

#271

Zoological Society of San Diego
Necropsy Report

Species: GYMNOGYPS CALIFORNIANUS
Common: CALIFORNIA CONDOR

Necropsy #: RP9548
Accession#: Referred
Death Date: 2002/10/04
Birth Date: 11-Apr.-2002

Sex: Male
Age: JUVENILE
Enclosure:
Endangered: USDI- E CITES- 1
Preliminary: 2002/10/07
Final Date: 2002/11/14

ID: SB#271
Prosector:
Histologist:
Necropsy Date: 2002/10/07
Carcass Disp.: WFVZ

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Record initiated by JK

HISTORY: This California Condor was submitted by the USFWS Hopper Mtn. NWF Complex California Condor Recovery Program. The following history is submitted by "This bird is Studbook #273 (sic) {ID confirmed as Studbook #271 by , USFWS on 2002/10/08; Studbook #273 is a captive born}. Its hatch date in wild was 11 April, 2002. Age = 5 months 3 weeks. Recovered dead on 04 Oct., 2002 by on ledge below nest cave. Body had maggots and probably was there more than one day. Male parent Studbook #100 has been missing since 15 Sept. 2002". Additional history provided by " on 2002/10/22: "Studbook #271, hatched 11 April, 02 in Pole Cyn. adjacent to Hopper NWR. Parents were 8 yrs old. Male parent #100, was hatched in San Diego Wild Animal Park. Female parent #108, was hatched at the L.A. Zoo. Chick was found dead on 4 Oct., 02 at bottom of cyn. below the nest." Body received by Pathology on 2002/10/07 at 10:15 AM and necropsied that date at 2:00 PM. Viewed the gross findings.

GROSS FINDINGS:

Juvenile; gender undetermined (see below; jhm). No ID available. Body weighs 6.25kg (scavenged). Received in an insulated cooler, wrapped in multiple plastic bags is the body of a markedly autolyzed juvenile condor with no identifying tags or other markers. Synthetic ice packs (8) are ambient temperature (thawed). Postmortem radiographs reveal no metal densities and no broken bones. Numerous variably sized maggots infest the carcass, especially the medial skin and feathers of the left wing and left lateral body. Maggots are present in the oral cavity and cloaca. Both eyes are absent, but the scleral ossicles remain. Several primary flight feathers are separated from the wings and others are easily removed. Unfeathered skin over the abdomen is desiccated and leathery. A 1 x 1cm triangular area of the skin of the medial distal humerus is reddened (abrasion). The subcutis of the right lateral neck, just caudal to the mandible is discolored red/purple and is gelatinous in a 1cm wide by 5cm long region. The subcutis of the dorsal thoracolumbar area is reddened. Pectoral muscles are soft, friable and discolored gray to brown. All viscera are friable and pasty. Trachea is moderately flattened dorso-ventrally forming a bi-lobed lumen. Dry brown soft granular to chunky material coats the mucosal surface of the trachea the entire length. On section of intestine (unknown site) contains thick green/yellow fluid (bile). The brain is liquified and all that

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remains is a thin coating on the inner surfaces of the calvarium. GI contents: crop is empty. Ventriculus contains moderate amount of thick green/black sludge with bone fragments and hair. Could not differentiate small intestine, cecum or large intestine.

Histopathology is pending. Gross photos: body. Postmortem radiographs. Tissue samples frozen -20 degrees C.: liver (x2), skeletal muscle (x2), heart, lung, maggots, fat, lungs, kidney. Heart/Ryder. Body saved. Tissue samples released to toxicologist (B. Risebrough) on 2002/10/15: liver, gizzard contents. U.C. Santa Cruz (analysis): left and right 6th primary feather, tibiotarsus sample.

Preliminary Dx:

1. Body as a whole: advanced postmortem autolysis with maggot infestation
2. Subcutis of neck: mild focal hemorrhage
3. Skin of medial distal right humerus: focal abrasion
4. Body as a whole: good condition
5. Trachea: presumptive terminal aspiration

CAHFS #D0209817, Liver

DX: Liver negative for lead. Liver had high copper concentration, possible overexposure to copper

Toxicology: The liver had the listed concentrations of metals. Please note that the liver contained no lead in a concentration greater than the stated method detection limit.

The liver had a high copper concentration for avians. This finding is suggestive of exposure to copper from the environment. Clinical signs of copper poisoning include weight loss, feather loss, and liver disease. Please note that some avians have physiologically high copper concentrations in the liver, such as swans. It is recommended to compare the copper concentration in the liver of this condor to previously analyzed liver condor samples.

The percent moisture of the liver sample was 68%.

Conversions of concentrations per wet weight into concentrations per dry weight are done by dimensional analysis. For example, the conversion for a compound X from ppm wet weight into ppm dry weight is: X in ppm dry mass = X in ppm wet weight x $\{100/(100-\%moisture)\}$. Please note that 1 ppm is equal to 1 mg/kg.

Heavy Metal Screen (AS, CD, FE, CU, HG, MN, MO, PB, ZN):

	Arsenic	Cadmium	Copper	Iron	Lead
Liver	< 1 ppm	< 0.3 ppm	531 ppm	460 ppm	< 1 ppm

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	Manganese	Mercury	Molybdenum	Zinc
Liver	3.06 ppm	< 1 ppm	< 0.4 ppm	54.9 ppm

FINAL DX:

1. BODY AS A WHOLE: ADVANCED POSTMORTEM AUTOLYSIS WITH MAGGOT INFESTATION
2. SUBCUTIS OF NECK: MILD FOCAL HEMORRHAGE
3. SKIN OF MEDIAL DISTAL RIGHT HUMERUS: FOCAL ABRASION
4. TRACHEA: PRESUMPTIVE TERMINAL ASPIRATION
5. BODY AS A WHOLE: GOOD CONDITION

COMMENT: The cause of death is undetermined. Unfortunately, unavoidable postmortem autolysis interfered with gross histologic evaluation and interpretation. The mild hemorrhage and abrasion indicate trauma but are considered insufficient to have caused death. Soft moist granular material (presumptive digested food) was found in the trachea at necropsy. It is not uncommon for animals to regurgitate and aspirate incidentally at the time of death, but if this did occur for another reason it could have caused acute respiratory compromise and death. In the latter case, food material is usually seen deeper in lung tissue due to increased respiratory efforts. No food material was seen in sections of lung examined histologically, however death due to aspiration cannot be completely ruled out. Heavy metal analysis of liver tissue revealed an elevated copper level. This has been seen in several other condors and is of unknown significance. Good fat stores were seen grossly and histologically.

ADDENDUM DATED 2002/11/08 by L. Chemnick/CRES Genetics:

Gender determination: male

DNA was isolated from heart material taken at necropsy.

The work was done with the help of E. Stremel.

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