with any samples or remains. Multiple species can be recorded on one form.

Photographs

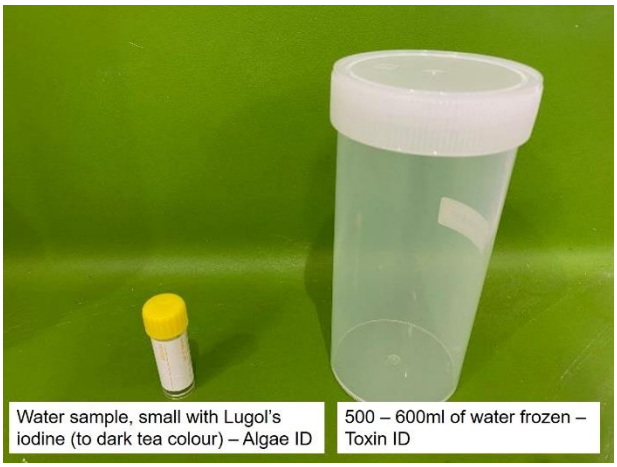
Collect photos from a distance and close up to allow others to see the environment surrounding the event, where samples, live animals and remains were collected, and how the animals were distributed. Place a scale and label in close-up images to identify the animal, date, and location. Ensure images are in focus and labelled to assist identification of point of interest.

Environmental samples

Consider collecting water sources, food sources, soil, and any potential chemicals or materials that could contain chemicals. Wear gloves and safety goggles when appropriate. When poisoning or pollution is considered likely samples should be collected into glass jars provided by NSW Environment Protection Agency.

Water samples are very important for the diagnosis of blue-green algae intoxication. Two water samples are required to adequately test for blue-green algae:

1. 5-10 mL water with Lugol's iodine – add a few drops until the solution is the colour of dark tea
2. 500 – 600 mL water – frozen



Water sample, small with Lugol's iodine (to dark tea colour) – Algae ID

500 – 600ml of water frozen – Toxin ID

Sample shipping

- If possible, place the labelled samples/remains that have been triple wrapped in tightly sealed plastic bags in an Esky containing ice or ice packs. Frozen water in recycled drink/2L milk bottles with well fitting lids, or gloves filled and knotted like a balloon, are excellent, cheap, makeshift icepacks for transport. Foam eskies should be shipped inside a cardboard box or inside a hard-sided Esky to avoid crushing.
- Keep the samples cool and out of the sun. Do not freeze the samples, unless asked to do so. Keep the paperwork somewhere dry, on the outside of the Esky.
- Get the samples to the lab as soon as possible, and ring lab to let them know the samples are on the way.
- Decant most of the formalin from fixed tissues, just leaving cotton ball soaked with formalin inside the container to keep tissues moist.
- **Avoid shipping samples on Fridays.** It is expensive and difficult to organise Saturday delivery. Samples that go missing in the courier system on a weekend are often of little value when finally found.

- Ensure all samples are double bagged and shipped in a hard-sided container (a hard eskie or a foam esky inside a cardboard box).
- Shipping samples interstate or overseas is complex and requires numerous permits and approvals.
- A printable shipping label provided on the next page with specific delivery instructions when sending samples/remains to the Registry of Wildlife Health.
- If the package contains animal tissues then a Category B Shipping Label for Biological Substances must also be affixed to the package (refer to Appendix 2 if you require labels).
- Some excellent resources on sample shipment are available on Department of Primary Industries website: https://www.dpi.nsw.gov.au/about-us/services/laboratory-services/veterinary/veterinary-test-list/collecting-and-submitting-samples-for-veterinary-testing

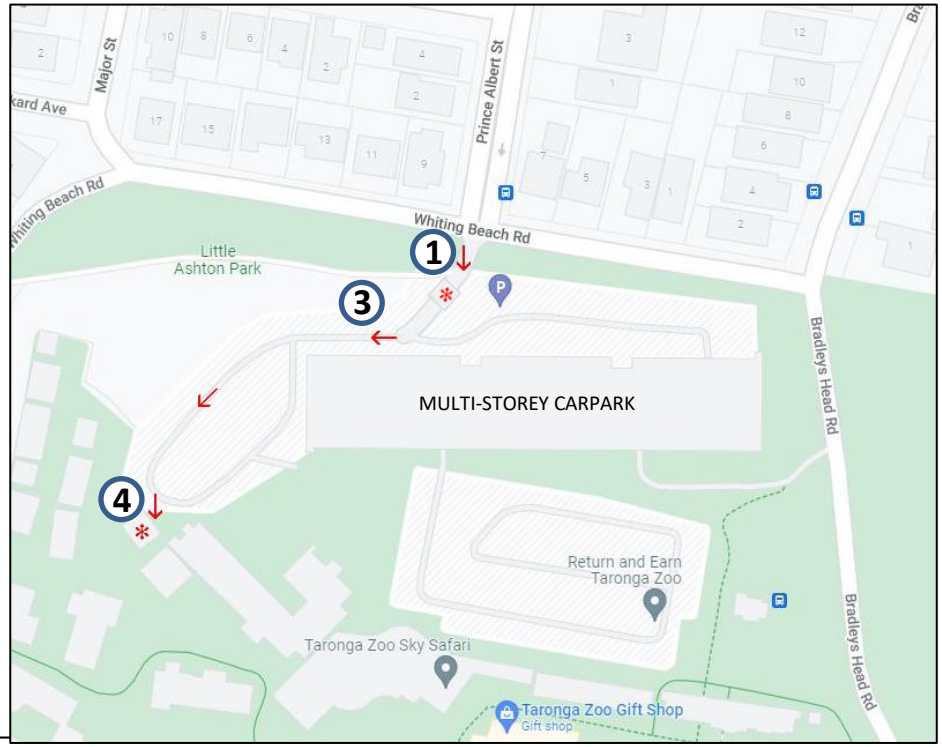
SAMPLES PACKAGED FOR SHIPPING

APPENDIX 1: Courier shipping label

Australian Registry of Wildlife Health
Taronga Conservation Society Australia
End of Prince Albert Street
(opposite 9 Whiting Beach Road)
Mosman NSW 2088
Phone 0481 468 505

1. Approach Taronga Zoo security boom gate at the end of Prince Albert Street
2. Press button on yellow intercom (*)
3. Enter and proceed right along road and park vehicle near security portal
4. Deliver package to fridge in security portal entrance (*)
5. Call 0481 468 505 when you have placed package in fridge

Entrance at the end of Prince Albert Street

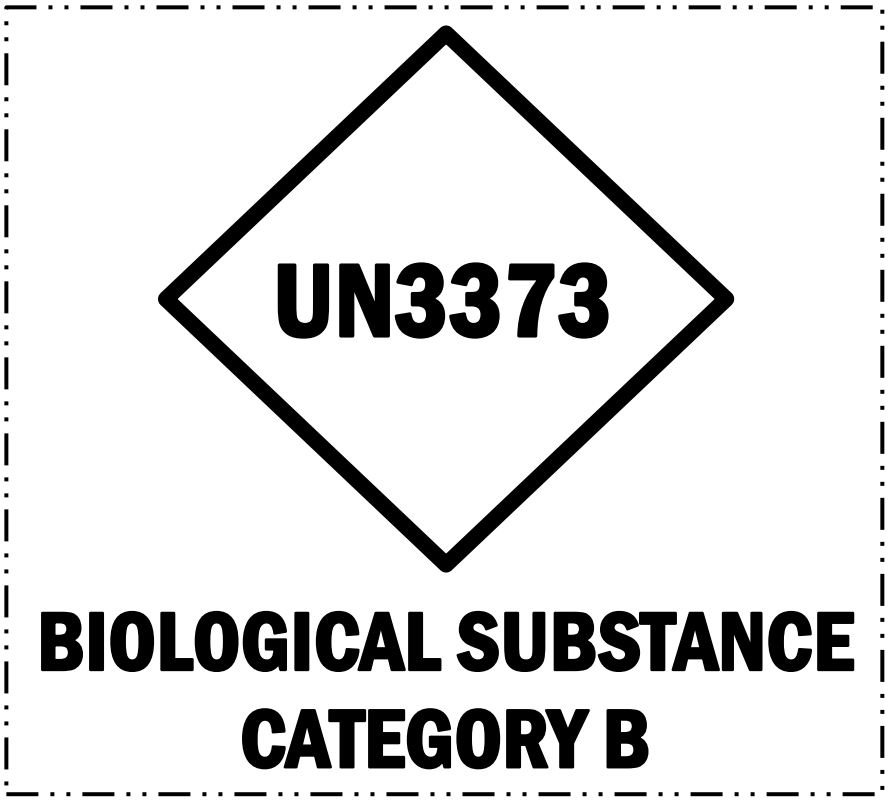


APPENDIX 2: Category B: Shipping Label for Biological Substances

The label below should print with the proper dimension of an Infectious Substance label (minimum dimensions: 50 mm on a side, and the proper shipping name, “Biological Substance, Category B” must be in letters at least 6 mm high).

Affix the label to the package by covering with clear plastic tape, so that moisture will not cause printer ink to run.

Ensure all samples are double bagged and shipped in a hard-sided container (a hard eskie or a foam esky inside a cardboard box).



APPENDIX 3: Wildlife Incident Report Form

Wildlife Incident Report Form	
Submitter Information	**Incident Information**
Submitter's Name	**Date of Observation**
Dept/Organisation	**Date of Report**
Address	**Location (Exact Location - with GPS data if possible)**
Phone	**Landowner and land access**
Email	
Mobile No.	
Signature	

Animal Details			
Species Affected			
Total of Each Species	**Normal**	**Sick**	**Dead**
Approximate Ages of Affected Animals			
Sex of Affected Animals	**# Male**	**# Female**	
Description of Incident			
Clinical Signs of Affected Animals			
Environmental Conditions (Weather, recent rainfall, sea conditions, recent local use of chemicals, changes in ground water levels, changes in domestic animal management)			
Management Actions Taken			
List of samples taken **Photographs or videos taken (environment, animals) and contact details of person with access**			

APPENDIX 4: Morbidity and Mortality Log

Accession Number	Species	Location (suburb and GPS locators)	Age	**Sex**	**ID (Band/Tag#)**	**Live / Treated & Died / Found Dead** / Euthanased	Date Death	Date Collected	Treatment Details	Disposition **(released, necropsy,** frozen, buried, museum)	Samples collected

NOTES: