Management and Diseases of Waterfowl

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

Indian Runner Duck

Cayuga Duck

Call duck
https://www.tumblr.com/tagged/call-ducks
Muscovy Ducks

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

Common Breeds of Backyard Geese

- Toulouese

- Embden
American Buff Goose


Pilgrim Goose

https://poultrykeeper.com/goose-breeds/pilgrim-geese/

Common Breeds of Swan

Mute Swan


Australian Black Swan


Anatomic and Physiologic Differences/Traits

https://www.elsevier.com/cn/how-the-bird-lost-its-penis
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.

https://www.reddit.com/r/astronomy/comments/8tzhmt/how_do_birds_thermo regulate/  

Housing Requirements

**Table 2: Floor Space Allowances for Ducks**

<table>
<thead>
<tr>
<th>Age in days</th>
<th>Space (sq cm)</th>
<th>Space (sq ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>289</td>
<td>0.01</td>
</tr>
<tr>
<td>2</td>
<td>578</td>
<td>0.02</td>
</tr>
<tr>
<td>3</td>
<td>1024</td>
<td>0.10</td>
</tr>
<tr>
<td>4</td>
<td>1369</td>
<td>0.14</td>
</tr>
<tr>
<td>5</td>
<td>1764</td>
<td>0.16</td>
</tr>
<tr>
<td>6</td>
<td>2116</td>
<td>0.20</td>
</tr>
<tr>
<td>7</td>
<td>2334</td>
<td>0.20</td>
</tr>
<tr>
<td>Developing breeders</td>
<td>2500</td>
<td>0.29</td>
</tr>
<tr>
<td>Laying breeders</td>
<td>2699</td>
<td>0.32</td>
</tr>
</tbody>
</table>

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

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

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

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

- 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/
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! Bacterinand 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

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)**

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**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 past 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

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

Thank You! Questions???