

Management and Diseases of Waterfowl



OSU Advanced Poultry Medicine Workshop
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Ohio ADDL

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https://images.homedepot-static.com/productimages/0331211a7-6c96-4614-8028-a2718389f6add/inv/white-roommates-wall-decal-rmk1512gm-64_1000.jp



Learning Objectives

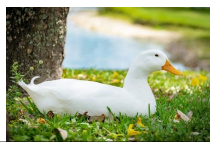
- Identify common backyard waterfowl breeds.
- Understand basic husbandry/housing/nutrition as it relates to waterfowl.
- Be able to create “rough” differential list for most common medical conditions in backyard waterfowl.
- Understand treatment and management of common medical conditions seen in waterfowl.

Are these waterfowl?
Waterfowl: Order anseriformes
Common waterfowl: ducks, geese, swans



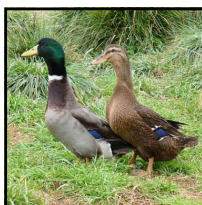
Common Ducks

- Types of domestic duck that originated from the Mallard.
- Different breeds and varieties are capable of mating and producing fertile offspring.
- Frequently seen breeds: Pekin, Asylesbury, Rouen, Call, Indian Runner, Khaki Campbell, and Cayuga



Peking duck

https://www.californiahatchery.com/Pekin-Ducklings_p_8.html



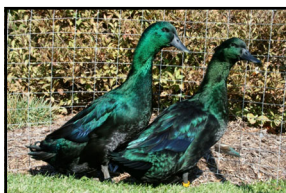
Rouen duck

<https://www.mypetchicken.com/catalog/Waterfowl/Ducklings-Rouen-p2587.aspx>



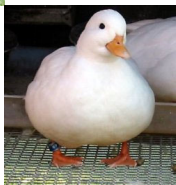
Indian Runner Duck

<https://www.efowl.com/shop/fawn-and-white-indian-runner-ducks-metzer/>



Cayuga Duck

<https://www.purelypoultry.com/cayuga-ducklings-p-616.html>



<https://www.tumblr.com/tagged/call-ducks>

Muscovy Ducks



https://www.allaboutbirds.org/guide/Muscovy_Duck/species-compare/

Sterile Hybrids

- Hybrids of Muscovy ducks and other breeds are sterile.
- Various mixes and combos have been used, with some common ones being: Mule ducks, Hinny, and Moulard
- Lots of color varieties



<https://www.flickr.com/photos/satsuma7/927154422>

Common Breeds of Backyard Geese

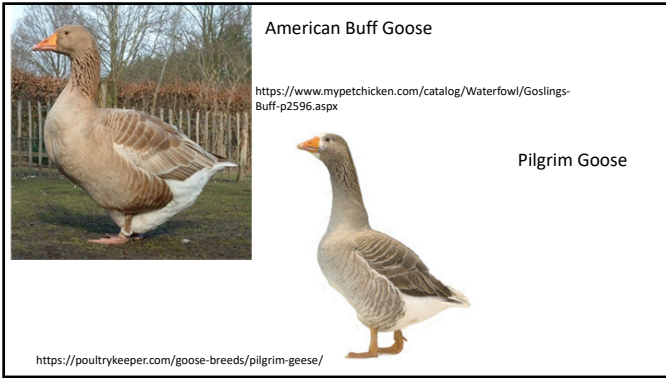


Toulouse

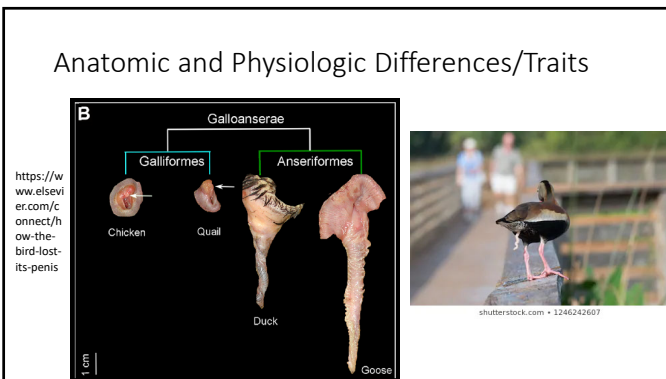
<https://www.cacklehatchery.com/toulouse-geese-not-sexed.html>

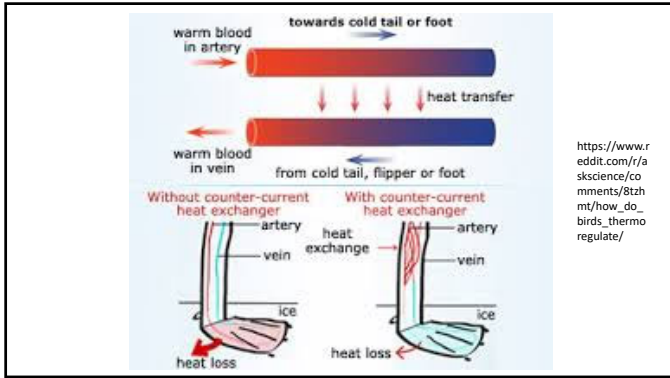


<https://www.purelypoultry.com/embden-geese-p-550.html> Embden









Housing Requirements

Table 2: Floor Space Allowances for Ducks

Age in Days	Space/Duck (sq cm)	Space/Duck (sq ft)
1	289	0.31
2	576	0.62
3	1024	1.10
4	1369	1.47
5	1764	1.90
6	2116	2.28
7	2304	2.48
Developing breeders	2500	2.69
Laying breeders	2809	3.02

<https://www.vet.cornell.edu/animal-health-diagnostic-center/programs/avian-health/housing-management>

Coop Design

- Most coops built for chickens, should also work well for ducks and other waterfowl.
- Need make sure to have enough space, and coop is large enough for taller breeds of waterfowl.
- **DO NOT KEEP POOLS IN COOP AREA.**
- Ensure adequate litter.

<http://thepoultryguide.com/10-duck-house-plans-you-can-build-this-weekend/>

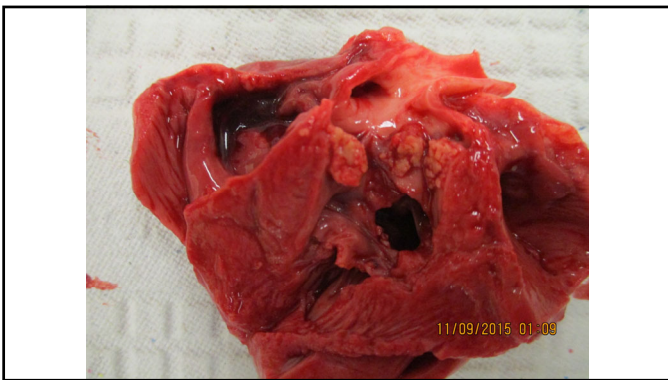
Outdoor run/Access Area

- DUCKS LOVE WATER: Drink significantly more than turkeys or chickens, and hence produce more liquid waste.
- To keep up with the waste, good coop and outdoor access maintenance is required.
- Sand is a good option for outdoor run areas as it drains well and can be replaced easily when overly soiled.
- Waterfowl have more sensitive feet than turkeys or chickens.
- Avoid the following materials for the outdoor run: Pea gravel, wood chips, or straw***.









To Pool or not to Pool.....

How To
Keep Ducks
**Out Of
Your Pool**

<https://poolcareguy.com/how-to-keep-ducks-out-of-pool/>

Appropriate Litter for Waterfowl

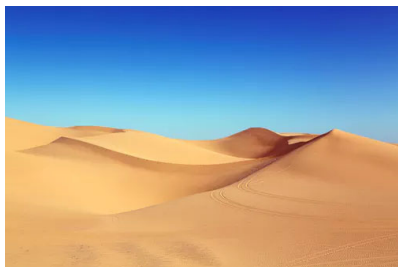
- Litter, regardless of type, should be of appropriate depth.
- Ideal: Minimum of around 3 inches
- Pine shavings easiest to source and the most commonly used.
- Other possibilities include: ground corn cobs, chopped hay, and rice and nut hulls.
- Due to messy nature of waterfowl: frequent replacement litter around waterers and feeders.

Male:Female Ratios and Aggression

- Males generally do well when kept with ONLY other MALES.
- Females generally do well when kept with ONLY other FEMALES.
- Mixing the sexes.....now you may have issues.
- Some ducks will form mated pairs with no signs of aggression.
- General rule for keeping males and females is to run a MINIMUM of 3 hens to every drake.



Appropriate Pen-mates?



Waterfowl Nutrition

- Always recommend a complete and balanced crumble or pellet.
- Young ducklings: First 3 weeks, diet should be around 18-20% protein.
- Young ducks: 4th-13th week, diet should be around 14% protein.
- Laying ducks: Should be placed on layer diet after 14 weeks. Layer diet should be 16-17% protein and contain 3.5-4.5% calcium.
- Male ducks can typically consume a layer diet, without risk of renal issues. They should however be kept away from oyster shells.
- Oyster shells: should be offered to laying hens to maintain calcium levels.
- Fresh/CLEAN/drinking water daily





Common Diseases of Backyard Waterfowl



<https://www.tyrantfarms.com/how-to-build-a-backyard-pond-with-diy-biofilter/>

Aspergillosis

- Typically caused by *Aspergillus fumigatus*
- Young birds more susceptible
- Typical signs: Respiratory predominate (dyspnea, open mouth breathing), followed by CNS signs (non-specific)
- Typical lesions:
 - Lungs: White to yellow plaques and nodules (1mm-several cm diameter)
 - Air ways: May see mycelial fungal plaques
 - Brain: Yellow mycotic nodules
 - Ocular lesions: Rare



<https://thepoultrysite.com/publications/diseases-of-poultry/212/aspergillosis>



Aspergillus cont.

- Outbreaks divided into hatchery and non-hatchery origin.
- Imperative to keep good brooder conditions: avoid wet litter.
- Dx: Straight forward: fungal culture of suspected lesions and histopath.
- Tx: None. Post outbreak make sure to disinfect all pens and bird areas as much as possible with a fungicide.
- Prevention: Incubator maintenance/cleanliness is key for backyard breeders.

Riemerella anatipestifer

- AKA: New duck disease, Infectious serositis, and Pasteurella anatipestifer.
- Gram negative-non sporulating rod similar to *P. multocida*.
- Epidemiology poorly understood. Believed to be transferred via respiratory route and possibly through wounds to the feet.
- Typical age affected: 1-7 weeks
- Clinical Signs: Ocular and nasal discharge, coughing, sneezing, tremors of head and neck, and incoordination.
- Gross lesions: Fibrinous pericarditis and perihepatitis, splenomegaly, and less commonly pneumonia.
- Flock Mortality: Range between 2-50%



<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5095637/>



<https://www.backyardchickens.com/threads/pekin-duck-has-runny-wet-foamy-eyes-sinus-infection.691108/>

Reimerella cont.

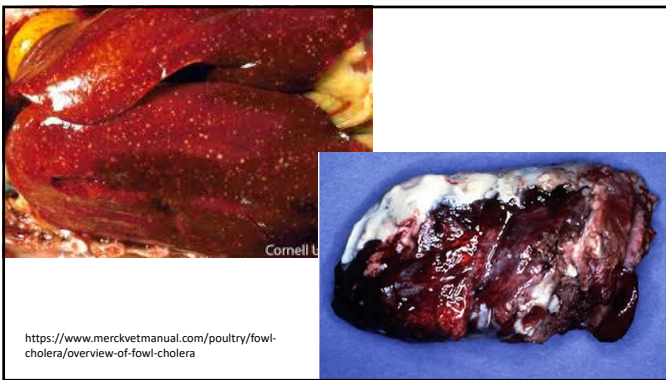
- Dx: Based on clinical and gross findings in conjunction with bacterial isolation (blood agar or chocolate agar)
- Differentials: E.coli (colibacillosis), salmonellosis, and chlamydiosis.
- Prevention: Biosecurity is key! Bacterin and live vaccines are available (not recommended unless dealing with commercial production)
- Treatment: Should be based off antibiotic sensitivity tests. Classic drugs used include: penicillin, streptomycin, and sulfa's.

Pasteurella multocida

- Gram negative ***Bi-Polar Staining*** rod.
- Affects numerous species of poultry (including waterfowl).
- Two general forms
 - Acute Septicemic form (most common)
 - Chronic form
- Geese are highly susceptible
- Can see extensive losses in wild waterfowl
- Recovered birds=carriers
- Various mammals act as vectors: MICE, RATS, Cats, dogs, swine, raccoons, possums, and even pastured ruminants.

Pasteurella cont.

- Clinical signs: may be absent prior to death.
 - First clinical sign may be large numbers of dead birds.
 - May see: depression, anorexia, diarrhea, and increased respiratory rates.
- Gross Lesions: Acute form
 - Petechial and ecchymotic hemorrhages subepicardial and subserosal locations.
 - Increased peritoneal or pericardial fluid
 - Multifocal-necrotic foci in the liver and spleen (subacute)
- Dx: Bacteriology supported by histopath +/- PCR.
- Impression smear affected organs: bipolar staining
- Differentials: E. coli, Salmonella sp., ORT, *Erysipelothrix rhusiopathiae*



Pasteurella cont.

- PREVENTION IS KEY
 - GOOD RODENT/VARMINT CONTROL
 - All in-All out
 - Eliminate Wild Birds
 - Remove other carriers (dogs, cats, livestock)
 - Maintain closed waterers and keep up on feeder/waterer sanitation (contaminated feed and water important source of infection)
 - Vaccines.....maybe.....
- Treatment: Antibiotics will lower mortality, but it will likely resume once treatment is discontinued.
- Elimination: Requires depop, stringent cleaning and disinfection, and removal of potential sources (rodents)



Duck Viral Enteritis

- AKA: Duck plague
- Acute, highly contagious viral infection of ducks, geese, and swans!
- Herpes virus: Inapparent carriers important in transmission
- Issue in both domestic and wild waterfowl
- Spread direct or indirect contact with a contaminated environment (water)
- "Adult" birds die more readily than younger birds

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Photograph / Copyright - Milton Friend
During the 1973 outbreak of duck plague at Lake Andes National Wildlife Refuge in South Dakota, more than 40,000 mallards died.

DVE cont.

- Clinical signs vary by age affected
- Adults: Sudden death, weakness, extreme thirst, soiled bloody vents, prolapsed phallus (males), photophobia, nasal discharge, marked drop in egg production.
- Ducklings: Dehydration, weight loss, cyanotic bills, blood stained vents.










Duck Viral Enteritis

- BREED PREDISPOSITION: Muscovy ducks and Green-winged Teal
- Avoid contact with wild waterfowl
- Post infection → depop, dead bird removal, sanitation, and disinfection
- Vaccines are available (commercial production)

Duck Virus Hepatitis

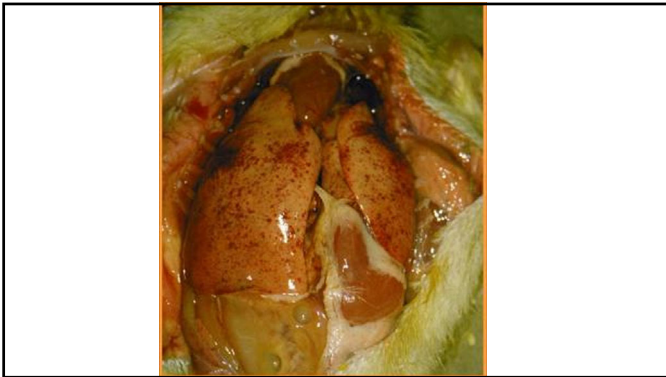


<https://thepoultrysite.com/articles/major-viral-diseases-of-waterfowl-and-their-control>

Duck Viral Hepatitis

- Highly contagious viral disease
- Multiple "types"
- Most common in US is Duck Hepatitis A Virus (DHAV-1)
- Rapid Incubation Period (12-48 hrs)
- Ducklings: lethargic, incoordinated, spasmodic paddling, opisthotonos, and death
- Adult ducks can be infected, but deaths not seen post 7 weeks of age
- No treatment
- Vaccines available
- Good biosecurity (avoid wild waterfowl, rats may act as virus reservoir)





Sarcocystis



<https://huntfish.mdc.mo.gov/hunting-trapping/hunting-diseases/sarcocystis>

Botulism aka Limberneck



<https://www.northeastwildlife.org/disease/botulism>

Honorable Mentions

- Prolapsed vent or phallus
- Egg bound
- Egg yolk peritonitis
- Decreased egg production
- Water belly
- Lead poisoning
- Organophosphates
- Aflatoxins

A DUCK WALKS INTO A BAR ...



"Got any bread?"
"No."
"Got any bread?"
"No."
"Got any bread?"
"No."
"Got any bread?"
"No, and if you ask me again, I'll nail your beak to the bar!!"
"Got any nails?"
"No."
"Got any bread?"

Thank You! Questions????
