



Zoological Parks Board
of New South Wales

Australian Registry of Wildlife Pathology

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.

MARCH 2000

- Australian Sea Lion - captive, NSW - Died from *E. coli* septicaemia. Bacteria most likely spread from a series of small abscesses present within the pleura and mediastinum. Presumably there had been a previous episode of *E. coli* pneumonia.
- Tasmanian Devil - adult, male, captive, NSW - Euthanased due to debility and sudden onset of hind limb weakness, which occurred 10 days after a series of 5 skin tumours were surgically removed. Microscopic examination of the biopsy samples revealed: a focal mast cell tumour, cystic eccrine hyperplasia, sebaceous adenoma, and intra-cutaneous keratinising epithelioma. Aged dasyurids seem to be particularly prone to developing a broad range of neoplasia.
A herniated cervical disc accounted for the hind limb pareses. The disc material visibly compressed the ventral portion of the spinal cord. Focal malacia of this segment of the cord, with Wallerian degeneration of the more caudal white matter tracts was noted on microscopic examination of the tissues.
- Tasmanian Devil - aged female, captive, NSW - Euthanased elected due to the presence of several large subcutaneous skin masses and sudden onset of hind limb ataxia and weakness. A mammary carcinoma had been surgically resected several months prior to euthanasia. Post mortem examination revealed squamous cell carcinoma of the anal sac, with spread to one axillary lymph node. A herniated disc was located within the cervical spinal column, resulting in visible compression of the spinal cord. Microscopic examination of the spinal cord revealed focal malacia of the ventral white matter at the site of the herniation, and Wallerian degeneration of the ventral white matter distal to this.
- Common Wombat - wild, NSW - Euthanased due to severe debility and evidence of recent spinal trauma. Fractured vertebrae were found in the neck. The wombat had been unable to control it's bladder due to compression of the spinal cord. The bladder had, thus, ruptured, resulting in chemical peritonitis.
- Pied Currawong - wild, NSW - Euthanased due to severe debility and proliferative skin lesions of the feet caused by a mite infestation. The mite has been identified as *Cnemidocoptes irritans* by Ian Beveridge, University of Melbourne. This syndrome has been described in the literature as occurring, rarely, in magpie larks and magpies in Tasmania.
- Golden Bandicoot - Northern Territory - Died after a short bout of illness. Prostatitis found upon microscopic examination of the tissues.
- Tissues from a variety of Weddell seals, southern skuas, Adelie penguins, and a leopard seal were examined for the Australian Antarctic division.
- Tasmanian Devil - Found dead in Blue Mountains National Park. Submitted for post mortem examination by NSW NPWS. The animal was a young female, in excellent body condition, that had been attacked by a dog. A microchip implant indicated that the animal originated from a captive setting.
- Norfolk Island Green Parrot - captive in the recovery program colony, Norfolk Island - Biopsy - a large sarcoma had been surgically resected from the soft tissues of the anterior aspect of the neck.

APRIL 2000

- Short-beaked echidnas - captive, NSW - two animals died suddenly. *Salmonella typhimurium* was isolated within 3 tissues of one animal, and within the faeces of the other. Bacteria were not isolated within the tissues of the second echidna. Although Salmonellosis was considered the primary pathogen when the microbiology results came in, microscopic examination of the tissues revealed severe systemic coccidiosis. Protozoal schizonts were apparent throughout the consolidated and congested lungs, and were adjacent to foci of necrosis in the liver. Captive short beaked echidnas appear to be very susceptible to systemic coccidiosis. The most common presentation of systemic coccidiosis is sudden death, however, some echidnas become very depressed, thin and debilitated. Dubey, JP, Hartley, WJ, Journal of Veterinary Diagnostic Investigation 5:483-488(1993).
- Short-beaked echidnas - investigations into the cause of the scurfy skin lesions commonly found in captive echidnas has revealed that some of the lesions are attributable to infection with ringworm type fungi (*Microsporium gypseum*, *Trichophyton viride*) while others are most likely caused by a burrowing skin mite. Further identification by Lee Skerratt is pending, however, we believe that this may be a previously undiscovered species of mite. The mite is related to Sarcoptic mites, and biopsy has revealed the mite burrowed within echidna skin, associated with epidermal thickening and scaling.
- Greater sticknest rat - captive, NSW - multisystemic anaplastic sarcoma, degenerative renal disease.
- Green and golden bell frog - adult, female, captive, NSW - euthanased due to severe metabolic bone disease with marked ventral bowing of the long bones and poor opacity of the cortices on radiographic examination. Post mortem examination revealed multisystemic mycobacteriosis due to *Mycobacterium marinum*. It is suspected that the metabolic bone disease resulted from renal secondary hyperparathyroidism, since much of the renal parenchyma had been replaced by granulomatous inflammation.
- Green tree frog - captive, NSW - euthanased due to a cloacal prolapse that could not be replaced. Post mortem examination revealed marked fibrosis throughout the caudal coelomic cavity, encompassing the rectum. Extensive adenocarcinoma was diagnosed upon microscopic examination of the tissues.
- Topknot pigeon - captive, NSW - died due to trauma. Upon examination, the bird had an extensive mite infestation of the axillary subcutaneous tissues. The mites are still in the process of being identified, however, they are most likely members of the order Sarcoptiformes, and either Hypoderatidae or Hypodectidae families. The deutonymph stage of the parasite lives dormant in the subcutaneous tissues, while the more mature parasites reside within the nesting material. Incidental finding.
- Diamond Firetail Finch - captive, NSW - euthanased due to skin infection of the face. Yeast (*Candida albicans* and *Geotrichum* sp.) had colonised the affected skin, and had caused severe ventricular ulceration and haemorrhage.
- Green Tree Frog - South Australia - Died with systemic fungal infection with an agent most likely to be *Mucor amphibiorum* (fungal culture would have allowed definitive diagnosis). This saprophytic fungus has been reported to cause granulomatous dermatitis in platypus and systemic granulomatous disease in amphibians. Individual cases of mucormycosis have been reported in wild green tree frogs and cane toads, and outbreaks have been reported in several zoo based amphibian collections.
Berger L, Speare R., Humphrey, J. Journal of Wildlife Disease 33:4, 903-907, 1997.
Speare, R. et al. Journal of Wildlife Disease 33:1, 105-111, 1997.
Creeper JH, et al. Australian Veterinary Journal 76:11, 761-762, 1998.
- Leopard shark - rehabilitation, NSW - found hooked in the mouth in a crab trap during clean up Australia day. Died due to septicaemia spreading from the oral wound despite antibiotic treatment.
- Rainbow fish - captive, NSW - euthanased to rule out the possibility of mycobacteriosis causing skin ulcers. Mycobacteriosis confirmed by microbial culture and histopathology.

MAY 2000

- Blotched blue-tongue lizard - captive, NSW - died after surgery to remove a chronically infected oviduct- *Bacterioides* sp. and large protozoa.
- Kiwi - 2 year old female, NSW, died 17-1-99. Update: repeated attempts to recover the bacterium responsible for the bird's acute pneumonia had failed. *Streptomyces* sp. was recovered in pure growth following a revised culture protocol that included prolonged incubation under anaerobic conditions. This organism is a soil borne organism, and kiwi seem to be particularly sensitive to respiratory infections with soil borne agents such as *Cryptococcus neoformans*.
- Little Penguin - wild, NSW - sub adult emaciated and heavily parasitised with lice, nematodes and tapeworms. Difficulties through the moulting period suspected
- Pelican - wild, NSW - euthanasia. Fractured wing sustained when the bird hit power lines. The fractured bone ends severed the blood supply to the wing resulting in avascular necrosis of the soft tissues.
- Ringtail possum - wild, NSW - euthanased due to anaemia and an unusual blood parasite (haemogregarine parasite. Probably *Hepatozoon* sp.)
- Green turtle - wild, NSW - euthanased after sustaining severe facial lacerations when run over by a four wheel drive vehicle on Stockton beach
- Eastern snake-neck turtle - wild, NSW - euthanased with severe inflammation of the eyelids caused by an invasive fungal infection
- Long-nosed bandicoots (5) - wild, NSW - adult and sub adult animals found dead with multiple bite wounds. Inter-canine measurements from the bite wounds are most consistent with fox predation.
- Green tree frog - South Australia - Chytrid fungus, intestinal nematodes, Myxosporida (single celled parasites) in the testis
- Pacific Black Duck - wild, South Australia - submitted by a local council with multiple large, hard nodules along the legs and body. Multiple cartilaginous exostoses
- Sugar Glider - South Australia - abdominal (peri-intestinal) adenocarcinoma
- Mulgara - South Australia - enteritis
- Koala - South Australia - oxalate nephrosis, enteropathy
- Eastern Water Dragon - South Australia - malacia within the deep white matter of the brain
- Tiger snake - South Australia - granulomatous hepatitis
- Olive Python - South Australia - encephalomalacia, moderate colitis
- Carpet Python - South Australia - inclusion bodies in the liver. Possible Inclusion Body Disease of Boids
- Coastal Bearded Dragon and Heath Monitor - captive, NSW - chronic multifocal hyperkeratosis and scab formation of the skin on the ventrum and digits (present for up to 2 years). *Dermatophilus congolensis* was identified within gram stained smears made from the under surface of scabs. The organism was identified by its characteristic morphology consisting of branching single and double beaded chains of gram positive organisms. This bacterium is notoriously difficult to grow in culture, but was isolated after 1 week of anaerobic culture.
- Mouse - Apparently there was some confusion when someone asked for the House dressing. A mouse was submitted for post mortem examination after being found covered in vinegrette in a prepared salad in Brisbane.