

UNITED STATES GOVERNMENT

Memorandum

TO : Refuge Manager, Swan Lake NWR

DK
1/21/80

DATE: January 21, 1980

FROM : Pathologist-In-Charge, NWHL

SUBJECT: P.R. 1710-17,362 through 17,365

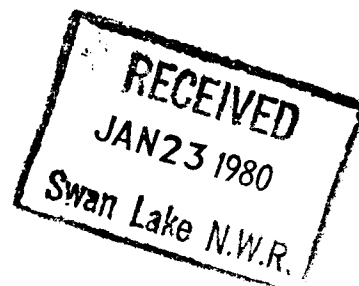
Bacteriology: Cultures of liver from accessions 17,362-17,365 reveal heavy growths of Pasteurella multocida. An acid-fast stain of the liver from goose 17,364 is negative for acid-fast organisms.

Diagnosis: Avian cholera in 4 out of 4 geese examined.

Lynne M. Siegfried

Lynne M. Siegfried

LMS:ls



Submitter's name and address

Refuge Manager
Swan Lake NWR
Box 68
Sumner, MO 64681

*JK
EAM*

Tel. No.

Reference #

Collected:

Received: 12/31/79

Examined: 12/31/79

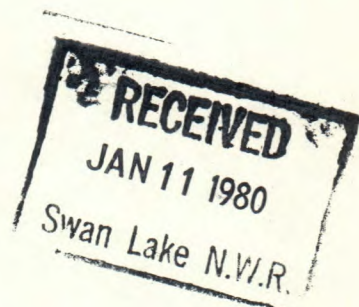
Wild/captive

Species: Canada goose		Age: Adult	Sex: Female	Wt.
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State Good	Body Condition Good
Histology	Bacteriology Liver RC	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Pectorals well developed; moderate amounts of fat
Petechiae on heart
Numerous pinpoint areas of focal necrosis in liver; centro-lobular veins congested
Spleen normal size and color
Ovary that of inactive adult; oviduct 3-4 mm wide, convoluted, hyperemic (violet)
Intestine and proventriculus normal. No lesions suggesting duck plague



Provisional diagnosis: Avian cholera

Final diagnosis to follow

LNL
LNL
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Tel. No.

Reference #

Collected:

Received:

Examined: 12/31/79

Wild/captive

Species: Canada goose		Age: Adult	Sex: Female	Wt.
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Good	Body Condition: Good
Histology	Bacteriology: Liver RC	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Well developed pectorals; multiple penetrating wounds in mid-pectorals just over keel. Abundant subcutaneous, abdominal and coronary fat

Widespread petechiae and ecchymoses on heart

A 20 x 30 x 2-3 mm clot lay over middle of right liver lobe; central vein was congested and a few small (pinpoint) areas of focal necrosis were seen

Hemorrhages, focal congestion and fibrinous exudate in lungs

Small spleen, focal hemorrhages

Slight enlargement of intestines; no hemorrhages or ulcers

Provisional diagnosis: Avian cholera

Final diagnosis to follow

LNL
LNL
Diagnostician/technician

Cause of death

Contributing/secondary
Shot

Submitter's name and address

Swan Lake NWR

Tel. No.

Reference #

Collected:

Received: 12/31/79

Examined: 12/31/79

Wild/captive

Species: Canada goose

Age: Adult

Sex: Female

Wt.

Preserved by:

Chilling

Specimen

Carcass

Found dead/euthanized

P.M. State

Good

Body Condition

Excellent

Histology

Bacteriology

Liver RC and acid-fast

Toxicology

Virology

Spleen DVE

Parasitology

Photos

Other

History summary:

Necropsy:

Excellent deposits of subcutaneous, abdominal and coronary fat

Scattered areas of focal necrosis (pinpoint to 1-2 mm) in both lobes of liver, liver dark purple. On left lobe there were 3 yellowish areas of necrosis 5 x 8 to 10 x 8 mm, these appear to be granulomatous

Petechiae along apex of heart

Dark, enlarged spleen (2 times) hemorrhages in spleen

No hemorrhages or ulcers in intestine

Proventriculus normal

Provisional diagnosis: Avian cholera; tuberculosis

Final diagnosis to follow

Cause of death

ENC
LNL
Diagnostician/technician

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Reference #

Collected:

Received: 12/31/79

Examined: 12/31/79

Tel. No.

Wild/captive

Species: Canada goose		Age: Adult	Sex: Female	Wt.
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State Good	Body Condition Fairly good
Histology	Bacteriology Liver RC	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Pectorals slightly reduced (1+)

Moderate amounts of fat

Petechiae on heart; a few widely scattered areas of focal necrosis in liver

Intestines o.k.

Provisional diagnosis: Avian cholera

LNK

Final diagnosis to follow

LNK
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Reference #

Collected:

Received: 12/31/79

Examined: 12/31/79

Tel. No.

Wild/captive

Species: <u>Canada goose</u>		Age: <u>Immature</u>	Sex: <u>Male</u>	Wt.
Preserved by: <u>Chilling</u>	Specimen <u>Carcass</u>	<u>Found dead/euthanized</u>	P.M. State <u>Good</u>	Body Condition <u>Good</u>
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary:

Necropsy:

In good flesh; good deposits of fat

No lesions of avian cholera

Massive clot in pericardial sac encircling the heart

Hemorrhage in lungs; wound on right side

Provisional diagnosis: Shot

Final diagnosis to follow

LNL
LNL
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address
 Swan Lake NWR
 Tel. No.

Reference #
 Collected:
 Received: 12/31/79
 Examined: 12/31/79
 Wild/captive

Species: Canada goose		Age: Immature	Sex: Male	Wt.
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State Good	Body Condition Fairly good
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary:

Necropsy:

Pectoral muscle moderately reduced (2+)

Small amount of fat

Fibrino-necrotic peritonitis resulting from gunshot wound to abdominal cavity and intestines. Intestinal contents spilled into peritoneum

Congestion and fibrinous exudate in lungs

No lesions of avian cholera

Provisional diagnosis: Peritonitis

Final diagnosis to follow

LNL
LNL
Diagnostician/technician

Cause of death: Peritonitis

Contributing/secondary: Gunshot

Submitter's name and address
 Swan Lake NWR
 Tel. No.

Reference #
 Collected:
 Received:
 Examined: 1/3/80
 Wild/captive

Species: Canada goose		Age: Adult	Sex: Male	Wt.
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Good	Body Condition: Good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Well developed pectorals; good deposits of fat
 Widespread focal necrosis of liver; scattered pinpoint areas of necrosis on spleen, spleen not enlarged
 Intestines normal size, lumen with ~~exudate~~ catarrhal exudate. No hemorrhages or ulcers

Provisional diagnosis: Avian cholera

CNH

Final diagnosis to follow

INL
 Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Reference #

Collected:

Received:

Examined: 1/3/80

Tel. No.

Wild/captive

Species: Canada goose		Age: Adult	Sex: Male	Wt.
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State Good	Body Condition Good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

abundant fat

focal necrosis in liver, many pinpoint in size

lungs hyperemic with some areas of focal hemorrhage along right ribs

spleen markedly enlarged (3 to 4 times); hemorrhagic with ecchymosis throughout pulp; spleen purplish except in areas of hemorrhage

intestines swollen; lumen filled mixture of mucous (catarrhal) and ~~serous~~ ^{serous} exudate.
No hemorrhages or ulcers in intestines

Provisional diagnosis: Avian cholera

CNL

Final diagnosis to follow

INL
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Reference #

Collected:

Received:

Examined: 1/3/80

Tel. No.

Wild/captive

Species: Canada goose		Age: Immature	Sex: Female	Wt.
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Fairly good	Body Condition: Emaciated
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

No subcutaneous, abdominal fat; small amount of coronary fat present but undergoing serous atrophy

Peritonitis; fibrinous deposits on intestinal loops, intestines adhering to each other; lead shot lodged in wall of peritoneum

Pectoral muscles markedly atrophied (3 times)

Ovary largely destroyed by fibrino-necrotic membrane which fills left abdominal air sac

Provisional diagnosis: Peritonitis

CNE
LNL

Final diagnosis to follow

Diagnostician/technician

Cause of death Peritonitis

Contributing/secondary Shot

Submitter's name and address
 Swan Lake National Wildlife Refuge
 P.O. Box 68
 Sumner, MO 64681
 Tel. No.

SRM

Reference #
 Collected: 12/28/79
 Received: 12/31/79
 Examined:
 Wild/captive

Species: Canada Goose		Age: immature	Sex: male	Wt. 2950
Preserved by: chilled	Specimen carcass	Found dead/euthanized	P.M. State good	Body Condition good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Well-developed pectorals; good deposits of fat.
 Widespread focal necrosis of liver; slightly enlarged, blackish-red spleen, spleen is firm.
 Petechiae and ecchymosis on heart.
 Lungs with few focal hemorrhages; hyperemic.
 No hemorrhages or ulcers in intestinal tract.
 No lesions in proventriculus.

RECEIVED
 JAN 07 1980
 Swan Lake

LNL
 LNL

Provisional diagnosis: Avian cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake National Wildlife Refuge
 Box 68
 Sumner, MO 64681

Tel. No.

Reference #
 Collected:
 Received: 12/28/79
 Examined: 12/31/79

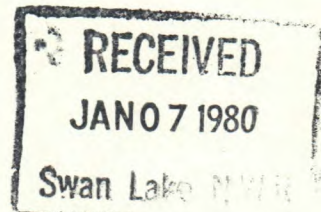
Wild/captive

Species: Canada Goose		Age: dult	Sex: female	Wt. 25
Preserved by: chill	Specimen carcass	Found dead/euthanized	P.M. State fairly good	Body Condition good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Large inactive adult ovary with ecchymosis in ovarian stroma.
 Many widely scattered petechiae on heart.
 Early post-mortem discoloration of intestines - no hemorrhage or ulcers.
 Fat goose - well-developed pectorals.
 A few widely scattered areas of focal necrosis in liver; central veins congested.
 Proventriculus - normal.



LNR

LNL

Provisional diagnosis: Suspect avian cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake National Wildlife Refuge
 Box 68
 Sumner, MO 64681

Tel. No.

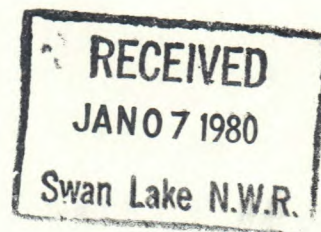
Reference #
 Collected:
 Received: 12/28/79
 Examined: 12/31/79
 Wild/captive

Species: Canada Goose		Age: adult	Sex: male	Wt: 500
Preserved by: chill	Specimen: carcass	Found dead/euthanized	P.M. State: good	Body Condition: good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

Well-developed pectoral muscles; abundant subcutaneous, abdominal and coronary fat.
 Numerous small areas of focal necrosis (1 to 2mm in diameter) in both lobes of liver.
 Petechiae and ecchymoses on heart.
 Lungs congested; with focal hemorrhages.
 Spleen enlarged - blackish-red; rather firm when cut.
 Intestines swollen; no hemorrhages or ulcers.
 Proventriculus and gizzard filled with muddy material, seeds; - No lesions in proventriculus.



LNL
 LNL

Provisional diagnosis: avian cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake National Wildlife Refuge
 Box 68
 Sumner, MO 64681

Tel. No.

Reference #
 Collected: 12/18/79
 Received: 12/28/79
 Examined:

Wild/captive

Species: Canada Goose		Age: immature	Sex: male	Wt: 1475
Preserved by: chill	Specimen: carcass	Found dead/euthanized	P.M. State: excellent	Body Condition: excellent
Histology	Bacteriology liver - RC spleen - special bot.	Toxicology liver - Pb.	Virology spleen - DVE liver - DVE swab - AI &	
Parasitology	Photos	Other	NOV	

History summary:

Necropsy:

Oral cavity - appendages normal.
 Subcutaneous fat abundant - pectorals well-developed.
 One area of necrosis in posterior left pectoral near keel. No observable cause.
 One #00 steel shot embedded in skin of neck, about 1/2 of way down neck.
 Heart - several petechiae observed. Valves normal - coronary fat present.
 Liver - purple - blotchy, early pm color change.
 Gallbladder distended.
 Spleen enlarged, dark purple in color.
 Lungs - trachea normal.
 Esophagus - filled with bright green watery material.
 Kidneys normal.
 Intestines normal - no evidence of hemorrhage. Contents are yellow & green mucus.

RECEIVED
 JAN 07 1980
 Swan Lake N.W.R.

CNR

Provisional diagnosis: Suspect avian cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address
 Swan Lake National Wildlife Refuge
 Box 68
 Sumner, MO 64681
 Tel. No.

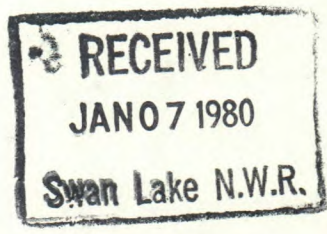
Reference #
 Collected: 12/28/79
 Received: 12/28/79
 Examined:
 Wild/captive

Species: Canada Goose		Age: adult	Sex: male	Wt. 3550
Preserved by: skill	Specimen carcass	Found dead/euthanized	P.M. State excellent	Body Condition excellent
Histology	Bacteriology liver - RC intestine - RC	Toxicology liver - Pb.	Virology spleen - DVE liver - DVE	
Parasitology	Photos	Other		

History summary:

Necropsy:

Oral cavity appendages normal.
 Heart - many petechiae and larger hemorrhages along coronary arteries.
 Liver - dark, red-purple, blotchy. No obvious focal necrosis observed.
 Spleen enlarged - dark red.
 Intestines - intestinal virus prominent; some slight enteritis, especially evident near testes and kidneys.
 Kidneys normal but very reddened.
 Testes normal, non-breeding condition. Testicle veins prominent.
 Intestinal contents dark gray color - very thin, watery.
 Gizzard normal - muscle lining eroded. Contents sand. No Pb shot observed
 Esophagus filled with gray, watery material.
 Trachea and lungs normal.



LNL

Provisional diagnosis: Suspect avian cholera
 Final diagnosis to follow
 Diagnostician/technician

Cause of death
 Contributing/secondary

Submitter's name and address

Swan Lake National Wildlife Refuge
 Box 68
 Sumner, MO 64681

Tel. No.

Reference #
 Collected:
 Received: 12/28/79
 Examined:

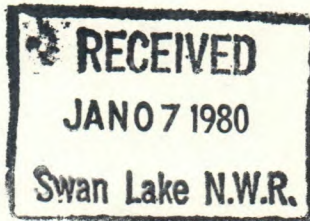
Wild/captive

Species: Canada Goose		Age: adult	Sex: female	Wt: 25
Preserved by: chill	Specimen: carcass	Found dead/euthanized:	P.M. State: excellent	Body Condition: excellent
Histology	Bacteriology liver - AC spleen - ?	Toxicology liver - Pb.	Virology C-swab-AI & - DVE Spleen - DVE	
Parasitology	Photos	Other		

History summary:

Necropsy:

Oral cavity filled with mude.
 Pectorals slightly reduced (+1).
 Subcutaneous fat abundant.
 Area over abdomen has subcutaneous fat - green in color.
 Petechiae on heart. Heart valves normal.
 Liver grossly normal. Blotchy in color - No obvious necrosis.
 Ovary mature, non-breeding - no follicles over 2mm. diameter.
 Trachea and lungs normal.
 Spleen reddened.
 Kidneys appear normal, although somewhat reddened.
 Intestines - no evidence of hemorrhages, contents are thin mucoid, varying from yellow to dark green.
 Esophagus filled with corn and barley seeds.
 Proventriculus - gizzard - normal. Gizzard lining sloughing and cracked.
 Impaction in proventriculus and gizzard due to swelling of moist barley seeds and corn.



CNL

Provisional diagnosis: Suspect avian cholera

MD

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake National Wildlife Refuge
 Box 68
 Sumner, MO 64681

Tel. No.

Reference #
 Collected:
 Received: 12/28/79
 Examined:
 Wild/captive

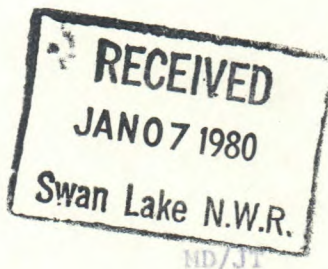
Species: Canada Goose		Age: adult	Sex: male	Wt: 25
Preserved by: chill	Specimen: carcass	Found dead/euthanized:	P.M. State: excellent	Body Condition: excellent
Histology	Bacteriology liver - RC spleen - ?	Toxicology liver - Pb.	Virology C-swab - AI & L-DVE NDV Spleen - DVE	
Parasitology	Photos	Other		

History summary:

Necropsy:

Oral cavity normal.
 Pectorals slightly reduced (+1) and slightly pale.
 Appendages normal.
 Anterior end of neck has extensive area of edema and hemorrhage and a hole 10mm. x 10mm. overlying this area of unknown origin.
 Area of subcutaneous edema - posterior edge of left pectoral.
 Immediately medial to right lateral lobe of liver is embedded a lead shot (probably oo Buck)
 Numerous petechiae and larger hemorrhage on heart.
 Spleen dark purple and blotchy.
 Liver dark purple and entire surface of both lobes covered with p.p. and larger necrosis.
 Gallbladder distended.
 Trachea and lungs normal.
 Esophagus filled with olive green watery material.
 Intestines filled with mucopurulent exudate.
 Kidneys normal with slight retention of urates.
 Brain grossly normal.
 Gizzard shows evidence of gizzard worm infection (extensive).
 EPJ normal.
 Gizzard muscle normal and contains no lead shot.
 No sign of enteritis or peritonitis from gunshot wound.

UNL



Provisional diagnosis: Suspect avian cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake National Wildlife Refuge
Box 68
Sumner, MO 64681

Tel. No.

Reference #
Collected:
Received: 12/28/79
Examined:

Wild/captive

Species: Canada Goose		Age: adult	Sex: male	Wt. 5950
Preserved by: chill	Specimen: carcass	Found dead/euthanized	P.M. State: excellent	Body Condition: excellent
Histology	Bacteriology	Toxicology	Virology	
	liver-RC heart - Bot. spleen - ? Esophageal contents - RC	liver - Pb.	C-swab AI & NDV D.-DVA	
Parasitology	Photos	Other		
		soil - JIP		

History summary:

Necropsy:

Mud in oral cavity.
Subcutaneous fat abundant (2mm+)
Pectorals slightly reduced (+1)
Area of subcutaneous edema - mid region of right pectoral.
Heart has evidence of petechiae.
Liver - both lobes covered with numerous pin point focal necrosis.
Spleen normal size, splotchy purple and black.
Trachea and lungs normal.
Esophageal lining normal, contents olive green and runny.
Good abdominal fat.
Kidneys normal.
Testes in non-breeding condition.
Intestinal contents thick green purulent.
Gizzard lining severely eroded due to gizzard worms.
EPJ slightly hyperemic.
Gizzard contents thin watery green liquid, grit and no lead shot.

RECEIVED
JAN 07 1980
Swan Lake N.W.R.

CWL

Provisional diagnosis: Suspect avian cholera

MD/JT

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

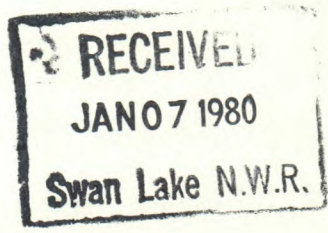
Submitter's name and address Swan Lake National Wildlife Refuge Box 68 Sumner, ND 584681 Tel. No.		Reference # Collected: 12/28/79 Received: 12/28/79 Examined: Wild/captive
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Species: Canada Goose		Age: adult	Sex: female	Wt. 3700
Preserved by: chill	Specimen: carcass	Found dead/euthanized	P.M. State: excellent	Body Condition: excellent
Histology	Bacteriology: liver - BJ, heart - BJ, spleen - ?	Toxicology: liver - Pb.	Virology: Spleen - DVE, Liver - DVE, swab - AI	
Parasitology	Photos	Other		NDV

History summary:

Necropsy:

External features are in excellent condition.
 Subcutaneous fat abundant.
 Pectorals well-developed.
 Good coronary fat.
 Overall appearance normal.
 Lungs excellent condition.
 Kidneys normal.
 Liver grossly normal, but has mottled color.
 Spleen slightly enlarged and dark purple.
 Gallbladder distended.
 Intestines grossly normal, contents thin olive-green watery material.
 Esophagus lining normal and filled with watery green liquid.
 Fairly severe infection of gizzard worms.
 Proventriculus and PEJ both normal.
 Gizzard muscle normal and psds worn.
 Gizzard contents beans and sand - no lead shot.
 Brain grossly normal, vessels very distinct.



Provisional diagnosis: Open

Final diagnosis to follow

Cause of death

MD/JT
Diagnostician/technician

Contributing/secondary

UNITED STATES GOVERNMENT

Memorandum

TO : Refuge Manager, Swan Lake NWR

DATE: February 12, 1980

FROM : Pathologist-In-Charge, NWHL

OK
EAM

SUBJECT: Laboratory Results P.R. 1707-17,344,
17,345, and 17,348

Toxicology:

The results of lead analysis of the liver, based on dry weight measure, are as follows:

17,344 Canada goose--2.8 ppm
17,345 Canada goose--less than 1 ppm

Bacteriology:

17,344 A light growth of Pasteurella multocida was obtained on cultures of the liver.

17,345 Liver cultures revealed a heavy growth of Pasteurella multocida. From the intestine was isolated heavy mixed colonies of bacterial growth which are predominantly Bacillus sp. and Enterococci sp.

17,348 Canada goose. From the liver was cultured a heavy growth of Pasteurella multocida. A culture of the soil present within the oral cavity failed to reveal any evidence of Pasteurella or other significant bacterial organisms.

Virology:

17,345 Cloacal swabs were negative on embryonated chicken eggs for duck virus enteritis, avian influenza virus, or other viral agents. Preparations of liver and spleen were also negative for viruses on primary duck embryo fibroblast cultures.

Diagnoses:

Avian cholera--17,344, 17,345, and 17,348.

Note: In conclusion, all of the accessions within this case were diagnosed as positive for avian cholera or presumed positive based on gross necropsy findings.

Lynne M. Siegfried
Lynne M. Siegfried

LMS:ls



UNITED STATES GOVERNMENT

Memorandum

TO : Refuge Manager, Swan Lake NWR

D/K
ERM

DATE: January 21, 1980

FROM : Pathologist-In-Charge, NWHL

SUBJECT: P.R. 1707-17,346,, 17,347, 17,348, 17,349

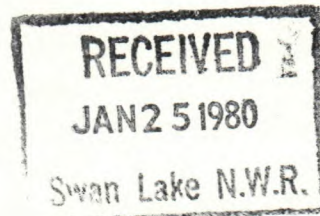
Bacteriology: The liver tissue from all four accessions revealed heavy growth of Pasteurella multocida on culture.

Diagnosis: Avian cholera.

Lynne M. Siegfried

Lynne M. Siegfried

LMS:ls



OK CRW

UNITED STATES GOVERNMENT

memorandum

DATE: March 17, 1980

REPLY TO
ATTN OF: Pathologist-In-Charge, NWHL

SUBJECT: Final Report on P.R. 1722-17,491,
17,493, 17,494, 17,495, 17,499

to: Bill Bair, ~~Special Agent~~

Bacteriology:

A culture of the air sacs from Canada goose 17,495 was negative for any evidence of fungus growth.

Toxicology:

Liver from the following accession numbers were assayed for lead content and the results are recorded by dry liver weight.

- 17,491 - 14.6 ppm
 - 17,493 - 32.9 ppm
 - 17,494 - 9.2 ppm
 - 17,499 - 19.2 ppm
- } enough to bill*

Diagnosis:

- 17,491 - Lead poisoning ✓
- 17,492 - Peritonitis secondary to gunshot ✓
- 17,493 - Lead poisoning ✓
- 17,494 - Necrotic enteritis of undetermined cause ✓
- 17,495 - Air Sacculitis of probable fungus etiology ✓
- 17,496 - Presumptive systemic fungus infection ✓
- 17,497 - Presumptive avian cholera ✓
- 17,498 - Presumptive avian cholera ✓
- 17,499 - Lead poisoning ✓

RECEIVED
 MAR 24 1980
 Swan Lake N.W.R.

L M Siegfried

Lynne M. Siegfried

LMS:kam

Final report on birds I sent in from your area. The attached sheets were preliminary analysis data.

Bair

BIRD AND WILDLIFE SERVICE
RECEIVED
 MAR 20 1980
 PIERRE
 OFFICE



Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
 (REV. 7-76)
 GSA FPMR (41 CFR) 101-11.6
 5010-112

NATIONAL WILDLIFE HEALTH LAB - NECROPSY REPORT

Case No. 1722-17,491

Submitter's name and address

Bill Bair
 U.S. Fish & Wildlife Service
 227 Federal Building
 P.O. Box 250
 Pierre, SD 57501

Tel. No.

*Red submitted by Bair
 on 1/8 from Omaha*

Reference #
 Collected: 1/8/80
 Received: 1/9/80
 Examined: 1/9/80

Wild/~~Captive~~

Species: Canada goose		Age: Immature	Sex: Male	Wt.
Preserved by: Chilled	Specimen Carcass	Found dead/ euthanized	P.M. State Fairly good	Body Cond Emaciated
Histology	Bacteriology	Toxicology Liver Pb	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR

Necropsy:

No fat; sternal keel prominent; breast muscles markedly reduced (4+)
 Intestines distended with mixture of largely undigested food—grass, corn, etc.
 No petechiae on heart; no necrosis on liver
 Frothy fluid in lungs
 Gizzard muscle normal. Gizzard lining stained light yellow-green. No lead shot. Gizzard contained corn and sand
 Proventriculus distended with corn and grass
 No lesions suggestive of avian cholera or DVE



Provisional diagnosis: Lead poisoning - drowning

Final diagnosis to follow

LNL MJG
 Diagnostician/technician

Cause of death

Contributing/secondary

NATIONAL WILDLIFE HEALTH LAB - NECROPSY REPORT

Case No. 1722-17,492

Submitter's name and address

Bill Bair

Reference #
 Collected: 1/8/80
 Received: 1/9/80
 Examined: 1/9/80

Tel. No.

Wild/captive

Species: Canada goose		Age: Adult	Sex: Female	Wt.
Preserved by: Chilling	Specimen: Carcass	Found dead/ euthanized	P.M. State: Good	Body Cond: Good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR 1/8/80

Necropsy:

Good body condition; good fat deposits
 Pectoral muscles fairly well developed
 Bird shot in peritoneal cavity, penetrating wounds on right abdominal wall
 Posterior portions of both lungs are congested
 Intestinal contents spilled into abdominal cavity due to penetration by shot
 Good amount coronary fat
 No lesions suggestive of avian cholera or DVE



Provisional diagnosis: Peritonitis

Final diagnosis to follow

LNL MJG
 Diagnostician/technician

Cause of death: Peritonitis

Contributing/secondary: Gunshot

Submitter's name and address

Bill Bair

Reference #
 Collected: 1/8/80
 Received: 1/9/80
 Examined: 1/9/80

Tel. No.

Wild/captive ~~XXXXXX~~

Species: Canada goose		Age: Adult	Sex: FEMALE	Wt:
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State Good	Body Cond Emaciated
Histology		Bacteriology	Toxicology Liver Pb	Virology
Parasitology		Photos	Other	

History summary: Picked up at Swan Lake MWR

Necropsy:

Impaction of esophagus
 Pectoral muscles reduced (+3)
 Little subcutaneous fat; only left near knee
 Coronary fat reduced; undergoing resorption
 Proventriculus impacted
 Gizzard lining stained dull yellow-green
 1 well worn lead shot found
 No lesions suggestive of cholera or DVE



Provisional diagnosis: Lead Poisoning

Final diagnosis to follow

LNL
 Diagnostician/technician

Cause of death

Contributing/secondary

NATIONAL WILDLIFE HEALTH LAB - NECROPSY REPORT

Case No. 1722-17,496

Submitter's name and address

Bill Bair

Reference #
 Collected: 1/8/80
 Received: 1/9/80
 Examined: 1/9/80

Tel. No.

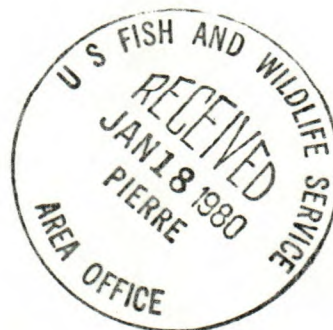
Wild/captive

Species: Canada goose (Giant)		Age: Immature	Sex: Male	Wt.:
Preserved by: Chilling	Specimen: Carcass	Found dead/ retrieved euthanized	P.M. State: Good	Body Cond: Good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary: Collected at Swan Lake NWR

Necropsy:

Good deposits of subcutaneous fat, abdominal fat
 Pectoral muscles well developed
 A few petechiae on heart
 Widespread focal necrosis of liver
 Intestines slightly enlarged
 Serogelatinous exudate in lumen



LNL

Provisional diagnosis: Avian cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Bill Bair

Tel. No.

Reference #

Collected: 1/8/80

Received: 1/9/80

Examined: 1/9/80

Wild/captive

Species: Canada goose		Age: Adult	Sex: Male	Wt: 33
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Good	Body Condition: Good
Pathology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR 1/8/80

Necropsy:

Moderate amount subcutaneous fat

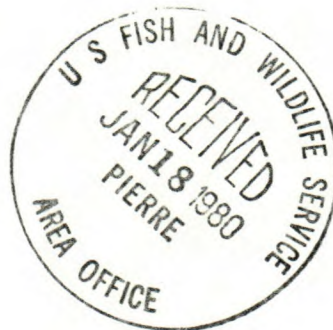
1 lead BB embedded in subcutaneous fat over left pectoral; 1 lead BB embedded in left pectoral muscle

Focal necrosis in liver

Some petechiae in heart

Lungs hyperemic

Hemorrhage and necrosis in spleen and adrenals



Provisional diagnosis: Avian cholera

LNL

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

NATIONAL WILDLIFE HEALTH LAB - NECROPSY REPORT

Submitter's name and address

Bill Bair

Tel. No.

Case No. 1722-17,496

Reference #
 Collected: 1/8/80
 Received: 1/9/80
 Examined: 1/9/80

Wild/captive

Species: Canada goose		Age: Adult	Sex: Female	Wt.
Preserved by: Chilling	Specimen: Carcass	Found dead/ euthanized	P.M. State: G Fair	Body Cond: Fair
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR 1/8/80

Necropsy:

No subcutaneous or abdominal fat; slight amount coronary fat

Large fibrous hollow granulomious lesion directly dorsal to liver lobes, approximately 1-1/2 inche diameter; the internal surface is covered with a blue-gray fungal growth

The right posterior thoracic air sac is markedly thickened with some caseated material attached



LNL

Provisional diagnosis: Possible Aspergillosis

Final diagnosis to follow

RJD MJS
 Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Bill Bair

Reference #
 Collected: 1/8/80
 Received: 1/9/80
 Examined: 1/9/80

Tel. No.

Wild/captive

Species: Canada goose		Age: Adult	Sex: Female	Wt.
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State	Body Cond
Histology	Bacteriology Air sac fungal material	Toxicology	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR 1/6/80

Necropsy:

Moderate amount coronary fat
 Lungs are dark red hemorrhagic
 Posterior thoracic air sac is covered with fluffy dark blue-gray fungal growth
 Liver color changed to autolysis
 Proventriculus impacted with food material
 Intestines seem normal with slight amount of early P.M. change
 Kidneys paler in color



LNL

Provisional diagnosis: Air sacculitis; fungal origin

Final diagnosis to follow

RJD MTD
 Diagnostician/technician

Cause of death

Contributing/secondary

NATIONAL WILDLIFE HEALTH LAB - NECROPSY REPORT

Case No. 1722 173494

Submitter's name and address
 Bill Bair
 Tel. No.

Reference #
 Collected: 1/1/80
 Received: 1/9/80
 Examined: 1/9/80
 Wild/captive

Species: Canada goose		Age: Adult	Sex: Male	Wt.
Preserved by: Chilled	Specimen: Carcass	Found dead/euthanized	P.M. State: Fair	Body Cond: Fairly good
Histology	Bacteriology	Toxicology: Liver Pb	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR 1/8/80

Necropsy:

Moderate amount subcutaneous fat
 Pectoral muscles well developed
 Lungs hyperemic
 Kidneys paler than normal; lobules prominent, lobular veins prominent
 Liver dark purple, no areas of focal necrosis
 Duodenum enlarged 2-3 times, dark red to black-red, lumen filled with gelatinous material
 Gizzard filled with mud, tissue debris
 1 lead shot in gizzard

Bill - Have to await lead analysis on this one. Cause of the necrotic duodenitis not clear to me at this time -



Provisional diagnosis: Necrotic duodenitis

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Case No. 1722-17,493

Submitter's name and address

Bill Bair

Reference #

Collected: 1/8/80

Received: 1/9/80

Examined: 1/9/80

Tel. No.

Wild ~~/captive~~

Species: Canada goose		Age: Immature	Sex: Female	Wt.
Preserved by: Chilling	Specimen: Carcass	Found dead/ euthanized	P.M. State: Good	Body Condition: Fairly good
Histology	Bacteriology	Toxicology: Liver Pb	Virology	
Parasitology	Photos	Other		

History summary: Picked up at Swan Lake NWR 1/8/80

Necropsy:

Subcutaneous fat reduced; fat reduced to deposits near knees

Pectoral muscles slightly reduced (+1)

Moderate amount abdominal fat

Good coronary fat

Lungs hyperemic

Gizzard lining stained dark green,
5 lead shot found

Adrenals pale

Heart showed constriction around middle of ventricle

Liver normal color

No lesions suggestive of avian cholera or IWL

Gall bladder enlarged



Provisional diagnosis: Lead poisoning

LNL

Final diagnosis to follow

LNL MJD
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

 Swan Lake N. W. R.
 P.O. Box 68
 Sumner, MO 64681

 Tel. No.

Reference #
 Collected: 12/30/77
 Received: 1/3/78
 Examined: 1/3/78

 Wild/captive

Species: Canada Goose		Age: Immature	Sex: Female	Wt. 2010
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ euthanized	P.M. State Good	Body Condition Emaciated
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trapsite on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No external lesions.

No subcutaneous fat.

Pectoral atrophy.

Proventriculus packed with food.

1 very large lead shot.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow


 L. S. / R. B.
 Diagnostician/technician

Cause of death	Contributing/secondary
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Submitter's name and address
Swan Lake N. W. R.
P.O. Box 68
Sumner, MO 64681

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78

~~Wild/captive~~

Species: Canada Goose		Age: Immature	Sex: Male	Wt.
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ euthanized	P.M. State Fair	Body Condition Good
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: 2 puncture wounds at base of skull (gunshot).

3 mm subcutaneous fat.

1 puncture wound in thorax.

Blood clot in trachea.

Provisional diagnosis: Trauma - gunshot
Final diagnosis to follow

L. S. / R. B.
Diagnostician/technician

Cause of death	Contributing/secondary
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Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Adult	Sex: Female	Wt. 2100
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ unkennalized	P.M. State Good	Body Condition Poor
Histology		Bacteriology	Toxicology Liver - lead	Virology
Parasitology		Photos	Other	

History summary: (Picked up at trapsite on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.


Necropsy: Fibrous impaction of gizzard and proventriculus.

No body fat.

Marked pectoral atrophy.

1 well worn lead shot in gizzard.

Provisional diagnosis: Lead poisoning.
Final diagnosis to follow


S. K. / R. B.
Diagnostician/technician

Cause of death
Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference # Band #598-32782
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Immature	Sex:	Wt. 2680
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ XXXXXXXXXX	P.M. State Fair	Body Condition Good
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No external lesions.

No subcutaneous fat - congestion.


Moderate pectoral atrophy.

Proventriculus packed with food.

Gizzard contents stained green.

1 lead shot in gizzard.

Provisional diagnosis: Lead poisoning
Final diagnosis to follow


L. S. / R. B.
Diagnostician/technician

Cause of death
Contributing/secondary

NATIONAL FISH AND WILDLIFE HEALTH LABORATORY - NECROPSY REPORT		Case No. 756-6422	
Submitter's name and address Swan Lake N. W. R.		Reference # Band 678-22192 Collected: 12/30/77 Received: 1/3/78 Examined: 1/3/78	
Tel. No.		Wild/ ex ex	
Species: Canada Goose		Age: Immature	Sex: Male
		Wt. 1890	
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ subclinically	P.M. State Good
		Body Condition Poor	
Histology	Bacteriology	Toxicology Liver - lead	Virology
Parasitology	Photos	Other	

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot).

Necropsy: Marked pectoral atrophy.

Old hemorrhages with inspissated blood 2 cm X 5 cm along thoracic walls.

One shot entered abdomen through right anterior liver lobe & pericardium.

Fibrino pericarditis.

Necrotic hepatitis (25 mm diameter lesion).

Provisional diagnosis: Gunshot, peritonitis, pericarditis

Final diagnosis to follow


S. K./ S. K.
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #

Collected: 12/30/77

Received: 1/3/78

Examined: 1/3/78

Wild/~~captive~~

Species: Canada Goose

Age: Adult

Sex: Male

Wt. 2350

Preserved by:

Specimen

Found dead/~~subclinized~~

P.M. State

Body Condition

All frozen naturally

Carcass

Fair

Poor

Histology

Bacteriology

Toxicology

Virology

Liver - lead

Parasitology

Photos

Other

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No external signs of trauma.

No subcutaneous fat.

Marked pectoral atrophy.

Liver shrunken.

No internal fat.

Puncture wound in pericardium.

Pericardial sac thickened.

Lead shot in pericardium - probably old body shot.

Impaction of esophagus with roots and grasses.

1 well-worn lead shot in gizzard.

Gizzard pads well worn - stained green.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow

C. J. B. / R. B.

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~Captive~~

Species: Canada Goose		Age: Adult	Sex: Male	Wt.
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ toothpick	P.M. State Fair	Body Condition Fair
Histology		Bacteriology	Toxicology Liver - lead	Virology
Parasitology		Photos	Other	

History summary: (Picked up at trapsite on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No external lesions.

No subcutaneous fat.


Pectoral atrophy.

1 well worn lead shot.

Proventriculus packed with food.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow


L. S.// R. B.
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #

Collected: 12/30/77

Received: 1/3/78

Examined: 1/3/78

Wild/~~XXXXXX~~

Species: Canada Goose		Age: Immature	Sex: Female	Wt. 2500
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ euthanized	P.M. State Fair	Body Condition Fair
Histology Spleen Liver	Bacteriology Fibrin - fungus; clot - RC Liver - RC; lung - fungus	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: Picked up at trap site on Silver Lake (Swan Lake N. W. R.) Approximately 50 plus other carcasses on the site. Suspect many gunshot.

Necropsy: Neck broken antemortem - massive hemorrhage.

1 mm subcutaneous fat.

Marked pectoral atrophy.

Gelatinous clot in pericardium.

Large fibrinous sheet adhering pericardium to sternum.

Fibrin extends into interclavicle air sac & adheres to esophagus.

Heart pale and flabby.

Liver pale and waxy on cut surface.

Several 2 mm white "crusty" spots on liver and gall bladder.

Spleen greatly enlarged.

Bile dark green.

No shot in gizzard.

Several 1 - 3 mm white plaques in both lungs.

Provisional diagnosis: Cervical trauma

Air sacculitis/pneumonia (aspergillosis?)

Final diagnosis to follow

C. J. B.

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Immature	Sex: Female	Wt. 3625
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ examined	P.M. State Poor	Body Condition Good
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: Fibrous impaction of proventriculus and ventriculus.

Dark green staining of grinding pads.


Good pectoral development, fat.

No lead found in gizzard.

plant?

Provisional diagnosis: Lead poisoning

Final diagnosis to follow


S. K. / R. B.
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Adult	Sex: Female	Wt. 2150
Preserved by:	Specimen	Found dead toxicantized	P.M. State	Body Condition
All frozen naturally	Carcass		Good	Poor
Histology		Bacteriology	Toxicology	Virology
			Liver - lead	
Parasitology		Photos	Other	

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No body fat.

- Marked pectoral atrophy.
- Fibrous impaction of proventriculus.
- Bile staining on gizzard pads & leathery.
- 1 well worn lead shot in gizzard.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow


S. K./R. B.
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Adult	Sex: Male	Wt.
Preserved by: All frozen naturally	Specimen Carcass	Found dead XXXXXX	P.M. State Fair	Body Condition Good
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)


Necropsy: Left heel pad congested and adjoining joint contains red exudate.

3 mm subcutaneous fat.

Abdominal cavity contains 40 - 50 cc black foul smelling liquid, exudate.

Partially healed puncture wound in abdomen.

Provisional diagnosis: Gunshot - peritonitis
Arthritis
Final diagnosis to follow


L. S. / R. B.
Diagnostician/technician

Cause of death
Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Immature	Sex:	Wt. 1900gm.
Preserved by: All frozen naturally	Specimen Carcass	Found dead XXXXXX	P.M. State Poor	Body Condition Poor
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No subcutaneous fat.

Pectoral atrophy.

No lead shot in gizzard.

Fibrous impaction of proventriculus and gizzard.

Gizzard atrophy, bile stained grinding pads.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow

Cause of death

S. K. / R. B.

Diagnostician/technician

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild ~~or captive~~


Species: Canada Goose		Age: Immature	Sex: Female	Wt. 1930
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ euthanized	P.M. State Poor	Body Condition Poor
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)
Necropsy: Fibrinous impaction of gizzard proventriculus.

Enlarged gall bladder.

1 well worn lead shot in gizzard.

Provisional diagnosis: Lead poisoning
Final diagnosis to follow
Cause of death


S. K. // R. B.
Diagnostician/technician

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/captive

Species: Canada Goose		Age: Adult	Sex: Male	Wt.
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ euthanized	P.M. State Poor	Body Condition Poor
Histology		Bacteriology	Toxicology Liver - lead	Virology
Parasitology		Photos	Other	

History summary: (Picked up at trapsite on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No subcutaneous fat.


Gizzard contents stained green.

Proventriculus packed with grass.

Numerous worn lead shots in gizzard.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow


L. S./R. B.
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.


Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Immature	Sex: Female	Wt. 2275
Preserved by: All frozen naturally	Specimen Carcass	Found dead XXXXXX	P.M. State Poor	Body Condition Poor
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)
Necropsy: 2 well worn lead shots in gizzard.

Provisional diagnosis: Lead poisoning
Final diagnosis to follow
Cause of death


S. K./R. B.
Diagnostician/technician

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild ~~XXXXXX~~

Species: Canada Goose		Age: Immature	Sex: Male	Wt. 2900
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ euthanized	P.M. State Good	Body Condition Poor
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: Impaction of proventriculus, gizzard, duodenum.

Fibrino necrotic enteritis of large intestine.

2 well worn lead shots in gizzard.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow

SB
S. K. / R. B.
Diagnostician/technician

Cause of death	Contributing/secondary
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Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captives~~

Species: Canada Goose		Age: Immature	Sex: Male	Wt.
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ extinguished	P.M. State Poor	Body Condition Emaciation
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No external lesions.

No subcutaneous fat.

Marked pectoral atrophy.

Proventriculus packed with ingesta.

No shot in gizzard.

Gizzard worms.

Lungs wet & frothy.

Possible terminal drowning.

Provisional diagnosis: Emaciation

Final diagnosis to follow

Cause of death

LS
L. S. / R. B.
Diagnostician/technician

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference # Band 63865346
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78

Wild/captive

Species: Canada Goose		Age: Adult	Sex: Male	Wt. 2810
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ naturalized	P.M. State Slightly poor	Body Condition Good
Histology Intestine, liver, lung, gizzard, kidney	Bacteriology Intestine - Salmonella Liver - Routine Culture	Toxicology Liver - lead	Virology D.V.E. & Avian L. Intestin Influ.	
Parasitology	Photos	Other		

History summary: Picked up at trapsite on Silver Lake (Swan Lake N. W. R.) Approximately 50 plus other carcasses on the site. Suspect many gunshot.

Necropsy: Green staining of oral cavity & gizzard grinding pads.

No lead shot in gizzard.

Gizzard slight atrophy and muscle containing numerous irregular 1 mm diameter whitish areas.

Liver swollen - postmortem autolysis.

Gall bladder enlarged 48 mm X 16 mm.

Large intestine from cecal junction posterior contained hemorrhagic fibrino-necrotic material adhered to mucosa.

Same (plug) in a 3 cm area of small intestine (infarct?).

1 #4 lead shot in right pectoral.

1 #4 lead shot free in abdominal cavity.

Heart contained 2 - 1 cm areas whitish in color (infarct?)

Provisional diagnosis: Suspect gunshot
Fibrino necrotic ~~necrosis~~ **ENTERITIS**

Final diagnosis to follow
S. K. / R. B.
Diagnostician/technician

Cause of death	Contributing/secondary
----------------	------------------------

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/77
Examined: 1/3/77
Wild/~~captive~~

Species: Canada Goose		Age: Immature	Sex: Male	Wt. 3350
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ XXXXXXXXXX	P.M. State Poor	Body Condition Good
Histology	Bacteriology - Salmonella Large intestine- Routine	Toxicology Liver - lead	Virology Flu & DVE L. Intestine	
Parasitology	Photos Culture	Other		

History summary: Picked up at trapsite on Silver Lake (Swan Lake N. W. R.) Approximately 50 plus other carcasses on the site. Suspect many gunshot.

Necropsy: Grinding pads stained green - no lead.

Posterior large intestine from cecal bifurcation - with plug of fibrino-hemorrhage & necrosis - attached to mucosa - suspect infarct.

Liver enlarged, swollen.

No evidence of gunshot.

Provisional diagnosis: Suspect lead
Hemorrhagic fibrino-necrotic enteritis
Final diagnosis to follow

S. K. / R. B.
Diagnostician/technician

Cause of death	Contributing/secondary
----------------	------------------------

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Immature	Sex: Female	Wt. 3100
Preserved by: All frozen naturally	Specimen Carcass	Found dead toxicant	P.M. State Poor	Body Condition Poor
Histology	Bacteriology	Toxicology Liver - lead	Virology	
Parasitology	Photos	Other		

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: Gizzard stained dark green.

Liver swollen dark red.

Intestine pale.

Heart has petechiae hemorrhage on coronary fat.

2 - 1 mm diameter well-worn lead shots.

Provisional diagnosis: Lead poisoning

Final diagnosis to follow

Cause of death

S. K. / R. B.

Diagnostician/technician

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #

Collected: 12/30/77

Received: 1/3/78

Examined: 1/3/78

Wild/~~capt~~ivex

Species: Canada Goose

Age: Immature

Sex: Female

Wt.

Preserved by:

Specimen

Found dead/~~gunshot~~

P.M. State

Body Condition

All frozen naturally

Carcass

Emaciated

Histology

Bacteriology

Toxicology

Virology

Liver - lead

Parasitology

Photos

Other

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: No external lesions.

No subcutaneous fat.

Pectoral atrophy.

Liver atrophy.

Proventriculus filled with food.

1 eroded lead shot in gizzard.

Provisional diagnosis: Lead poisoning.

Final diagnosis to follow

L. S. / R. B.

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #
Collected: 12/30/77
Received: 1/3/78
Examined: 1/3/78
Wild/~~captive~~

Species: Canada Goose		Age: Adult	Sex: Female	Wt. 3120
Preserved by: All frozen naturally	Specimen Carcass	Found dead/ naturalized	P.M. State	Body Condition Excellent
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)
Necropsy: No external lesions noted.

- 5 - 6 mm. subcutaneous fat.
- Puncture wound associated with massive abdominal hemorrhage.
- Postmortem entire visceral encased in massive blood clot.
- Hemorrhagic mucoid exudate free on tracheal mucosa.
- Posterial 1/3 of lung filled with blood.
- Hemorrhagic tract through gizzard muscle.

Provisional diagnosis: Gunshot, trauma

RS
L. S. / R. B.
Diagnostician/technician

Final diagnosis to follow

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference # Band # 668-54071
 Collected: 12/30/77
 Received: 1/3/78
 Examined: 1/3/78

Wild/~~captives~~

Species: Canada Goose		Age: Adult	Sex:	Wt.
Preserved by: All frozen naturally	Specimen Carcass	Found dead gunshot	P.M. State Good	Body Condition Good
Histology	Bacteriology	Toxicology	Virology	
	Intestine - Routine Culture	Liver - lead	Liver	
Parasitology	Photos	Other		

History summary: (Picked up at trapsite on Silver Lake (Swan Lake N. W. R.) Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: Petechiae hemorrhage on epicardium.

Fat on epicardium.

Liver pale and swollen.

Postmortem autolysis of liver & intestine.

Gall bladder enlarged.

1 well worn lead shot in gizzard.

Fibrino hemorrhagic necrosis of large intestine (infarct?).

Provisional diagnosis: Lead poisoning

Fibrino hemorrhagic ~~necrosis~~ *enteritis*

S. K. / R. B.

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake N. W. R.

Tel. No.

Reference #

Collected: 12/30/77

Received: 1/3/78

Examined: 1/3/78

Wild ~~by capture~~

Species: Canada Goose		Age: Immature	Sex: Male	Wt.
Preserved by:	Specimen	Found dead/ SUBMITTED	P.M. State	Body Condition
All frozen naturally	Carcass		Good	Excellent
Histology		Bacteriology	Toxicology	Virology
		Liver - Routine Culture	Liver - lead	
Parasitology		Photos	Other	

History summary: (Picked up at trap site on Silver Lake (Swan Lake N. W. R.). Approximately 50 plus other carcasses on the site. Suspect many gunshot.)

Necropsy: 2 mm puncture wound & hemorrhage at base of skull.

3 mm subcutaneous fat.

Gizzard contents stained green.

Spleen swollen.

Gizzard pads fractured.

Liver turgid and parenchyma is pale, but sinusoids are red.

Brain congested.

Subgural hemorrhage in foramen magnum.

No lead shot in gizzard.

Provisional diagnosis: Trauma - gunshot

Final diagnosis to follow

L. S. / R. B.
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address Swan Lake NWR Tel. No.	Reference # Collected: Received: 1/6/81 Examined: 1/6/81 Wild/captive:
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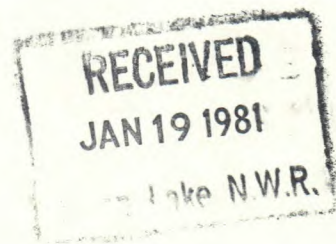
Species: Canada goose	Age: Adult	Sex: Female	Wt. 2890
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized:	P.M. State: Poor
			Body Condition: Good
Histology	Bacteriology Liver - RC	Toxicology	Virology
Parasitology	Photos	Other	

History summary:

Necropsy:

1. Pectorals slightly reduced +1
2. Abundant body fat
3. Liver has multiple pinpoint white foci
4. Heart has a few scattered paintbrush hemorrhages
5. Trachea and esophagus normal
6. Spleen is enlarged and hemorrhagic
7. Gizzard lining is hyperkeratotic, no shot present with a slight amount of food
8. Intestines have a severe mucoid enteritis with mucosal hemorrhages

Routine culture of the liver resulted in a heavy growth of Pasteurella multocida confirming the diagnosis of avian cholera.



Provisional diagnosis: Suspect fowl cholera

RYS
REL/SJP

Final diagnosis to follow _____ Diagnostician/technician

Cause of death _____ Contributing/secondary

Submitter's name and address
 Swan Lake NWR
 P.O. Box 68
 Sumner, MO 64681
 Tel. No.

Reference #
 Collected:
 Received: 1/6/81
 Examined: 1/6/81
 Wild/captive

Species: Canada goose		Age: ?	Sex: ?	Wt: 4530 4.3
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Very poor	Body Condition: Good
Histology	Bacteriology	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

1. No fractures
2. Abundant body fat
3. Pectorals slightly reduced
4. Normal - heart
5. Spleen is enlarged and hemorrhagic
6. Liver is inflamed. No evidence of fowl cholera
7. Gizzard - full of food. No pb shot
8. Peritonitis and pneumonia present
9. Postmortem state is very poor, bird lay dead 5 - 6 days before collected
10. Penetrating gunshot wound to abdomen

JK
 RECEIVED
 JAN 19 1981
 Swan Lake N.W.R.

Provisional diagnosis: Crippling loss

REL/SJP

Final diagnosis to follow _____ Diagnostician/technician

Cause of death _____ Contributing/secondary

Submitter's name and address
 Swan Lake NWR
 P.O. Box 68
 Sumner, MO 64681
 Tel. No.

Reference #
 Collected:
 Received: 1/6/81
 Examined: 1/6/81
 Wild/captive

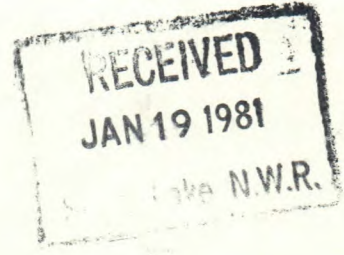
Species: Canada goose		Age: Adult	Sex: Male	Wt. 1400
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Poor	Body Condition: Fair
Histology	Bacteriology: Liver - RC	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

1. Pectorals slightly reduced +2
2. Abundant body fat
3. Liver - multiple white foci present
4. Heart has paint brush hemorrhages
5. Normal: oral cavity, trachea, esophagus, gizzard, intestine, kidney, and testes
6. Spleen is enlarged and hemorrhagic
7. Gizzard - no shot present

Routine culture of the liver resulted in a heavy growth of Pasteurella multocida, confirming the diagnosis of avian cholera.



Provisional diagnosis: Suspect fowl cholera

Final diagnosis to follow

REL/SJR
 Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address Swan Lake NWR P.O. Box 68 Sumner, MO 64681 <p style="text-align: center;">Tel. No.</p>	Reference # Collected: Received: 1/6/81 Examined: 1/6/81 Wild/captive
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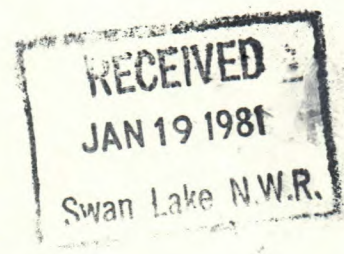
Species: Canada goose	Age: Adult	Sex: Male	Wt. 3460
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Poor
			Body Condition: Good
Histology	Bacteriology Liver - RC	Toxicology	Virology
Parasitology	Photos	Other	

History summary:

Necropsy:

1. No fractures evident
2. Pectorals reduced +2
3. Abundant body fat
4. Heart has numerous paintbrush hemorrhages
5. Normal esophagus, trachea, oral cavity, gizzard, and lungs.
6. Liver is enlarged and hemorrhagic with multiple white foci
7. Spleen is enlarged and hemorrhagic
8. Gizzard - no shot present, slight amount of food present
9. Severe mucoid enteritis with hemorrhages on mucosal surface.

Routine culture of the liver resulted in a heavy growth of Pasteurella multocida confirming the diagnosis of avian cholera



Provisional diagnosis:

Final diagnosis to follow

RKS
REL/SJP
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Tel. No.

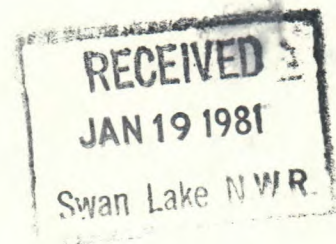
Reference #
 Collected:
 Received:
 Examined: 1/6/81
 1/6/81
 Wild/~~captive~~

Species: <u>Canada goose</u>		Age: <u>Adult</u>	Sex: <u>Male</u>	Wt. <u>3765</u>
Preserved by:	Specimen	Found dead/euthanized	P.M. State	Body Condition
<u>Chilling</u>	<u>Carcass</u>		<u>Poor</u>	<u>Fair</u>
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary:

Necropsy:

1. Pharynx, mouth, heart, and lungs - normal
2. No fractures
3. Pectorals reduced +2
4. Peritonitis present with mucoid enteritis
5. Liver is inflamed, has multiple white foci
6. Spleen is enlarged
7. Gizzard - no shot present



Provisional diagnosis: Trauma and suspect fowl cholera

Final diagnosis to follow

REL/SJP
 Diagnostician/technician

Cause of death

Contributing/secondary

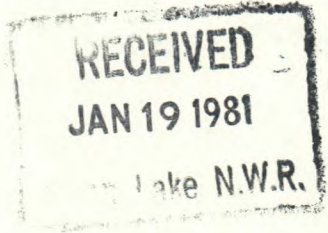
Submitter's name and address <p style="text-align: center;">Swan Lake NWR</p> <p style="text-align: right;">Tel. No.</p>	Reference # Collected: Received: 1/6/81 Examined: Wild/captive
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Species: Canada goose		Age:	Sex:	Wt. 3320
Preserved by: Chilling	Specimen Carcass	Found dead/euthanized	P.M. State	Body Condition
Histology		Bacteriology	Toxicology	Virology
Parasitology		Photos	Other	

History summary:

Necropsy:

Carcass discarded



Provisional diagnosis:

Final diagnosis to follow

RKS
Diagnostician/technician

Cause of death	Contributing/secondary
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Submitter's name and address Swan Lake NWR Tel. No.	Reference # Collected: Received: 1/6/81 Examined: Wild/captive
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Species: Canada goose	Age:	Sex:	Wt. 2825
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State
Histology	Bacteriology	Toxicology	Body Condition
Parasitology	Photos	Other	

History summary:

Necropsy:

Carcass discarded

RECEIVED
JAN 19 1981
 Swan Lake N.W.R.

Provisional diagnosis:	Diagnostician/technician
Final diagnosis to follow	Contributing/secondary
Cause of death	

Submitter's name and address

Swan Lake NWR

Tel. No.

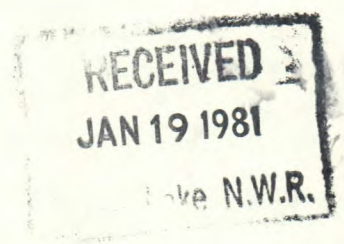
Reference #
Collected:
Received: 1/6/81
Examined:

Wild/captive

Species: Canada goose		Age:		Sex:		Wt. 2340	
Preserved by: Chilling	Specimen Carcass	Found dead/ ethanized		P.M. State		Body Condition	
Histology		Bacteriology		Toxicology		Virology	
Parasitology		Photos		Other			

History summary:

Necropsy:



Provisional diagnosis:

Final diagnosis to follow

RKS
Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address Swan Lake NWR Tel. No.	Reference # Collected: Received: 1/6/81 Examined: 1/6/81 Wild/captive
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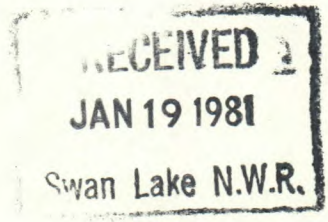
Species: Mallard		Age:	Sex: Male	Wt. 1125
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State: Poor	Body Condition: Excellent
Histology	Bacteriology: Liver - RC	Toxicology	Virology	
Parasitology	Photos	Other		

History summary:

Necropsy:

1. Heart - many multiple paintbrush hemorrhages
2. Liver has a few small, white foci
3. Abundant body fat
4. Pectorals - normal
5. Normal - Spleen, lungs, trachea, esophagus, lungs and kidneys
6. Gizzard - bile stained, pads are eroded. No shot present
7. Intestines show mucoid enteritis

Routine culture of the liver resulted in a heavy growth of Pasteurella multocida confirming the diagnosis of avian cholera.



Provisional diagnosis: Suspect fowl cholera

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

Submitter's name and address

Swan Lake NWR

Tel. No.

Reference #

Collected:

Received: 1/6/81

Examined:

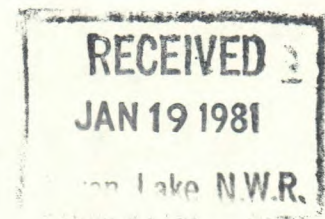
Wild/captive

Species: Mallard		Age:		Sex: Female	Wt. 900
Preserved by: Chilling	Specimen: Carcass	Found dead/euthanized	P.M. State	Body Condition	
Histology		Bacteriology	Toxicology	Virology	
Parasitology		Photos	Other		

History summary:

Necropsy:

Carcass discarded



Provisional diagnosis:

Final diagnosis to follow

Diagnostician/technician

Cause of death

Contributing/secondary

memorandum

J PHT

DATE: January 8, 1985

REPLY TO
ATTN OF: Training Officer, RHT, National Wildlife Health Laboratory, Madison, WI

SUBJECT: Final Report on Laboratory Findings in "Impacted" Canada Geese. (NWHL: 5072-001 thru 007).

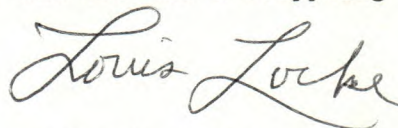
TO: Terry Root, Assistant Refuge Manager, Swan Lake NWR, Summer, MO

We have completed our examination of the Canada geese submitted on 12/10/84. As you can see from the enclosed copies of the necropsy reports, four of the geese had necrotic esophagitis caused by ingested soybeans, and two had high levels of lead in their livers (11.0 and 16.0) and were probably suffering from the toxic effects of lead prior to death.

Goose 002 had a penetrating wound in the esophagus, apparently caused by a shotgun pellet. This wound had become infected and the surrounding esophageal tissue had become necrotic (died). No impaction was present in this bird. The high level of lead in the liver, 11.0 ppm, wet weight, and the presence of a single, well-worn lead shot in the gizzard suggest that this goose probably was also suffering from the toxic effects of the lead prior to being shot by a hunter.

Goose-004. This is a straight-forward case of lead poisoning. There is marked emaciation and loss of fat deposits; there is an impaction of the esophagus and a single, well-worn lead shot was recovered from the gizzard. Liver lead level was 16.0 ppm, wet weight, well above the diagnostic level of 8.0 ppm or higher routinely used in this laboratory.

Thus, soybean impactions accounted for four of the seven cases submitted, lead poisoning played a role in two and one was a crippling injury with secondary bacterial infection.



Louis N. Locke

LNL/bs
Encl.

*Copy sent to Dale Ziemke
1-25-85 Jan
Sent to Ellis
2-6-85*

NATIONAL WILDLIFE HEALTH LABORATORY—NECROPSY REPORT

CASE NO. 5072-001

SUBMITTER'S NAME & ADDRESS

Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68
 Summer, MO 64681

TELEPHONE NO.

COLLECTED: 10/02/84
 RECEIVED: 12/10/84
 EXAMINED: 12/10/84
 FINALIZED:
 PROSECTOR: RKS *RKS*

SPECIES: Canada Goose (Ref. #33570-1) SPECIMEN: Carcass WEIGHT: N/A (GRAMS) PRESERVED BY: carcass plucked & feet removed.

HISTORY SUMMARY: WILD/CAPTIVE FOUND DEAD/EUTHANIZED

Owner of hunter-killed goose processing plant reported many geese have impacted esophagi. Refuge biologists did not report any lead shot found.

NECROPSY:

Internal Examination

Musculoskeletal system: Prominent breast muscle atrophy. No subcutaneous or mesentery fat except for small remnants which have undergone serous atrophy.

Cardiovascular system: Heart - no significant findings (NSF).

Respiratory system: Some areas of blood presumably due to shot.

Digestive system: Esophagus lining is necrotic and impacted with dry, leafy vegetation (half rotted), corn and what appears to be soybeans. There is a distinct, fairly old, lesion present in the mid-neck area which appears as a shot puncture wound. The gizzard lining is hyperkeratotic and moderately bile stained. There were no lead shot present in the contents of the gizzard. The gizzard itself does not appear significantly impacted even though the esophagus is very impacted. Gizzard musculature-NSF. The liver is somewhat small. No foci noted. The coloration is darker than normal. Gall bladder is very large and filled with thick, green bile. The small intestine is not appreciably atrophied although it is filled with a greenish, fowl smelling bile stained feces.

Urogenital system: Kidneys are shrunken. No fat over the body cavity area.

Lymphoid/Endocrine system: Spleen - NSF

PRELIMINARY DX: Gunshot/Emaciation (open)

TOXICOLOGY: Liver lead - .81 ppm wet wt., 3.2 ppm dry wt.

BACTERIOLOGY: Intestine R.C. - Mixed including Escherichia coli and Enterococci sp.
 S.C. - Negative

AGE:	Immature	P.M. STATE:	Fair	PHOTOS:	
SEX:	Male	BODY CONDITION:	Poor		
BACTERIOLOGY		VIROLOGY		TOXICOLOGY	
Small intestine for R.C. and Salmonella culture.				Liver - Pb ✓	
PARASITOLOGY		OTHER		CARCASS DISPOSAL: INCINERATED _____	
				HELD _____	

FINAL DIAGNOSIS: *Necrotic Esophagitis originating from soybean impaction*
 NOTE: *cause of death is gunshot*

NATIONAL WILDLIFE HEALTH LABORATORY—NECROPSY REPORT

CASE NO. 5072-002

SUBMITTER'S NAME & ADDRESS
 Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68
 Summer, MO 64681

COLLECTED: 12/2/84
 RECEIVED: 12/10/84
 EXAMINED: 12/10/84
 FINALIZED:
 PROSECTOR: RKS

SPECIES: Canada Goose (Ref. #33570-2) SPECIMEN: Carcass WEIGHT: (GRAMS)

PRESERVED BY:

HISTORY SUMMARY: WILD/CAPTIVE FOUND DEAD/EUTHANIZED

Goose shot by a hunter. Owner of hunter-killed goose processing plant reported many geese have impacted esophagi. Refuge biologists did not report any lead shot found.

NECROPSY:

Internal Examination

Musculoskeletal system: There is moderate breast muscle atrophy. No subcutaneous fat is noted. Along the neck there is an area approximately two-thirds of the anterior with what appears to be a penetrating wound. There is evidence of bleeding and some resolution of a clot. On the mucosal surface of the esophagus, there is a lesion approximately 3 cm long x 2 cm wide. This lesion may be described as a diphtheric type membrane overlying denuded, eroded and/or infected esophageal tissue. There is no significant accumulation of food or other debris within the esophagus. The gizzard likewise is not impacted, however, the gizzard lining is slightly hyperkeratotic but only mildly bile stained. A single, moderately well worn shot is present in the contents of the gizzard. The liver is somewhat pale. Gall bladder is fairly large but there is no bile retention. Small intestine has been punctured probably by shot and has contaminated the entire abdominal cavity with material from the intestine. The intestine is approximately normal size and contains normal appearing feces. Kidneys - NSF.

PRELIMINARY DX: Emaciation/Esophagitis/Gunshot

TOXICOLOGY: Liver lead - 11 ppm wet wt., 43 ppm dry wt.

AGE:	Immature	P.M. STATE:	Fair	PHOTOS:
SEX:	Female	BODY CONDITION:	Poor	
BACTERIOLOGY		VIROLOGY		TOXICOLOGY Liver -Pb ✓
				HISTOLOGY Esophageal lesion
PARASITOLOGY		OTHER		CARCASS DISPOSAL: INCINERATED _____ HELD _____

FINAL DIAGNOSIS: *Emaciation - contributing factors include lead poisoning and necrotic esophagitis resulting from pellet wound into esophagus.*
 NOTE: *CAUSE OF DEATH is gunshot*

NATIONAL WILDLIFE HEALTH LABORATORY—NECROPSY REPORT

CASE NO. 5072-003

SUBMITTER'S NAME & ADDRESS

Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68
 Sumner, MO 64681 TELEPHONE NO.

COLLECTED: 12/6/84
 RECEIVED: 12/10/84
 EXAMINED: 12/10/84
 FINALIZED:
 PROSECTOR: RKS

SPECIES: Canada Goose (Ref. #33570-3) SPECIMEN: WEIGHT: 3690 (GRAMS) PRESERVED BY:

HISTORY SUMMARY: WILD/CAPTIVE FOUND DEAD/EUTHANIZED Neck Wrung (feet cut off)

Owner of hunter-killed goose processing plant reported many geese have impacted esophagi. Refuge biologists did not report any lead shot found.

NECROPSY:
External Examination

There appears to be a penetrating wound in the right wing tip. The area of skin underlying and surrounding the area of puncture wound is rather necrotic. Some hemorrhage and evidence of spread of infection and/or gangrene.

Internal Examination

Musculoskeletal system: There is normal amounts of subcutaneous fat along the breast and other areas of the body. This fat appears to be in fairly normal shape and not undergoing appreciable atrophy. Breast muscle appears reasonably normal.

Cardiovascular system: Heart - The coronary fat is starting to undergo serous atrophy. This is indicated by its reddened, more fluid consistency. There is excess fluid within the pericardial sac. This is kind of straw colored material but shows no pus or fibrin. Heart itself appears fairly normal. No infarctions noted in the myocardium. Blood clot is of normal consistency.

Respiratory system: The lungs and air sacs are both NSF. Trachea is also NSF.

Digestive system: No indication of impaction of the esophagus in this bird. No food items are noted in the gizzard. The gizzard lining is a light green coloration due to bile. There is no lead shot present only some normal grit is observed. The gizzard lining is slightly hyperkeratotic. The liver is normal size and coloration. There is an occasional, small, white foci noted. Small intestine is pretty normal in color and feces present in the lumen is normal. Gall bladder is fairly large and contains a moderately thick green bile. Spleen-approximately twice normal size.

Spleen had prominent lymphoid follicles.

Urogenital system: Kidneys - NSF.
 PRELIMINARY DX: Euthanasia/Cripple

BACTERIOLOGY: Liver RC - No bacterial growth.

TOXICOLOGY: Liver lead - 4.7 ppm wet wt., 18 ppm dry wt.

AGE:	Adult	P.M. STATE:	Good	PHOTOS:
SEX:	Male	BODY CONDITION:	Good	
BACTERIOLOGY		VIROLOGY		TOXICOLOGY
Liver - R.C. ✓				Liver-Pb ✓
HISTOLOGY				
PARASITOLOGY	OTHER			CARCASS DISPOSAL: INCINERATED _____
				HELD _____

FINAL DIAGNOSIS: Cause of death - GUNSHOT - poor condition related to previous Gunshot wound and sublethal lead toxicosis

NATIONAL WILDLIFE HEALTH LABORATORY—NECROPSY REPORT

CASE NO. 5072-004

SUBMITTER'S NAME & ADDRESS

Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68
 Sumner, MO 64681

TELEPHONE NO.

COLLECTED: 12/6/84
 RECEIVED: 12/10/84
 EXAMINED: 12/10/84
 FINALIZED:
 PROSECTOR: RKS

SPECIES:

Canada Goose (Ref. #33570-4)

SPECIMEN:

Carcass

WEIGHT:

2650 (minus feet which had been removed)
 (GRAMS)

PRESERVED BY:

feet which had been removed

HISTORY SUMMARY:

WILD/CAPTIVE

FOUND DEAD/EUTHANIZED

History indicates that this bird was hit on the head. Owner of hunter-killed goose processing plant reported many geese have impacted esophagi. Refuge biologists did not report any lead shot found.

NECROPSY:

Internal Examination

Musculoskeletal system: There is severe breast muscle atrophy. There is almost complete lack of any trace of subcutaneous fatty tissue. There are no fat deposits in the body cavity. The heart is very flaccid and all coronary fat has undergone serous atrophy. All internal organs and muscle appear to be somewhat pale or anemic. The blood does not clot normally. It is a reddish coloration perhaps indicating anemia.

Respiratory system: Lungs, trachea, and air sacs - NSF.

Digestive system: The posterior portion of the esophagus is impacted with rotting leafy vegetation and a few corn kernels. There is necrosis of the epithelial surface of the esophagus. The gizzard lining is bile stained and hyperkeratotic. There is a single, well worn lead shot present in the gizzard. The small intestine is moderately dilated with a fowl smelling, dirty, muddy granular content. The small intestine is reasonably atrophied. The liver shows no signs of any foci, very atrophied being approximately a third normal size. Gall bladder is fairly large and contains reasonably thick bile.

Urogenital system: Kidneys - NSF. There is no fat covering the kidneys.

PRELIMINARY DX: Emaciation (suspect lead poisoning)

TOXICOLOGY: Liver lead - 16 ppm wet wt., 69 ppm dry wt.

AGE:	P.M. STATE:	PHOTOS:
SEX:	BODY CONDITION:	
BACTERIOLOGY	VIROLOGY	TOXICOLOGY Liver - Pb ✓
		HISTOLOGY
PARASITOLOGY	OTHER	CARCASS DISPOSAL: INCINERATED _____ HELD _____

FINAL DIAGNOSIS: *Cause of death is trauma to head
 Emaciation due to lead toxicosis*

NATIONAL WILDLIFE HEALTH LABORATORY—NECROPSY REPORT

CASE NO. 5072-005

SUBMITTER'S NAME & ADDRESS

Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68
 Sumner, MO 64681

TELEPHONE NO.

COLLECTED: 12/5/84
 RECEIVED: 12/10/84
 EXAMINED: 12/11/84
 FINALIZED:
 PROSECTOR: RKS

SPECIES:

Canada Goose (Ref #33570-5)

SPECIMEN:

Carcass

WEIGHT:

(GRAMS) Not taken because feathers & feet are missing.

PRESERVED BY:

HISTORY SUMMARY:

WILD/CAPTIVE

FOUND DEAD/EUTHANIZED

Owner of hunter-killed goose processing plant reported that many geese have impacted esophagi. Refuge biologist report no shot found.

NECROPSY:

Internal Examination

Musculoskeletal system: There is moderate breast muscle atrophy. No subcutaneous fat. There is obvious severe impaction of the esophagus. The lining of the esophagus is necrotic. There is subcutaneous hemorrhage in the upper one-third of the neck. The esophagus itself is impacted. Starting from the thoracic inlet, a non-descriptive necrotic debris mixed with grit and what appears to be soybeans is noted. Following the soybeans is a layer of corn and following the corn is a layer of grass. Following the grass is a layer of small unidentified seeds. A small amount of freshly ingested grass is the top of the column. On removal of the contents, there is severe fibrinoid necrotic membrane over the entire surface of the esophagus. This extends down into the thoracic inlet. The esophageal necrosis is confined to that portion of the esophagus anterior to the thoracic inlet. The portion of the esophagus extending into the body cavity appears somewhat normal, and does not have the characteristic necrotic surface. The gizzard lining is very roughened and hyperkeratotic. There are areas of sloughing gizzard mucosa and it is bile stained. Lesions of gizzard worms are present, fairly extensive, around one of the pads. No lead shot is present in the gizzard. Liver was shrunken and gall bladder was fairly large. Small intestine undergoing autolysis. Respiratory system: No significant findings (NSF).

Cardiovascular system: Severe serous atrophy of all the coronary fat. Myocardium and blood clot are normal.

PRELIMINARY DX: Impaction (suspect soybeans)

TOXICOLOGY: Liver lead - 1.4 ppm wet wt., 5.9 ppm dry wt.

BACTERIOLOGY: Esophagus - R.C.: Mixed coliform growth
 F.C.: Mucar sp., Aspergillus niger

AGE:		P.M. STATE:	Fair	PHOTOS:	
SEX:	Male	BODY CONDITION:	Poor		
BACTERIOLOGY	Esophagus R.C. & fungus culture	VIROLOGY		TOXICOLOGY	Liver-Pb
				HISTOLOGY	Esophagus
PARASITOLOGY		OTHER		CARCASS DISPOSAL:	INCINERATED _____ HELD _____

FINAL DIAGNOSIS: *Cause of death - gunshot (hunter killed)*
Emaciated condition due to severe necrotic esophagitis originating from Soybean impaction

NATIONAL WILDLIFE HEALTH LABORATORY—NECROPSY REPORT

CASE NO. 5072-006

SUBMITTER'S NAME & ADDRESS

Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68
 Sumner, MO 64681

TELEPHONE NO.

COLLECTED: 12/2/84
 RECEIVED: 12/10/84
 EXAMINED: 12/11/84
 FINALIZED:
 PROSECTOR: RKS

SPECIES:

Canada Goose (Ref #33570-6)

SPECIMEN:

Carcass

WEIGHT:

(GRAMS)

PRESERVED BY:

HISTORY SUMMARY:

WILD/CAPTIVE

FOUND DEAD/EUTHANIZED

Owner of hunter-killed goose processing plant reported that many geese have impacted esophagi. Refuge biologist report no shot found.

NECROPSY:

Internal Examination

Musculoskeletal system: There is a prominent keel indicative of breast muscle atrophy of moderate proportions. The subcutaneous fat has undergone atrophy and there are only remnants of yellowish fat present at the knees. The mesentery fat is gone except for small, yellowish deposits. The esophagus shows necrosis of the surface. This is characterized by severe, large areas of necrosis with fibrinous adhesions throughout. There is a small amount of corn and some vegetation present in the esophagus. The major damage to the esophagus is in that portion of the esophagus extending from the thoracic inlet distally and does not include that portion of the esophagus going from the thoracic inlet to the gizzard. The gizzard pads are somewhat hyperkeratotic but are yellow stained and not typically green. There are no lead shot present. The liver is normal size. The gall bladder is fairly large and filled with bile. Kidneys are of no significant findings (NSF). Intestinal tract - NSF.

PRELIMINARY DX: Suspect esophageal soybean impaction.

TOXICOLOGY: Liver lead - 1.3 ppm wet wt., 5.7 ppm dry wt.

BACTERIOLOGY: Liver R.C. - Mixed coliform growth
 F.C. - Heavy growth Aspergillus niger

AGE:
SEX:

P.M. STATE:
BODY CONDITION:

PHOTOS:

BACTERIOLOGY

VIROLOGY

TOXICOLOGY

Liver lead -

HISTOLOGY

PARASITOLOGY

OTHER

CARCASS DISPOSAL: INCINERATED _____
 HELD _____

FINAL DIAGNOSIS: *Cause of death - gunshot (hunter killed)
 cause of emaciated condition due to severe necrotic esophagitis/impaction
 originating from Soybean impaction*

SUBMITTER'S NAME & ADDRESS

Terry Root
 Assistant Refuge Manager
 Swan Lake NWR
 Box 68

TELEPHONE NO.

COLLECTED: 12/5/84
 RECEIVED: 12/10/84
 EXAMINED: 12/11/84
 FINALIZED:
 PROSECTOR: RKS

SPECIES: Summer, MO 64681 SPECIMEN: Canada Goose (Ref #33570-7) WEIGHT: Carcass-No weight taken (GRAMS) PRESERVED BY:

HISTORY SUMMARY: WILD/CAPTIVE FOUND DEAD/EUTHANIZED
 Hunter-killed bird. It is partially picked and legs removed.

NECROPSY:

Internal Examination

There are multiple pellet wounds in the body. There is severe breast muscle atrophy. There is a very large mass, approximately 10 cm long x 6 to 8 cm wide. This mass is dilated esophagus which is impacted with a mass of rotting vegetation and corn. There are occasional, what appears to be, remains of soybeans present within this mass. The mass has a rather characteristic silage odor. The surface of the esophagus is blackened and has a thick, fibrinous adhering necrotic membrane over the surface. The portion of the esophagus that is affected is the portion extending from the thoracic inlet, approximately one-third the lower portion of the neck. Inside the thoracic inlet, the esophagus is more normal. The gizzard lining is normal. There is no lead shot present. Small intestine has feces which are pasty in consistency. The gall bladder is very large. The liver is normal size. There are some areas of slight reddish foci present on the liver. Kidneys are of no significant findings (NSF).

PRELIMINARY DX: Severe esophageal impaction/necrotic esophagitis

TOXICOLOGY: Liver lead - .69 ppm wet wt., 2.9 ppm dry wt.

BACTERIOLOGY: Esophagus R.C. - Mixed bacterial growth, Coliforms & Enterococci sp.
 F.C. - Heavy growth Aspergillus niger

AGE: Immature	P.M. STATE: Fair	PHOTOS: Taken
SEX: Male	BODY CONDITION: Poor	
BACTERIOLOGY: Esophagus - R.C. & F.C.	VIROLOGY	TOXICOLOGY: Liver - Pb
		HISTOLOGY: Esophagus
PARASITOLOGY	OTHER	CARCASS DISPOSAL: INCINERATED _____ HELD _____

FINAL DIAGNOSIS: *cause of death - gunshot (hunter killed)*
Emaciated condition due to necrotic esophagitis resulting from soybean impaction.