

STATE OF MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES  
WILDLIFE DIVISION  
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SUMMARY OF PATHOLOGIC CONDITIONS  
OBSERVED IN PUT-TAKE PHEASANTS - 1981

by  
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The Wildlife Pathology Laboratory monitored the health status of put-take pheasants at both the Breeder and Hatchery Unit and Rearing Unit during the production year 1981 (March-December) to detect diseases and other conditions which might threaten the success of the put-take program. In the monitoring effort, sick and dead pheasants were collected and examined by the Wildlife Pathology Laboratory each week. Necropsy results have been tabulated for each of the units following the descriptions of these findings.

BREEDER AND HATCHERY UNIT

Trauma

Traumatic deaths are due to physical injuries such as broken necks, fractured ribs, ruptured livers, cannibalism, breeding activities, etc.

Pneumonia

Pneumonia is characterized by infection and edema of the lungs. It is a common sequel of other debilitating disease conditions. In monitoring the health of the pheasant flocks, we attribute death to pneumonia only when no other overriding cause is detected.

Enteritis

The term refers to an inflammation of the intestine whether it is caused by an infectious agent or a toxic irritant.

Pulmonary Edema and Congestion

Pulmonary edema and congestion is an accumulation of a watery fluid and blood in the lung tissue. These products can be expressed by squeezing the affected tissue. Causes of edema and congestion are varied, but a failing heart muscle is one cause.

Intussusception

Intussusception is the infolding of one segment of the intestine within another. It can be caused by excessive peristaltic movement which forces a segment of the bowel inside the segment below it. Interference of the blood flow causes venous stasis, edema, and adhesive inflammation. This binds the intestinal layers together and leads to necrosis and gangrene.

### Torsion

Torsion is the twisting of an organ (usually the intestinal tract) upon itself or around its long axis. The twisted portion of tract usually becomes blood-filled and death occurs shortly thereafter.

### Starvation and/or Dehydration

Starvation and dehydration are seen in birds of all age groups. Intraspecific competition often results in the inability of some birds to obtain food and water. Usually smaller and less competitive birds are found dead due to starvation and/or dehydration. Birds are generally in poor physical condition with very little gizzard and crop contents, and with shrunken intestinal tracts.

### Keratitis

Keratitis is an inflammation of the cornea of the eye. This may be caused by bacterial, viral or fungal agents, by dust, or by some type of traumatic injury.

### Leukosis Complex

Avian leukosis is a group of diseases which are characterized by autonomous proliferation of leukocytes (white blood cells) and their precursors. This was formerly known as leukemia. Diseases which are categorized under this complex are fowl paralysis, fowl leukosis, erythroblastosis, myeloblastosis, lymphometosis, myelocytomastous, and nephroblastoma.

### No Diagnosis

Birds for which no diagnosis could be given for a cause of death exhibit no gross lesions and are in good to excellent physical condition with subcutaneous and visceral fat deposits present. Fecal samples from these birds are examined for parasites using the direct smear technique and generally found to be negative. If any parasites are found, they are present in insignificant numbers.

## REARING UNIT

### Air Sac Infection

Air sac infection is most common in chicks and is characterized by a collection of fibrin and serum on the membranes forming the air sacs and pericardium, giving the membranes a wet, milky appearance. Escherichia coli is the bacterium most often cultured from these cases. Infections are controlled through strict sanitation in the hatchery, production of vigorous chicks, and judicious medication.

### Omphalitis

Omphalitis or navel infection occurs in newly hatched chicks and stems from a failure of the navel opening to close or become sealed properly, thus allowing infectious bacteria to gain access to the internal organs. Clinical signs in a chick are an inflamed and wet navel opening that fails to close for several days and a distended abdomen which makes the chick feel flabby when handled. An unabsorbed yolk sac is often present. There is no good treatment for the condition; consequently, the main defenses against the disease are strict sanitation and production of vigorous chicks.

### Septicemia

A septicemia is a bacteria-induced disease whereby the bacteria enter the animal's body, rapidly increase in numbers in the bloodstream and produce tissue damage throughout the body.

### Coccidiosis

Coccidiosis is an infectious protozoal disease that probably has the greatest potential of any common poultry disease for causing devastating losses through mortality and unthrifty chicks in an intensive production program such as is in operation at the pheasant rearing unit. Destructive outbreaks of coccidiosis can occur in young pheasants raised under stressed, crowded situations, and in the absence of adequate preventative medication. The organism is very resistant to environmental elements; consequently, contaminated rearing houses and pens remain potential sources of infection to each new group of pheasants occupying them. The disease is controlled by enforcing strict sanitary practices and incorporating a coccidiostat in the feed. Severe infections with coccidiosis result in destruction of the lining of the intestine. Diagnosis is based on the presence of coccidial bodies in the intestinal tissues or fecal smear examined under a microscope.

### Aspergillosis

Aspergillosis is a disease involving the lungs and air sac membranes and is caused by the fungus Aspergillus fumigatus. Fungal spores are widely distributed in moldy vegetable matter. Extensive outbreaks of the disease appear to be associated with moldy litter or feed. Lesions observed are white, thickened air sac membranes, white raised nodules or plaques on the membranes, and occasionally a blue-gray mold which constitutes the fruiting bodies of the fungus.

### Syngamiasis

Syngamiasis is an infection caused by the gapeworm Syngamus sp. The gapeworm inhabits the wall of the trachea, causing respiratory disturbances (coughing and breathing difficulty). If the infection is untreated, death may occur.

### Unabsorbed Yolk Sac

Unabsorbed yolk sacs are usually observed in chicks less than two weeks of age. The chicks are unable to utilize their yolk sacs and either fail to eat or have a less-than-normal food intake. The yolk sac will frequently rupture, spreading yolk-like material throughout the thoracic and abdominal cavities.

### Starvation and/or Dehydration

See under BREEDER AND HATCHERY UNIT

### Stress from Moving

Higher than normal mortality is frequently observed the first few days following the moving of a hatch of birds from one unit to another or from one pen to another. These losses are generally attributed to an inability by the birds to locate feeders and waterers plus the stress involved in being moved from one pen to another. These birds are in very good physical condition and are not suffering from chronic starvation or dehydration.

### Exposure

Pheasants dying from exposure are generally in good physical condition with empty crops and gizzards, enlarged gall bladders (sign of digestive stasis) and shrunken intestinal tracts. Deaths are associated with wet, sometimes cold, weather and muddy range pens. The birds' physical conditions are similar to those dying from the stress of moving -- only the events preceding mortality are different.

### Impacted Gizzard

Impacted gizzards are seen in pheasants that have not adapted to the feeder locations following a move from one pen to another. The impacted material is usually wood chips used for litter on the floor.

### Trauma

See under BREEDER AND HATCHERY UNIT

### Hatching Defects

These are chicks hatched with defects such as a twisted neck or dislocated legs.

### Peritonitis

A peritonitis is an inflammation of the peritoneum in response to an infectious agent. This bacteria may be part of the normal flora or may be introduced by an injury to the peritoneum.

### Enteritis

See under BREEDER AND HATCHERY UNIT

### Pericarditis

Pericarditis is an inflammation of the pericardium due to a traumatic injury and/or an infection. This is a common finding in many infectious diseases.

### Hepatitis

Hepatitis is an inflammation of the liver that can be caused by viral and bacterial agents, parasites, or organic and inorganic toxic substances.

### Arthritis

Arthritis is an inflammation of a joint. The inflammation may be acute or chronic and the type of reaction is classified according to the exudate (serous, fibrinous, suppurative, hemorrhagic, gangrenous) produced. This specific case involved a bacterial infection.

### Dermatitis

Dermatitis is an inflammation of the skin that is characterized by various types of exudate (serous, papular, suppurative, necrotic, parasitic).

### Visceral Gout

Visceral gout is a condition in which crystals of urates are deposited in the tissues. The liver and heart are the organs usually affected. The lesions appear as white streaks on the surface of these organs and the cause of this disease is probably a Vitamin A deficiency.

### Intestinal Tract Obstruction

Intestinal obstructions are usually accumulations of urates in the large intestine which prohibit the normal passing of fecal material through the intestinal tract. Dried fecal material attached to the feathers around the anus may also cause a blockage.

### Improperly Healed Navel

When chicks are assisted from their eggs by the hatchery personnel, the umbilical cord may be broken and bleeding occurs. When the navel does not heal properly the bird is less fit and more susceptible to bacterial infections. This cause of death can be differentiated from omphalitis by the absence of a flabby abdomen and enlarged yolk sac.

### Suffocation

When chilled, young birds may huddle in the corners of their pens in order to stay warm. When this occurs, the birds pile on one another, and the ones at the bottom of the pile are likely to suffocate.

### Perforated Stomach or Intestine

A perforated stomach or intestine is the result of a traumatic injury or ingestion of nonfood materials. By either method, a hole or tear results in the wall. If acute, stomach or intestinal contents will be present in the peritoneal cavity; if chronic, there will be inflammatory products throughout the cavity and the perforation will likely be covered by these products.

### Pulmonary Edema and Congestion

See under BREEDER AND HATCHERY UNIT

### Spontaneous Rupture

A rupture is an injury in which the tissues are stretched until the fibers part. In birds the rupture generally is caused by a traumatic injury and involves one of the major blood vessels -- often the aorta. Following the rupture of the vessel, excessive bleeding occurs and the bird dies shortly thereafter.

### Torsion

See under BREEDER AND HATCHERY UNIT

### Circulatory Insufficiency

Circulatory insufficiency results in an accumulation of serous fluid in the body cavities and within the pericardial sac due to heart disease. This fluid can continue to accumulate until the pressure exerted prevents the viscera from performing their normal supportive functions, and death results.

### No Diagnosis

See under BREEDER AND HATCHERY UNIT

## SUMMARY

### Breeder and Hatchery Unit

The total birds examined in 1981 were 44, down from the 54 examined last year. Trauma cases were up once again with the majority of them being caused by breeding activities. The chronic respiratory problem we had in the breeder houses appears to have subsided somewhat with reductions being seen in both the pneumonia and aspergillosis categories. The remaining category changes did not appear to be significant.

### Rearing Unit

The total number of birds examined decreased this year (1,147 in 1980 and 911 in 1981). There were nearly 3,000 more birds produced this year than last, so the percentage of birds examined decreased.

There appeared to be slight reductions in the incidence of air sac infections, omphalitis infections, impacted gizzards, and traumatic injury deaths. Marked reductions were seen in the categories: unabsorbed yolk sacs, stress from moving and suffocation. There were definite increases in the incidence of starvation and/or dehydration, improperly healed navels, and pulmonary edema and congestion. The exposure figures were markedly down in the summary, but there were considerable losses from some of the hatches that died from exposure that we did not examine.

Table 1. Diseases Diagnosed at the Dansville Rearing Unit - 1981

Hatch Number	Hatch Size	Hatch Date	Total Birds Examined	Sex Ratio		Air Sac Infection	Omphalitis	Septicemia	Coccidiosis	Aspergillosis	Syngamiasis	Unabsorbed Yolk Sac	Starvation and/or Dehydration	Stress from Moving	Exposure	Impacted Gizzard	Trauma	Hatching Defects	Peritonitis	Enteritis	Pericarditis	Hepatitis	Dermatitis	Visceral Gout	Intestinal Tract Obstruction	Improperly Healed Navel	Suffocation	Perforated Stomach or Intestine	Pulmonary Edema & Congestion	Spontaneous Rupture	Torsion	Circulatory Insufficiency	No Diagnosis	Arthritis		
				M	F																															
1	5,854	3/10/81	65	35	30																															
2	6,473	3/17/81	23	9	14	3	10		8				12	1	10	11	8																			
3	7,388	3/24/81	52	26	26	1	44		4	1			13	2	2	13	17																			
4	7,038	3/31/81	73	43	30				2				21	2	2	11	11																			
5	7,647	4/1/81	45	21	24				5				6			8	4	1																		
6	7,332	4/14/81	26	14	12	1	5		11				7			1	9																			
7	6,327	4/21/81	56	29	27								12			5	9																			
8	6,039	4/28/81	34	17	17								7			1	8																			
9	6,294	5/5/81	38	23	15								11			7	9																			
10	6,701	5/12/81	64	34	30	1	7						20			26	7	1																		
11	7,080	5/19/81	58	34	24	1	7		1				11			4	8																			
12	6,179	5/26/81	23	19	4			1					19			5	4																			
13	6,543	6/2/81	41	22	19								15			4	6																			
14	6,706	6/9/81	46	27	19	1	6						8			4	5		2																	
15	7,514	6/16/81	29	14	15								13			4	4																			
16	8,026	6/23/81	43	17	26	1	13						10			4	4																			
17	7,474	6/30/81	29	15	14								4			8	7																			
18	7,708	7/7/81	46	28	18	2	6						8			5	6																			
19	8,080	7/14/81	20	9	11								9			2	2																			
20	6,481	7/21/81	22	16	6	3	5						26			3	2																			
21	5,689	7/28/81	49	25	24								3			3	4																			
22	4,557	8/4/81	16	8	8								3			3	3																			
23	3,264	8/11/81	5	2	3								4			4	1																			
24	2,631	8/18/81	8	3	5								3			1	1																			
Totals 1980	155,025		911	490	421	18	131	1	40	1	3	26	271	7	22	157	144	2	2	1	1	1	9	8	22	8	1	11	2	3	0	1	16	1		
Totals	152,530		1,147	550	597	38	153	1		0	0	61	151	39	57	312	193	3	4	5	1	0	1	1	7	19	1	0	0	0	1	32				

Table 2. Diseases Diagnosed at the Breeder and Hatchery Unit - 1981

House Number	Total Birds Examined	Sex Ratio		Trauma	Pneumonitis Pneumonia	Aspergillosis	Enteritis	Pulmonary Edema & Congestion	Intussusception	Torsion	Starvation and/or Dehydration	Keratitis	Leukosis Complex	No Diagnosis
		M	F											
1	5	1	4	1	3								1	
2	0													
3	4	0	4	1		1				1				1
4	14	7	7	8	4		1	1						
5	8	1	7	3	2				1		1	1		
6	8	1	7	3				3						2
Unspecified	0													
Range Pens	5	2	3	2							3			
1981 Totals	44	12	32	18	9	1	1	4	1	1	4	1	1	3
1980 Totals	54	9	45	14	15		1	1						4