

## Duck Diseases

Name of Disease(s)	Etiology	Susceptibility	Clinical signs and lesions	Comments
Aspergillosis	Usually <i>Aspergillus fumigatus</i> .	Young birds are more susceptible than adults	Various CNS signs. Respiratory signs usually precede CNS signs and predominate. A minority develop CNS involvement.	Yellow mycotic nodules often grossly visible in brain. Lesions of aspergillosis in lungs or air sacs, perhaps in conjunctival sac or globes of eyes.
Avian botulism (limberneck)	Ingestion of toxin produced by the bacterium <i>Clostridium botulinum</i>	Most species of birds	Paralytic, often fatal disease, characterized by ascending paresis and paralysis. No gross lesions	Important environmental factors contribute to the initiation of avian botulism outbreaks, then perpetuated by the bird-maggot cycle.
Avian influenza (AI)	Orthomyxovirus (strains vary greatly in pathogenicity).	Turkeys, ducks, pheasants, quail, many wild birds, other poultry.  Not a significant pathogen of ducks. Ducks are believed to be a major reservoir for avian influenza virus.  H5N1 Hong Kong (2002) is lethal for wild waterfowl.	Highly variable. In mild form: often swollen sinuses, ocular or nasal discharge. In severe form: hemorrhages, exudation, focal necrosis in respiratory, digestive, urogenital, cardiovascular, or multiple systems.	Enzootic forms in US usually mild to moderate in severity and involve respiratory system. Egg production declines and shell abnormalities common in turkeys. Most outbreaks of AI in US are in turkeys and ducks.  Hong Kong 2003, first report of HPAI H5N1 causing deaths in resident and migratory water-fowl. 460 geese died from H5N1 in Xinjiang, China (2005). Now also in Europe and Africa.
Avian Paramyxovirus 1 (Newcastle Disease) and other APMV's (4, 6, 8, 9)	Paramyxovirus 1 and other APMV's (4, 6, 8, 9)	Presumably all ages but not recognized clinically other than in laying ducks.  VVND seen in geese in China.	Drop in egg production, birds go into moult. Essex '70 strain will kill experimentally infected ducklings. In geese VVND pathology and high mortality (China).	Rarely diagnosed in ducks. No outbreak reported in ducks during whole of Essex '70 UK epidemic. Exotic NDV in US (Oct 2002-2003, no reports in ducks).
Avian tuberculosis	<i>Mycobacterium avium</i>	All avian species	Round nodules (granulomas) attached to serosa of gut. Focal granulomas in many other organs. Extreme emaciation in advanced cases.	Usually seen in older birds. Can be a problem if established in captive flocks. Causative bacilli readily demonstrated in acid-fast-stained smears of lesions.
Chlamydophilosis/Chlamydiosis (psittacosis, ornithosis)	<i>Chlamydophila psittaci</i> / <i>Chlamydia psittaci</i>	Turkeys, pigeons, ducks, cage and wild birds.	Can be acute, subacute or inapparent. Pericarditis, often adhesive. Also with airsacculitis, fibrinous perihepatitis, splenomegaly, and hepatomegaly.	This is a zoonosis and a public health concern.
Colibacillosis	<i>Escherichia coli</i> septicemia.	Turkeys, chickens, commercial ducks.	Pericarditis, often adhesive.	Often with airsacculitis, fibrinous perihepatitis.

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Duck viral hepatitis type I (DHV-I) Now renamed DHAV-1, DHAV-2 and DHAV-3 identified in China, South Korea & Taiwan	Picornavirus Genus: Avihepatovirus	Ducklings, typically less than 4 weeks old.	Signs: acute onset, short course, high morbidity and mortality. Liver swollen and with many hemorrhages.	Typical lesions in young ducklings almost pathognomonic.  Worldwide incidence. Economically important disease for commercial duck industry.
Duck viral hepatitis type II	Astrovirus	Ducklings up to 6 weeks. Complicated by DHV type I and septicemia. Adults not susceptible.	Liver hemorrhages, swollen kidneys.	As DHV type I, deaths may be slightly slower.  Only reported in UK. May see extensive biliary hyperplasia in liver sections, cf. aflatoxicosis. Also reported in China.
Duck viral hepatitis type III	Astrovirus	Ducklings up to 3-5 wks. Complicated by DHV type I and septicemia. Adults not susceptible.	Liver hemorrhages	As DHV type I, lower mortality, higher morbidity.  Only reported in US.
Duck virus enteritis (duck plague)	Herpesvirus	Mostly adult ducks but also from 2 wks of age. (Also in geese and swans).	Lesions of vascular damage on mucosa of GIT, lymphoid organs & parenchymatous organs: Widespread hemorrhages, severe enteritis. Perhaps elevated plaques in esophagus, ceca, cloaca or bursa. Hemorrhage and/or necrosis in lymphoid rings or discs of gut.	Epizootic losses in waterfowl are suggestive. Typical lesions and inclusion bodies helpful in diagnosis. An exotic, reportable disease.
Eastern equine encephalomyelitis	Alphaviruses	Pheasants, partridges, turkeys, Pekin ducks, quail.	Circling or staggering followed by paralysis. Perhaps blindness in recovered birds. Often high morbidity and mortality.	Microscopic lesions only. Transmitted by mosquitoes.
Fowl cholera (Avian cholera or avian pasteurellosis)	<i>Pasteurella multocida</i>	Water birds, domestic poultry, game birds.	Sick birds appear lethargic or drowsy. Abnormal positions of head and neck. Ataxia, loss of equilibrium.  Lesions of septicemia (hemorrhages and petechiation on serosal surfaces) and multiple foci of necrosis in liver. Birds are often in good body condition.	Acute infections are common and may result in rapid death and 'explosive' die-offs. Chronic infections with lower mortality can also occur.
Goose Parvovirus (GPV) Other names: Derzsy's Disease, Goose influenza, Goose plague,	Parvovirus	In geese & Muscovy ducks only. 0-4 wk. Younger birds more susceptible. High mortality in young goslings (1-10 days). Adults not susceptible, but do respond immunologically.	< 1 wk - anorexia, prostration & rapid death.  Older - anorexia, polydipsia and weakness. Nasal and ocular discharge, head shaking. Eyelids red and swollen, profuse white diarrhea. Survivors may be stunted.  Pale myocardium, congested, swollen liver, spleen & pancreas.	In China since 1956. Eastern Europe & France in 1960's. Not thought to be present in USA - considered a foreign animal disease.

Leukocytozoonosis	<i>Leukocytozoon</i> sp.	Turkeys, ducks, geese, guinea fowl, chickens.	Pallor, splenomegaly, liver degeneration and hypertrophy in some birds. Leukocytozoons visible in blood smears. Schizonts often in liver, spleen, brain.	Outbreaks correspond with hot months when simuliid flies and culicoid midges are numerous; these flies breed in and along water courses. Surviving birds (wild or domesticated) often act as carriers. Signs in birds related to anemia.
Muscovy duck parvovirus	Parvovirus	Young Muscovy ducklings only	Similar to Goose parvovirus, but skeletal muscle maybe pale and more affected.	First in Western France 1989. Also in Japan and Europe. USA 1998. As yet no vaccines available in US.
Muscovy duck reovirus	Reovirus	Young Muscovy ducklings	Increased mortality, weakness, reluctance to move; stunted growth in survivors; acute and subacute lesions include fibrinous pericarditis, tenosynovitis; enlarged liver, spleen +/- multifocal pale spots	Vertical and horizontal transmission.  Main differential is Muscovy duck parvovirus infection- differentiation based on microscopic tendon lesions consistent with viral synovitis present in reovirus infection are absent in parvovirus infection, and degenerative skeletal myopathy lesions present in parvovirus infection are absent in reovirus. Has been detected in US since late 1990's
Renal coccidiosis	<i>Eimeria</i> are species-specific and many cause renal coccidiosis.  Duck: <i>E. boschadi</i> , <i>E. somatarii</i>  Geese: <i>E. truncata</i>  Swan: <i>E. christianseni</i>	Chickens, turkeys, ducks, geese, perhaps in most birds.	Infected birds may be emaciated and have a prominent keel. In severe infections, kidneys may become enlarged and pale, containing multiple spots or foci of infection that coalesce into a mottled pattern.  Most reports of renal coccidiosis are of asymptomatic birds or birds that show minor physiological or pathological changes due to the parasite.	Part of the parasite life cycle occurs in the kidney.  Young birds and those that have been stressed by various conditions are most likely to have clinical cases of renal coccidiosis.  Mortality has occurred in free-ranging wild geese, eider ducklings, and double-crested cormorants.  Disease in domestic geese is usually acute, lasts only 2-3 days, and can kill large segments of the flock.
<i>Riemerella anatipestifer</i>  New duck disease, duck septicemia	<i>Riemerella anatipestifer</i>	Ducks of any age and turkeys. Other waterfowl, chickens and pheasants may also be affected.  2-7 week-old ducks are most susceptible	Ocular and nasal discharges, mild sneezing, tremors of the head and neck, ataxia and coma. Lesions of septicemia, mostly fibrinous exudate on serosal surfaces. Mortality may vary from 2 to 75% in young ducks.	Worldwide, probably the most economically important infectious disease of farm ducks.  Prevention with good biosecurity, husbandry and hygiene, control with depopulation and disinfection of the infected premises. Various antibiotics have been shown to be effective. Vaccines available in some countries.

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Sarcocystis	<i>Sarcocystis rileyi</i>	Macroscopic form observed in dabbling ducks, less frequent in other species of ducks, geese and swans. Most often adult birds.	No a cause of mortality but heavy infection may cause muscle loss and be quite debilitating. Multiple cream-colored, cylindrical cysts resembling rice grains run parallel to the muscle fibers of various muscles.	Common parasitic infection of some species of waterfowl in North America.  <i>Sarcocystis</i> is destroyed by cooking. Affected carcasses should therefore be discarded not only because of the unaesthetic appearance of the muscles but because very little is known about the health hazard to humans.
West Nile virus	Flavivirus	Ducks, geese.	Death in wild birds. Brain hemorrhages, splenitis, splenomegaly, nephritis.	Reported in New York 1999, Israel and Romania. Commercial geese in Canada in 2002, -25% mortality in goslings. Bird to bird transmission reported but mostly transmitted by mosquitoes.
Wet pox	Poxvirus	Most birds, including poultry.	1-5 mm yellow-gray plaques in mucosa of mouth, pharynx, or esophagus. Less often in sinuses or conjunctiva.	Skin lesions often on face, wattles, eyelids, comb, feet, legs, ear lobes, caruncle, snood.