EVERYTHING BIRD

By Kaitlan Adkins and Tonya Weil
from Wild at Heart Wildlife Sanctuary

License & Regulations

US Fish and Wildlife Services License Categories:

- Songbirds/ passerines
- Waterfowl
- Marsh birds
- Wading birds
- Shorebirds
- Seabirds
- Raptors
- Eagles

Migratory Bird Treaty Act, the U.S. Fish and Wildlife Service issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (**rehabilitation, educational**, migratory game bird propagation, and **salvage**), take of depredating birds, taxidermy, and waterfowl sale and disposal.

License & Regulations Continued

Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service.

License & Regulations Continued

How do I apply for a migratory bird rehabilitation permit?

- You must apply to the appropriate Regional Director - Attention Migratory Bird Permit Office. You can find addresses for the appropriate Regional Directors in § 2.2 of subchapter A of this chapter. Your application package must consist of the following:
- (1) A completed application **(Form 3-200-10b);**
- (2) A copy of your State rehabilitation permit, license, or other authorization, if one is required in your State; and
- (3) A check or money order made payable to the "U.S. Fish and Wildlife Service" in the amount of the application fee for permits issued under this section listed in § 13.11 of this chapter.

License & Regulations Continued

What criteria will the Service consider before issuing a permit?

- (1) Upon receiving an application completed in accordance with paragraph (c) of this section, the Regional Director will decide whether to issue you a permit based on the general criteria of § 13.21 of this chapter and whether you meet the following requirements:
- (i) You must be at least 18 years of age with **at least 100 hours of hands-on experience, gained over the course of at least 1 whole year**, rehabilitating the types of migratory birds you intend to rehabilitate (e.g., waterbirds, raptors), or comparable experience. Up to 20 hours of the 100-hour time requirement may be fulfilled by participation in migratory bird rehabilitation seminars and courses.

License & Regulations Continued

Disposition of birds under your care.

- (i) You must take every precaution to avoid imprinting or habituating birds in your care to humans. If a bird becomes imprinted to humans while under your care, **you will be required to transfer the bird** as directed by the issuing office.
- You **may not** retain migratory **birds longer than 180 days** without additional authorization from your Regional Migratory Bird Permit Office. If the appropriate season for release is outside the 180-day timeframe, you must seek authorization from your Fish and Wildlife Service Regional Migratory Bird Permit Office to possess the bird until the appropriate season.

License & Regulations Continued

- You must euthanize any bird that cannot feed itself, perch upright, or ambulate without inflicting additional injuries to itself where medical and/or rehabilitative care will not reverse such conditions. You **must euthanize** any bird that is completely blind, and any bird that has sustained injuries that would require amputation of a leg, a foot, or a wing at the elbow or above (humero-ulnar joint) rather than performing such surgery, unless:
  - regulations that would continue the bird to education permit
- This permit does not confer ownership of any migratory bird. All birds held under this permit remain under the stewardship of the U.S. Fish and Wildlife Service.

License & Regulations Continued

Notification to the U.S. Fish and Wildlife Service.

- (i) You must notify your issuing Migratory Bird Permit Office within 24 hours of acquiring a threatened or endangered migratory bird species, or bald or golden eagle, whether live or dead. You may be required to transfer these birds to another facility designated by the Service.

Notification to NC Wildlife Commission

- If the bird is already on your permit, no action. If it is not contact Wanda Mugo

License & Regulations Continued

Recordkeeping

- You must maintain complete and accurate records of all migratory birds that you receive, including for each bird the date received, type of injury or illness, disposition, and date of disposition. You must retain these records for 5 years following the end of the calendar year covered by the records.

Annual report

- You must submit an annual report that includes the information required by paragraph (e)(7) for the preceding calendar year to your issuing Migratory Bird Permit Office by the date required on your permit. You may complete Service Form 3-202-4, or submit your annual report from a database you maintain, provided your report contains all, and only, the information required by Form 3-202-4.

USFWS Resources

Permit Program Overview:

- https://www.fws.gov/birds/policies-and-regulations/permits/need-a-permit.php

Migratory Bird Permits Rules & Regulations:

- https://www.ecfr.gov/current/title-50/part-21

Program Office Contacts & Regions:

- https://www.fws.gov/birds/policies-and-regulations/permits/regional-permit-contacts.php

Recordkeeping Resources

Being able to keep accurate records is not only a legal requirement, it helps you better care for your patients!

WRMD - Wildlife Rehabilitation MD

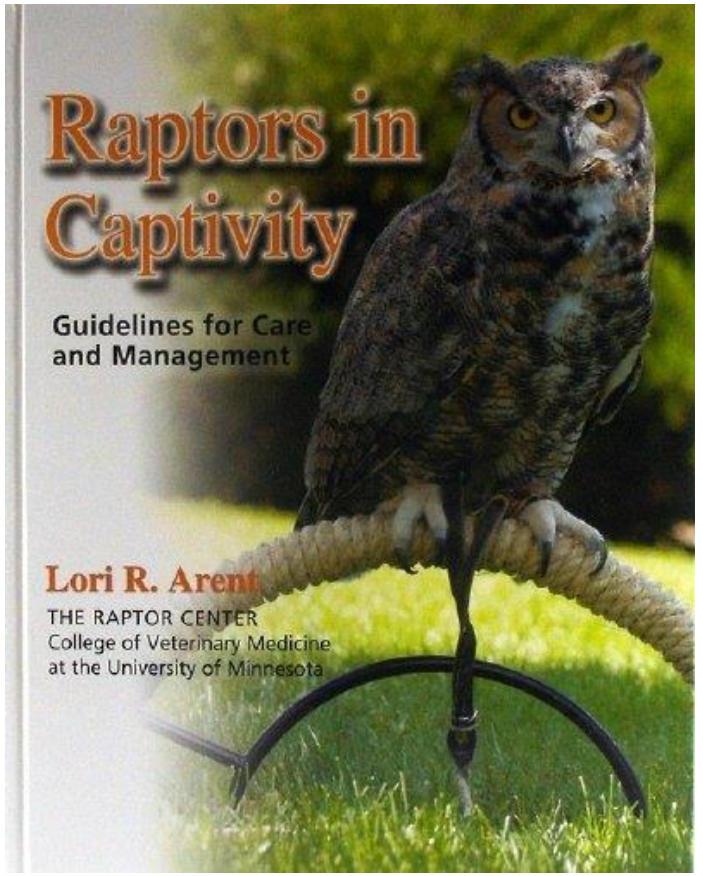
- https://www.wrmd.org/

RaptorMed

- https://raptormed.com/purchase.html

Resources


RAPTOR
MEDICINE, SURGERY, AND REHABILITATION
2ND EDITION
DAVID E. SCOTT
CABI


Raptors in Captivity
Guidelines for Care and Management
Lori R. Arent
THE RAPTOR CENTER
College of Veterinary Medicine
at the University of Minnesota

Enclosure Tips

There are both legal, ethical, and economical considerations when buying, building or modifying enclosures

- Birds are not allowed to come into direct contact with metal caging such as chain link or uncoated metal
  - Coated hardware cloth, wood slats, and pvc are often used to construct enclosures
- Build perches that are a suitable width for the bird that will be using them
  - A bird's toes should not be able to touch around a perch
  - Ensure that perching surfaces are not smooth

Enclosure Tips

- Use materials such as astroturf for perching and flat surfaces for larger, heavy-bodied birds
- Utilize water pans that are safe for the species/ size of the bird
- Use a substrate that is easy to clean and not a danger to the health of the bird
- Situate perches, surfaces, water pans in a way that is accessible to the bird particularly if it has a disability
- Make your enclosures and building materials work for you
  - Make perch coverings easily detachable for easy cleaning/ replacing
  - Use waterproof sealants to make wooden surfaces easier to clean
- Use double door systems

Enclosure Pictures

Enclosure Pictures

Enclosure Pictures

Enclosure Pictures

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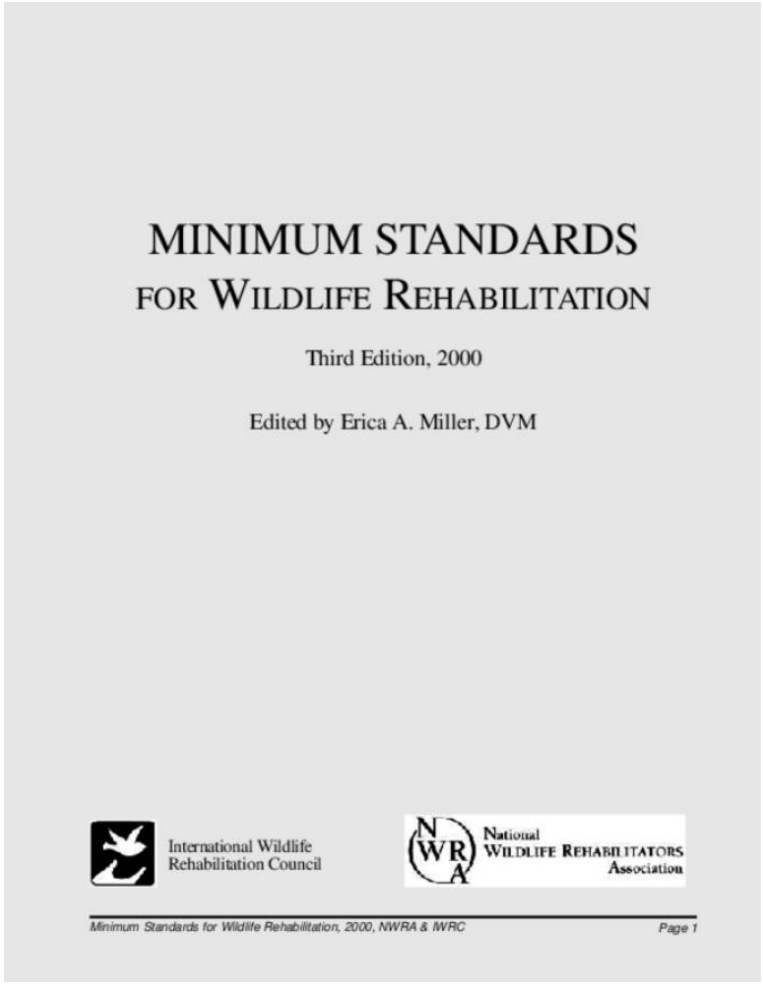
Enclosure Pictures

Ethics

Wildlife rehabilitators adhere to a strict code of ethics; the main point of this code is to work in a way that benefits our patients and wildlife as a whole.



Identification

Proper identification is imperative to proper triage, handling, and care. Even if you cannot identify the exact species, knowing the type of bird will help determine continued care.

Factors for identification:

- Geographical location
- Migratory birds
- Body size & shape
- Beak size & shape
- Foot size & shape
- Notable markings & color patterning
- Mating plumage

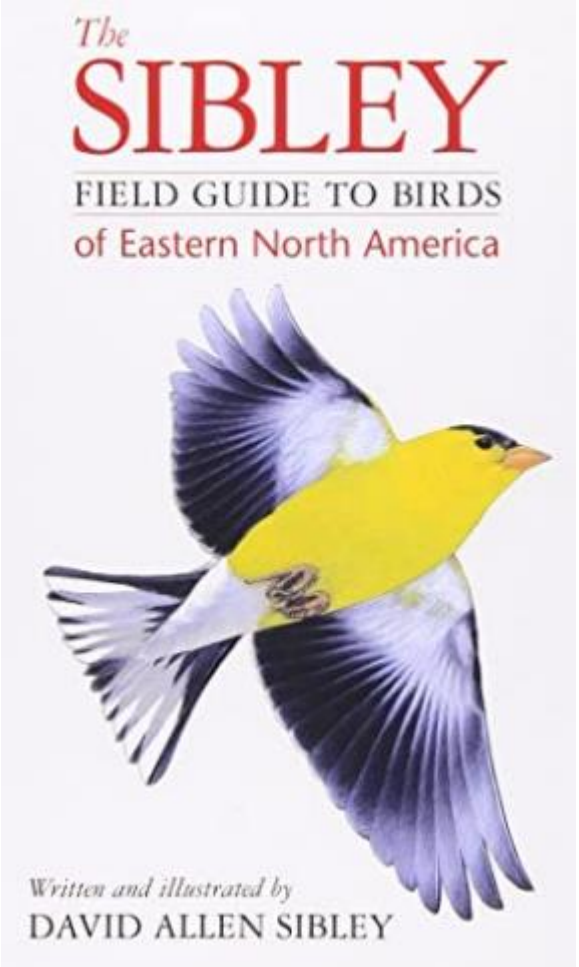
Identification Continued

Identification Continued

- When attempting to identify a bird; it is not always necessary to know the exact species as long as you know how to care for the genus or family the bird belongs in
- Small songbirds, seabirds, and others can be hard to identify the exact species but the care is generally the same
- Use indicators such as body size, beak shape, and foot shape to help you identify the bird
- Keep mating season plumage, geographical location, and migration season in mind

Identification Continued

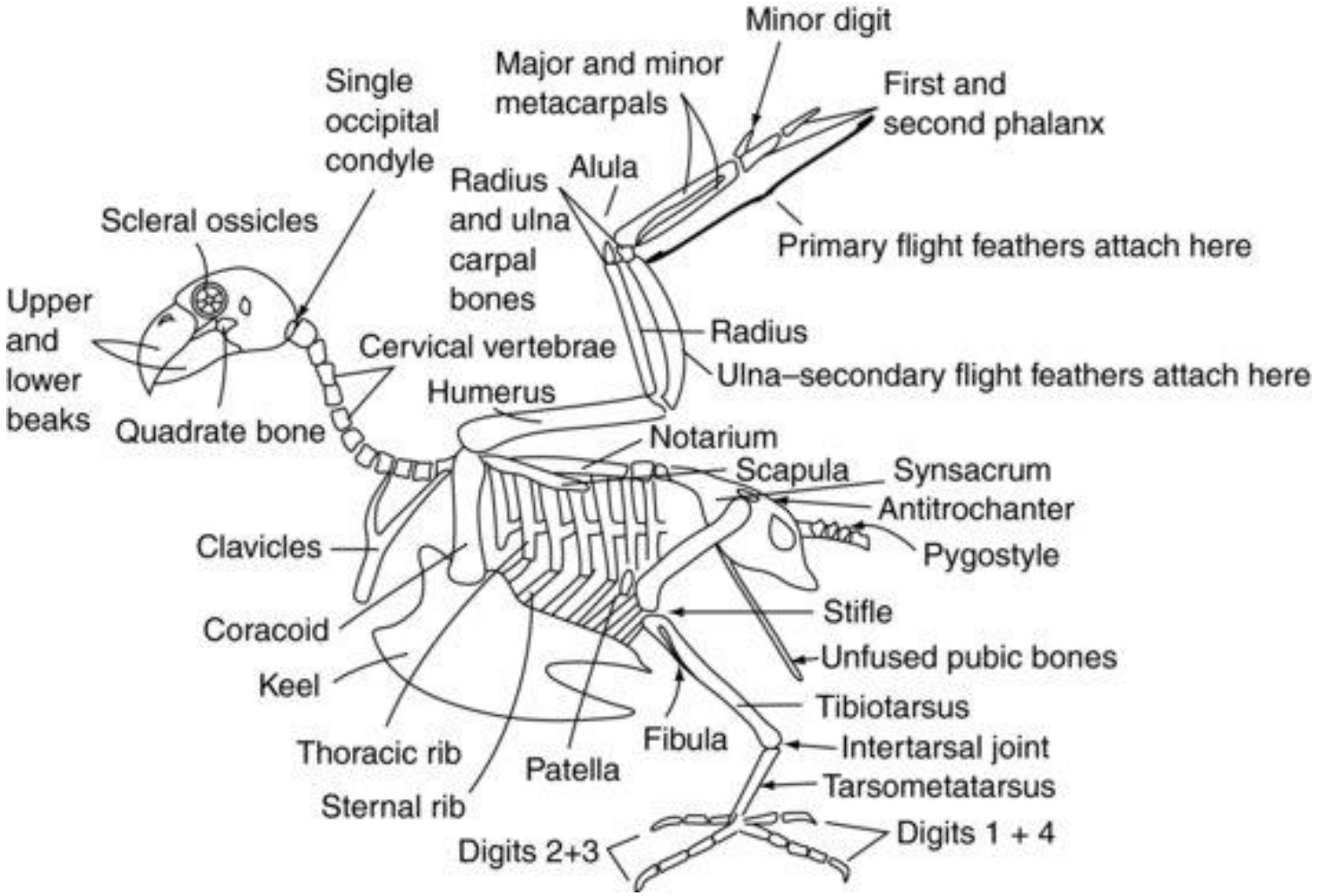
- Use field guides to help you walk through identifying birds
- Know what birds are common in your area for that time of year
- Refer to https://academy.allaboutbirds.org/



Anatomy

Bird anatomy is drastically different from mammal anatomy

[Cornell Bird Anatomy Lab]



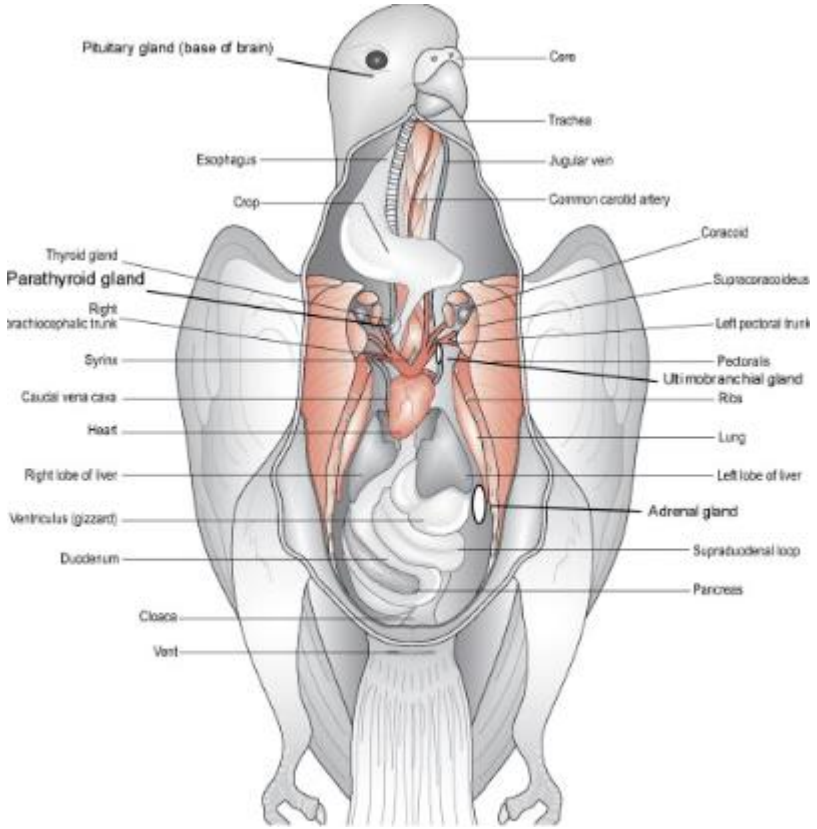
Anatomy Continued

Not only is their skeletal system different, but their respiratory and gastrointestinal systems are vastly different as well

When medicaling or tubing a bird it is important that you know how their respiratory tract works so that you do not aspirate them; always avoid the glottis and push syringes or tubes down the bird's right side

When feeding, you need to understand the anatomy you are working with; ie, some birds have crops while others do not

Anatomy Continued

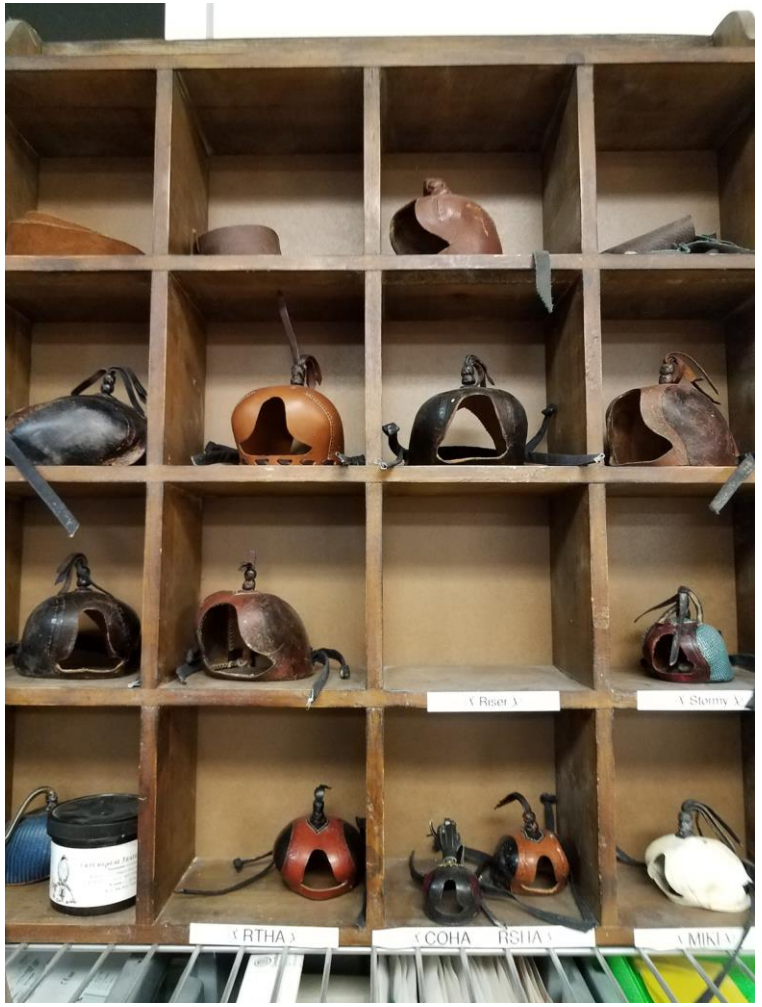


Restraint

When rescuing, triaging, and handling patients there are several things to consider:

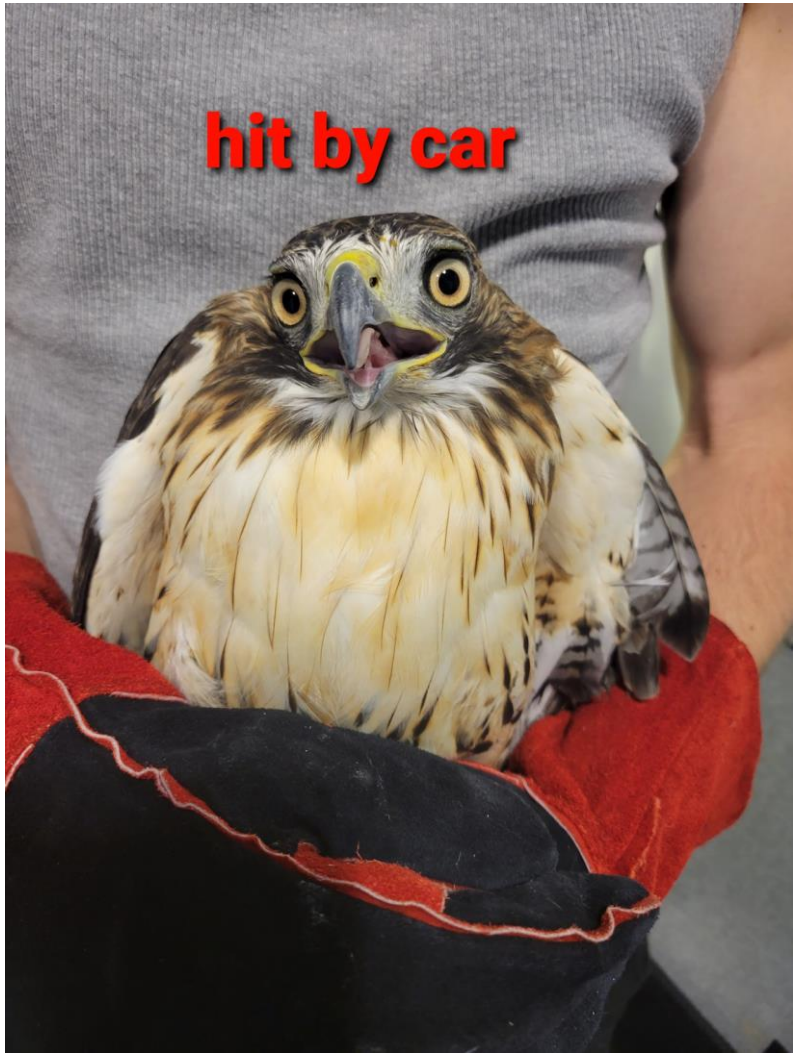
- Different species have different handling techniques
- The size of the patient will help determine if you need help handling the bird and the best way to handle
- Injuries may require different handling techniques to avoid further trauma and injury
- Do not put excessive pressure across the keel of the bird, this can cause difficulty breathing and suffocation

Restraint Continued



Restraint Continued

Restraint Continued



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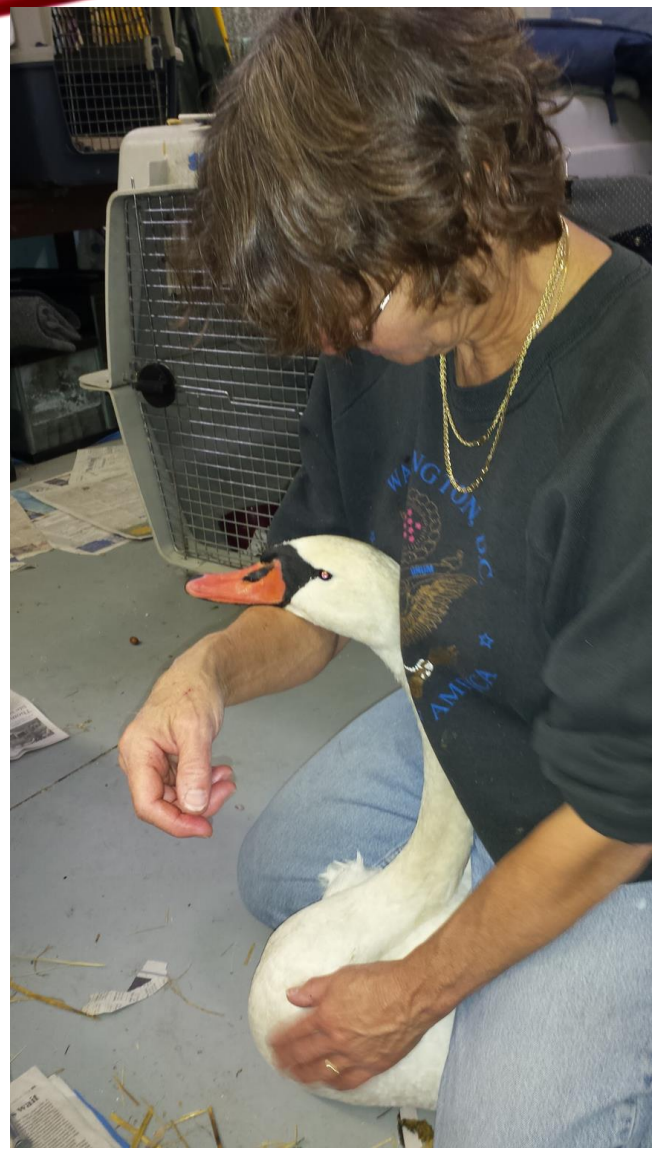
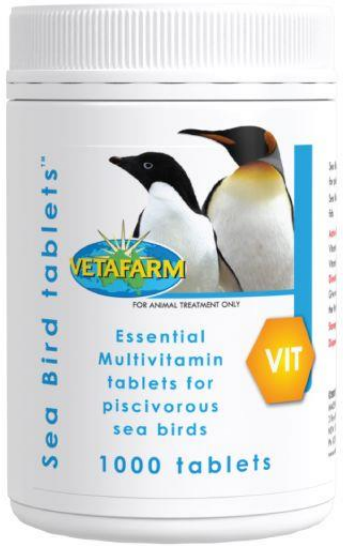


Diet & Nutrition

- Proper identification - you do not need to know the exact species to know what to feed it
- Developmental stage - young birds eat significantly more than their adult counterparts and often need supplementation
- Supplemental diets
- Vitamins
- Improper diet
  - Metabolic bone disease
  - Emaciation
  - Obesity

Diet & Nutrition Continued

Diet & Nutrition Continued



Diet & Nutrition Continued
Metabolic Bone Disease

Metabolic bone disease is common in young, orphaned birds or birds that have been improperly maintained in captivity - also called nutritional secondary hyperparathyroidism

Causes improper formation and function of bones; easily fractured bones, brittle beaks/ nails, can impact metabolic processes

- Caused by improper nutrition
- Inadequate husbandry

Primarily caused by insufficient or imbalance calcium, phosphorus and vitamin D3

Diet & Nutrition Continued
Metabolic Bone Disease

Symptoms:

- Weakness/ ataxia
- Stunted growth
- Bowed legs
- Tremors
- Seizures
- Swollen joints
- Spontaneous fractures
- Inadequate or irregular feathering

Can be treated if caught early enough and nutrition/ husbandry is corrected. Metabolic bone disease is not prominent in wild birds who have been raised properly

Diet & Nutrition Continued

Metabolic Bone Disease

Diet & Nutrition Continued
Emaciation & Obesity

- Assessment of weight and body condition are integral to proper triage and continued care
- Emaciation is common in rescued birds
  - Proper triage, continued care, hydration, and gradual feedings are required in emaciated patients
  - If an emaciated patient is fed prematurely they will suffer from refeeding syndrome
  - Refeeding syndrome is similar to a state of shock where the body cannot break down and metabolise food
- Obesity is common in captive birds and birds in long-term captive care
  - Proper diet for species, sex, activity level, and weathering are required to maintain healthy weight in birds
  - Can cause other diseases, illnesses, or injuries such as bumblefoot and hepatic lipidosis

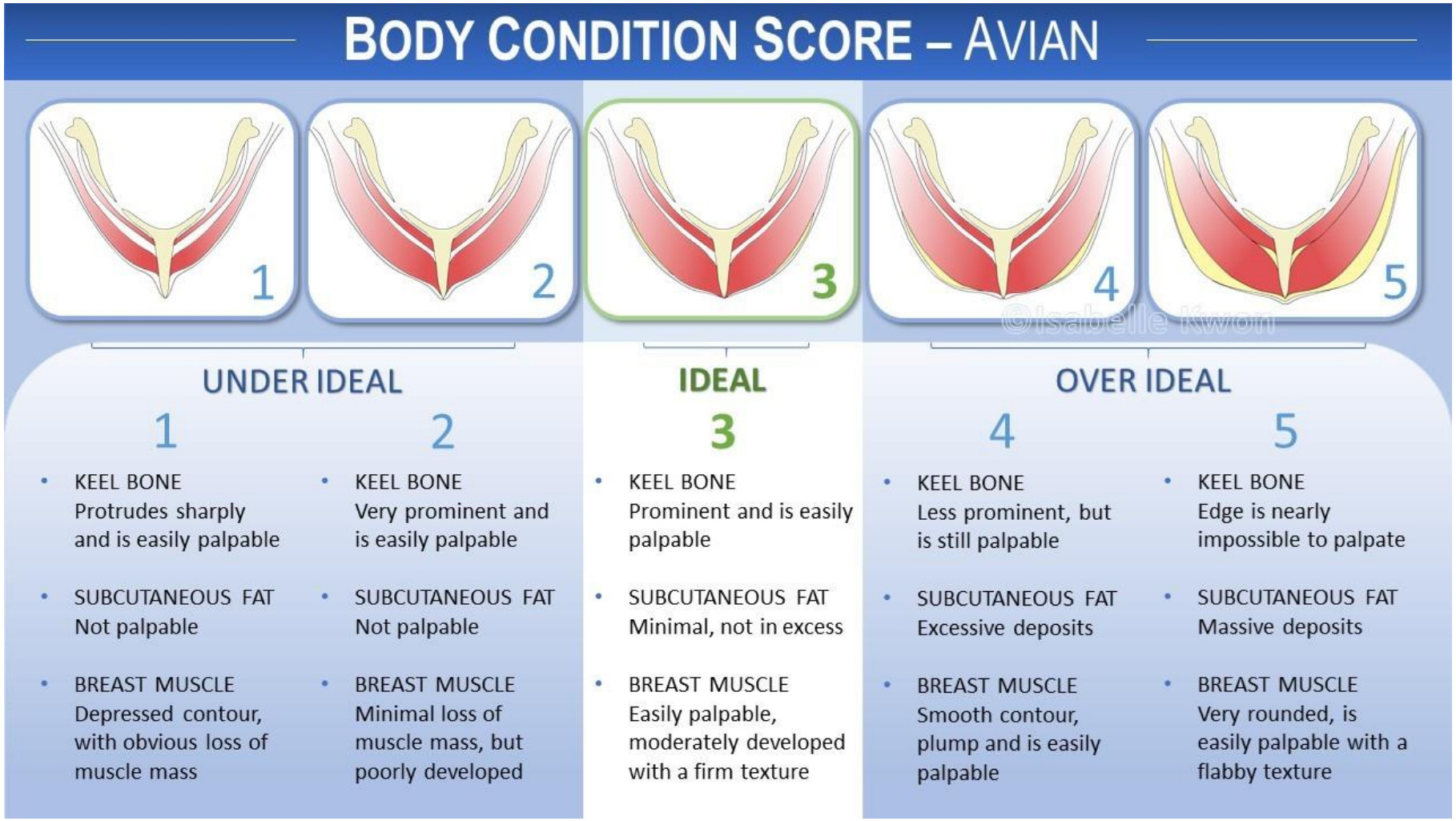
Rescue and Triage Care

- Proper restraint and handling during rescue
- Special rescue situations
  - Fishing line and fishing hooks
  - Glue traps
  - Oil and other substances on feathers
  - Stress & shock
- Proper field examination
- Proper setup for bird with considerations to illness and injury
- Triage care
  - Fluids
  - Medications
  - Feeding
  - Heating
- Quarantine protocols

Proper Examination

- Examination restraint
- Overall assessment - look for injuries that need to be handled immediately eg. bleeding
  - Evaluate stress and shock during exam
- Palpating for other injuries or broken bones
- Assess body condition - keel score, hydration, temperature, feather condition
- Consider and prioritize care based on exam findings and bird condition ie; dehydration and hypothermia need to be addressed prior to feeding

Proper Examination



Considerations for Triaging

- Type of bird determines type of restraint some species such as ducks should never be turned upside down because it stimulates their diving reflex
- Raptor restraint needs to focus on proper foot restraint while shore and wading bird restraint needs to be focused on proper beak restraint
- Some species have crops: hawks, eagles, doves, and pigeons
  - When gavage feeding doves or pigeons feedings can be administered to the crop
  - When gavage feeding a raptor you should bypass the crop and feed directly into the proventriculus
  - Owls do not have crops
- Some injuries to specific species deem them non-releasable immediately; consider captivity quality of life or euthanasia - if considering captive care refer to federal laws

Triage Care
Hydration & Emaciation

- Signs of dehydration
  - Tacky mucous membranes
  - Shriveled or wrinkled appearance of underbelly
  - Tenting skin with no elasticity
- Dehydration needs to be addressed immediately prior to feeding
  - Subcutaneous fluids should be used when indicated; common for raptors and fowl
  - Gavage fluids given orally in many seabirds, shorebirds and wading birds such as pelicans, loons, herons, and egrets
- Types of fluids
  - Popular subcutaneous fluids used are crystalloid solutions such as Lactated Ringers Solution (LRS) and 0.9% Sodium Chloride
  - Drinking water or filtered water along with LRS or Sodium Chloride can be administered orally for rehydration
- Dehydrated birds should never be fed
- In severe cases of dehydration; rehydration fluids can be used multiple times to establish rehydration

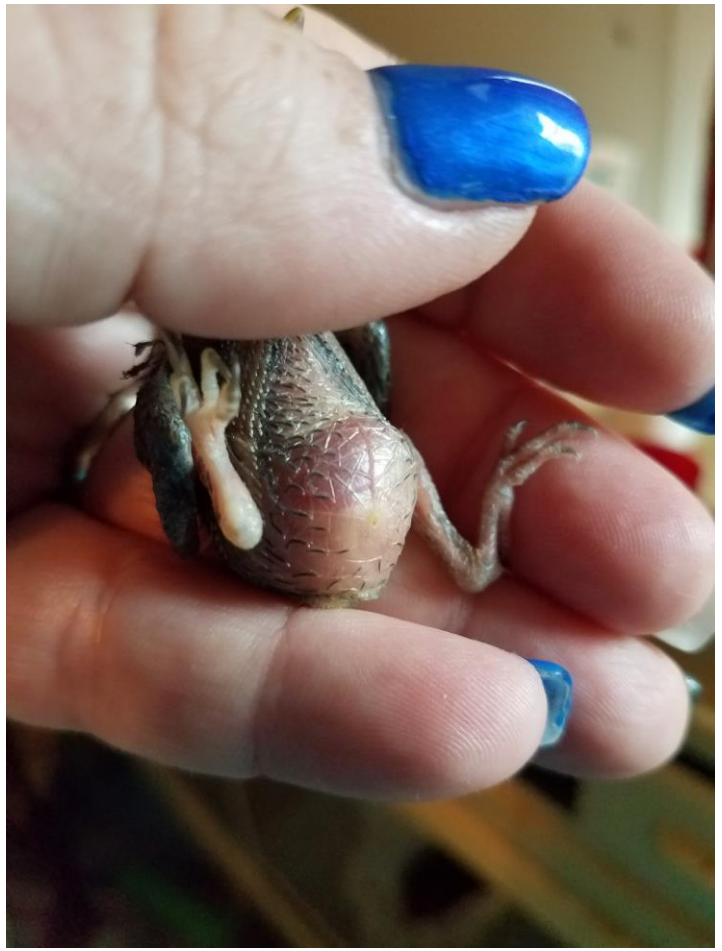
Triage Care
Hydration & Emaciation

- Emaciated birds should be properly hydrated prior to any feeding
  - Emaciated birds should be fed small amounts of food more frequently. In many species an emergency or critical care diet should be used for several feedings prior to using solid foods
- Critical Care Diets - these are often high calorie diets that are designed for the nutritional needs of the species being cared for; they come as powdered diets that are reconstituted into a liquid to be administered via gavage feeding
  - Emeraid
  - Oxbow
  - Mazuri
- Critical care diets can be fed for several feedings prior to beginning small amounts of regular diet

Triage Care
Hydration & Emaciation

- Emaciated birds should be fed several small meals per day to ensure proper digestion
- Ensure continued hydration along with feedings - if patient becomes dehydrated administer fluids
- Weigh patient and check body condition regularly to maintain weight gain and establish if caloric needs require adjustment
- As patient gains weight and improves steps can be taken to introduce solid foods

Triage Care
Hydration & Emaciation



Triage Care
Hydration & Emaciation

Emaciation Protocol Example: Emaciated Red-Tailed Hawk - Female - Keel Score 1 - Weight: 750 grams

- A female red-tail hawk presents severely emaciated and dehydrated, subcutaneous fluids are administered
- Oxbow carnivore diet is prepared and gavage fed four times daily for 3 days - the first four feedings are diluted to maintain hydration
- As patient gains weight and maintains hydration diet needs are adjusted to account for weight gain
- Patient begins to stand and perch on its own; hydration is maintained
- During one feeding patient is given a small amount of boneless, skinless meat (clean meat) rather than liquid diet
- At next scheduled feeding the crop is palpated to ensure that meat has passed through the crop indicating proper digestive process

Triage Care
Hydration & Emaciation

Emaciation Protocol Example: Emaciated Red-Tailed Hawk - Female - Keel Score 1 - Weight: 750 grams - Continued

- Next feeding patient is gavage fed as scheduled
- Slowly increase amount of clean meat fed while decreasing number of gavage feedings and continue to assess patient, weight gain, and keel score
- As patient continues to improve introduce natural food that contains bone and fur (whole prey) such as mice
- Assess that crop maintains proper function and patient is regularly casting pellets
- Continue to feed multiple meals per day until patient can eat regularly sized meals for its species and size

Hydration & Emaciation

Triage Care
Bandaging, Splinting, & Wound Therapy

Proper wound and injury assessment is essential in order to bandage, splint or dress a wound

- Types of breaks
  - Compound
  - Simple
  - Spiral
- Types of bandages & splints for breaks
  - Figure 8 bandage
  - Splint
  - Wet-to-dry bandages

Triage Care
Bandaging, Splinting, & Wound Therapy

Several types of splints, bandages, and wound therapy exist. What will work best for your patient will vary and should be determined on a case by case basis.

- Figure 8 wraps are commonly used with wing fractures and injuries
- Gunshot wounds, electrocution wounds, and deep or large wounds may require routine wound therapy and topical care
- Splints and foot cushions can be utilized for leg and foot fractures
- In cases where surgical intervention was utilized, follow veterinary aftercare procedures
- Resource https://theiwrc.org/wp-content/uploads/2011/05/Duerr_Splinting_Manual_2010.pdf

Triage Care

Bandaging, Splinting, & Wound Therapy

Common Injuries & Illnesses

When assessing an injury, illness or combination of the two it is important to keep in mind what is best for the patient, legal, and ethical

- Some injuries in birds are not as easily repaired as they are in mammals; some injuries may also have a longer or more difficult recovery
- Many veterinarians who do not routinely treat wildlife do not know laws surrounding birds and legal requirements
  - Amputations cannot be performed proximal to the elbow
  - Bird cannot be completely blind
  - Bird must be self-feeding
  - Birds must have two functioning feet
- There are other considerations when choosing medical intervention for birds and if it is ethical to pursue or continue treatment

Common Injuries & Illnesses Continued

Use the tools you have at your disposal! If you have access to radiographs, blood work, formularies and a veterinarian, use them to your advantage!

Always perform medical care under the direction of a veterinarian

If you do not own a formulary, now is a great time to get one!

Common Injuries & Illnesses Infections

Infections are very common; different species can carry different types of infections. Some infections can be caused by previous/ other injuries or mismanagement in captivity.

When triaging and treating birds it is important to remember that they metabolize and heal differently than mammals

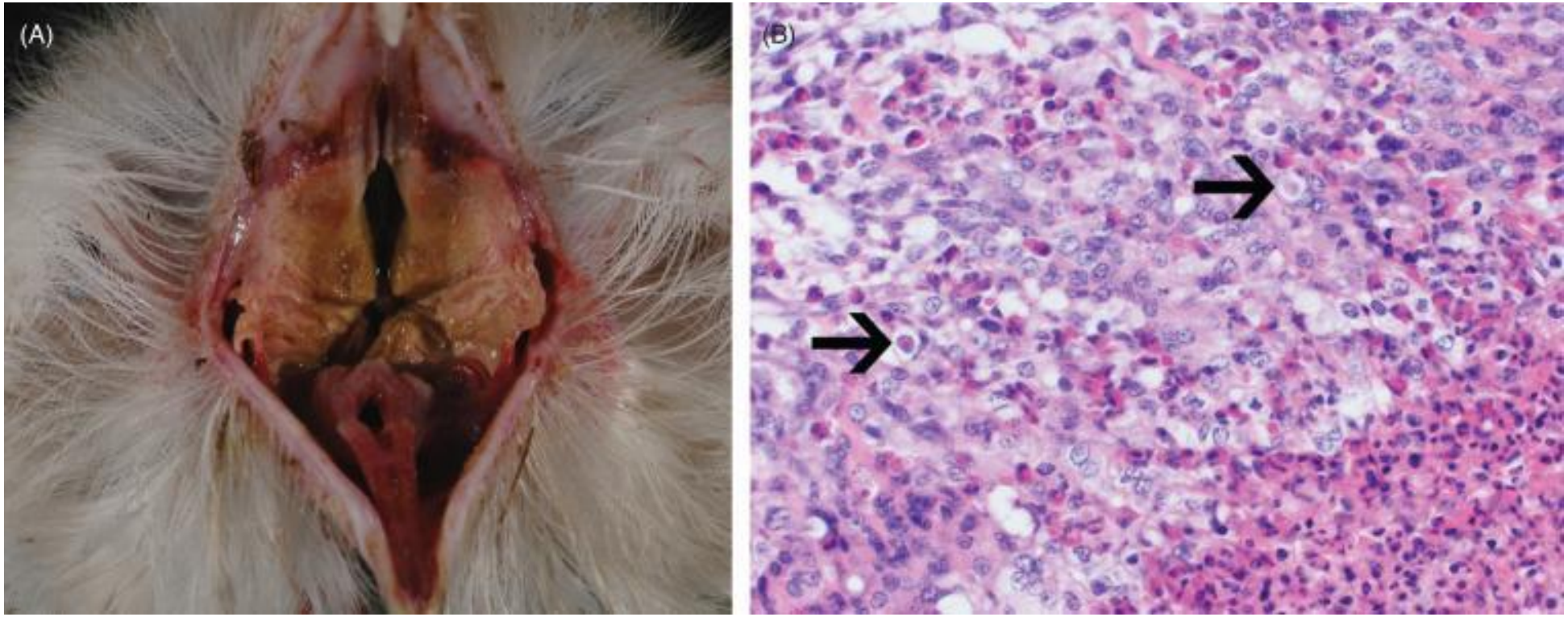
Birds have dry and caseous pus that typically requires manual removal with incisions

Birds tend to ‘wall-off’ infections and injuries and need additional wound therapy to completely remove infection and heal tissue

Common Injuries & Illnesses Infections

- Trichomoniasis (canker) - very common in pigeons and doves; also called frounce in raptors
  - Upper gastrointestinal parasite
  - Large, white plaques in mouth
  - Swelling of mucous membranes
  - Can be fatal
- Sour crop - common in emaciation cases where the patient is fed prematurely or there is damage to the crop
  - Sour smell notable when mouth is open
  - Lethargy/ inappetence
  - Large crop that feels squishy or doughy
  - Can require lavaging or surgical intervention to remove the fermented/ rotten food or resect infected portions of the crop

Common Injuries & Illnesses
Infections Continued



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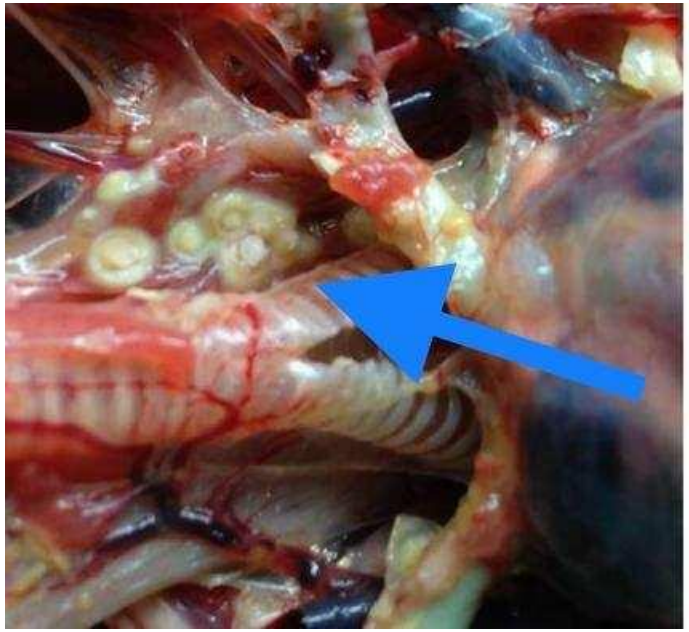
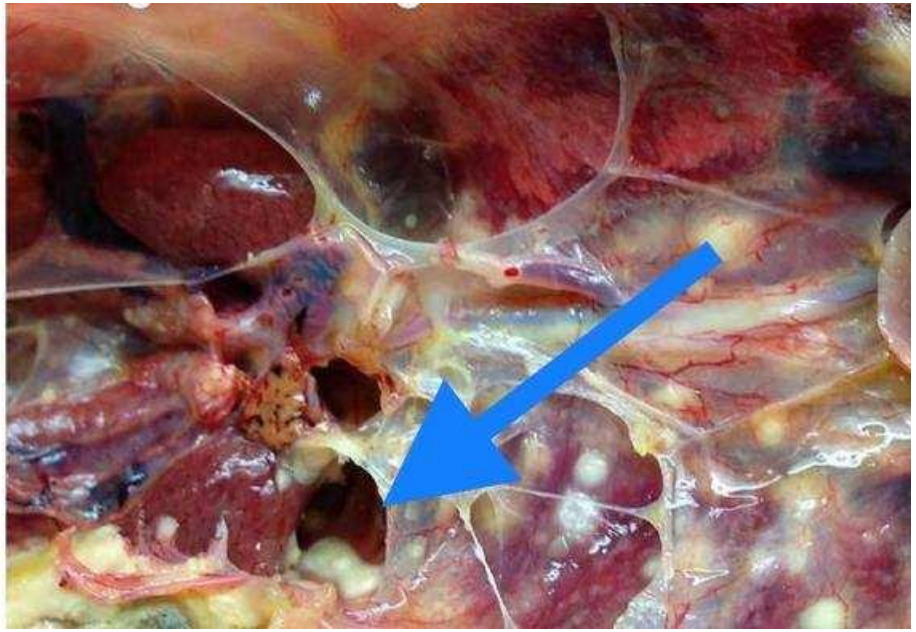
Common Injuries & Illnesses Infections Continued

- Herpesvirus - many birds can be asymptomatic but stress, improper care, unsanitary conditions can cause symptoms
  - Upper respiratory symptoms
  - Many different varieties that can present differently
- Aspergillosis - fungal infection that commonly infects the respiratory tracts of birds who do not typically have extended contact with the ground
  - Can infect upper and lower respiratory tract
  - Can be fatal if not treated
  - Preventable in captivity with anti-fungal medication
  - Can be treated prophylactically with medications
  - Prominent in seabirds and raptors

Common Injuries & Illnesses
Infections Continued

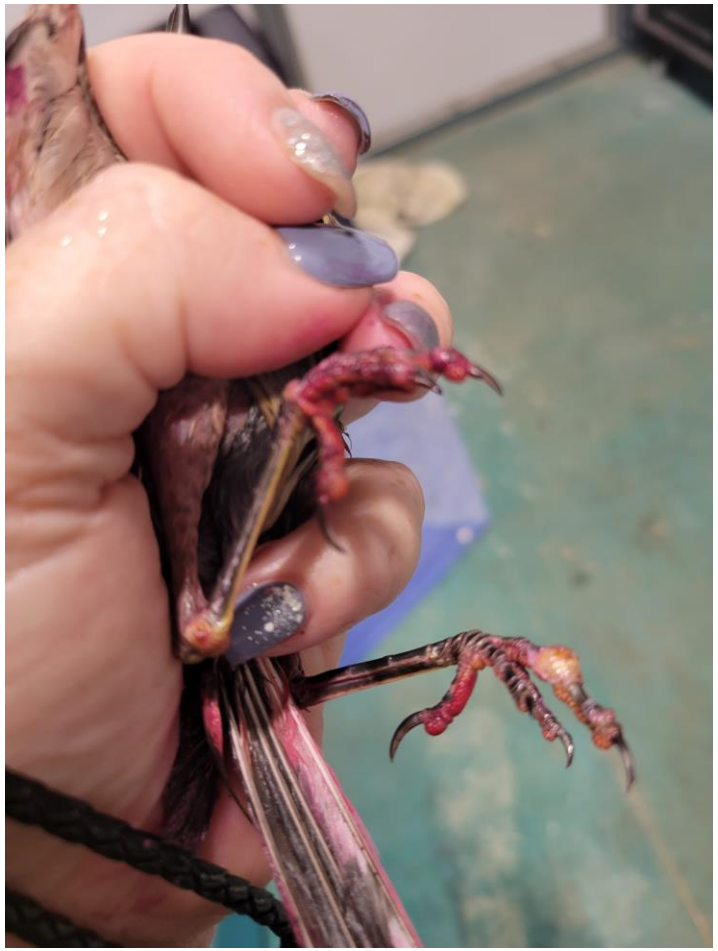




Common Injuries & Illnesses Infections Continued

- Avian Pox - a viral infection that causes raised areas on the skin; common areas to find lesions are the feet and face
  - Supportive care is necessary
  - Fluid therapy and supplemental nutrition are often necessary
  - Can cause inappetance, lethargy, vomiting, fever, weakness, and more
  - Highly contagious
  - Utilize quarantine protocols
  - Wear PPE during handling
  - Antibiotics are often indicated prophylactically to prevent secondary bacterial infections
  - Comes in two forms - wet pox and dry pox; each presents with different clinical signs and are often treated differently; wet pox has a lower chance of recovery

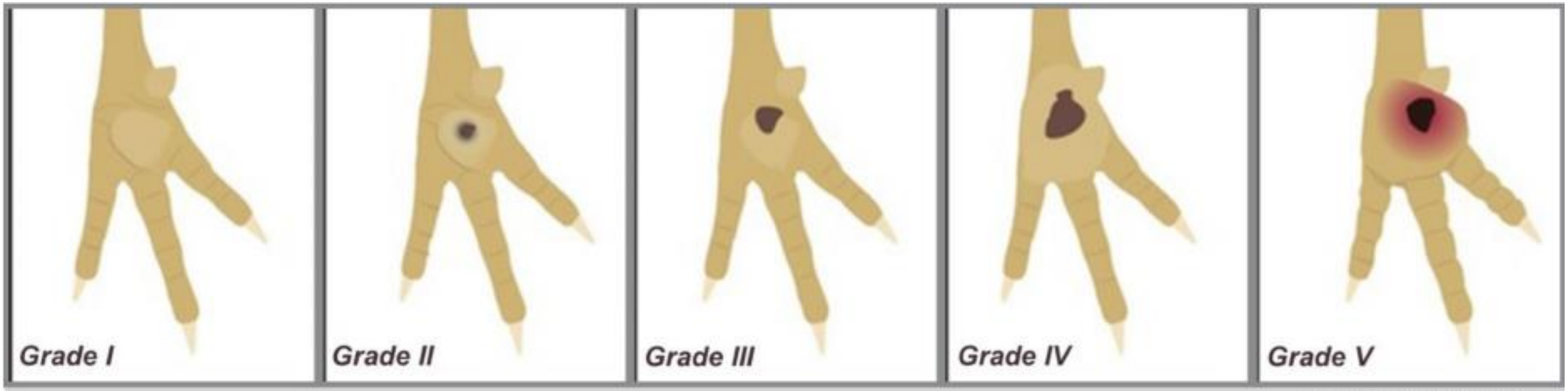
Common Injuries & Illnesses
Infections Continued



Common Injuries & Illnesses Infections Continued

- Bumblefoot - very common in birds with previous leg injuries, foot injuries, or birds who are chronically obese
  - Wear spots on foot pads and worn down spicula
  - Swelling around foot pad, toes, and tarsometatarsal joint
  - Lameness or non-weight bearing on foot
  - Fever, lethargy, inappetance
  - Often requires aggressive antibiotic therapy, long term supportive care, cushioning, and in severe non-resolving cases surgical intervention may be required
  - Epsom salt soaks can help break down infection plug for quicker. easier healing
  - Weight management/ resolving cause of infection is critical to reduce future infection

Common Injuries & Illnesses
Infections Continued



Source: PoultryDVM

Grade I: *Redness on the surface, shiny appearance, or small lesions. No infection apparent.*
Grade II: *Lesion with infected tissue, no swelling.*
Grade III: *Infected lesion with swelling.*
Grade IV: *Plug of dead tissue, with infection of tissue in the foot, mild lameness.*
Grade V: *Swelling around the plug of dead tissue, with severe lameness.*

Common Injuries & Illnesses
Infections Continued

Common Injuries & Illnesses Infections Continued

Common Injuries & Illnesses Infections Continued

Parasites can be both internal and external

It is important to look for parasites during triage and treat as necessary

Internal parasites can include blood parasites, intestinal parasites, and even parasites in the mucous membranes that may not be obvious to the naked eye or on initial exam

External parasites such as feather mites or flat flies should be treated upon notation

Common Injuries & Illnesses Infections Continued

Common Injuries & Illnesses Infections Continued

Many birds who present to rehab carry an intestinal parasite load, some parasite loads are normal for birds and do not pose an immediate or hazardous threat

Many raptors, scavengers, and piscivores are more susceptible to parasite overloads which can cause emaciation and gastrointestinal symptoms

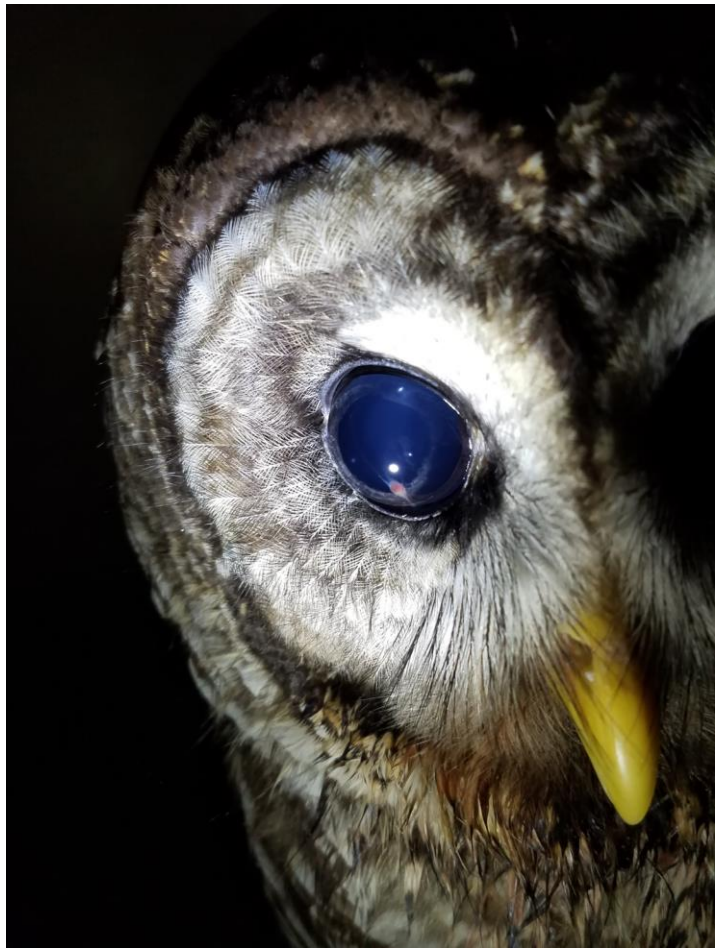
- Fecal flotations are an easy way to find parasites and effectively treat them
- Not all dewormers treat all parasites, ensure you are using proper dewormer for that parasite
- Do not deworm patients who are in critical condition
- Some bird species such as vultures are sensitive to dewormers
  - Consult with your veterinarian or wildlife formulary for dosages, sensitivities, and indications

Common Injuries & Illnesses
Concussions and Eye Trauma

Birds are susceptible to several types of injuries, some of the most common injuries that we see as rehabilitators are caused by humans

- Concussions - very common in window strike and hit by car cases
  - Need immediate supportive care
  - Do not expose to heat
  - Supportive care
  - Assess closely for eye injuries
- Eye trauma & CNS blindness
  - Central nervous system blindness - very common in owls due to eye shape and structure; can resolve after several weeks of supportive care
  - Monitor for changes in vision - know how to assess if patient is able to be released/ maintain a good quality of life; ie. one-eyed owls

Common Injuries & Illnesses
Concussions and Eye Trauma



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Common Injuries & Illnesses
Animal Attacks & Human Related Injuries

Many injuries and illnesses that wildlife are subjected to are related to humans

- Cat and dog attacks
  - Cat attacks require antibiotic therapy even if there are not obvious wounds due to Pasteurella bacteria
  - Deep puncture wounds may require flushing
  - Wounds often swell and do not appear as extensive as they are
  - Can cause feather loss or damage
- Netting, fishing line, and fishing hooks
  - Birds can get caught in netting left outside, used for sports, and other types of netting; besure to carefully untangle bird and remove any residue left from the net
  - Improperly discarded fishing line poses a large threat to wild birds and can cause extensive tissue damage
  - Fishing hooks can cause tissue damage and ingestion can mean surgical intervention is necessary

Common Injuries & Illnesses
Animal Attacks & Human Related Injuries

Common Injuries & Illnesses
Feather Damage or Loss

Feather damage is common in all bird species and can be secondary to other injuries or illnesses

Feather loss or damage is common:

- After a cat or dog attack
- After being tangled in netting or fishing line
- Car collisions
- Electrocution
- Lead poisoning
- Tissue wounds
- Long term bandaging
- Long term captive care

Common Injuries & Illnesses
Feather Damage or Loss

Common Injuries & Illnesses
Feather Damage or Loss

A bird must be in good feather condition in order to be a candidate for release

The use of tail wraps is typically indicated in long tailed birds such as falcons and raptors to protect their tails from feather damage while in captivity

Feather imping is a process that can be used to replace broken feathers if a quick release would be possible otherwise

- Broken feather shafts are trimmed and a new feather is attached using an adhesive and thin dowel
- You must use feathers in good condition from the same species
- Use the same feather numbers when possible
- Do not recommend replacing several feathers on the same wing for immediate release

Common Injuries & Illnesses
Tissue Injuries

- Degloving
- Self-mutilation
  - Common after fractures
- Deep tissue wounds
- Gunshot wounds - must be reported as illegal activity

Tissue wounds typically require antibiotics and in some cases may need wound therapy in order to heal

- Wet to dry bandages
- Tegaderm
- Sugar/ honey
- Debriding

Common Injuries & Illnesses
Tissue Injuries

Common Injuries & Illnesses
Tissue Injuries

Electrocution can happen and is common in large raptors such as eagles

- Skin will appear blackened or singed
  - If it happened recently skin may appear puffy or wet
  - Feathers may be damaged
  - Needs immediate attention - can cause extreme tissue wounds or circulation issues

Some electrocution cases can cause eye trauma and even immediate death

If you suspect electrocution, you must report it as illegal activity

Common Injuries & Illnesses
Fractures

- Fractures:
  - Wings
  - Legs
  - Coracoid clavicle
  - Pelvic fractures
  - Spinal trauma/ damage

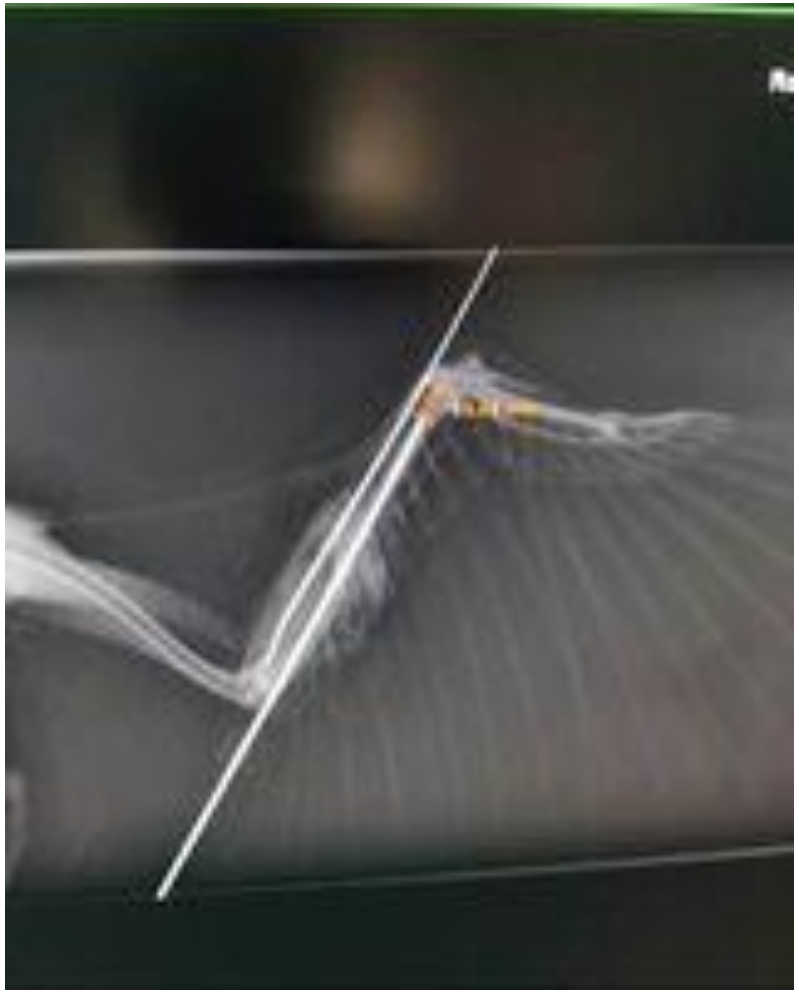
Use the tools that you have available to you! Many fractures can be palpated, use radiographs if you have access to them.

Surgical intervention may be necessary for complete recovery and increased chances of release. Utilize physical therapy when indicated and accessible to increase range of motion in bandaged or splinted joints. Preferably performed under anesthesia.

Spinal trauma and pelvic fractures can mean long term care and close attention must be paid to progress or regression.

Common Injuries & Illnesses
Fractures

Common Injuries & Illnesses
Fractures



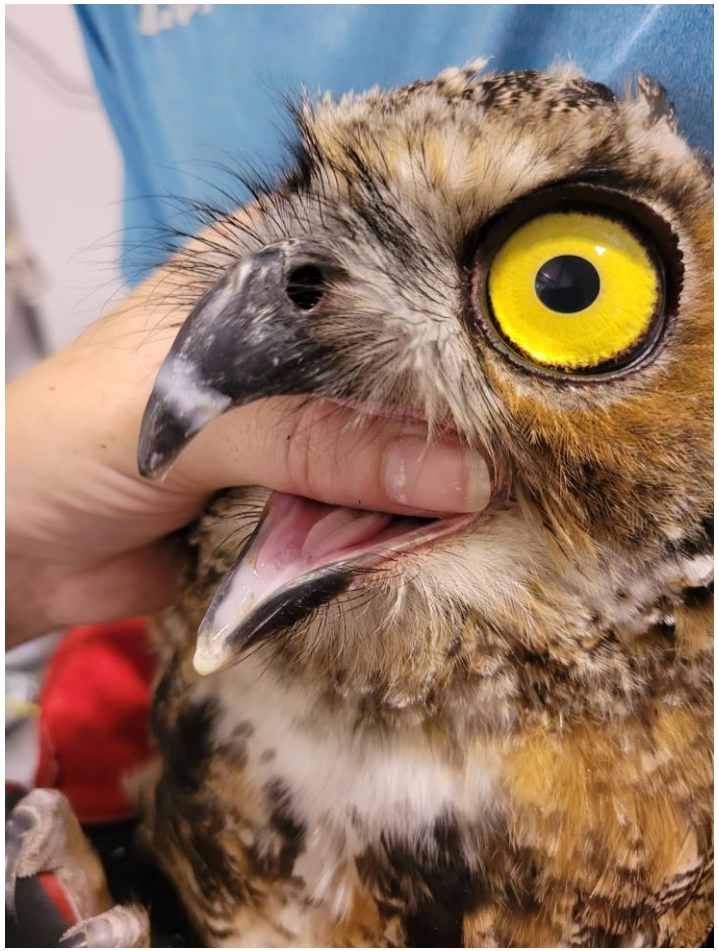
Common Injuries & Illnesses
Beak Fractures

Beak fractures can happen after window strikes, animal attacks, and other trauma

- Beaks can regrow so long as the germ cells for the beak remain at the cere or lower mandible
- Dental composite can be used to repair beak fractures
- If beak does not regrow and bird may be used for display or education; the bird has to be self-feeding

In long-term captivity beaks and nails need to be maintained to avoid fractures and maintain proper beak health

Common Injuries & Illnesses
Beak Fractures



Common Injuries & Illnesses
Highly Pathogenic Avian Influenza

Highly Pathogenic Avian Influenza has been a recurring problem over the last couple of years

- Highly contagious
- Often fatal
- Handlers should wear proper PPE when handling these patients
- Utilize quarantine protocols that are practical and effective

Symptoms:

- Upper respiratory symptoms
- Neurologic symptoms
- Sudden onset decline/ death
- Facial or mucous membrane swelling

Common Injuries & Illnesses
Lead Poisoning

Lead poisoning is a very prevalent illness is several families of birds. Raptors, water fowl, and seabirds are very prone to lead poisoning.

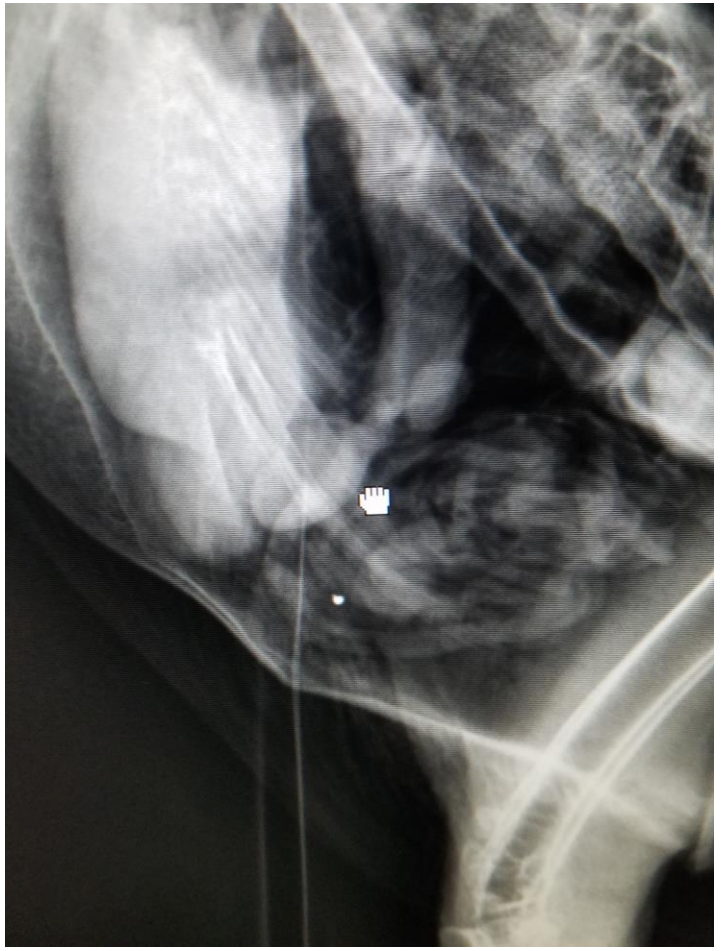
Lead sinkers, lead shot and other exposures are common in wild birds. Most lead is consumed but in some instances patients will present with gunshot wounds.

Blood lead and radiographs are necessary to diagnose lead poisoning and assess how to treat patient.

- Lead shot, pieces, and pellets show up brightly on radiographs
- Blood lead machines or send off blood lead tests to laboratories

Common Injuries & Illnesses
Lead Poisoning

Common Injuries & Illnesses
Lead Poisoning



Common Injuries & Illnesses
Lead Poisoning

Common Injuries & Illnesses
Lead Poisoning

Symptoms:

- Neurologic/ ataxic
- Lethargy/ inappetence
- Emaciation
- Gastrointestinal symptoms
- Sudden death

Treatment:

- Chelation
- Supportive care
- Removing source of lead if there is one present in the body

Common Injuries & Illnesses
Insecticide & Rodenticide Poisoning

Rodenticide poisoning devastates predator populations and impacts entire food chains; very common in raptors and scavengers

Symptoms:

- Lethargy
- Ataxia
- Bruising/ excessive bleeding
- Sudden death

Vitamin K therapy can be used on certain rodenticides but is not always successful

Common Injuries & Illnesses
Young and Dumb Syndrome

Young and dumb syndrome is very common in first-year raptors

- Only 25% of raptors make it through their first year
- Young and dumb syndrome birds are typically first-year birds that are not otherwise injured or ill; they are often thin or emaciated
- Require supportive care to regain weight
- Utilizing natural enrichment and live hunting while in captivity may increase odds of success after release
- Utilize falconers when possible to take these birds to train with them for the next year prior to release

Common Injuries & Illnesses Captivity Management

We know that maintaining animals in care is just as important as helping them recover from their initial presenting illness or injury

Sometimes it is necessary to keep birds in captivity long term due to extended healing times, overwintering, flight conditioning, or other reasons

- Utilize things like tail guards and wing bumpers when needed to maintain feather quality
- Utilize visual barriers on caging and enclosures to reduce stress
- Use bird safe materials for building
- Change enclosures as needed, rearrange perches to fit individual bird needs
- Capture myopathy needs to be considered both at the time of rescue and in long-term care

Orphans

Orphans can come in for a variety of reasons; it is important to be able to tell when a baby bird needs intervention and when to leave them alone

Knowing bird species and behavior will help you determine what is natural for the bird - eg. killdeer

- Fledging
  - Fledging is a natural process that all young birds go through when they leave the nest
  - Many rehabilitators get calls about 'orphaned' birds that are fledging
  - Fledgling birds will still call for their parents to feed them
  - Fledglings will have round bellies and be in good feather condition - they look like smaller versions of their parents
  - Fledglings should be active and responsive

When determining if a young bird needs to be brought in, ask the caller to watch the bird for 30 minutes, the parents should still be coming to feed the baby and will be protective of potential predators

Orphans Continued

Leaving young birds with their parents is the optimal choice when it is the right decision

- Renest when possible even when using artificial nests
  - Artificial nests should be able to drain; laundry baskets are common to use with larger birds such as raptors
  - Artificial nests should be hung away from predators
- Raise orphans in groups of same species when possible and use foster parents when possible

Care During Different Developmental Stages

- The care of birds changes as they grow
- The developmental stage that the bird enters care in will determine care needs
- Hatchling birds have different nutritional needs than their adult counterparts
- Nutritional needs should be adjusted as developmental stages change
- Birds grow and develop much more quickly than mammals; many birds are ready to fledge within 6-8 weeks of hatching

Hatchling & Nestling Care Overview

- Nutrition per species
  - Clean meat - raptors
  - Exact - crop feeders like pigeons and doves as well as seed eaters
  - FONS - food for omnivorous nestling songbirds
- Nutritional supplementation for proper bone development and growth
  - Calcium
  - VitaHawk
  - UVB lighting
  - Benebac
- Heating requirements
  - Heat pads
  - Incubators
- Nest simulation
- Co-parenting

Hatchling & Nestling Care Overview

FONS Recipe:

- https://www.avianhaven.org/FoNS_for_2012.pdf

Hatchling & Nestling Care
Nests

Birds need nests; not only is this natural to them and provides a natural environment but it also helps with proper leg and foot development

- Improper nests can cause leg and foot deformities
- Larger, heavy bodied birds need thicker materials such as towels inside of tubs or baskets
- Smaller birds like songbirds can use paper towels or toilet paper inside small baskets
- Baskets, tubs or containers need to be secure; the nestling should not be able to come into direct contact with it and should not be able to get caught in or behind it
- Within the nest there should be many nooks, crannies, and bumps for them to sink into and grab onto so they have cushioning; they should be able to grab onto the nesting materials so that their feet are open

Hatchling & Nestling Care
Nests

Hatchling & Nestling Care Feeding

Special considerations to species and developmental stages should be taken to ensure proper nutrition

- Clean meat should be used for young raptors, slowly introduce bones and fur as raptor ages. Be sure that you are supplementing properly
  - Feed small pieces of meat, young birds do not tear their own food
  - There is often no need to tube or gavage feed young raptors; they are not very susceptible to refeeding syndrome
- FONS - for omnivorous nestling songbirds such as mockingbirds, chickadees, and wrens
  - Feed small amounts, using small syringes with teat cannulas, some species need feedings up to every 10 minutes
  - Tweezer feedings can be utilized as babies grow

Hatchling & Nestling Care
Feeding

Hatchling & Nestling Care
Feeding Continued

- Soaked chow and natural foods
  - Feeding small pieces of soaked chow and natural foods such as mealworms, seeds, and fruits
- Feed birds such as doves and pigeons a tubed diet such as Exact several times per day - this diet is based on the weight of the bird
  - Birds should be weighed every day to ensure proper feeding amounts
  - Doves and pigeons can be tubed directly into their crops
  - When making Exact ensure that it is the proper temperature
- Young birds need to be cleaned often, take the time to remove feces at feedings, change nesting materials, and get rid of soiled food

Hatchling & Nestling Care
Feeding

Feeding schedules will vary depending on the type of birds you are caring for

- Raptors need to be fed every few hours
- Songbirds need to be fed as often as every 10-20 minutes
- Doves and pigeons can be fed every few hours

Keep in mind that you should be weighing your young patients and assessing growth and behavior to know when to increase feedings and feeding intervals

Hatchling & Nestling Care Enclosures

As birds grow and develop caging requirements will change

- Small aquariums or incubators can be used for nestling and young fledgling songbirds
- Plastic crates can be used for nestling and young raptors
- When nestling birds are beginning to fledge you do not want them on elevated surfaces to reduce injury
- Enclosures should be cleaned at every feeding including nests
- Small bird cages can be used for fledgling songbirds when they are spending little time in their nests and perching
- Once raptors have fledged and are perching regularly they can be moved to small flight enclosures with several low perching options
- Prior to moving fledglings, assess feather development and feather quality

Hatchling & Nestling Care
Enclosures

Hatchling & Nestling Care
Imprinting & Behavior

- Habituation - very common in captive wildlife; animals get used to human interaction and have reduced reactions to human related stimuli such as handling and noises.
  - Habituation can be reversed through reduced contact
- Imprinting - animals do not know what they are upon hatching or birth, they imprint on their surroundings during a critical time in their development
  - Imprinting periods vary species to species and cannot be reversed, these birds cannot be released
  - Imprinted birds, particularly raptors can be more dangerous to humans, handlers, and care staff than their wild-reared counterparts due to reduced fear of humans
  - Altricial - incapable of moving or caring for itself after hatching; imprinting happens over a longer period of time (several weeks); raptors
  - Precocial - capable of moving shortly after hatching; imprinting happens quickly and hatchlings will shortly begin to recognize their 'parents;' waterfowl

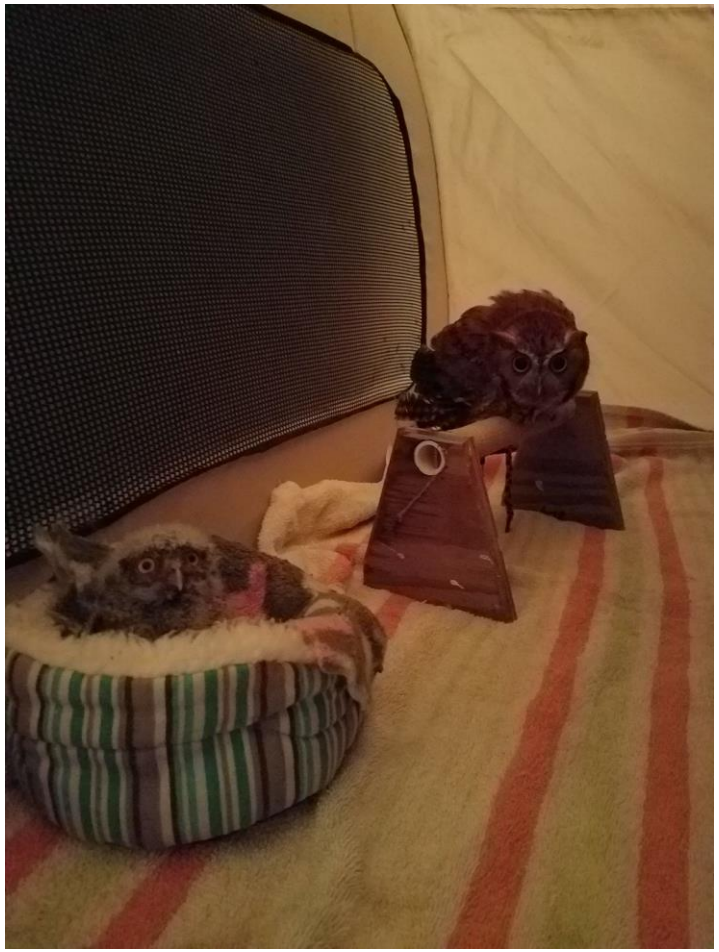
Hatchling & Nestling Care
Imprinting & Behavior

Habituation is common in captive raised birds; steps should be taken to reduce habilitation and imprinting should not be common practice in facilities where the goal is release

- How to reduce habituation and imprinting:
  - Only handle when necessary
  - Raise with others of same species when possible
  - Use mirrors
  - Raise with conspecifics when possible in non-carnivorous species
  - Co-parent when possible
  - Wear masks and play natural noises such as adult calls when possible
  - Access to natural enrichment - no dog toys
  - Once birds are moved to flight enclosures limit interactions and assess for wild behaviors

Hatchling & Nestling Care
Imprinting & Behavior

Hatchling & Nestling Care
Imprinting & Behavior



Hatchling & Nestling Care
Imprinting & Behavior

Orphan Care
Natural Behavior

When raising young birds it is important to give them access to natural enrichment

- We do not recommend using common household items as toys or enrichment for birds who you intend to release; this includes children's or dog toys
- Use tree limbs, leaf litter, pine cones, stumps, rocks, and other things birds would naturally find in the wild
- Utilize live hunting in predatory species

Assess both developmental stage and behaviors when assessing release capability

Orphan Care Release

Things to consider when releasing hand-reared birds:

- Absence of food-begging behavior; gaping or crying
- Know the species and their natural rearing habits; in many species, the bigger the bird the longer they stay with their parents
- Absence of attention seeking behavior; bird should be fearful or avoidant of you
- Successful at live hunting and finding food
- Fully flighted with adult plumage present; little down should be present
- Bird should be in good keel with adequate flight muscle
- Release in safe environment where young bird can learn and grow; release where species is known to be present

Release

Things to consider when releasing any rehabilitated birds:

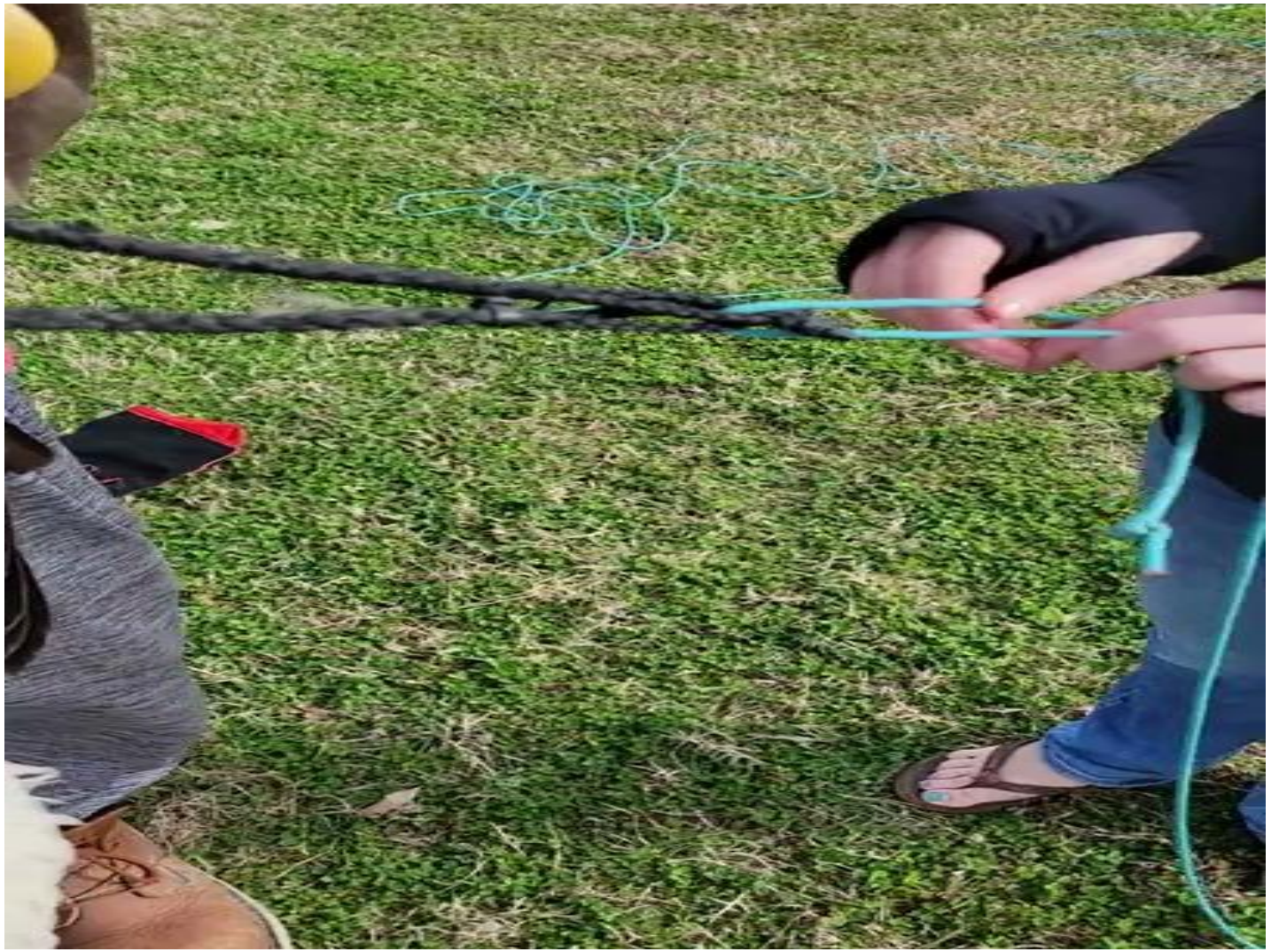
- Assess flight condition and ability compared to species needs
- Assess feather condition and flight ability
- For water birds, assess feather waterproofing
- Assess feeding habits and success at hunting or finding food
- Assess behavior
- Find adequate release spot
- Figure out which type of release is best for the patient: hard vs soft release
- Take into consideration presenting illness or injury and release site
- Take into consideration current status and release site
- Take into consideration migratory patterns and proper release times
- Take into consideration natural activity time and plan release accordingly

Flight Conditioning and Creancing

Flight conditioning is an important part of rehabilitation and preparation for release

- Flight should be assessed regardless of injury or length of time in rehabilitation
- Flight conditioning is necessary after a few weeks in captive care, muscle atrophy can occur in any length of time and conditioning time may be comparable to time in captivity
- When conditioning bird lifestyle should be taken into account
- Utilize flight cages when possible
- Creance flying is an art taken from falconry where the bird is flown on a controlled line

Flight Conditioning and Creancing



Education Ambassadors

Considering a bird for an education ambassador is an important decision that will impact both you and the bird long term

You must consider:

- Bird's quality of life in captivity
- Enclosure size and bird limitations
- Additional or special requirements needed by that bird
- Feeding and sourcing food for the bird
- Overall temperament, relationship with humans, and sensitivities
- Bird use and capability to interact with the public

Education Ambassadors Maintenance

When you choose to keep a bird in captivity as an education ambassador you must maintain them properly and use them for education

- Bird sex, developmental stage, weather, and activity level will determine feeding amounts, frequency, and dietary needs
- Routinely check:
  - Keel score
  - Weight
  - Feather condition
  - Feet - should have good spicula and no wear spots
  - Beak & nails - trim and cope when needed
  - Administer recommended vaccines
- Know if species can live in local weather year-round or if alternative enclosure arrangements should be made

Education Ambassadors Enrichment

Part of maintaining education ambassadors and display birds is enriching their lives

Utilize safe toys, different feeding habits, games, handling, and hunting to keep education ambassadors enriched and mentally stimulated

- Toys
- Training
- Live hunting
- Flying
- Toys and natural aspects of enclosures such as branches and trees
- Changing enclosure layout

Anthropomorphism

Anthropomorphism is attributing human characteristics, emotions, and intentions to non-human entities

When we keep animals in our care long-term, particularly education ambassadors, we tend to give them human attributes

It is important to remember that these are still wild animals who deserve respect and simply tolerate us

Be mindful of your animals, know them well enough to understand their behavior and make changes accordingly

Falconry

Falconry is using a trained bird of prey to hunt wild animals

- Many techniques used in falconry can be adapted to use in rehabilitation
- Creancing can be used to flight condition birds prior to release
- Training and handling can be utilized to help use birds for education
- Equipment such as hoods, anklets, and jesses can be used for education birds, flight conditioning, and handling

Falconers can be used when a bird needs additional training such as in cases of young and dumb syndrome

Compassion Fatigue

- We all know about compassion fatigue
- Now when to reach out for help and have a support system in place
- Many species of bird require a lot of care, very often; know what you can handle
- Understand compassion fatigue and what stress looks like for you