



Zoological Parks Board
of New South Wales

Australian Registry of Wildlife Health

The following are some interesting cases that have passed through the Registry recently. These reports originate from free-ranging animals, and native fauna held in a variety of zoos, fauna parks and private collections.

AUGUST 2002

- NZ Fur seal - wild, NSW - emaciated fur seal died under general anaesthesia to administer fluid therapy. The fur seal was found to have a very large gastric lymph node. Although mycobacteriosis was suspected on gross post mortem examination, histopathology revealed disseminated fungal infection. The fungus identified within the organs is very unusual. The national mycology reference lab was unable to identify the fungus, and samples have been sent to mycologist in South Australia. The fur seal bit a person and we would like to identify the fungus to ensure that it is not zoonotic (3014.1). The culture has been identified as a non-sporulating hyphomycete (mycelia sterilia).
- Pied currawong (3) - NSW National Parks & Wildlife - suspected toxicity, but toxicology too expensive to pursue without a potential responsible party identified. (3037.1)
- NZ Fur seal - wild, NSW, euthanasia - emaciated. Large wound over the shoulder (probable shark bite wound) (3026.1).
- Leopard seal - wild, NSW - euthanasia, emaciation. Most likely an inexperienced hunter (no evidence of significant underlying disease) (3025.1).
- Ringtail possum - rehab, NSW - three juveniles being hand raised by the same carer died with haemorrhagic typhlitis caused by *E. coli*.
- Welcome swallow - NSW NPWS - numerous swallows were externally coated with "Scarecrow", a sticky anti-pest material. The plumage of each bird was thickly matted with the adhesive. The birds that died most often were dehydrated with had haemorrhage into their intestinal tracts (shock/stress). NPWS launched a publicity campaign and laid charges against the pest control agency (3022).
- Crested Hawk - wild, Sydney - multiple puncture wounds, predation (3046.1). It is unusual to find a crested hawk within the Sydney suburbs.
- NZ fur seal - NSW - stranded juvenile male. Probable shark attack (3026.1)
- Leopard seal - NSW - Sub adult female, emaciated. Several sub adult leopard seals have come ashore in NSW this season. It is suspected than inexperienced animals may be riding the same currents that bring the humpback whales up the coast.
- Banjo frog - Western NSW - Euthanasia, bloated. Severe Chytrid fungus infection (3049.1).
- Eastern Quoll - captive, NSW - euthanasia due to progressive paralysis. Large carcinoma in the caudal abdomen and sacral vertebral body (3027.1)

SEPTEMBER 2002

- Feathertail gliders - captive - NSW - One animal with an axillary sarcoma, and three animals with bacterial mastitis (*Morganella morgani*) (3077.1, 3066.1)
- Ringtail possum - wild, NSW - animal had been hand raised and released 8 months prior to being found emaciated and weak. The animal had marked chronic, bacterial pneumonia (3102.1).
- Green Tree Frog - Merimbula, NPWS Discovery Centre. Frog dead and decomposed but found to have been infected with Chytrid fungus. Discussions ensued with staff of the Discovery centre regarding the health of the remaining frogs in the centre (3030.1). Chytrid fungi appear to remain evident within histological samples even when the animal's tissues are quite decomposed. I have tried to do scrapings and used various special stains, but still find that histological examination of skin is the best/only means to diagnose Chytrid fungus infection
- New Zealand Fur Seal - wild, NSW - Female, sub adult animal brought in by NPWS. The animal was emaciated and most likely died as a result of failure to learn to feed independently. (3063.1)
- Hawksbill turtle - wild, NSW - osteomyelitis and pneumonia.
- Barramundi and Lungfish - captive, NT - multiple hepatic granulomas (bacterial infections).
- Black flying fox - wild, NT - acute gastric haemorrhage associated with the ascarid parasite *Toxacara pteropodis*. This parasite most often causes subclinical infections in young flying foxes. Larvae lie dormant in the female mammary tissue and are passed on to the young during lactation. The parasites mature in the young flying foxes, and eggs are passed in the faeces (3098.1). There are some reports of zoonotic potential of this parasite in the human medical literature.

OCTOBER 2002

- Ten green sea turtles and 1 hawksbill turtle - wild, NSW. Nine of the green turtles were adult or pubescent green turtles (45- 107kg) and all but one of these animals was in excellent body condition. The animals stranded alive with circling, head tilt, and buoyancy problems. Seven of the eight adult animals were euthanased within roughly 10 days of admission to rehabilitation, and two less severely affected animals were euthanased after a lack of response to several weeks of therapy with anti-inflammatory and antibiotic therapy (trimethoprim - meant to have some anti-protozoal effects). All of the mature animals had severe inflammation in the intestinal tract and brains associated with a coccidian parasite. Several of the animals also had more mild inflammation in the thyroid glands and renal parenchyma, which contained similar parasites

There are numerous additional reports of stranded sea turtles ranging from Jervis Bay to Coffs Harbour during the month of October. All animals died or were euthanased. The animals examined at the Registry were from Port Stephens, with the exception of one green turtle that stranded on Bondi beach. We are expecting seven frozen-thawed sea turtles from Coffs Harbour to arrive for examination in January.

The morphology of the parasite in the brain is consistent with *Caryospora cheloniae*. Intestinal scrapings from the animals were cultured in filtered sea water and coccidian parasites sporulated in a "star" pattern characteristic of *Caryospora cheloniae*.

The juvenile hawksbill and juvenile green sea turtles were emaciated and had systemic infections (one fungal and bacterial, the other just bacterial). It is not unusual for a few of these emaciated, septicaemic young turtles to come ashore at this time of year. Neither of these animals had any evidence of *Caryospora* sp. infection.

A previous outbreak of sea turtle mortality associated with *Caryospora cheloniae* infection has

been described by Anita Gordon, Roger Kelly et al in 1992 (Gordon, A.N., W.R. Kelly and R.J. Lester. 1993. Epizootic mortality of free-living green turtles, *Chelonia mydas*, due to coccidiosis. *Journal of Wildlife Diseases* 29: 490 - 494). Other sporadic cases of *C. cheloniae* infection logged in the Registry occurred in 1997. It is interesting to note that all of these events occurred in El Nino (quite dry years - with normal to cooler than average sea temperatures).

Interesting features of the current outbreak include the apparent predilection for adult and sub adult animals, and the concurrent widespread outbreak of algal blooms along the east coast of NSW. While young sea turtles are piscivorous, the sub adult and adult animals forage in the sea grasses on vegetation and algae. Apparently the sea grass beds are a breeding ground for algae. The excessive algal blooms have been ascribed by some to the dry conditions and lack of fresh-water "flushing" of the beds. Stomach contents from the turtles contained *Trichodesmium erythraeum*, which was also identified in the blooms in Sydney and Ballina. This algae is not considered to be toxic, but belongs to the cyanobacteria group that do produce toxins.

At this stage we are uncertain if the conditions in the sea grass beds allowed for both the algae and *Caryospora cheloniae* to proliferate, or if there was some interaction of algal toxins making the turtles more susceptible to the parasite infection. Since sea turtles are a threatened species and toxic algae can cause shellfish poisoning in humans, further investigation is warranted. NPWS have agreed to fund further studies to determine whether the algae in the turtle stomachs were producing toxins.

It is interesting to note that the only case of drought associated mortality in wildlife identified through the Registry occurred in marine creatures.

- Grey-headed flying foxes - wild, NSW, several animals from different wildlife care groups - avascular necrosis of the soft tissues of the wing consistent with electrocution.
- Rainbow lorikeets - wild, NSW - euthanasia due to progressive paralysis. Non-suppurative encephalomyelitis suggestive of a viral infection (3153.1).
- Black-headed python - captive, NSW - obstruction of the caudal dorsal aorta with granulomas. Secondary proliferation of blood vessels in the liver, and necrosis of the colon (3107.1).
- Flat-head frog - captive, NT - systemic infection with pigmented fungi (Chromomycosis) and another fungus (3139.1)
- Red-wing parrot - wild, NT - found very ill and with "tatty feathers". The animal has multisystemic amphophilic or "punched out" nuclei, consistent with avian polyoma virus infection. The liver, pancreas, kidney and spleen were most notably affected with inclusion bodies. Inclusion bodies were prevalent within the endothelial cells of blood vessels, suggestive of a more acute viraemia. (3135.1)
- Antilopine Wallaroo - captive, NT - chronic enteritis and probable secondary amyloidosis in the kidney and adrenal gland (3134.1).
- Spinifex hopping mouse - captive, NT - multisystemic lymphoma (3129.1).
- Spinifex hopping mouse - captive, NSW - probable thymic lymphoma (3146.1).

NOVEMBER 2002

- Red kangaroo - ongoing investigation of protozoal dermatitis in red kangaroos in collaboration with Dr. Jody Low Choy, Territory Wildlife Park, and Dr. Emanuela Handman at the Walter and Elisa Hall Institute in Melbourne. Skin biopsies from areas of focal dermal thickening and alopecia along the tail of a red kangaroo were submitted for culture and protozoa consistent in morphology with *Leishmania* sp promastigotes were identified. Alcohol fixed portions of the biopsies were forwarded to a researcher in Zurich, to conduct PCR and further characterize the organism. *Leishmania* sp are considered to be exotic to Australia. Some species of *Leishmania* can cause significant skin disease or systemic infection in domestic animals and people (2046.2).

- Peach-faced lovebird - captive, SA - periarticular sarcoma (shoulder joint) (3165.1)
- Eastern rosella, cockatiel - SA - chronic liver disease with severe cirrhosis (3164.1, 3166.1).
- Western grey kangaroo - SA - end stage kidney disease with oral and gastric ulcers and neurological disease most likely caused by severe uraemia (3179.1).
- Diamond python - SA - multiple proliferative lesions from the spine (osteomyelitis) (3180.1).
- Southern Giant Petrel - wild, NSW - Stranded on a beach. Euthanasia elected due to severe depression and massive leucocytosis. The bird had severe necrosis of the cryptal epithelium throughout the small intestine. This is a very unusual lesion in a bird. The lesion is somewhat reminiscent of parvoviral infection in small domestic animals. (3194.1)
- Southern hairy nosed wombat - captive, NSW - severe acute bacterial pneumonia (*Serratia odorifera*) (3182.1)