LET’S EAT! ENCOURAGING SELF-FEEDING BEHAVIOR IN WATERFOWL
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OUTLINE
- Nutritional Requirements
- Common Food Items
- Food Presentation by Age and Species
- When All Else Fails...

INTRODUCTION
The purpose of this presentation is provide rehabilitators with tips and tools to help encourage self-feeding behavior in injured and orphaned waterfowl species. Waterfowl may not self-feed for a wide variety of reasons including species, food type or presentation, underlying injury or illness or other husbandry concerns. Understanding natural history, diet items, and food presentation methods can help to improve self-feeding behavior even in reluctant self-feeders.

Please remember that any injured or orphaned animal requires calories; if an animal isn’t self-feeding, calories must be provided (for waterfowl this is generally achieved by tube or gavage-feeding). Injured and orphaned wildlife should be weighed regularly. Neonatal waterfowl should be weighed twice daily until self-feeding enough to maintain weight. Injured waterfowl should be maintained at least once daily until self-feeding enough to maintain weight.

COMMON GAVAGE FORMULAS:
- **Ducklings**: Mazuri® nestling hand-feeding formula or soaked blended Mazuri® Waterfowl Starter
- **Goslings and Cygnets**: Lafeber’s Emeraid® Omnivore Avian
- **Ducks**: Soaked blended Mazuri® Waterfowl Maintenance or Lafeber’s Emeraid® Omnivore Avian, Carnivore or Piscivore depending on natural history
- **Geese and Swans**: Soaked blended Mazuri® Waterfowl Maintenance of Lafeber’s Emeraid® Omnivore Avian

NUTRITIONAL REQUIREMENTS
Little is known about the nutritional requirements of wild waterfowl; most of the information available is based on commercial poultry, primarily birds that are used for meat. While nutritional requirements from commercial poultry can be used as a rough guideline for those of wild waterfowl, looking at individual species natural history can often provide better information to help determine what to feed injured or orphaned wild waterfowl. When evaluating the natural history for a particular species, look for types and quantity of food items consumed as well as feeding strategy, or where the bird tends to look for food (dabbling, grazing, diving, etc.) Note that many species of waterfowl select different food items seasonally based on what is available in their environment; this can be important for getting adult waterfowl to eat in captivity.
COMMON FOOD ITEMS

COMMERCIAL DIETS

When managing waterfowl in captivity, some sort of commercial or staple diet is often necessary to minimize cost associated with natural food items. Staple diets are often available in crumble or pellet form; extruded pellets are generally preferred for waterfowl (available in different sizes) as these items float. Ensure that only non-medicated diets are fed to wild waterfowl. Most of the Mazuri® Waterfowl diets are extruded, which means that they float; this allows for natural food presentation as most waterfowl feed on the water.

Staple diets for neonatal waterfowl should be designed specifically for waterfowl (ideally wild waterfowl). Starter diets designed for other species, chickens, game birds, turkeys, etc. often have inadequate vitamin/mineral content or have excessive amounts of protein that, in combination with other management factors can contribute to developmental disorders. There is currently only one brand of feed available in the US that is specifically designed for wild waterfowl species, Mazuri® Waterfowl Starter. Other starter diets may be available regionally as a “duck starter;” keep in mind that these diets may have higher protein content as they are designed for commercial poultry.

Staple diets for adult waterfowl should also be designed specifically for waterfowl. Products designed for wild waterfowl can often be mixed with a “duck pellet” that is designed for commercial poultry. Avoid products designed for chickens, game birds or turkeys; these products often fall short of the nutritional requirements for wild waterfowl as they are designed for commercial poultry. Currently, Mazuri® is the only brand of feed designed specifically for wild waterfowl; the company manufactures several products for adult waterfowl including Waterfowl Maintenance, Waterfowl Breeder, Sea Duck Diet and Sinking Waterfowl Maintenance. Note that all products except the Sinking Waterfowl Maintenance float and can be presented on the water to stimulate natural foraging behavior.

Given the current interest in “pet” or “backyard” poultry, a number of products are available that are marketed as “All Flock” products with the claim that they meet the nutritional requirement for a various poultry species. Keep in mind that each species of poultry has its own unique nutritional requirements and that trying to meet the requirements of a wide variety of species generally means that there will be excesses or deficiencies of at least some of the nutrients in the feed depending on the species actually being fed.

NATURAL FOOD ITEMS

There are a wide variety of natural food items that should be incorporated into wild waterfowl diets; species in care will recognize natural items more readily than commercial products and will more readily consume these items. While many items will need to be purchased, some can be harvested or grown to minimize costs. Please note that wholesale purchasing of aquatic invertebrates is possible with a tax identification number.

<table>
<thead>
<tr>
<th>FOOD ITEM</th>
<th>PRESENTATION OPTIONS</th>
<th>SPECIES AND AGES RECOMMENDED</th>
<th>COMMENTS</th>
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</thead>
<tbody>
<tr>
<td>Duckweed</td>
<td>Floating on water</td>
<td>Ducks and Swans of all ages;</td>
<td>• When freshly harvested from a pond, contains live aquatic</td>
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<tr>
<td>Food Item</td>
<td>Presentation Details</td>
<td>Susceptible Bird Types</td>
<td>Notes</td>
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| Lettuce (romaine, green-leaf, red-leaf) | Can be presented as whole heads on land or in water; can cut in half lengthwise, can also chop finely | Geese and Swans of all ages; certain species of Ducks; generally not preferred by true Sea Ducks | • Geese of all ages prefer whole heads or heads split in half lengthwise  
• Many species of ducks (dabbling ducks, perching ducks, stifftails, pochards and some mergansers) will also consume either whole or split heads of lettuce  
• Can offer chopped greens to debilitated birds  
• Blenderized lettuce is often not readily consumed |
| Grass | Best presented as lawn, picked grass can also be presented but must be consumed within a few hours of presentation | Geese of all ages; can cause sublingual impactions in swans; not readily consumed by ducks as not part of natural diet | • Ensure not treated with chemicals |
| Aquatic Invertebrates (Bloodworms, Mysis shrimp, Brine shrimp, Tubifex worms, Daphnia, Plankton) | Available frozen, freeze-dried or sometimes live (many aquatic invertebrates also contained on duckweed); always presented on the water | Ducks of all ages; cygnets | • Freeze-dried products float on the water surface  
• Frozen products tend to sink in the water  
• Live items will move throughout the water |
| Krill | Available frozen or freeze-dried | Ducks of all ages > 2 weeks (can chop) | • Freeze-dried not recommended  
• Frozen product sinks |
| Live Insects (mealworms and crickets) | Available in varying sizes, require gut-loading prior to feeding | Ducks of all ages; feed smaller sizes to younger birds | • Optimum Ca:P ratio  
• Mealworms generally preferred for waterfowl as they float on the surface of the water while crickets can easily escape most enclosures  
• Small mealworms often used to stimulate feeding; can be floated on water or mixed into dishes of dry food; once self feeding on more affordable items can wean from mealworms, particularly for species that readily eat in captivity, i.e. mallards |
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<tbody>
<tr>
<td>White Millet</td>
<td>Available in bags; avoid commercially available millet sprigs</td>
<td>All adult waterfowl species; rarely consumed by some species of true Sea Ducks</td>
<td>• Some floats on the surface of the water and some sinks; can be fed on water and also in dishes</td>
</tr>
</tbody>
</table>
| Fish                                 | Available frozen (requires supplementation) and live | Generally reserved for mergansers (small ducklings will consume live fish readily provided fish is appropriately sized) | • Frozen fish require supplementation (see NWRA Wildlife Formulary)  
• Live fish preferred by mergansers; most true Sea Ducks are not designed to catch live fish  
• Frozen fish should not be allowed to sit in the water for more than 1 hour as can oil the water surface |
| Miscellaneous Items                  | Fish Roe, Clams, Mussels | Generally reserved for true Sea Ducks (adults) | • Not commonly fed in captivity due to expense and difficulty obtaining natural species consumed; if dealing with large numbers of Sea Ducks can procure and offer to adults in the water as part of their live prey assessment; consider thiamin supplementation if product is frozen and contains thiaminase |

**FOOD PRESENTATION BY AGE AND SPECIES**

When offering food to reluctant eaters, it is essential to understand where the bird is most likely to look for food in the water “stratosphere” and then to understand where most of the food offered is likely to fall within the water stratosphere.
To establish self-feeding behavior, food items need to be presented in as natural a way as possible; this may not be possible due to a bird's injuries or condition. Whenever possible, food items should be presented in or on water as most waterfowl (ducks and swans) feed almost exclusively on the water (geese, however, tend to spend the majority of their foraging time on land). When presenting food on large ponds or wet brooders is not possible, white, shallow containers should be utilized to increase food recognition and easy access. Larger bodies of waterfowl require tip-proof feeding dishes; swans may benefit from being fed out of a 5-gallon bucket (provided swan is mentally appropriate and ambulatory). If a particular bird isn't self-feeding with a given setup, try another setup with different feeding and watering options. While dry dishes of a commercial diet can be offered and are often essential for large clutches of orphaned waterfowl, feeding a mixture of staple items and natural items on the water surface often helps reluctant eaters to start self-feeding. Overall husbandry provided to waterfowl will contribute to self-feeding behavior; birds are much less likely to self-feed if not provided the appropriate food items in the right way in the right environment.

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Location found within water Stratosphere</th>
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<tbody>
<tr>
<td>Mazuri® Commercial diets</td>
<td>Water surface (except for Sinking Waterfowl Maintenance)</td>
</tr>
<tr>
<td>Other Commercial diets</td>
<td>Unless extruded will often dissolve in water and tend to form mushy, sometimes oily paste on the bottom of the water</td>
</tr>
<tr>
<td>White Millet</td>
<td>Some will float on water surface; some will sink</td>
</tr>
<tr>
<td>Freeze-dried Aquatic Invertebrates and Krill</td>
<td>Water surface</td>
</tr>
<tr>
<td>Frozen Aquatic Invertebrates and Krill</td>
<td>Sink</td>
</tr>
<tr>
<td>Lettuce</td>
<td>Whole and half-heads float on water surface; chopped greens may start to sink</td>
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<tr>
<td>Duckweed</td>
<td>Water surface; aquatic invertebrates found within duckweed often stay towards the surface</td>
</tr>
<tr>
<td>Live Insects</td>
<td>While alive, will float on surface; once drowned, will sink</td>
</tr>
<tr>
<td>Fish</td>
<td>Live fish will swim throughout the water stratosphere; frozen fish tend to sink</td>
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</tbody>
</table>

**WHEN ALL ELSE FAILS**

If appropriate husbandry is being provided and a bird is still not self-feeding, the following things need to be taken into consideration:

- **Ongoing Pain or Illness**
  - Animals that are in pain are often reluctant to self-feed; the provision of appropriate analgesia (often multi-modal with an NSAID and an opioid; gabapentin may also be indicated in cases of potential neuropathic pain) can help animals self-feed.
  - A fecal exam (ideally three exams on three consecutive days) should be performed as part of every animal intake plan; animals with parasite infection can be reluctant self-feeders.

- **Loneliness**
- Waterfowl are generally social birds; same-species conspecifics should be provided whenever possible. When this isn’t possible a bird of a closely related species can often be useful; careful monitoring is required whenever introducing two birds together.
- When wild conspecifics aren’t available, consider captive-bred conspecifics (if available and legal in your state)
- As a last resort, a mirror or a stuffed animal can be used

**Inappropriate Husbandry**
- Even with the best intentions, not every rehabilitator is going to have the optimum setup for wild waterfowl, especially for sensitive species like wood ducks, mergansers and sea ducks. In-ground ponds are essential to successful waterfowl rehabilitation; if medically appropriate waterfowl should be allowed access to swimming water as this greatly increases the likelihood that they will self-feed. Some birds will not feed out of dishes or kiddie pools
- If an in-ground pond or wet brooder isn’t available, consider transferring the bird to a more appropriate facility

**Stress**
- Wild waterfowl that are surrounded by predators (mammals, raptors) are less likely to self-feed if they feel they are constantly on the look out.
- Even human noise or interaction can deter self-feeding
- Waterfowl should be housed in their own room whenever possible and a sound machine should be used to drown out other noises that may contribute to stress

**Last Resorts**
- In rare cases, pharmaceuticals can be used to stimulate self-feeding. These are almost never used for this purpose in waterfowl but are a possibility. Drugs commonly used as appetite stimulants are diazepam and midazolam (see the NWRA Wildlife Formulary for specifics)
- Depending on species and facility limitations, transfer to a more appropriate facility or to a facility with conspecifics should be considered
- In some cases, euthanasia may be the most humane option for the patient

For questions or comments, please email Michele@webbedfootwildlife.org