

Wildlife Care Basics for Veterinary Clinics and Shelters

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- National veterinary medical association, founded in 2008
- Focus: animal health & welfare
- Affiliate of The Humane Society of the United States



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ADVOCATE

- Animal advocacy and public outreach



EDUCATE

- Education for veterinary students
- CE for professional practitioners



SERVE

- Field Services direct care opportunities

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The soul is the same in all living creatures, although the body of each is different.

- Hippocrates 460 BC-377 BC



This presentation is based on a handbook, *Wildlife Care Basics for Veterinary Hospitals*, authored by Irene Ruth.



CAPE WILDLIFE CENTER



hsVma WHAT IS WILDLIFE REHABILITATION?

The process of providing aid to injured, orphaned, displaced, or distressed wildlife in such a way that they may survive without human interaction when released into their native habitats. (IWRC)



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IT'S NOT EASY...

Rehab requires:

- Time & Patience
- Money
- Skill
- Specialized knowledge
- Permits
- Licenses
- Facilities



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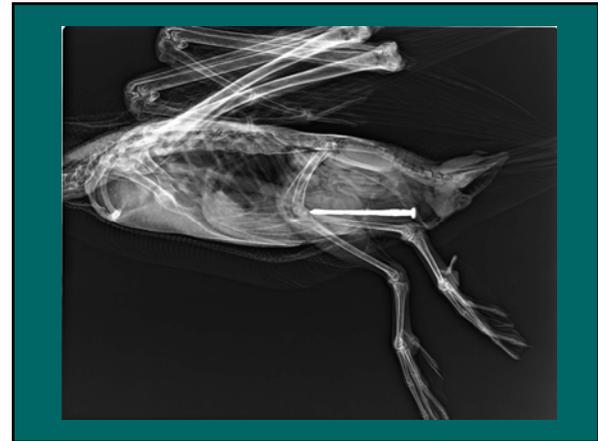
TIME

Rehabbers need to make time for:

- Phone calls
- Young animals
- Education and Community
- Research
- Paperwork



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WILDLIFE CARE BASICS: Overview

- Veterinarians and shelter staff can be the difference between life and death for sick or injured wildlife.
- In animals that cannot be saved, trained professionals can end suffering.
- Practical information presented here can bridge the knowledge gap to allow general practitioners and shelter staff to handle wildlife cases.

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AGENDA

- Preparation
 - Paperwork, supplies, training and permits
- When Animals Arrive – basics, emergencies
- Treating mammals – confinement, exams, feeding, species information
- Treating birds – confinement, exams, feeding, special concerns
- Zoonoses
- Euthanasia

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PREPARATION: Paperwork

- In advance of accepting sick or injured wildlife, have the following paperwork prepared:
 - Rehabilitator Contact and Advice List
 - Transporter Form
 - Wildlife Admission Form
- Maintain a filing system that includes these documents along with handouts for the public.

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PREPARATION: Supplies

- Many supplies are common at clinics and shelters. Some are not:
 - Food: milk replacers, rodent chow, parrot chow, frozen mice, cracked corn, duck pellets, Critical Care.
 - General: margarine tubs, fish nets, feeding bottles, heavy leather gloves, baby blankets.
 - Medications: any clinic has these. Handout covers medications to avoid in particular species.
- A complete list is in the handouts.

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PREPARATION: Training

- Office staff should be trained to handle wildlife calls from the public.
- Any staff interested in handling wildlife should be taught restraint techniques by a professional.
- Before any staff member handles a potential rabies vector species (bat, fox, skunk, etc.), he/she must have had his/her prophylactic rabies vaccinations.



Skunk, Photograph by Kim Johnson

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PREPARATION: Handling Phone Calls

- Always be calm and professional, no matter how frantic the caller may be.
- Get the caller's name and number at the start, since you may not get them later if the conversation goes badly.
- Discourage people from "rescuing" healthy young, as they probably have a mother nearby.
- Never encourage anyone to care for, raise, or confine wildlife; always encourage them to get the animal to your clinic or a rehabilitator.

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PREPARATION: Permits and Reporting

- A veterinarian may treat any wildlife temporarily; permits are required to treat long term.
- Report threatened/endangered species or eagles. Permission needed before euthanizing these animals.
- Some non-native wildlife should not be released; guidelines vary by state.
- Many states do not allow local rabies vector species to be released; some are allowed to be released where found.

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PREPARATION: Permits and Reporting

- US Fish and Wildlife. www.fws.gov
 - Lists field offices, endangered species, and permit processes.
 - Enforces Endangered Species Act; Migratory Bird Treaty Act; Golden and Bald Eagle Protection Act.
- Your state wildlife agency can provide you with any additional state requirements.
- It is possible that your county or municipality has its own requirements.

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WHEN ANIMALS ARRIVE: The Basics

At a minimum:

- Obtain background on the animal: Contact info, when and where found, whether injured by a cat, etc.
- Confine appropriately: Keep things dark and quiet, even if animal will leave within hours. Light/noise = stress. Caging based on size and strength of animal.
- Perform exam: Be thorough, but minimize contact, noise, and movement. Always get animal's weight.
- Suspect physiologic shock in all wild animals. Keep steroids and fluids nearby.

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WHEN ANIMALS ARRIVE: Restraint

Animals may be presented in inappropriate improvised containers



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WHEN ANIMALS ARRIVE: Types of Emergencies

- Some wildlife emergencies are the same as we see in companion animals:
 - Heatstroke/hypothermia
 - Unconsciousness
 - Poisoning
 - Parasite infestation
 - Starvation/malnutrition
 - Fracture
- Other emergencies are different in wildlife...

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WHEN ANIMALS ARRIVE: Types of Emergencies

- Some emergencies are almost exclusive to wild animals:
 - Injured by a cat: begin antibiotics immediately. Assess and clean wounds, if necessary.
 - Oiled wildlife: transfer if possible. Wear protection; treat oil as hazardous waste; stabilize animal before treatment.
 - Subcutaneous air (crepitus) in birds with air sac damage: deflate aseptically with needle.

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TREATING MAMMALS: Confinement

- Match the container to the age and strength of the animal:
 - Adults do well in wire cages
 - Young and small mammals can be kept in aquaria or plastic bins
- Provide a heat source (lamp or pad)
- Provide something to hide under; some may prefer near darkness.

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TREATING MAMMALS: Exams

- Try to **identify the species** you are seeing; may be difficult if very young.
- **Observe from a distance first** – sick/injured animals may feign health when confronted.
- **Gather all your materials** before you start to keep exam as brief and smooth as possible.
- **Protect yourself** with exam gloves +/- masks +/- leather gloves, depending on species.
- **Take a break** if the animal gets too stressed

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WHEN ANIMALS ARRIVE: Fluid Therapy

- Intravenous difficult in wildlife: Challenge to find vein; challenge to maintain catheter
- Intraosseous tolerated well in large birds
- Parenteral/oral best in most species; gastric intubation, if necessary
- Subcutaneous good in most mammals and reptiles
- Intracoelomic is tricky but may be necessary in turtles and tortoises; avoid in birds.

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WHEN ANIMALS ARRIVE: Fluid Therapy

The Shortcut Method for Figuring Replacement Fluids

As Presented by Erica Miller, DVM at the 2004
New York State Wildlife Rehabilitator's Council Conference

Day 1: Give 3.3% of the animal's initial body weight, three times during the first 24-hours

Day 2 & 3: Give 2.5% three times a day for the next 2-3 days.

Day 3 or 4: At this point the animal should be rehydrated. If the animal has ongoing fluid losses (vomiting, diarrhea, etc.) additional fluids may need to be given.

These amounts should be given in **addition** to maintenance fluids

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TREATING MAMMALS: Feeding Infants

- Use puppy or kitten replacer in a syringe with nipple attached
- Keep warm to stimulate feeding and digestion.
- 5% of body weight/feeding (8-10% in rabbits).
- Feed newborns 6-8 times/day; newly furred 5-6 times/day; and eyes open 4-5 times/day.
- Feed in prone position.
- Stimulate to urinate and defecate.



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TREATING MAMMALS: Infant Feeding Problems

- Inhalation of formula
- Diarrhea
- Bloat, colic, gaseous distention
- Resistance or reluctance to feed:
 - Too weak/sick/cold
 - Doesn't recognize food
 - Food too hot or cold
 - Uncomfortable position
 - Too soon after last meal



Woodchuck, Photograph by Debbie Gode



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TREATING MAMMALS: Opossums

- Do not suckle like other mammals
- Not considered rabies vector (resistant to infection); use caution anyway.
- Always check pouch for babies
- Not as aggressive as they pretend to be; may "play dead"



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TREATING MAMMALS: Raccoons

- Infants get kitten milk replacer.
- Adults can eat dog/cat chow, nuts, fruits, and cereals.
- The raccoon roundworm (*Baylisascaris procyonis*) is a serious zoonotic agent; can be sterilized only with heat or lye.
- Rabies vector at any age; always use gloves.



Photograph by Irene Ruth

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TREATING MAMMALS: Skunks

- Rabies vector species; handle with caution (and gloves)
- Infants get puppy milk replacer; adults can eat dog/cat food.
- Main defense is to spray.
 - Warning: puff its tail and hold it up straight, stamp its front feet and move its rear around to face you.
 - Alert skunk to your presence; may not warn if startled.
 - Vinegar or hydrogen peroxide recipe work on skin, hair, or fabric that's been sprayed.



Skunk, Photograph by Kim Johnson

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TREATING MAMMALS: Bats

- Bats can be grounded if sick, injured, young, disoriented due to storms, shocked by sudden cold spell, or other cause.
- Rabies vector species; should be handled with care. Most Americans encounter bat rabies from picking up downed bats without protection.
- House in aquarium with vertical fabric folds and branches to accommodate all species types.
- Feed infants puppy milk replacer; older bats get mealworm viscera.

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TREATING MAMMALS: Rabbits

- Young rabbits nurse only 2-3 times per day; kitten milk replacer; 8-10% body weight/feeding.
- Use Bene-Bac and Lactaid (1/4 tab per one day mix) to help acclimate to formula feedings. Use probiotics with any treatment.
- Kits can be on their own at 4-5 inches in length.
- Stress can kill rabbits; be quiet and limit handling to one person in brief sessions.
- Diarrhea can be fatal; treat aggressively.

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TREATING MAMMALS: Rodents

- **Squirrel, Chipmunk, Woodchuck, & Porcupine:**
 - Infants fed puppy milk replacer
 - Older animals fed rodent chow, leafy green veggies, carrots, sweet potato, apples, and nuts (for squirrels)
- **Muskrat and Beaver:**
 - Prefer to urinate, defecate in water
 - Beavers can eat branches/leaves of poplar, aspen, etc., with apples, dark greens, and rodent chow.
 - Muskrats can eat field greens, corn, and acorns.



Young beaver, Photograph by Kim Johnson

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TREATING MAMMALS: Mustelids

- Weasels, mink, ferrets, fishers, badgers, wolverines, river otters.
- Infants eat puppy milk replacer; weasels fed more often due to high metabolism.
- Those of weaning age and older can eat scrambled eggs, or canned or dry cat/dog food.
- Otters prefer to urinate and defecate in water; but most mustelids appreciate a pool with fish or shrimp to eat/play with.



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TREATING BIRDS: Special Needs

- Hemostasis: broken blood feathers cannot clot and must be removed or the bird can bleed out.
- Feathers and flight recovery:
 - Mature feathers cannot be mended.
 - Protect crucial feathers in confinement or the bird may not be readily releasable.
- Specialized substrate and bedding: sea birds require hammocks or other substrates because they are not adapted for terrestrial living.

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TREATING BIRDS: Confinement

- Identify species before proceeding.
- Choose caging based on bird's size, age, and species.
- Wire "bird" cages not usually appropriate.
- Provide perching and hiding areas.
- Provide food and water, although many species will be gavaged or force fed.

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TREATING BIRDS: Confinement

- Young waterfowl require special confinement
- This large tub contains:
 - Heating pad
 - Cloth and paper towel liners
 - Water, pelleted food, and lettuce
 - Cuddly towel (hide pocket for ducklings)



Waterfowl tub. Photograph by Michele Goodman

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TREATING BIRDS: Exams

- Adult birds can be dangerous, so:
 - Use gloves and eye protection as necessary.
 - Cover head; restrain at angle of mandible.
 - Tame talons with ball on sole of foot, then wrap with Vet Wrap.
 - Secure wings with cloth or towel; do not inhibit chest movement, or bird may suffocate.
- Watch for stress, which can be deadly
- Check for external parasites
- Check the stool (parasites); watch for diarrhea.

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TREATING BIRDS: Fluids and Gavage

- Due to proximal glottis, it is easy for bird to aspirate oral fluids.
- Options are: gavaging or painting/dripping fluids along edge of beak until it seeps in.
- Gavage is done with ball-tip stainless luer-lock syringe tip; red rubber can be used but may clog with food.
- Never gavage food or fluids that are too warm.

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AVIAN NUTRITION AND FEEDING: Age, Species, Size, and Diet Dependent

Whole Food Items Best for Most Adult Birds

- **Insectivores**
 - Crickets, earth worms, meal worms
 - May crush or tear apart for juveniles
 - Live items may teach capture/catch skills
- **Piscivores**
 - Appropriate size fish for esophagus and crop
 - Fresh minnows, sardines, commercially available



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AVIAN NUTRITION AND FEEDING: Age, Species, Size, and Diet Dependent

Whole Food Items Best for Most Adult Birds

- **Raptors**
 - Rodents, chicks, rats
 - Muscle meat only short term (high Phos, low Calcium)
 - Commercial wild carnivore products



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AVIAN NUTRITION AND FEEDING:

Liquid / Puree / Slurry Food

- **Minimal Restraint**
 - Quick Procedure
- **Potentially Atraumatic**
- **Additional Nutrients may be Added**
 - Ca, Phos, Vitamins, Minerals
- **Pharmaceutical Additions**
 - Antibiotics, Anti-fungals



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RECIPE AND PREPARATION

- **Base Nutritional Supplement**
 - Fish (canned fish may be easier to puree)
 - Commercial Canned Dog/Cat food
 - Commercial Wild Carnivore Products
 - Nutritionally balanced
- **Blend with Water to Thin**
 - Must Pass through Stomach Tube Easily
 - Simultaneous Hydration

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FLUID ADMINISTRATION OPTIONS

- **Intraperitoneal**
 - **NEVER** in BIRDS
 - NO DIAPHRAGM
 - Direct Connection to Lung - Drowning Risk
- **Subcutaneous**
 - Minimal Subcutaneous Space
 - Wing Web
 - Leg Web Fold



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FLUID ADMINISTRATION OPTIONS

Intravenous

- Fragile Small Vessels
- Small Volumes Only
- Slow Administration



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FLUID ADMINISTRATION OPTIONS

- **Intraosseous**
 - Stable Indwelling Catheter Site
 - May Suture in place as well
 - Largest Relative Fluid Volume
 - Most Rapid Administration except Orogastric
- **Orogastric (Proventriculous)**
 - Best Option if Voluntary
 - Orogastric Tube Easily
 - Relatively Large Volumes Safely (crop volume)




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EQUIPMENT AND TOOLS: Syringes

- **Luer Tip Syringe**
 - Luer **LOCK** Tip Best
 - Prevents Catheter "Blow Off"
 - Small Birds
 - May Take Directly from Syringe Tip
 - Small Catheters
- **Catheter Tip Syringe**
 - Only for Large Birds and Catheters
 - Fit Large Red Rubber Catheter
- **Commercial Feeding Syringe**



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EQUIPMENT AND TOOLS: Catheters

- **Rigid Plastic Urinary Catheters**
 - *Too rigid and pointed*
 - May damage esophagus
- **Red Rubber Catheters**
 - Flexible
 - May be difficult to push down esophagus
 - Safer than rigid plastic
 - Exit hole on side of catheter
 - May clog more easily



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EQUIPMENT AND TOOLS: Catheters

- **Rigid, Stainless Steel, Curved, Ball Tip**
 - **BEST Choice**
 - Ball tip unlikely to damage esophagus
 - Rigidity allows easy insertion
 - Stainless steel easy to sanitize
 - Curved shape accommodates technique
 - Assorted sizes



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UNIQUE ANATOMICAL CONSIDERATIONS

- **Esophagus NOT in Center of Throat**
 - BIRD'S Right, to Right of Trachea
- **Improper Alignment >> Esophageal Trauma**
 - Potential Esophageal Tear
 - Death likely
- **Proper Technique Critical**
 - EASY if Done Correctly
 - Restraint
 - Tube Orientation

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PROPER ALIGNMENT AND INSERTION

Esophagus – On Bird's Right Side Only



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IMPROPER ALIGNMENT AND INSERTION

Esophageal Kinking, Trauma, Perforation



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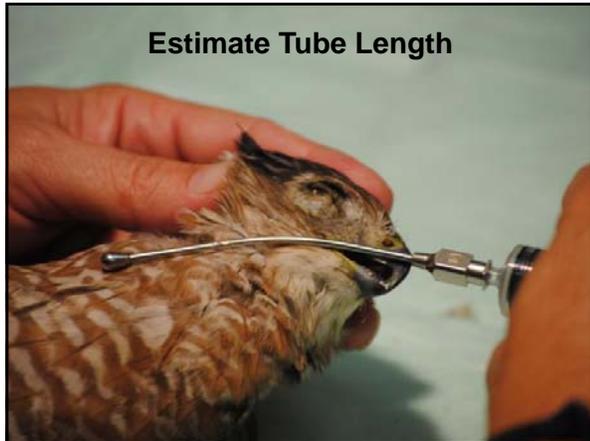
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ESTIMATED FEEDING TUBE LENGTH

Proventriculus (Crop) Insertion

- Not true Stomach
 - Catheter should Not Reach Ventriculus (Stomach)
- Food "Processor" Crop
 - Grinds Food in Lieu of Mastication
 - Birds unable to "Chew" food
- Crop Above Sternum
 - Maximum Catheter Length to Crop
 - Do Not Enter Thorax with Catheter

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ESTIMATED FEEDING TUBE LENGTH

BEFORE Starting:

- Hold catheter next to bird neck
 - Mark proper length with tape or marker
- Assemble catheter and syringe
 - Fill syringe by suction through catheter
 - Fluid must flow well through catheter
 - DO NOT fill syringe from rear with plunger out

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PROPER POSITIONING AND RESTRAINT

- Bird Skull Held Firmly in LEFT HAND
- Use Effective Body Restraint
 - Prevent Bird from Struggling
 - May cause esophageal injury
 - May require second staff restrainer
- Syringe in RIGHT HAND
 - Thumb on Plunger provides most Control



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CATHETER INSERTION

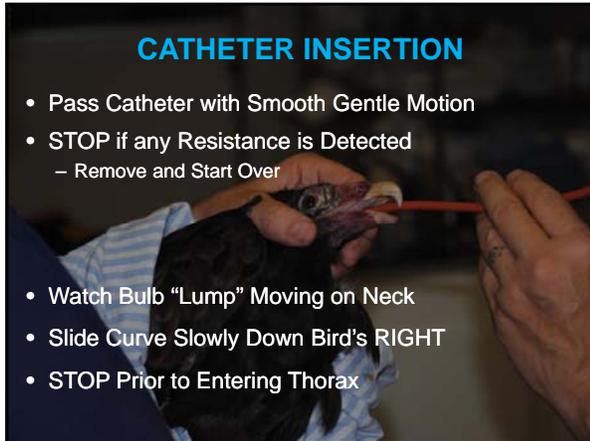
- Lubricate Catheter
 - Water or Water Soluble Lube
- Cross Over LEFT Beak Mandible
- Cross Over Tongue and Past Trachea
- Insert into BIRD's RIGHT Palate
 - On Staff's LEFT



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CATHETER INSERTION

- Pass Catheter with Smooth Gentle Motion
- STOP if any Resistance is Detected
 - Remove and Start Over
- Watch Bulb “Lump” Moving on Neck
- Slide Curve Slowly Down Bird’s RIGHT
- STOP Prior to Entering Thorax



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FOOD / FLUID ADMINISTRATION

In Proventriculus:

- Press Plunger Slowly but Firmly
- STOP if any Resistance Occurs
 - Remove and Retry Insertion
 - Thinner Liquid may be required
 - May be Improper Placement



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PINCH RED RUBBER TUBE TO WITHDRAW

Mitigates Aspiration Risk



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LARGE BIRDS REQUIRE TEAMWORK



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- Most young birds require a nest (bowl with paper towels or tissues) that fits snugly around them.
- Other requirements, by age:
 - Hatchlings fed every 15 minutes and kept at 90-95 F.
 - Nestlings (early feathers); fed every 30 minutes and kept at 85-90 F.
 - Fledglings (feathered) fed every 1-1.5 hours; kept at room temperature. No fluids to a gaping fledgling (may drown).



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- Monitor food intake via frequent weighing.
- Doves and Pigeons
 - For chicks, food must imitate crop milk, be tube fed.
 - Make sure crop empties between feedings
 - Adults can eat finch seed, cracked corn, and cooked egg yolk.
 - Fledglings are tube fed plus solid foods.



Pigeons; Photograph by Kim Johnson
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Songbirds

- Adults and fledglings can eat gut-loaded mealworms or soaked/canned cat/dog food cut in pieces.
- Younger birds can eat Mazuri Nestling Diet or a slurry of cat/dog food offered on small paintbrush.



Blushed acariage; Photograph by Kim Johnson
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hsVma HUMANES SOCIETY VETERINARY MEDICAL ASSOCIATION **TREATING BIRDS: Feeding**

- **Raptors: eagles, hawks, vultures, owls**
 - Adults diets vary, most will eat thawed frozen mice; very young will need mice skinned and cut into pieces
 - Feed young with forceps. Fledgling, older eat on own.
 - Casting (regurgitated pellet) absent if fed only muscle.
- **Water birds**
 - Identify species to know what to feed
 - Usually dehydrated and starving; gavage a/d, Mazuri nestling diet, or Omnivore Care.



Mammals; Photograph by Michelle Loveman
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hsVma HUMANES SOCIETY VETERINARY MEDICAL ASSOCIATION **TREATING BIRDS: Raptor Handling**

- Arm yourself with gloves and a towel.
- Watch out for talons (very strong) and beaks.
- To pick up raptor: cover head, grasp legs, hold wings. Glove on your chest for owls.
- If someone is taloned, leg must be extended to release talons.
- Nervous vultures regurgitate; point head away from you.
- Young raptors need towel nest, warmth.



Great Horned Owl; Photograph by Debbie Cook
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hsVma HUMANES SOCIETY VETERINARY MEDICAL ASSOCIATION **SPECIAL CONSIDERATIONS: Zoonoses**

Bacterial infections can be transmitted by contamination through broken skin of wounds or abrasions, accidental ingestion or contamination of the mucous membranes with urine or feces, and sometimes through bruised skin:

Disease	Host	Signs
Brucellosis	White tailed deer, raccoons, fox, and others.	May appear as septicemia.
Psittacosis	Pigeons, raptors, and finches.	Respiratory distress, conjunctivitis, green diarrhea tinged with blood.
Salmonellosis	Birds, reptiles, and mammals.	Animals: weakness, drowsiness, depression, convulsions, trembling, gasping for air, vomiting, diarrhea, and a slight fever. Humans: diarrhea, abdominal pain, dehydration.
Leptospirosis	Raccoons, skunks, opossum, rodents, and other mammals.	Signs usually not apparent in host animals. Humans: fever, nausea, chills, muscle pain, vomiting, depression, marked thirst, labored breathing, mild conjunctivitis, kidney infection, diarrhea or constipation, and fatigue.
Tularemia	Rabbits and rodents.	Humans: ulcer(s) on the skin where the organism enters. If inhaled, may be pneumonia-like illness.

Protozoal diseases:

Disease	Host	Signs
Giardiasis	Beaver, muskrat, waterfowl	Intestinal infections, including chronic diarrhea, abdominal cramps, bloating, weight loss, and frequent pale stools.

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SPECIAL CONSIDERATIONS: Zoonoses

Fungal infections: Fungi often found in the environment cause these diseases. Treatments listed are for both humans and animals.

Disease	Host	Signs
Aspergillosis	Birds, especially raptors and seabirds.	Birds may or may not exhibit respiratory signs. Affected animals may be emaciated and have problems breathing. Wings may droop. Immune-compromised humans may display respiratory symptoms.
Histoplasmosis	Bats and birds (especially chicken, pigeon, starling, and blackbird droppings).	A mild infection will present as a mild upper respiratory infection, with a chronic persistent cough, and weight loss.

Viral Diseases:

Disease	Host	Signs
Rabies	Any mammal; primarily raccoons, skunks, fox, woodchucks and bats. But rodent, rabbits, opossum rarely hosts.	In animals, signs can include restlessness, aggression, unusual friendliness, lethargy, salivation, ataxia, paralysis, and convulsions. In humans, it may appear as fever, general malaise and eventually paralysis, delirium, and convulsions.

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SPECIAL CONSIDERATIONS: Zoonoses

Parasitic infections:

Disease	Host	Signs
Roundworms	Host-specific species for cats, foxes, dogs, skunks, and raccoons.	The raccoon roundworm (<i>B. procyonis</i>) causes severe signs in humans: larvae migrate to eye, brain, spinal cord. May cause death.
Sarcoptic Mange	Host-specific species; can transmit to humans	Skin irritation, pruritus. Self limiting.

Tick-borne diseases:

Disease	Host	Signs
Lyme Borreliosis	Deer ticks, and other ticks.	Animals: arthritic conditions. Humans: expanding bull's eye shaped rash, malaise, fatigue, fever, muscle ache, joint pain, headache, stiff neck, and lymph node enlargement.
Ehrlichiosis	Deer ticks.	Animals: weakness, cough, labored breathing, intermittent fever, antritis, nasal discharge, increased thirst or urination, anorexia, seizures, nose bleeds, swelling of legs or lymph nodes. Humans: flu-like illness, fever, headache, myalgia, and thrombocytopenia. Can be life threatening.

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SPECIAL CONSIDERATION: Rabies

- All wild mammals should be treated as carriers.
- Rabies is transmitted via saliva through cuts, abrasions, or mucous membranes.
- Signs in animals include restlessness, ataxia, aggression or unusual "friendliness," paralysis, and convulsions.
- Exposed humans should allow any fresh wound to bleed, wash the area thoroughly, and start post-exposure vaccine series promptly.

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SPECIAL CONSIDERATIONS: Euthanasia

- Decisions are different from those for pets: wild animals must be able to function without help.
- Legislation dictates when some euthanasias must happen and when others require permission.
- When in doubt, consult a local rehabilitator for that species or contact a US Fish and Wildlife field office.

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HANDOUTS FOR YOUR CLINIC/SHELTER

The following handouts are provided to assist with your planning and wild animal care:

- Supply List
- Emergency Food List
- Medications
- Contact Info for Wildlife Groups
- Sample Wildlife Admission Form
- Local Wildlife Network Form
- How to Rescue Infant Mammals Tip Sheet
- How to Rescue Bird Chicks Tip Sheet
- Instructions for Rubbermaid Setup for Waterfowl
- Caring for Oiled Wildlife

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 **ANY QUESTIONS?**



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