4182 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
5 Aug 2004	Death note	25Y,7M,0D	82794. Ref: 4812. Black Faced Ibis. Addendum: Bacterial rods in pyogranulomas and other debris in the oviduct are gram-negative. An acid-fast stain (Ziehl-Neelsen) is negative. SR - negative for avian TB, this animal died of a severe oviduct infection.

4183 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
15 Mar 2002	Moult	23Y,2M,8D	A.Penguin 4183 completed moult
9 Jun 2003	Moult	24Y,5M,2D	Fattening for moult This comment was added to the following specimens: 4183, 6816.
30 Jul 2004	Moult	25Y,6M,24D	African peng 4183 nearly completed moult. Has a few loose feathers on back of neck still.
12 Jun 2005	Moult	26Y,5M,6D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.
21 Jun 2005	Moult	26Y,5M,15D	African penguins 6405, 4183 and 4803 fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405.

4184 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
1 Jun 2001	Death note	22Y,4M,25D	African Penguin ARKS # 4184postmortem examination 01/07/01 Male Date of Death 29/06/01 Gross Findings There was lots of fluid found within the air sac. The lungs were very congested. The heart appeared normal grossly. fish were found in the oesophagus and proventriculus. Samples Submitted for culture: Lung Samples Submitted for histopath: Spleen, liver, kidney, intestines, lung
9 Jul 2001	Death note	22Y,6M,2D	African penguin 4184 postmortem examination bacteriology lung non haemolytic E. Coli only, no fungal or yeast grown.

4190 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
31 Jan 2004	Death note	25Y,0M,26D	Penguin 4190 23.1.04 serum malaria IFAT tests weak positive 1/240 suggest current or recent exposure to malaria, plus malaria antigen tests BINAX negative, Optimal negative
31 Jan 2004	Death note	25Y,0M,26D	Path. No.: 75016/4190. African penguin (Spheniscus demersus), male, unknown age History: Under treatment, nebulising and treatment for avian malaria and pneumonia. Air sacs clear, swollen pale kidneys, large white patch on ventricle, smaller patches on whole heart, spleen apparently normal, liver friable, some feathers in oesophagus, testis are pigmented, ventriculus ruptured, large amounts of necrotic material cranial in the body cavity on the right side. Abscessed necrotic tissue, right lung necrotic. Diagnose: necrotising inflammation with abscess formation, rupture of ventriculus Comment: There is suspicion of septicaemia, there is evidence of several sites of necrotising inflammation (lung, body wall, ventriculus, syrinx), the pathogenesis of the necrotising inflammation cannot be determined by the histo-pathological findings, however the clinical history is in favour of a post traumatic (ruptured abdominal wall reported on 23.10.2003) aetiology with bacterial complication. With regard to the suspected malaria it can be noted, that at present there is no evidence of infection with plasmodium spp. Dr. med.vet. Felicitas Taugner. This animal died as a result of a severe pneumonia (one lung was completely rotten) probably as a consequence to proventricular rupture which predated the recent repair surgery and was probably weeks/months old at that time, no malaria. This was an old animal. S. Redrobe.
12 Feb 2004	Death note	25Y,1M,7D	penguin 75016 (41901)- I had another pathologist look at this whilst Dr PK was away to give us a fast answer, she is now reviewing it. 'I have a had a look at these slides, quick summary: 1. Quite a few sections are comprised only of reactive fibrous tissue with pyogranulomatous changes along some surfaces - I have submitted those for silver staining but most likely this is the walled off region associated with the ruptured ventriculus

4190 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			as there is associated material which could be ingesta. 2. In a section of heart there is extensive necrotising myocarditis with associated gram-negative rods - any culture results on this bird? In some sections there are pyogranulomas also associated with gram-negative bacteria. 3. There is marked extramedullary haematopoiesis in the liver with slight increases in iron but not evidence of necrotising inflammation associated with bacteria as seen in the heart. 4. Testis - no spermatids. 5. The spleen is quite large, presumably this relates to the previous malaria and the current inflammation/infection? 6. A primary bronchus is subdivided by a band of fibrous tissue and there are marked granulomatous changes in the wall - this needs a silver stain; I can't see bacteria associated with this - rods on surfaces are contaminants. Will get back to you re the silver stains, important to check if there was a fungal infection in the airway.' Janet C. Patterson-Kane BVSc PhD DACVP MRCVS

4191 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
27 Aug 2002	Moult	23Y,7M,21D	A Penguin 4191 finishing moult
6 May 2003	Death note	24Y,3M,29D	64022/4191. History: This African penguin weighed 2.25 kg and was recently prescribed treatment for an eye problem. The bird had been becoming thin and was found dead. At post-mortem the liver was mottled and possibly slightly enlarged, there were fatty deposits in the air sacs, the lungs were congested and full of blood, and the spleen was enlarged. Tissue specimens are submitted for histological examination. Microscopic description: Heart: Myocardial cells contain small amounts of golden-brown, granular intracytoplasmic pigment (presumptive lipofuscin). In one field, some perivascular myocardial cells are small with fragmented nuclei. In another field there is a small area of myocardial necrosis with a large central cluster of bacilli and infiltration of small numbers of degenerate heterophils and macrophages. There are several small to moderately sized areas of necrosis and inflammation surrounding a closely adjacent large vein, the wall of which is focally disrupted by inflammatory cells. Liver: Hepatic sinusoids are multifocally expanded by large numbers of haematopoietic cells. Many hepatocytes contain small amounts of brown granular, intracytoplasmic pigment (presumptive haemosiderin) and moderate amounts of similar pigment are noted in Kupffer cells and moderate numbers of macrophages scattered and clustered within the haematopoietic tissue. In one section there is an extensive area of parenchymal necrosis, with concentric, band-like infiltrates of degenerate heterophils and numerous intralesional colonies of bacilli. At margins of the necrotic area there are moderate to severe infiltrates of multinucleate histiocytic giant cells and macrophages, with mild fibrosis in some foci. The necrotic area includes a fibrosed portal tract within which are several large granulomas with centres comprised of granulocytic debris and numerous bacilli. A similarly extensive necrotic region in another section contains granulomas that are forming in inflamed and disrupted large blood vessels. Several smaller areas of necrosis are also observed, in both sections. Lung: There is diffuse, marked congestion. Haemorrhage is noted within parabronchi (post-mortem artefact). Some veins are distended by moderate amounts of finely fibrillar eosinophilic material with some entrapped erythrocytes (acute thrombi). Diagnoses: 1. Hepatitis, necrotising, chronic-active, multifocal, mild to severe, with vasculitis, granuloma formation, intralesional bacilli, hepatocellular haemosiderosis, and marked extramedullary haematopoiesis, liver 2. Myocarditis, necrotising, subacute, focally extensive, moderate, with vasculitis and intralesional bacteria, heart.

4191 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			3. Congestion, acute, diffuse, severe, with acute intravascular thrombi, lungs. Comment: The histological findings are consistent with disseminated bacterial infection. Necrotising inflammation is particularly severe and most chronic in the liver, where granulomas are forming, some of which involving inflamed and disrupted blood vessels. Vasculitis is also noted in the myocardium, where lesions are less well-developed and granulomas not noted. Gram and acid-fast stains are pending. The lungs are congested with some acute thrombi, this representing a terminal change. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS
8 May 2003	Death note	24Y,4M,1D	Addendum: Bacteria in hepatic and myocardial lesions are gram-positive cocci. An acid-fast stain (Ziehl-Neelsen) is negative. Many hepatocytes and Kupffer cells contain large amounts of iron-positive pigment (Perl's Prussian Blue), which is consistent with the diagnosis of hepatic haemosiderosis; haemosiderosis is a common finding in birds with other lesions including bacterial infection. Penguin 4191 22.4.03 eye bacteriology heavy growth Bacillus resistant to fusidic acid only
14 May 2003	Death note	24Y,4M,7D	Penguin 4191 9.5.03 bacteriology non-haemolytic E.coli and Enterococcus plus negative fungal/yeast, multiresistant to ALL antibiotics. This animal died of septicaemia.

4803 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
11 May 2004	Moult	16Y,4M,14D	bald areas on neck
12 Jun 2005	Moult	17Y,5M,15D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.
21 Jun 2005	Moult	17Y,5M,24D	African penguins 6405, 4183 and 4803 fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405.

4807 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
5 May 2003	Moult	13Y,0M,28D	2 A.Pengs 4807 & 6595 fattening up for moult
17 May 2003	Moult	13Y,1M,9D	Completed moult. This comment was added to the following specimens: 4807, 6584.
28 Apr 2004	Moult	14Y,0M,22D	African Penguin4807 looks very fat. Fattening for moult?
3 May 2004	Moult	14Y,0M,27D	African Penguin 4807 is moulting.
11 May 2004	Moult	14Y,1M,4D	nearly finished moult
7 Aug 2005	Moult	15Y,4M,1D	African peng 4807 moulting
16 Aug 2005	Moult	15Y,4M,10D	A Penguin 4807 completed moult.

5549 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 May 2003	Moult	10Y,10M,3D	Moulting.
26 Jun 2005	Moult	12Y,11M,5D	African penguins 6597, 8774, 5549, 6602, 8319, and poss 6355 fattening for moult. 6602 had cable ties removed and replaced with looser ties for now due to wings swelling for moult. This comment was added to the following specimens: 5549, 6355, 6597, 6602, 8319,

5549 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			8774.

5552 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
8 Apr 2001	Moult	8Y,8M,10D	Moulting
15 Mar 2002	Moult	9Y,7M,17D	A.Penguin 5552 moulting
23 Nov 2002	Moult	10Y,3M,26D	African penguin 5552 fattening up - just about to start moult.
4 Dec 2002	Moult	10Y,4M,7D	Completed moult
7 Nov 2003	Moult	11Y,3M,10D	Fattening for moult
11 Dec 2004	Moult	12Y,4M,15D	African penguin 5552 moulting. Halfway through moult- just head and neck left to moult. This comment was added to the following specimens: 5552.
22 Oct 2005	Moult	13Y,2M,26D	Moulting

5725 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
8 Jan 2001	Death note	6Y,10M,27D	A. penguin, 5725, wt at death was 2300g, guts completely empty, gall bladder large and testes blackened. (at PM).

5726 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
11 Mar 2003	Moult	9Y,0M,9D	A penguin 5726 begining moult
18 Mar 2003	Moult	9Y,0M,16D	Completed moulting.
25 Nov 2003	Moult	9Y,8M,24D	moulting
20 Apr 2005	Moult	11Y,1M,19D	African penguin 5726 fattening for moult
9 May 2005	Moult	11Y,2M,8D	A Penguin 5726 completed moult This comment was added to the following specimens: 5726.

5732 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Feb 2003	Moult	8Y,10M,21D	A.penguin 5732 moulting- probably started last week
17 Feb 2003	Moult	8Y,10M,29D	Completed moult.
14 Dec 2003	Moult	9Y,8M,25D	Fattening for moult.
23 Aug 2004	Moult	10Y,5M,4D	Fattening for moult.

5773 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 May 2003	Moult	9Y,0M,3D	Moulting.
11 May 2004	Moult	9Y,11M,19D	bald areas on neck

6355 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
11 Jul 2003	Moult	21Y,7M,12D	A.Penguin 6355 moulting.
4 Aug 2004	Moult	22Y,8M,6D	mOULTING.
26 Jun 2005	Moult	23Y,6M,28D	African penguins 6597, 8774, 5549, 6602, 8319, and poss 6355 fattening for moult. 6602 had cable ties removed and replaced with looser ties for now due to wings swelling for moult. This comment was added to the following specimens: 5549, 6355, 6597, 6602, 8319, 8774.
19 Aug 2005	Moult	23Y,8M,21D	A Penguin 6355 moulting This comment was added to the following specimens: 6355.

6405 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 Jan 2003	Moult	4Y,9M,25D	African Penguin 6405 has started molting in the last few days
9 Feb 2003	Moult	4Y,10M,8D	A.penguin 6405 finished moulting last week.
7 Nov 2003	Moult	5Y,7M,6D	Fattening for moult
4 Aug 2004	Moult	6Y,4M,3D	mOULTING.
12 Jun 2005	Moult	7Y,2M,11D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.
21 Jun 2005	Moult	7Y,2M,20D	African penguins 6405, 4183 and 4803 fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405.
28 Jun 2005	Moult	7Y,2M,27D	African penguins 6599 + 6405 completed moult. African penguin 6585 moulting. This comment was added to the following specimens: 6405, 6585, 6599.

6561 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
17 May 2003	Moult	4Y,8M,15D	In moult. This comment was added to the following specimens: 6561.
26 May 2003	Moult	4Y,8M,24D	Moult completed.
3 May 2004	Moult	5Y,8M,2D	African Penguin 6561 possibly fattening for moult
11 May 2004	Moult	5Y,8M,10D	fattenning for moult

6566 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
18 Feb 2003	Moult	3Y,11M,18D	Starting moult.
28 Feb 2003	Moult	3Y,11M,28D	Completed moult.
5 Sep 2003	Death note	4Y,6M,4D	69066/6566. History: This African penguin died suddenly. Tissues are submitted for histological examination. Diagnoses: 1. Hepatitis, subacute, multifocal, moderate, liver. 2. Splenitis, fibrinous, acute, multifocal, moderate, with histiocytosis, spleen. 3. Leukocytosis, severe, pulmonary vasculature. 4. Intravascular ovoid cells containing intracytoplasmic granular bodies, multiple tissues. Comment: There is evidence of significant systemic disease in this bird. Inflammatory lesions are noted in the liver and spleen, and pulmonary vessels and a few veins in other sites are packed with leukocytes. The exact cause is uncertain, however ovoid cells with intracytoplasmic granular bodies are observed in blood vessels in multiple sites. One possibility is that these are Plasmodium schizonts, however they are not Giemsa-positive. Photographs have been taken under oil immersion and a second opinion will be sought as the clinical history is suggestive of an outbreak of avian malaria. Bacterial infection would still have to be considered as a differential diagnosis at this stage and gram and acid-fast stains are pending. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS Summary penguin results- there are various lesions in the penguins that could fit with avian malaria but nothing diagnostic, with the exception of this case - 6566 which has hepatitis, splenitis, and these cells floating

6566 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			around in blood vessels. Unfortunately the bodies in the cells are not staining positively with Giemsa. I am going to get a second opinion on them. The only penguin with lesions consistent with Clostridial infection is the one that we had a positive culture from (6616).

6583 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
18 Mar 2003	Moult	5Y,0M,21D	fattening up for moultfattening up for moult
4 Nov 2003	Moult	5Y,8M,8D	Fattening up for moult.
3 Jun 2005	Moult	7Y,3M,7D	African penguins 6583 + 6589 fattening for moult This comment was added to the following specimens: 6583, 6589.

6584 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
5 May 2003	Moult	4Y,8M,2D	A.Peng 6584 is in middle of moult
17 May 2003	Moult	4Y,8M,14D	Completed moult. This comment was added to the following specimens: 4807, 6584.
3 May 2004	Moult	5Y,8M,1D	African penguin 6584 fattening up for moult
11 May 2004	Moult	5Y,8M,9D	nearly finished moult
22 Apr 2005	Moult	6Y,7M,21D	2 African penguins 8364 + 6584 fattening for moult. This comment was added to the following specimens: 6584, 8364.

6585 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 May 2003	Moult	4Y,8M,11D	Moulting.
28 Jun 2005	Moult	6Y,9M,15D	African penguins 6599 + 6405 completed moult. African penguin 6585 moulting. This comment was added to the following specimens: 6405, 6585, 6599.

6587 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
7 Apr 2003	Moult	4Y,8M,6D	Starting moult.
9 Apr 2004	Moult	5Y,8M,9D	2 African penguins 6595 and 6587 are moulting. Both started dropping feathers about 7 days ago
18 Apr 2004	Moult	5Y,8M,18D	African penguin 6587 has just a few feathers left to moult on back of neck.
1 Jun 2004	Death note	5Y,10M,1D	African penguin 6587 29.5.04 post-mortem examination 29.5.04 found dead. Good condition. Whole fish in ventriculus, full. No abnormalities detected, multiple samples taken for histopathology, liver bacteriology, more results to follow
2 Jun 2004	Death note	5Y,10M,2D	6587 African penguin found dead 28/5/04- PM NAD liver swab taken, frozen tissue and blood sample for malaria. Histopathology onging, more results to follow
14 Jun 2004	Death note	5Y,10M,14D	81562/6587. History: This African Penguin was found dead on 20-5-04. The whole group is on Primaquine and Chloroquine as malaria is suspected based on antibody levels, from 2 weeks. At post-mortem examination no abnormalities were detected. Multiple samples were taken and a liver swab. Liver, heart, kidney, and blood samples have been retained at -70 degrees. Tissue specimens are submitted for histological examination. Diagnoses: Myocarditis, multifocal, minimal, heart. Comment: Histological findings in this case are not conclusive. Schizonts which would confirm the diagnosis of Plasmodium sp. infection are not noted in these particular sections, however special stains are pending. The cause of the few small foci of myocarditis in one section is uncertain, and these lesions in isolation do not explain the death of the bird. Janet C. Patterson-Kane. Also African penguin 6587 8.6.04 blood for IFAT malaria weak positive at 1/30 (equivocal result), lends suspicion to avian malaria as a cause of death, all penguins currently on treatment, more results to follow. S. Redrobe

6587 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
22 Jun 2004	Death note	5Y,10M,22D	African penguin 6587 post-mortem examination bacteriology liver mixed growth predominantly E.coli

6589 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
18 Mar 2003	Moult	4Y,5M,17D	fattening up for moultfattening up for moult
3 Jun 2005	Moult	6Y,8M,4D	African penguins 6583 + 6589 fattening for moult This comment was added to the following specimens: 6583, 6589.

6590 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
22 Apr 2003	Moult	4Y,6M,14D	Moulting
5 May 2003	Moult	4Y,6M,27D	2 A.Pengs 6603 & 6590 have completed moulting (Sometime last week)
14 Apr 2004	Moult	5Y,6M,7D	African pengun 6590 fattening for moult.
18 Apr 2004	Moult	5Y,6M,11D	African penguin 6590 moulting heavily now. In burrow with 6587.
16 May 2005	Moult	6Y,7M,9D	A Penguin 6590 moulting This comment was added to the following specimens: 6590.
24 May 2005	Moult	6Y,7M,17D	A Penguins 7868,8662,8302,6595+6590 all completed moult. This comment was added to the following specimens: 6590, 6595, 7868, 8302, 8662.
29 May 2005	Moult	6Y,7M,22D	African penguins 8358 and 6590 have completed moult. This comment was added to the following specimens: 6590, 8358.

6594 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 Feb 2003	Moult	5Y,4M,0D	A.Penguin 6594 is fattening up in prep for moult
18 Mar 2003	Moult	5Y,4M,20D	Completed moulting.
21 Jan 2004	Moult	6Y,2M,25D	Moulting.
30 Jan 2004	Moult	6Y,3M,3D	Completed moult.
11 Jan 2005	Moult	7Y,2M,16D	African Pewnguin 6594 moulting

6595 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
5 May 2003	Moult	6Y,0M,15D	2 A.Pengs 4807 & 6595 fattening up for moult
9 Apr 2004	Moult	6Y,11M,20D	2 African penguins 6595 and 6587 are moulting. Both started dropping feathers about 7 days ago
18 Apr 2004	Moult	6Y,11M,29D	African penguin 6595 has finished moulting in last couple of days. Looking very thin.(Normal after moult)
12 May 2005	Moult	8Y,0M,23D	A pengin 6595 moulting
24 May 2005	Moult	8Y,1M,4D	A Penguins 7868,8662,8302,6595+6590 all completed moult. This comment was added to the following specimens: 6590, 6595, 7868, 8302, 8662.

6596 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
7 Apr 2003	Moult	5Y,7M,11D	Starting moult.
1 Jun 2005	Moult	7Y,9M,6D	A penguins 8611 + 8647 moulting to adult plumage A penguins 6596+8649 fattening for moult This comment was added to the following specimens: 6596, 8611, 8647, 8649.
12 Jun 2005	Moult	7Y,9M,17D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult.

6596 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.

6597 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 May 2003	Moult	6Y,2M,10D	Moulting.
3 Jun 2004	Moult	7Y,2M,19D	Mouilt completed
26 Jun 2005	Moult	8Y,3M,11D	African penguins 6597, 8774, 5549, 6602, 8319, and poss 6355 fattening for moult. 6602 had cable ties removed and replaced with looser ties for now due to wings swelling for moult. This comment was added to the following specimens: 5549, 6355, 6597, 6602, 8319, 8774.

6598 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 Feb 2003	Moult	5Y,7M,0D	moulting
30 Jan 2004	Moult	6Y,6M,3D	Completed moult.

6599 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
28 Jun 2005	Moult	8Y,10M,20D	African penguins 6599 + 6405 completed moult. African penguin 6585 moulting. This comment was added to the following specimens: 6405, 6585, 6599.

6601 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
25 Nov 2002	Moult	6Y,7M,4D	African Penguin 6601 moulting.
4 Dec 2002	Moult	6Y,7M,13D	Completed moult
5 Dec 2003	Moult	7Y,7M,14D	Moulting heavily
14 Nov 2004	Moult	8Y,6M,24D	African penguin 6601 fattening for moult.

6602 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
25 Nov 2003	Moult	6Y,6M,15D	Fattening for moult
26 Jun 2005	Moult	8Y,1M,16D	African penguins 6597, 8774, 5549, 6602, 8319, and poss 6355 fattening for moult. 6602 had cable ties removed and replaced with looser ties for now due to wings swelling for moult. This comment was added to the following specimens: 5549, 6355, 6597, 6602, 8319, 8774.

6603 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
22 Apr 2003	Moult	5Y,5M,24D	Moulting
5 May 2003	Moult	5Y,6M,7D	2 A.Pengs 6603 & 6590 have completed moulting (Sometime last week)
24 May 2005	Moult	7Y,6M,27D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

6810 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Jul 2003	Moult	3Y,8M,3D	A.Penguin 6810 finished moult.
5 Sep 2003	Death note	3Y,10M,0D	69063/6810. History: Five adult penguins have died; 3 are sick and have been improving after anti-malarial treatment and supportive care. All penguins now on antimalarials and antifungals. This African penguin had a pale liver and kidneys. Tissues are submitted for histological examination. Diagnoses: 1. Hepatocellular necrosis, acute, multifocal, mild, liver. 2. Salpingitis, lymphoplasmacytic, chronic, diffuse, mild, oviduct. 3. Histiocytosis, spleen. Comment: The exact cause of death is not indicated. Giemsa stains do not reveal protozoal parasites, and malaria pigment is not noted. Hepatocellular necrosis is acute and most likely terminal. There are mild chronic inflammatory changes in the oviduct which are of uncertain aetiology but would not have caused sudden death. Histiocytic cells are prominent in the spleen but marked erythrophagocytosis is not noted. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS

6816 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Jun 2003	Moult	3Y,6M,16D	Fattening for moult This comment was added to the following specimens: 4183, 6816.
3 Aug 2004	Moult	4Y,8M,11D	A Penguin 6816 finished moulting
6 Jul 2005	Moult	5Y,7M,14D	A penguin 6816 fattening for moult. This comment was added to the following specimens: 6816.

7108 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
3 Jul 2002	Death note	2Y,1M,22D	Found in enclosure very thin and weak, taken up to hospital but died shortly after.
18 Jul 2002	Death note	2Y,2M,7D	52242/7108. History: This African penguin died on 3/7/02. The bird was emaciated with an empty gastrointestinal tract, pale spleen, small liver, and haemorrhage in the ventriculus. The small intestine was pale. Tissue specimens from the air sac, kidney, lung, liver, heart, small intestine, and tracheal bifurcation are submitted for histological examination. Diagnosis: Hepatocellular atrophy and haemosiderosis, diffuse, mild, liver. Comment: The cause of death of this bird is not indicated by the histological findings. Hepatocellular atrophy is consistent with the noted emaciation. Hepatic haemosiderosis in birds is a non-specific lesion which can occur with intercurrent disease (microbial, parasitic or neoplastic). Janet C. Patterson-Kane BVSc PhD DACVP MRCVS

7866 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Jun 2003	Moult	1Y,7M,26D	Completed moult to adult plumage. This comment was added to the following specimens: 7866, 7868, 7870, 7954.
25 Nov 2003	Moult	2Y,1M,12D	Fattening for moult
27 Jul 2004	Moult	2Y,9M,14D	African Penguin 7866 finished moulting
31 Jan 2005	Moult	3Y,3M,19D	African penguin 7866 has been fighting over a nest site with other penguins and is bloody around nostrils and at top of beak. When caught up, he feels very heavy and is possibly fattening up for moult. This comment was added to the following specimens: 7866.
24 May 2005	Moult	3Y,7M,11D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611,

7866	Unknown	*Spheniscus demersus*	African penguin
Date	Note type	Age at date	Comment
			8647, 8661, 8688, 8689, 8755.

7867	Unknown	*Spheniscus demersus*	African penguin
Date	Note type	Age at date	Comment
4 Oct 2002	Moult	0Y,11M,21D	African penguin 7867 starting to change to adult plumage. White specks appearing on head
29 Dec 2002	Death note	1Y,2M,16D	African penguin 7867 Post mortem examination conducted 4.12.02 gross findings 2.65kg bodyweight, emaciated, died in water (drowned), intestines haemorrhagic, haemorrhagic around pancreas, histopathology ongoing.
8 Jan 2003	Death note	1Y,2M,26D	58900/7867. History: This 2.65 kg penguin was 1 year old. The bird had been very thin and was checked in the clinic; it was found dead in the pool. At post-mortem the body was emaciated. The intestinal and cranial pancreas were haemorrhagic. The ventriculus contained food. Specimens from the spleen, intestine, liver, pancreas, ventriculus, heart, kidney and trachea are submitted for histological examination. Microscopic description: Spleen: Small numbers of lymphoid cells are clustered around some mesenteric veins. Intestine: Tips of villi are pale-staining and fragmented (autolysis). Serosal and mesenteric vessels are moderately congested and dilated. Liver: Many hepatocytes contain one to several small to moderately sized, clear, circular intracytoplasmic (lipid) vacuoles. Kupffer cells are numerous and contain moderate amounts of brown, granular intracytoplasmic pigment (haemosiderin). There are numerous small clusters of haematopoietic cells in hepatic sinusoids, with larger numbers around central and portal veins. Pancreas: Mesenteric blood vessels are congested. Ventriculus, heart: No significant histological lesions are noted. Kidney: There is moderate multifocal congestion of interstitial blood vessels. Trachea: No significant histological lesions are noted. Diagnoses: Hepatic lipidosis, diffuse, mild, liver. Comment: The histological findings do not indicate the cause of the emaciation. Hepatic lipidosis is a common lesion in emaciated animals. The histological appearance of the intestine does not indicate clostridial enteritis, however a gram stain is pending. These findings do not preclude the presence of significant lesions in tissues which were not submitted. Addendum: A gram stain does not reveal significant numbers of gram-positive rods in intestinal sections. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS Senior Lecturer in Anatomical Pathology
15 Jan 2003	Death note	1Y,3M,2D	African penguin 7867 4.12.02 post-mortem examination 4.12.02 weight 2.65kg emaciated, drowned, intestine haemorrhagic around pancreas, histopathology no abnormalities detected

7868 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 May 2003	Moult	1Y,7M,11D	A.Penguin in PISO 7919 and 7868+7870 in SPC1 are moulting into adult plumage.
			This comment was added to the following specimens: 7868, 7870, 7919.
9 Jun 2003	Moult	1Y,7M,25D	Completed moult to adult plumage.
			This comment was added to the following specimens: 7866, 7868, 7870, 7954.
1 May 2005	Moult	3Y,6M,17D	African penguin 7868 fattening for moult
24 May 2005	Moult	3Y,7M,10D	A Penguins 7868,8662,8302,6595+6590 all completed moult.
			This comment was added to the following specimens: 6590, 6595, 7868, 8302, 8662.

7869 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Feb 2002	Death note	0Y,3M,22D	A. Penguin juvenile 7869 found dead on main penguin beach 11.15am. Some "cheesy pus" in mouth
25 Feb 2002	Death note	0Y,4M,8D	Path no:46757 Reference no: 7869 Clinician: Sharon Redrobe Pathologist: S van Tongeren Client: Bristol Zoo Species, Breed, Age, Sex: A. penguin History: Massive abscess on the right air sac, trachea OK, kidney pale, fish in stomach. Diagnoses:Liver: reaction liver.Airsac: granulomatous airosaculitis.Spleen: suspect amyloidosis Lung: focal acute pneumonia.Comments: The airsac abscess is a granulomatous inflammation. The cause is most likely a fungal infection such as aspergillus. Special stains are to follow to confirm this. There is a reaction to this inflammation in the liver. The amyloid deposits in the spleen are most likely also a reaction to the chronic inflammatory proces. Special stains are to follow to confirm the amyloid

7870 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
17 Sep 2002	Moult	0Y,10M,28D	African penguin 7870 moulting into adult plumage
17 May 2003	Moult	1Y,6M,27D	Fattening up pre moult.
			This comment was added to the following specimens: 7870.
26 May 2003	Moult	1Y,7M,6D	A.Penguin in PISO 7919 and 7868+7870 in SPC1 are moulting into adult plumage.
			This comment was added to the following specimens: 7868, 7870, 7919.
9 Jun 2003	Moult	1Y,7M,20D	Completed moult to adult plumage.
			This comment was added to the following specimens: 7866, 7868, 7870, 7954.
24 May 2005	Moult	3Y,7M,5D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult.
			This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

7871 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
3 Nov 2001	Death note	0Y,0M,13D	African penguin chick, 7871,. Post mortem radiograph body (DV). Poor bone density

7872 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
3 Nov 2001	Death note	0Y,0M,10D	7872 - African penguin chick. Radiograph taken. Very low bone density
			7872 - African penguin chick. Post-mortem report - 02-11-01. Died. Radiograph taken. Moderately autolysed. Yolk sac small. Liver dark. Spleen small. Bones soft. Samples submitted for histopath: kidney, intestine, yolk sac, liver, heart, spleen, parathyroid, bone.

7916 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
13 Nov 2001	Acquisition note	0Y,0M,0D	African Penguin egg AP/01/28 hatched under adults 5552 & 4190 in nest 10

7917 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
18 Nov 2001	Acquisition note	0Y,0M,0D	African Penguin egg AP/01/24 has hatched in nest 15 under 4807 and 5549. (IS from 6602 and 5726

7918 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
19 Nov 2001	Death note	0Y,0M,1D	African penguin chick ap/01/21 48.7g 115mm long, very autolysed bacteriology taken

7919 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
19 Nov 2001	Acquisition note	0Y,0M,0D	African Penguin egg AP/01/32 from pair 5773 & 6584 hatched in open nest under pair 6405 & 6583
26 May 2003	Moult	1Y,6M,5D	A.Penguin in PISO 7919 and 7868+7870 in SPC1 are moulting into adult plumage. This comment was added to the following specimens: 7868, 7870, 7919.
14 Apr 2004	Moult	2Y,4M,25D	African penguin 7919 fattening for moult
18 Apr 2004	Moult	2Y,4M,29D	African penguin 7919 now very fat, but hasn't started dropping feathers yet. Is staying in nest 3.
28 Apr 2004	Moult	2Y,5M,8D	African Penguin7919 nearly finished moult. Downy feathers on body and some feathers left to moult on back of neck.
3 May 2004	Moult	2Y,5M,13D	African Penguin 7919 finished moult. Seen out of burrow feeding for first time this pm.
7 Apr 2005	Moult	3Y,4M,18D	Newly moulted penguin is 7919.

7922 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
24 Nov 2001	Acquisition note	0Y,0M,0D	African Penguin egg AP/01/31 from pair 5773 & 6584 in nest 16 hatched.
23 Jan 2002	Death note	0Y,1M,29D	Path no: 45501 Reference no: 7922 Clinician: Sharon Redrobe Pathologist: S van Tongeren Client: Bristol Zoo Species, Breed, Age, Sex: African penguin Found in nest 3 days ago with extensive caseous necrosis in mouth and dyspnoea. Treatment started. Yolk sac not present, Right abdominal air sac - white growth - sample taken. All other organs normal Diagnoses: Necrotic material (from mouth probably): necrosis with degenerate heterophils, fibrin and multifocal bacterial colonies. Lung: acute hyperemia and oedema. The necrosis is the mouth is necrotizing and probably caused the bird to stop eating. It is possible that the hyperaemia in the lung represents a per-acute pneumonia, however, no inflammatory cells were noted. There are numerous bacteria in the section, no evidence for fungus or yeast but a PAS is to follow. Susan van Tongeren, DVM, MRCVS 18/1/02 Addendum: PAS: no abnormalities detected = negative for yeast/fungus
2 Mar 2002	Death note	0Y,3M,6D	Penguin 7922 bacteriology 11.2.02 Proteus vulgaris, no yeast/fungal

7953 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
17 Dec 2001	Acquisition note	0Y,0M,0D	AP/01/33 and 34 in Penguin nest 18 hatched. Chicks probably a couple of days old

7954 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
17 Dec 2001	Acquisition note	0Y,0M,0D	AP/01/33 and 34 in Penguin nest 18 hatched. Chicks probably a couple of days old
9 Jun 2003	Moult	1Y,5M,21D	Completed moult to adult plumage. This comment was added to the following specimens: 7866, 7868, 7870, 7954.

7978 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
24 Jan 2002	Death note	0Y,0M,9D	African penguin, 7978,. Weight: 56.9 grs. Gross findings: yolk sac present, send bone for analyse. Samples taken: all
1 Feb 2002	Death note	0Y,0M,17D	45971/ 7978 african penguin found dead. Diagnoses: No significant lesions. Comment: No lesions which explain the death of this bird are observed. Bacterial rods are observed along surfaces of small intestinal villi, however in the absence of fibrinous exudation or granulocytic infiltrates this is presumed to represent post-mortem overgrowth rather than enteric infection. The yolk sac has a normal histological appearance. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS Senior Lecturer in Anatomical Pathology.

8005 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
4 Feb 2002	Death note	0Y,0M,16D	Apenguin in incubation room swallowed the crop tube this morning whilst being fed. Seen by VO.Tube removed-died later
25 Feb 2002	Death note	0Y,1M,6D	Path no:46674 Reference no: African penguin, 8005, Clinician: Sharon Redrobe Pathologist: S van Tongeren Client: Bristol Zoo Species, Breed, Age, Sex: African penguin History: Lungs red (inflamed). Kidneys, liver, spleen, heart OK. Small intestines empty. Diagnoses:Lung: diffuse, acute congestion and oedema with consolidation. Myocardium: marked hyperemia (congestion).Comments: The lung changes can be consistent with a peracute fungal infection. It is not clear where the necrotic haemorrhagic material on the slide comes from but there were fungal hyphae present. The left ventricle of this animal seems dilated. Since this appear a very young animal (kidney contains juvenile tubuli) this could be within normal limits. There is however marked congestion which can be consistent with shock due to a peracute fungal infection. PAS to follow. Addendum:PAS: in the above described pieces of necrotic tissue there are no obvious PAS positive fungal hyphae to support the findings in the HE slide. There is a piece of what looks like plant material present. In the lungs no specific PAS positive organisms are identified.Comment: The HE sections contains a few elements that are suspect of fungal hyphae but unfortunately this could not be confirmed in the PAS section.

8111 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
4 May 2002	Acquisition note	0Y,0M,0D	A.Penguins open nest have 2 chicks, hatched over last couple of days from eggs AP/02/05 and 06. The chicks were left alone for some time around 3pm. Inca Terns picked the chicks up and threw them down the hill, where they ended up in nests 18 and 19. Smaller chick has small bruise on head, but o.k. Both chicks put back into nest. Adult returned within five minutes. both chicks vocal and lively. Smaller chick has small amount of yolk sac protruding.

8112 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
4 May 2002	Acquisition note	0Y,0M,0D	A.Penguins open nest have 2 chicks, hatched over last couple of days from eggs AP/02/05 and 06. The chicks were left alone for some time around 3pm. Inca Terns picked the chicks up and threw them down the hill, where they ended up in nests 18 and 19. Smaller chick has small bruise on head, but o.k. Both chicks put back into nest. Adult returned within five minutes. both chicks vocal and lively. Smaller chick has small amount of yolk sac protruding.
31 May 2002	Death note	0Y,0M,27D	Penguin chick no number given, 28.5.02. postmortem examination histo acute congestion and oedema of lungs. Some aspirated food.
10 Jun 2002	Death note	0Y,1M,6D	50744/Penguin Chick. History: This penguin chick presented with a sudden onset of dyspnoea and died a day later. At post-mortem the kidneys were enlarged with bruising of the surface of the right kidney. The heart was slightly pale. Specimens from the liver, lung, kidney, heart and spleen are submitted for histological examination. Diagnosis: Congestion and oedema, acute, minimal to mild, lungs. Comment: There is evidence of mild congestion and oedema in the lungs; this is a non-specific lesion and the cause is not indicated. Foreign material in one parabronchus is not associated with necrosis or

8112 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			inflammation and is not considered to represent ante-mortem aspiration. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS

8227 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
30 Jul 2002	Acquisition note	0Y,0M,0D	Nest 16 - 1 chick from egg AP/02/14
14 Oct 2002	Death note	0Y,2M,15D	53838/penguin chick, 8227, died 13/8/02. Final diagnosis: Autolysis, moderate to marked, body as a whole. Comment: Unfortunately marked autolytic change precludes detailed histological examination of many tissues. White lesions noted grossly in the kidneys are most likely the clusters of haematopoietic cells observed microscopically.

8253 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
21 Aug 2002	Acquisition note	0Y,0M,0D	African penguins, 5552 & 4190, in nest 20 have 1 chick, AP/02/17.
3 Nov 2003	Moult	1Y,2M,13D	Into adult plumage.
24 May 2005	Moult	2Y,9M,3D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

8301 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
7 Sep 2002	Acquisition note	0Y,0M,0D	African Penguin egg AP/02/21 under pair 6602 + 5726 in nest 8 has hatched
13 Aug 2003	Moult	0Y,11M,5D	African Penguin 8301 appears to be moulting into adult plumage (bird only 11 months old).
22 Jun 2005	Moult	2Y,9M,15D	African penguin 8301 fattening for moult. This comment was added to the following specimens: 8301.

8302 **Female** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Sep 2002	Acquisition note	0Y,0M,0D	African Penguin egg AP/02/22 from pair 6602 and 5726 in nest 8 hatched
3 May 2005	Moult	2Y,7M,24D	A Penguin 8302 fattening for moult This comment was added to the following specimens: 8302.
16 May 2005	Moult	2Y,8M,6D	A Penguin 8302 almost completed moult. This comment was added to the following specimens: 8302.
24 May 2005	Moult	2Y,8M,14D	A Penguins 7868,8662,8302,6595+6590 all completed moult. This comment was added to the following specimens: 6590, 6595, 7868, 8302, 8662.

8318 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
4 Oct 2002	Acquisition note	0Y,0M,0D	African Penguin egg in nest 1 under pair 4183 + 6599 has hatched. AP/02/26
30 Apr 2004	Moult	1Y,6M,26D	African penguin 8318 is moulting (ring no WO350). Presumed moulting into adult plumage
11 May 2004	Moult	1Y,7M,7D	nearly finished moult

8319 **Male** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
7 Oct 2002	Acquisition note	0Y,0M,0D	A Penguin egg AP/02/28 in nest 15 hatched from 5549 + 4807
26 Jun 2005	Moult	2Y,8M,19D	African penguins 6597, 8774, 5549, 6602, 8319, and poss 6355 fattening for moult. 6602 had cable ties removed and replaced with looser ties for now due to wings swelling for moult. This comment was added to the following specimens: 5549, 6355, 6597, 6602, 8319,

8319	Male	*Spheniscus demersus*	African penguin
Date	Note type	Age at date	Comment
			8774.

8320	Unknown	*Spheniscus demersus*	African penguin
Date	Note type	Age at date	Comment
7 Oct 2002	Acquisition note	0Y,0M,0D	A Penguin egg AP/02/25 in open nest from 6405 + 6583 hatched

8335	Male	*Spheniscus demersus*	African penguin
Date	Note type	Age at date	Comment
20 Oct 2002	Acquisition note	0Y,0M,0D	A.Penguin egg AP/02/31 nest 16 under adults 6594 + 6598 is hatching
3 May 2004	Moult	1Y,6M,13D	African Penguin 8335 looking scruffy. Possibly going to moult soon.
11 May 2004	Moult	1Y,6M,21D	fattenning for moult
15 Apr 2005	Moult	2Y,5M,25D	2 African penguins fattening for moult. 8651 + 8335 This comment was added to the following specimens: 8335, 8651.
1 May 2005	Moult	2Y,6M,11D	African penguin 8335 has completed moult.

8357	Unknown	*Spheniscus demersus*	African penguin
Date	Note type	Age at date	Comment
5 Aug 2004	Moult	1Y,9M,12D	Bird is fattening for moult.
15 Aug 2004	Disposition note	1Y,9M,22D	A Penguin 8357 reported in distress by member of public. In full moult and had gone into pool and was waterlogged and unable to stand. Given sporonox and put into heated room on vets advise, but died 10 minutes later
15 Aug 2004	Death note	1Y,9M,22D	Albino Penguin 8357 found waterlogged. Currently on anti-malarials (group treatment) and Sporonox (individual treatment). Bird moulting and so not fully waterproof - very unusual for penguins at this stage of the moult to be in the water (another penguin in moult but not water logging also noted to be swimming as if something had frightened them into the water; per keeper). Section given fan heater to dry off bird and prescribed Sporonox as there was doubt if had been taking medication. Died within 5 minutes of discovery. Post mortem examination 3.75kg. Waterlogged feathers, some subcutaneous fat, not much, very oedematous (green tinge) subcutaneous tissues and internal ventral keel. Lungs red and congested. Large amount yellow-coloured pericardial fluid - 5ml drained and submitted for testing. Very large spleen - 11.6g, impression smears taken. Blood sample taken. Empty ventriculus and intestinal tract (though it's not unusual for birds in moult to not eat this may be due to pre-existing disease). Gross preliminary diagnosis - signs consistent with avian malaria (oedema, lung lesions, pericardial effusion, and large spleen) or possibly drowning. It should be noted that a bird with such severe disease would be unlikely to survive. It is noted this bird was anorexic (due to moult or disease) it won't have been getting anti-malarials; if there are any other such anorexic moulting individuals it would be advisable to force feed them their medication.
17 Aug 2004	Death note	1Y,9M,24D	16/8/04 8357 African penguin - OpitiMal - IT Malaria test positive (plasmodium falciforum reaction) taken from post mortem blood sample. This confirms avian malaria as a factor in this animal's death. This animal had been anorexic due to moulting and so had not been taking medication - NS, please let me know how much treatment had been missed, for our records. This means it is not likely that the treatment is not working and so should continue for the other penguins. Staff should be vigilant for sick penguins at this time as it appears we are at risk of avian malaria again. If any other penguins are not eating, even if because of moult, inform vet dept and those penguins need to be force fed their medication and preferably isolated and bled for monitoring for malaria as they are high risk at such a stressful time as moulting. SR.
19 Aug 2004	Death note	1Y,9M,26D	Penguin 8357 post mortem 18.8.04 impression smear (spleen) - no plasmodium seen but numerous red Chlamydial elementary bodies. Pericardial fluid - few cells, mainly lymphocytes and erythrocytes otherwise normal cytology, transudate, more results to follow. interesting results as the PM Optimal test was positive for malaria. Suggest when other penguins are check next week that blood is sent for Chlamydophila PCR. Sick penguins to also be injected with Doxycycline (Vibravenous) 100mg/kg once weekly asap in case of Chlamydophila outbreak causing these signs.
27 Aug 2004	Death note	1Y,10M,3D	A.Penguin 8357 23.8.04 Brigitte Reusch vet results- cytology of impression smear:

8357 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			predominantly small mature lymphocytes, some macrophages and a number of erythrocytes. No plasmodium organisms were detected after prolonged investigation. However closer examination revealed the presence of numerous red chlamydia elementary bodies. DIAGNOSIS: Chlamydiosis Pericardial fluid contained only a few cells, mainly lymphocytes and some erythrocytes and very few neutrophils. Nothing remarkable, normal morphology, transudate. Microbiology-liver (1)- heavy mixed growth non-haemolytic E.coli. Pericardial fluid (2)- heavy growth non-lactose fermenting bacterium was isolated. Antibiotic sensitivity (1) resistant to amoxycillin and lincomycin only. (2) not resistant More results to follow.
13 Sep 2004	Death note	1Y,10M,20D	84944/8357. Albino penguin. History: This penguin was found in the water, and was waterlogged. The bird was in full moult. Significant amounts of subcutaneous oedema were noted. There were 5 ml of pericardial fluid. The spleen was enlarged (1.6 g) and impression smears were taken. Pododermatitis was noted in the right foot. Possible diagnoses: drowning, malaria. Tissue specimens are submitted for histological examination. Microscopic description: Liver: There are numerous multifocal infiltrates of lymphocytes, plasma cells and macrophages between hepatocytes; similar inflammatory cells occupy and are expanding portal tract regions. There are occasional small areas of hepatocellular necrosis; necrotic cells have a rounded, swollen, hypereosinophilic cytoplasm and a karyorrhectic nucleus. Small numbers of Kupffer cells are swollen by 10-25 micron diameter schizonts. Other Kupffer cells contain moderate amounts of coarsely granular pale brown pigment. Many hepatocytes contain several small, clear, well-defined, circular intracytoplasmic (lipid) vacuoles. Lung: Large numbers of granulocytes are noted within air capillary blood vessels, and larger vessels; there is diffuse moderate congestion. There are numerous, scattered small areas of air capillary wall necrosis; the cells have hypereosinophilic, swollen cytoplasm with poorly defined margins and small numbers of infiltrating, degenerate neutrophils. In one section, the interstitium adjacent to a parabronchus contains two irregularly shaped 15-20 micron diameter intracellular bodies containing small basophilic rods (extraerythrocytic schizonts). A similar schizont is noted in a further section. Spleen: The spleen is enlarged. The pulp contains increased numbers of histiocytes, which contain pale brown pigment or fragments of phagocytosed leukocytes. Lymphoid tissue is prominent in some fields. Occasional exoerythrocytic schizonts are noted. Small intestine, heart, kidney: No significant histological lesions are noted. Diagnoses: 1. Hepatitis, lymphoplasmacytic and necrotising, chronic-active, multifocal, moderate, with intralesional protozoal schizonts (Plasmodium sp.), liver. 2. Interstitial pneumonia, necrotising, subacute, multifocal, moderate, with intralesional protozoal schizonts, lungs. 3. Histiocytosis and lymphoid hyperplasia, diffuse, marked, with intralesional protozoal schizonts, spleen. Comment: The histological findings are consistent with Plasmodium spp. infection, i.e. avian malaria, as suspected clinically. Schizonts are noted in the liver, lung, and spleen. Inflammatory lesions in all three of these organs are typical of such infections, and are well-developed. Given the history of antimalarial treatment in this group, these findings are of concern. Janet C. Patterson-Kane. SR - this supplements the previous finding of Chlamydophila on splenic impression smears - this animal also had severe malarial infection, despite medications being prescribed to the group - all animals not eating will now be given the medications by force feeding if necessary, please note which animals aren't eating on dailies. (see vet comment sent on 15.8.04 -- It is noted this bird was anorexic (due to moult or disease) it won't have been getting anti-malarials; if there are any other such anorexic moulting individuals it would be advisable to force feed them their medication.)

8358 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
29 Oct 2002	Acquisition note	0Y,0M,0D	African Penguins 5773+6584 in nest 10 have 1 chick from egg AP/02/33.
3 Jun 2004	Moult	1Y,7M,5D	Moult completed
4 May 2005	Moult	2Y,6M,5D	A Penguin 8358 fattening for moult. This comment was added to the following specimens: 8358.
29 May 2005	Moult	2Y,7M,0D	African penguins 8358 and 6590 have completed moult. This comment was added to the following specimens: 6590, 8358.

8363 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
1 Nov 2002	Acquisition note	0Y,0M,0D	African Penguin egg AP/02/34 hatched in nest 10 from pair 5773+6584.
18 Sep 2003	Death note	0Y,10M,16D	69579/PT87841. A juvenile from last year no arks number microchip given implant no: 968 00 00006 87841, please supply ARKS number. History: This African penguin is a suspected malaria case. At post-mortem there was 12 ml of pericardial fluid. The bird was treated with primaquin and chloroquin 7 days ago. Specimens from the spleen, liver, lungs, kidney, heart, intestine, brain, and cloaca are submitted for histological examination. Diagnoses: 1. Hepatitis, subacute, multifocal, severe, with numerous intracellular protozoal schizonts, and multifocal moderate hepatic lipidosis, liver. 2. Histiocytosis, diffuse, severe, with erythrophagocytosis and intracellular protozoal schizonts, spleen. 3. Intravascular (presumptive) schizonts, all tissues. Comment: There is convincing evidence of protozoal infection in the liver and spleen; numerous schizonts are observed within Kupffer cells and splenic histiocytes respectively. Schizonts are also observed within intravascular cells in all tissues, and these are similar in appearance to those noted in smaller numbers in a previously submitted bird (P069066). Malaria pigment is not observed. The clinical history and histological lesions are consistent with Plasmodium infection. Slides from this penguin will be sent for a second opinion. Janet C. Patterson-Kane. This is a definitive diagnosis of malaria S. Redrobe
19 Sep 2003	Death note	0Y,10M,17D	African penguin died 9/9/03 microchip 87841, post-mortem examination Plasmodium confirmed, blood smear - red cells have intracytoplasmic inclusions, not Plasmodium

8364 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
10 Nov 2002	Acquisition note	0Y,0M,0D	African Penguin egg AP/02/35 hatched under pair 5732+6596 in nest 18.
11 May 2004	Moult	1Y,6M,0D	fattenning for moult
22 Apr 2005	Moult	2Y,5M,11D	2 African penguins 8364 + 6584 fattening for moult. This comment was added to the following specimens: 6584, 8364.

8365 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
16 Nov 2002	Acquisition note	0Y,0M,0D	Penguin egg AP/02/37 in nest 18 under pair 5732 + 6596 has hatched.

8607 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
25 Jul 2003	Acquisition note	0Y,0M,0D	A penguin egg AP/03/06 in open nest above nests 19+20 hatched adults are 5732+6596

8611 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
28 Jul 2003	Acquisition note	0Y,0M,0D	A penguin nest 20 5552+4190 have 1 chick from AP/03/07.
24 May 2005	Moult	1Y,9M,27D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.
1 Jun 2005	Moult	1Y,10M,4D	A penguins 8611 + 8647 moulting to adult plumage A penguins 6596+8649 fattening for moult This comment was added to the following specimens: 6596, 8611, 8647, 8649.
12 Jun 2005	Moult	1Y,10M,15D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.

8612 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Aug 2003	Death note	0Y,0M,10D	Penguin chick, 8612, pulled for hand rearing yesterday dead
10 Aug 2003	Death note	0Y,0M,11D	African penguin ref 090803 chick 10 days old died 9.8.03. post mortem examination. Pale liver, may be normal for age, small yolk sac, large pale haemorrhagic kidneys- bacteriology ongoing, rest no abnormalities detected. Blood smear for testing including Plasmodium (malaria). Histopathology ongoing.
15 Aug 2003	Death note	0Y,0M,16D	Penguin chick 090803 bloods post-mortem examination 1% cells with small round inclusions (unknown) but Plasmodium not seen i.e. malaria not detected.
19 Aug 2003	Death note	0Y,0M,20D	Penguin chick, 8612, post-mortem examination 090803 12.8.03 bacteriology non-haemolytic E.coli and Enterococcus only
4 Sep 2003	Death note	0Y,1M,5D	69069/, 8612,. History: This African penguin died suddenly. Tissues are submitted for histological examination. Diagnosis: No diagnosis made. Comment: The cause of death of this bird is not indicated by histological examination of these particular sections. The presence of yolk sac tissue and a well-developed cloacal bursa indicates that this was a chick. A Giemsa stain is pending and an addendum will follow. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS
14 Sep 2003	Death note	0Y,1M,15D	69069/ 090803. History: This African penguin died suddenly. Tissues are submitted for histological examination. Comment: The cause of death of this bird is not indicated by histological examination of these particular sections. The presence of yolk sac tissue and a well-developed cloacal bursa indicates that this was a chick. A Giemsa stain is pending and an addendum will follow. Janet C. Patterson-Kane BVSc PhD DACVP MRCVS Addendum: A Giemsa stain does not reveal protozoal parasites.

8630 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
10 Aug 2003	Acquisition note	0Y,0M,0D	African Penguins 6405 + 6583 have 1 chick from egg AP/03/07. In open nest behind nest 16.
25 Aug 2003	Death note	0Y,0M,15D	2nd chick from A.Penguins 6405 + 6583 found barely alive a long way from nest on rocks. Removed to brooder but died later
18 Nov 2003	Death note	0Y,3M,8D	71279. History: This African penguin chick died over 24 hours. Tissue specimens including the cloaca are submitted for histological examination. Grossly the lumen of the cloaca is dilated.

8630 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
			Comment: There is evidence of inflammatory change in the cloacal intestinal mucosa, with pustular lesions in skin surrounding the vent. Possibly this is a bacterial lesion, and it may be worth swabbing the cloaca in some of these young birds at the time of post-mortem, even if the swab is frozen pending histological results. It is uncertain exactly how this lesion relates to the death of the bird, however atrophy of hepatocytes is consistent with anorexia. Hepatic haemosiderosis is a common lesion associated with various intercurrent disease conditions including infection. There are greater than expected numbers of plasma cells in the splenic pulp, which may indicate a generalised response to infection. Lymphoid tissue in the cloacal bursa is involuting; the exact age of this chick is not indicated in the history. Inflammation of the bursal tissue is not observed. Lesions consistent with Plasmodium infection are not noted in these particular sections, however such an infection cannot be ruled out based on histological examination alone. A Perl's Prussian blue stain is pending to confirm that pigment in the liver is iron-positive. A gram stain of the cloacal tissue is also pending. Addendum: Bacteria in and on keratin layers of the inflamed skin surrounding the vent are gram-positive cocci, many of which are arranged in short chains, with smaller numbers of gram-negative rods. Brown pigment in hepatocytes and Kupffer cells stains positively for iron (Perl's Prussian blue). Janet C. Patterson-Kane no further results due

8632 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
24 Aug 2003	Death note	0Y,0M,11D	one of African penguin chicks in nest with 6583 + 6405 dead

8647 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
7 Sep 2003	Acquisition note	0Y,0M,0D	AP/03/11 has hatched in open nest behind sound board. From 6603 + 4803
16 May 2005	Moult	1Y,8M,8D	A Penguin 8647 fattening for moult
			This comment was added to the following specimens: 8647.
24 May 2005	Moult	1Y,8M,16D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult.
			This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.
1 Jun 2005	Moult	1Y,8M,24D	A penguins 8611 + 8647 moulting to adult plumage A penguins 6596+8649 fattening for moult
			This comment was added to the following specimens: 6596, 8611, 8647, 8649.
12 Jun 2005	Moult	1Y,9M,5D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult.
			This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.

8649 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
12 Sep 2003	Acquisition note	0Y,0M,0D	African pengs 6601 + 6595 in nest 12 have a chick from egg AP/03/14
1 Jun 2005	Moult	1Y,8M,19D	A penguins 8611 + 8647 moulting to adult plumage A penguins 6596+8649 fattening for moult
			This comment was added to the following specimens: 6596, 8611, 8647, 8649.

8651 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
24 Sep 2003	Acquisition note	0Y,0M,0D	African Penguins 6594+6598 have hatched egg AP/03/12 fostered under them from parents 6595+6601. Chick looks 7-10 days old
15 Apr 2005	Moult	1Y,6M,21D	2 African penguins fattening for moult. 8651 + 8335 This comment was added to the following specimens: 8335, 8651.
3 May 2005	Moult	1Y,7M,9D	A Penguin 8651 finished moult. This comment was added to the following specimens: 8651.

8661 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
14 Oct 2003	Acquisition note	0Y,0M,0D	African Penguins 4807+5549 have 2 chicks in nest 15, from eggs AP/03/17+18
24 May 2005	Moult	1Y,7M,10D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

8662 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
14 Oct 2003	Acquisition note	0Y,0M,0D	African Penguins 4807+5549 have 2 chicks in nest 15, from eggs AP/03/17+18
18 Apr 2005	Moult	1Y,6M,4D	A Penguin 8662 feeding very well and probably fattening for moult. This comment was added to the following specimens: 8662.
16 May 2005	Moult	1Y,7M,2D	A Penguin 8662 almost completed moult This comment was added to the following specimens: 8662.
24 May 2005	Moult	1Y,7M,10D	A Penguins 7868,8662,8302,6595+6590 all completed moult. This comment was added to the following specimens: 6590, 6595, 7868, 8302, 8662.

8688 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
14 Dec 2003	Acquisition note	0Y,0M,0D	African penguins 5773 + 6584 have hatched a chick behind nest 17 from egg AP/03/19.
24 May 2005	Moult	1Y,5M,9D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

8689 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
22 Dec 2003	Acquisition note	0Y,0M,0D	African penguins 5773 + 6584 have 2nd chick behind nest 17 from egg AP/03/20. Both chicks fine.
24 May 2005	Moult	1Y,5M,1D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

8755 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
23 Feb 2004	Acquisition note	0Y,0M,0D	African penguin eggs AP/04/01 + 02 have hatched under 6583 + 6405.
24 May 2005	Moult	1Y,2M,30D	A Penguins 7870,8611,8735,8661,8688,8647,8253,8689,7866+6603 all fattening for moult. This comment was added to the following specimens: 6603, 7866, 7870, 8253, 8611, 8647, 8661, 8688, 8689, 8755.

8755 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
12 Jun 2005	Moult	1Y,3M,18D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.

8756 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
23 Feb 2004	Acquisition note	0Y,0M,0D	African penguin eggs AP/04/01 + 02 have hatched under 6583 + 6405.
12 Jun 2005	Moult	1Y,3M,18D	African penguins 6596, 8611, 8755 and 8647 completed moult. 8647, 8755 and 8611 moulted to adult plumage. African penguin 6599, 8756, 6405, 4803 and poss 4183 all fattening for moult. This comment was added to the following specimens: 4183, 4803, 6405, 6596, 8599, 8611, 8647, 8755, 8756.

8757 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
25 Feb 2004	Acquisition note	0Y,0M,0D	A Penguin egg AP/004/03 hatched under adults 5726+6602 behind nest 8
6 Apr 2004	Death note	0Y,1M,10D	77670/AIP. History: This African penguin chick died. The chick weighed 73.9 grams. Some tissues were autolysed, and the kidneys appeared to be enlarged. Tissue specimens are submitted for histological examination. Diagnoses: 1. Glomerulonephritis, focal, mild, kidney. 2. Congestion, acute, diffuse, moderate, lungs. 3. Autolysis, mild to moderate, all tissue specimens. Comment: Two glomerular tufts in one field are thickened by fibrillar material with mild tubular changes surrounding them. The significance of this lesion in isolation is uncertain, as the remainder of the renal tissue in these sections has a normal appearance. Bacterial culture results in this case would be of interest. Janet C. Patterson-Kane. More results to follow, S. Redrobe.
19 Apr 2004	Death note	0Y,1M,23D	African penguin chick 77670/AIP, 8757, post-mortem examination number, Penguin chick from pair 5726+6602. 22.3.04 malaria IFAT test weakly positive at 1/120 (screening titre 1/30) suggests recent past or current infection. Adult 5726 had titres 7.4.04 1/30, 23.1.04 1/120. This high result in the chick could be due to high maternal antibodies in January (presuming them to be similar to the sire 5726) or from malarial infection (although all adults have recently had lower levels indicating no current exposure); awaiting further information.

8774 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
26 Jun 2005	Moult	1Y,2M,25D	African penguins 6597, 8774, 5549, 6602, 8319, and poss 6355 fattening for moult. 6602 had cable ties removed and replaced with looser ties for now due to wings swelling for moult. This comment was added to the following specimens: 5549, 6355, 6597, 6602, 8319, 8774.

8775 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
25 Jun 2004	Death note	0Y,2M,21D	African penguin 8775 drowned in the pool today. It got stuck underwater in a loop used for holding pipes. This loop was only 11.5cm in diameter! KA entered pool to try to rescue penguin, but it was already dead. The loops have now been sawn off so it won't happen again
19 Jul 2004	Death note	0Y,3M,14D	African Penguin 8775 25/06/04, found dead, Body Weight: 2.3kg, BCS 2/5 Gross findings: No abnormalities detected on external examination. Heart-within normal limits, possibly thickened on mediastinum. No obvious opacities of pleura. No abnormalities detected on lungs, which were buoyant in water. Liver-one lobe had harder nodule. Sample + spleen frozen and sent to RVC. GIT-No abnormalities detected, full of food and faeces. Bladder wall highly thickened but not hemorrhagic. Testes present, left larger. Kidney within normal limits. Blood and head kept in fridge. Histopathology ongoing
27 Jul 2004	Death note	0Y,3M,22D	82789. 8775. History: This African penguin was found dead in a pool. At post-mortem a nodule was found in a firmer region of a liver lobe. Avian malaria was suspected in 2 others penguins from the same group (6587, 81652). A blood sample was taken post-mortem to be sent for analysis. Tissue specimens are submitted for histological examination. Diagnoses: 1. Cholangiohepatitis, granulocytic and lymphocytic, diffuse, mild to moderate, with mild multifocal biliary hyperplasia, and marked diffuse hepatocellular lipidosis, liver. 2. Congestion, acute, diffuse, moderate, with mild oedema, lungs. 3. Adrenocortical hypertrophy, adrenal gland. Comment: There is evidence of inflammatory change in the liver, which is centred on portal tract regions. This could be bacterial in origin; the distribution and nature of the inflammatory changes are not suggestive of Plasmodium sp. infection, and no schizonts are noted. Giemsa and gram stains are pending. There is also diffuse hepatic lipidosis, which is most likely dietary in origin. The lipid deposition is relatively severe. Congestion and oedema of the lungs is an acute change, which can occur post-mortem and is of uncertain significance. Adrenocortical hypertrophy is of uncertain aetiology and significance, and is common in seabirds. Janet C. Patterson-Kane. hepatic lipidosis is caused by starvation (usually) or a very fatty diet - had this animla been seen eating in the days/weeks prior to death? DB - Not reported not eating, total body weight would be useful.
5 Aug 2004	Death note	0Y,4M,1D	82789. Ref: 8775. History: This African penguin was found dead in a pool. At post-mortem a nodule was found in a firmer region of a liver lobe. Avian malaria was suspected in 2 others penguins from the same group (6587, 81652). A blood sample was taken post-mortem to be sent for analysis. Tissue specimens are submitted for histological examination. Diagnoses: 1. Cholangiohepatitis, granulocytic and lymphocytic, diffuse, mild to moderate, with mild multifocal biliary hyperplasia, and marked diffuse hepatocellular lipidosis, liver. 2. Congestion, acute, diffuse, moderate, with , mild oedema, lungs. 3. Adrenocortical hypertrophy, adrenal gland. Comment: There is evidence of inflammatory change in the liver, which is centred on portal tract regions. This could be bacterial in origin; the distribution and nature of the inflammatory changes are not suggestive of Plasmodium sp. infection, and no schizonts are noted. Giemsa and gram stains are pending. There is also diffuse hepatic lipidosis, which is most likely dietary in origin. The lipid deposition is relatively severe. Congestion and oedema of the lungs is an acute change, which can occur post-mortem and is of uncertain significance. Adrenocortical hypertrophy is of uncertain aetiology and significance, and is common in seabirds. Janet C. Patterson-Kane Addendum: Gram stains do not reveal pathogenic bacteria, which does not preclude their presence in small numbers. Giemsa stains do not reveal schizonts. SR - the liver changes are severe and caused by a fatty diet and/or starvation - if this bird still appeared to be eating we need to investigate the fish quality.

8958 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
23 Sep 2005	Death note	0Y,7M,25D	African penguin Arks 8958 Vet results 22/09/05 Sharon Redrobe, Body weight 2 kg History: It was euthanased because it had stopped eating on its own; it had been force fed and given glucose saline subcutaneously and itraconazole. Very weak/ paralysed hind legs typical of severe kidney disease in birds. Radiograph under general anaesthesia - large mass in abdomen. Animal severely compromised, decision made to euthansed after consultation with Curator. Post mortem examination: Gross findings - Very swollen kidneys, swollen liver, relatively enlarged spleen, empty stomach, heart no abnormalities detected. Samples submitted - for histology - spleen, pancreas, stomach, liver, kidneys, lungs, heart, trachea, brain, cloaca, more results to follow.

9180 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
14 Sep 2005	Death note	0Y,0M,17D	African penguin chick Arks 9180. Vet results post-mortem examination. Died 13 /9/05 P. Mortem performed 14/9/05. Weight 208.45 gr. Length 23cm.Gross findings: kidneys enlarged, hyperaemic with white substance in kidney tissue (white spots). Yellow lesions -pseudo membranes-in the oesophagus. White rounded thick lesion in the left lung Both lungs hyperaemic. Material in trachea (seems to be the same that was present in the mouth (vomit?). Brain was really soft and fragile and relatively hyperaemic. Histopathology to follow, more results to follow.
20 Sep 2005	Death note	0Y,0M,23D	African penguin chick Arks 9180. Vet results post-mortem examination. Died 13 /9/05 P. Mortem performed 14/9/05. Weight 208.45 gr. Length 23cm. Kidneys enlarged, hyperaemic with white substance in kidney tissue (white spots). Yellow lesions -pseudo membranes-in the oesophagus. White rounded thick lesion in the left lung Both lungs hyperaemic. Material in trachea (seems to be the same that was present in the mouth (regurgitation?). Brain was soft and fragile and relatively hyperaemic. Histopathology sent to RVC, more results to follow

9199 **Unknown** ***Spheniscus demersus*** **African penguin**

Date	Note type	Age at date	Comment
9 Oct 2005	Acquisition note	0Y,0M,0D	Hatched in nest 17 from egg AP/05/25.